APJETPSS
ISSN: 3082-4052 (Online)

Asia Pacific Journal of Educational Technologies, Psychology, and Social Sciences

Journal Homepage: https://ijmshe.com/index.php/apjetps
E-ISSN: 3082-4052



Research Article

Enhancing Vocabulary Skills through Quizlet Flashcards Software among Grade 9 Students

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https://doi.org/10.70847/743745

Article history:

Received: 18 August 2026
Revised: 15 September 2026
Accepted: 22 October 2026

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Abstract

Vocabulary acquisition is a fundamental pillar of English language proficiency, directly impacting reading comprehension and academic expression. However, many secondary EFL/ESL learners face systemic difficulties in text comprehension due to restricted lexical knowledge. This study investigated the efficacy of Quizlet digital flashcard software in improving students' vocabulary skills. Employing an Embedded Mixed-Methods Design incorporating a one-group repeated-measures (pretest-midtest-posttest) design with 39 Grade 9 students and a qualitative Focus Group Discussion (FGD, n = 5), the study monitored lexical progress across a 6-week intervention. Quantitative baseline measurements revealed a low initial performance level (M = 15.59, SD = 3.21). Following implementation, scores demonstrated significant gains at the mid-point assessment (M = 23.08, SD = 3.84) and final posttest (M = 30.95, SD = 4.12). A non-parametric Friedman test confirmed significant variance across testing intervals ($\chi2(2) = 74.05$, $p < .001$) with a substantial effect size (Kendall's W = 0.95), while post hoc Nemenyi tests confirmed significant pairwise improvements. Qualitative thematic analysis via Braun and Clarke's framework yielded three master themes: Gamified Cognitive Engagement, Enhanced Academic Confidence, and Socioeconomic/Infrastructural Barriers. High inter-coder agreement ($\kappa = 0.88$) was established, and trustworthiness was reinforced through audit trails, reflexivity, and systematic member-checking procedures. The findings demonstrate that digital flashcard integration enhances vocabulary acquisition, though connectivity constraints present implementation hurdles in public school contexts.

Keywords: Quizlet, Digital Flashcards, Vocabulary Development, Multimedia Learning Theory, Gamified Learning Theory, Embedded Mixed Methods

Asia Pacific Journal of Educational Technologies, Psychology, and Social Sciences
E-ISSN: 3082-4052

1. Introduction

Vocabulary mastery forms the bedrock of second language acquisition and academic literacy (Nation, 2022). Lexical knowledge acts as an essential mediator for higher-order cognitive tasks, including reading comprehension, oral fluency, and academic writing. In secondary education contexts, students with constrained lexical repertoires frequently struggle with textual analysis, academic discourse, and classroom engagement. Consequently, pedagogical research has increasingly prioritized dynamic, interactive interventions designed to promote active lexical processing and long-term retention.

The rapid proliferation of Computer-Assisted Language Learning (CALL) and Mobile-Assisted Language Learning (MALL) tools has reshaped instructional paradigms, expanding language learning beyond traditional classroom boundaries (Haque, Ariansyah, Wiladyah, & Sari 2024). Digital flashcard applications, such as Quizlet, leverage active recall, multimodal input, and gamified study modes to facilitate lexical retrieval. Despite widespread adoption in global contexts, critical scholarly inquiry regarding the contextualized efficacy of digital flashcards among secondary learners in public school settings remains sparse.

Rather than relying on uncritical assertions of technological novelty, digital vocabulary interventions must be evaluated through rigorous cognitive and motivational frameworks. Furthermore, empirical investigations must account for structural constraints—such as internet connectivity, device access, and digital equity—that influence technology integration in under-resourced educational environments.

Theoretical Framework

This study is anchored on the Cognitive Theory of Multimedia Learning (Mayer, 2001) and Gamified Learning Theory (Zaric, Roepke, Lukarov, & Schroeder, 2021). Cognitive Theory of Multimedia Learning (CTML): CTML posits that optimal learning occurs when verbal and visual information are processed concurrently through dual-channel architectures (Mayer, 2001). CTML operates on three core principles:

Dual Channels: The human information-processing system includes separate channels for visual/pictorial and auditory/verbal processing.

Limited Capacity: Each channel has a finite cognitive capacity for processing information at any given time.

Active Processing: Deep learning requires active cognitive engagement, including selecting relevant incoming material, organizing it into coherent mental representations, and integrating it with prior knowledge.

In the context of Quizlet flashcards, CTML explains how pairing textual definitions with contextual images, audio pronunciations, and visual cues

optimizes cognitive load, preventing working memory overload while facilitating dual-code memory trace formation.

In addition, Gamified Learning Theory (GLT) conceptualizes gamification not as a direct instructional cause of learning outcomes, but as a mediating driver that stimulates learner behaviors, motivation, and persistence (Zaric et al., 2021). Game elements—such as points, timed matching challenges, instant feedback loops, and progress tracking—influence learner tendencies, enhancing intrinsic motivation and study frequency. Increased behavioral engagement directly fosters deeper cognitive processing during vocabulary practice.

Statement of the Problem

The researcher desired to test the effectiveness of Quizlet Flashcards Software on the vocabulary development of Grade 9 Students in Fatima National High School. Specifically, the study sought answers to the following questions:

1. What is the level of the vocabulary skills of Grade 9 students before the conduct of the study?
2. What is the level of the vocabulary skills of Grade 9 students during the conduct of the study?
3. What is the level of the vocabulary skills of Grade 9 students after the conduct of the study?
4. Is there a significant improvement in the vocabulary skills of Grade 9 students through the use of Quizlet flashcards software?
5. What are the experiences of Grade 9 students in using Quizlet flashcards to enhance their vocabulary learning?.

2. Methods

This section presents the research design, research locale, respondents, research instruments, data collection and analysis, statistical tools, and ethical considerations.

2.1. Research Design

This study utilized an Embedded Mixed-Methods Research Design (Figure 1), wherein qualitative data were collected concurrently with a quantitative experimental structure to contextualize the numerical outcomes. The primary quantitative strand employed a one-group repeated-measures (pretest-midtest-posttest) design over a 6-week timeframe. Because this non-randomized, single-group design lacks a control group, observed score increases denote statistical association and temporal progression rather than definitive, unconfounded causal attribution.

The secondary qualitative strand comprised a Focus Group Discussion (FGD, n=5) conducted post-intervention to capture student perceptions, cognitive processes, and access constraints.

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E-ISSN: 3082-4052

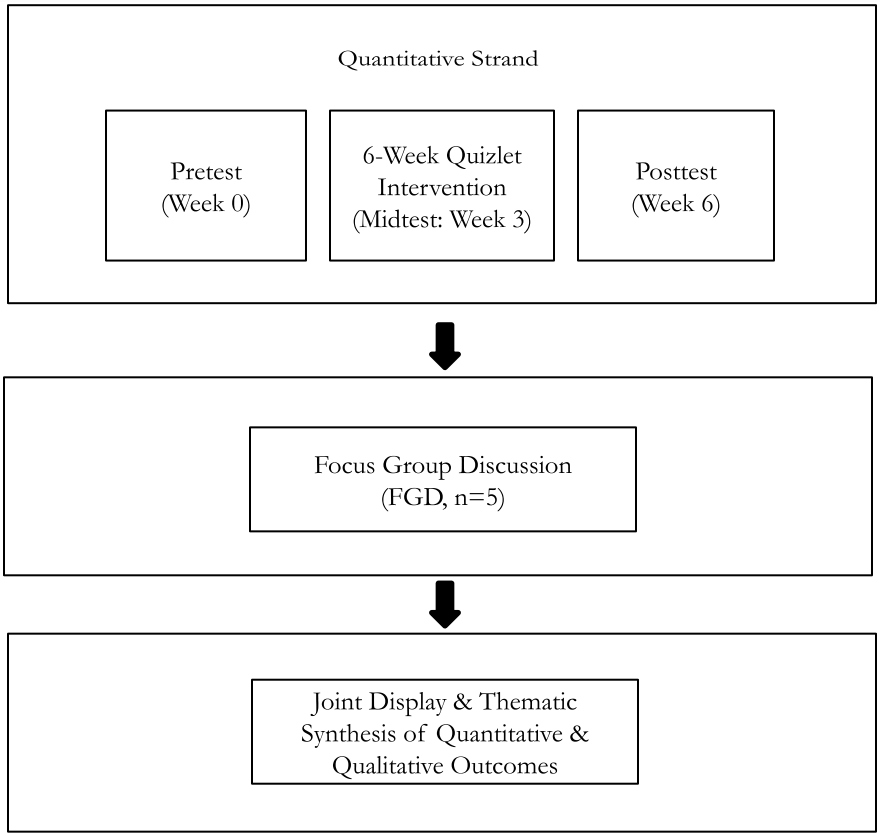


Figure 1: *Embedded Mixed-Method Procedural Conceptual Framework*

2.2 Research Locale

This study was conducted at Fatima National High School located at Barangay Fatima, General Santos City. It has the coordinates 6°4'32"N, 125.°6'54" E located at Fatima National High School.

Fatima National High School is a public secondary education institution situated in General Santos City, South Cotabato. The school is presently implementing a K to 12 basic education program that includes both junior and senior high school in compliance with the resolution issued by the Department of Education (DepEd).

Fatima National High School was chosen as the study setting for this research for several important reasons. The school has a diverse student population, providing a broad perspective for research. Its active academic programs and cooperative administration also make data collection more accessible and efficient. Most significantly, recent reports and teacher feedback highlight that many students at Fatima National High School need improvement in their vocabulary skills.

This need directly aligns with the thesis focus, making the school a relevant and practical environment for studying strategies aimed at enhancing vocabulary development.

2.3. Respondents

The quantitative data were gathered at Fatima National High School, General Santos City. Utilizing the convenience sampling technique, the researcher selected one intact Grade 9 section comprising 39 (n=39) students participating in the 6-week regular reading remediation.

Meanwhile, 5 (n=5) students were purposely selected from the group for gathering qualitative data through a Focus Group Discussion (FGD) based on varied score trajectories

2.4. Research Instruments

The quantitative assessment tool consisted of 50 multiple-choice items measuring receptive and productive lexical knowledge, adapted from the New Vocabulary Levels Test (NVLT; McLean & Kramer, 2015) and aligned with the Department of Education (DepEd) Grade 9 Most Essential Learning Competencies (MELCs). Content validity was evaluated by a panel of five Master Teachers in English Language Instruction across four key dimensions: Curricular Alignment, Item Clarity and Readability, Distractor Efficiency, and Construct Representativeness.

The panel of experts evaluated the items using a 4-point rating scale: 1=Item Not Relevant/Invalid; 2=Item Needs Major Revision; 3=Item Relevant with Minor Revision; and 4=Item Highly Relevant and Valid. The assessment achieved a Scale-Level Content Validity Index (S-CVI/Ave) of 0.95, reflecting excellent content validity. Additionally, pilot testing with an independent cohort of 30 non-participants yielded a Cronbach's alpha coefficient of $\alpha = 0.88$, confirming high internal consistency reliability.

Complementing the quantitative measure, the same expert panel also evaluated a qualitative 10-item semi-structured Focus Group Discussion (FGD) interview guide. The expert panel assessed the qualitative tool based on conceptual appropriateness, question neutrality, and structural clarity. It achieved a CVI of 0.92, demonstrating strong validity for gathering qualitative insights.

2.5. Data Collection and Analysis

Firstly, the researcher prepared and submitted a letter of permission to the school principal of Fatima National High School, North Fatima District, General Santos City. Secondly, she secured parental consent and assent forms from the students' parents/guardians. After that, data collection began with administering the pretest ("The New Vocabulary Test" by McLean and Kramer) to the selected Grade 9 students. After the pretest, the Quizlet Flashcards software was introduced as an intervention and explained to the students. They were given six weeks to use Quizlet Flashcards as part of their regular English lessons. At the end of the intervention, the same vocabulary test was administered as a posttest to the same group of students.

After that, five selected students were interviewed for the focus group discussion. Lastly, all test scores and interview answers were recorded and analyzed using appropriate statistical methods.

To determine the mastery level of the Grade 9 learners before, during, and after the conduct of this study, the descriptive statistics —mean, standard deviation, percentage distribution, and Ebel's mastery criteria — were utilized. Additionally, normality testing via the Kolmogorov-Smirnov test indicated significant deviation from normal distribution ($p < .05$). Consequently, non-parametric analyses were applied: the Friedman Test for repeated measures across three testing points, Kendall's W for effect size estimation, and the post-hoc Nemenyi Test for pairwise comparisons (alpha set at 0.05).

Braun and Clarke's (2006) thematic analysis framework was also used to analyze the answers of the subjects who participated in the Focus Group Discussion (FGD). Thematic analysis is a method in qualitative research to systematically arrange and interpret the sets of data according to Dawadi (2020). Familiarization of the data based on the transcribed responses was used in order to assign codes and find the common themes that will be reviewed and interpreted by the researcher. Additionally, qualitative rigor and trustworthiness were established through the following strategies:

Two independent coders categorized qualitative extracts. Inter-coder reliability was calculated using Cohen's Kappa, achieving high agreement ($\kappa = 0.88$). Discrepancies were resolved through negotiated consensus.

Transcribed FGD interview responses and thematic summaries were returned to all five FGD participants in individual follow-up sessions to verify transcript accuracy and validate interpretive fidelity.

Detailed documentation of coding decisions, contextual memos, and reflexive notes was maintained to ensure procedural transparency.

Moreover, using parallel formats of the same assessment tool across the 6-week intervention may introduce a practice effect, testing effect, and memory bias, which is acknowledged as a limitation of this study.

2.6. Ethical Considerations

The conduct of this study, "Quizlet Flashcards Software's Effect on Vocabulary Skills of Grade 9 Students in Fatima National High School", adhered to standard ethical protocols (PHREB, 2017) and received full institutional review approval from the Mindanao State University – General Santos Institutional Ethics Review Committee (Approval No. 438-2025-MSUGSC-IERC). Principles of beneficence, non-maleficence, voluntary autonomy, veracity, and justice were strictly maintained through informed parental consent, participant assent, and anonymized data management:

Beneficence. The principle of beneficence was upheld by ensuring that the study will bring educational benefits to the students and the school community. The use of Quizlet Flashcards aims to improve students' vocabulary skills and enhance their learning through interactive digital tools.

The study sought to contribute positively to classroom instruction by introducing an effective, technology-based learning strategy that promotes engagement and mastery of vocabulary.

Non-Maleficence. The researcher ensured that no physical, emotional, or psychological harm would come to any of the respondents during the conduct of the study.

All activities were designed to be safe, appropriate for Grade 9 learners, and aligned with the English curriculum. Students' personal information and academic results were protected, and no subjects were subjected to stress, embarrassment, or negative consequences throughout the research process.

Autonomy. Participation in this study was entirely voluntary. The learners and their guardians were fully notified about the study's purpose, procedures, and duration before giving their consent.

The subjects were permitted to decline or disengage from the study at any time without incurring any academic penalties or repercussions. All stages of the investigation were conducted with respect for their autonomy.

Veracity. The researcher maintained honesty and transparency throughout the study. All information that was provided to the subjects was accurate and truthful, ensuring they understood the objectives and expectations.

The data gathered, including the results from a series of tests and interviews, were reported objectively without fabrication or manipulation. The researcher also properly cited all sources and avoided plagiarism to uphold academic integrity.

Justice. The principle of justice was observed by treating all the subjects fairly and equally. Every student who participated in the study had an equal opportunity to access the Quizlet Flashcards and benefit from it. The selection of respondents was based solely on academic criteria, not on personal, social, or economic status.

The result was utilized exclusively for academic and research purposes, without any consideration for bias or favoritism.

3. Results and Discussion

This section presents the analysis and interpretations of the data gathered in this study. The results are presented in succeeding tables followed by discussions of the significant findings.

This study utilized a one-group pretest-posttest research design in which the same respondents took the vocabulary test and answered the interview questionnaires about their experience with Quizlet flashcards.

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Table 1. Initial Scores in Vocabulary Test among Grade 9 Students

Score Range	Level of Vocabulary Skills	Interpretation	Frequency	%	Standard Deviation
43-50	Very High	Excellent	0	0.00	3.21
36-42	High	Above Average	0	0.00	
20-35	Moderate	Sufficient	8	20.51	
8-19	Low	Minimal	31	79.49	
0-7	Very Low	Poor	0	0.00	
Total			39	100.0	
	Low Level		**Mean Score 15.59**		

Before the study began, the initial 50-item vocabulary test revealed that Grade 9 students had a low overall mastery level, averaging a mean score of 15.59 despite being in the fourth quarter of the academic year. Specifically, 79% of students (31 individuals) scored at the Minimal Level (8–19), while only 21% (8 students) reached the Sufficient Level (20–35), which represents moderate mastery. These results highlight a clear gap between intended learning outcomes and actual achievement, suggesting that existing instructional methods fell short and pointing to potential equity issues from varying outside exposure to English vocabulary.

This baseline performance aligns with the findings of Ho and Kawaguchi (2021), whose study indicates that learners frequently start with low proficiency but can benefit significantly from digital tools. Their research supports the idea that platforms like Quizlet can act as a catalyst for growth even when baseline vocabulary skills are weak, contextualizing why the vast majority of students initially clustered in the lower performance tier.

Table 2. Vocabulary Test Scores of Grade 9 Students During the Conduct of the Study

Score Range	Level of Vocabulary Skills	Interpretation	Frequency	%	Standard Deviation
43-50	Very High	Excellent	0	0.00	3.84
36-42	High	Above Average	1	2.56	
20-35	Moderate	Sufficient	29	74.36	
8-19	Low	Minimal	9	23.08	
0-7	Very Low	Poor	0	0.00	
Total			39	100.0	
	Moderate Level		**Mean Score 23.08**		

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Following the Quizlet flashcard intervention, the second 50-item vocabulary test demonstrated notable progress, raising the Grade 9 learners' overall average score from a baseline mean of 15.59 to a moderate level of 23.08. Most students (74%, or 29 individuals) reached Sufficient Level mastery (20–35), while 3% (1 student) achieved Above Average mastery (36–42). Most significantly, the proportion of students at the Minimal Level (8–19) dropped sharply from 79% down to 23% (9 students), demonstrating the tool's efficacy in lifting learners out of low proficiency tiers, though the remaining low-scoring minority suggests a need for supplementary, individualized strategies.

Table 3. Final Vocabulary Test Scores of Grade 9 Students After the Conduct of the Study

Score Range	Level of Vocabulary Skills	Interpretation	Frequency	%	Standard Deviation
43-50	Very High	Excellent	1	2.56	4.12
36-42	High	Above Average	8	20.51	
20-35	Moderate	Sufficient	30	76.93	
8-19	Low	Minimal	0	0.00	
0-7	Very Low	Poor	0	0.00	
Total			39	100.0	
Moderate Level			**Mean Score 30.95**		

Following the final 50-item vocabulary test, the Grade 9 students achieved a overall mean score of 30.95 (Sufficient Level, deemed moderate), reflecting substantial and sustained gains from their initial pre-test baseline. Specifically, 77% of students (30 individuals) reached the Sufficient Level (20–35), 20% (8 students) achieved Above Average mastery (36–42), and 3% (1 student) attained Excellent Level mastery (43–50) with no students remaining at the minimal level. These results demonstrate that the continuous use of Quizlet flashcards contributing inn boosting the students' average vocabulary performance, but also influenced the increased consistency across the entire group by standardizing vocabulary acquisition.

This positive progression aligns with pedagogical research by Munir, Samad, & Abbad (2025), which highlights that digital flashcard applications like Quizlet effectively bridge the proficiency gap and reduce achievement disparities between high- and low-performing students. Furthermore, these outcomes echo the findings of Alshammari (2020), who noted that secondary learners using Quizlet outperform those using traditional study methods due to mechanisms like spaced repetition, active recall, and instant feedback. Ultimately, the sustained and structured exposure through Quizlet facilitated deeper memory consolidation and retention, validating the potential of scaling such interactive digital tools to address vocabulary gaps across broader educational settings.

Table 4. Comparison in the Series of Tests among Grade 9 Students

Test	Mean	X^2	df	p-value	Kendall's W	Remark
Pre-test	15.59					
Between	25.08					
Post-test	30.95	74.0513	2	<0.001	0.95	Significant

Note: Tested at 0.05 significance level. Post-hoc Nemenyi test confirmed all pairwise comparisons were significantly different.

Statistical analysis confirms a statistically significant improvement in the vocabulary skills of Grade 9 students following the 6-week Quizlet intervention ($p < 0.001$, $X^2 = 74.0513$), leading to the rejection of the null hypothesis. Furthermore, a Kendall's W coefficient of 0.95 indicates a strong effect size, proving that score increases were both substantial and consistent across the student cohort. The post-hoc Nemenyi Test (standard error = 6.245, Q-critical = 3.3145, critical rank-sum difference = 20.699) further validated that performance differences across the three testing intervals were pairwise significantly distinct.

Beyond the statistical metrics, the steady, upward trajectory in mean scores across weekly assessments demonstrates continuous learning and retention rather than temporary memorization. Weekly testing provided ongoing feedback, enabling students to address weaknesses and adapt study habits dynamically. Establishing a cohort-wide concentration at the "Sufficient" (moderate) mastery level represents a strong educational achievement; as noted by Ningsih, Nasrullah, & Rosalina (2024), systematically elevating students who would otherwise remain at low or very low proficiency tiers marks a meaningful success in secondary education.

While these statistical gains align with prior investigations on digital flashcard integration (Alshammari, 2020; Ho & Kawaguchi, 2021; Yüksel, Mercanoğlu, & Yılmaz, 2020), methodological caution is required. In a single-group repeated-measures design, observed gains cannot be attributed solely to the Quizlet intervention. Confounding variables—such as historical learning events, concurrent classroom instruction, and practice effects from repeated test exposure—may also influence performance trajectories.

Experiences of Grade 9 Students in Using Quizlet Flashcards

This focus group discussion was conducted to explore the experiences of Grade 9 students in enhancing their vocabulary skills. Five participants were randomly selected to provide diverse perspectives on the strategies they employ, the challenges they encounter, and the factors that influence their vocabulary development. The discussion aimed to generate in-depth qualitative data to complement the quantitative findings of the study. Insights from the participants

are expected to contribute to a more effective comprehension of the processes involved in vocabulary acquisition among secondary school students, as well as to inform future instructional practices and interventions.

Specifically, this study follows Braun and Clarke's (2006) Six-Phase Thematic Analysis Framework to systematically code and analyze the Focus Group Discussion transcripts. The coding procedure follows six chronological phases: Phase 1, where the researcher transcribes the audio recording from the Focus Group Discussion verbatim and also examines the transcript multiple times to gain an immersive understanding of the usage, benefits, and challenges of Quizlet. Phase 2 involves the researcher applying In Vivo Coding and Descriptive Coding to extract meaningful segments across the transcripts. Phase 3 is where the researcher groups initial codes with similar conceptual meanings into broader constructs and themes. Phase 4 involves reviewing the generated themes against the transcript to verify internal homogeneity and external heterogeneity. Moreover, Phase 5 is where the researcher finalizes the thematic structure into distinct interpretive themes that answer the research questions. After Phase 5, in Phase 6, synthesize narrative extracts and students' quotes within the results section.

Table 5. The Experiences of Grade 9 in Using Quizlet Flashcards to Enhance Vocabulary Learning

Theme	Construct	Codes	Statement
Gamified Cognitive Engagement	The Shift from Traditional Method to Digital Integrated Method	Using google Using the dictionary Accessibility of the application Easy usage of the application Phone/Gadget accessibility Cross-subject usage of application Frequency of use Study habits	"I describe my experience by using Quizlet. It helps me easier [sic] to know a new word and expand my vocabulary." (P4) "Umm..In my experience, Quizlet offers a user-friendly interface and easy access, which makes it easier for me to learn." (P5)
	Enhancing Engagement through Interactive Gamification and Feedback	Playing word search or word puzzle Test mode for feedback Games for memory retention Match for remembering Getting entertained while learning Fun learning Game-based learning or Gamification Entertaining	"Gusto ko ang games dahil mas madali kong nareremember [sic] ang mga words na 'di familiar sa akin." ["I like the games because I remember unfamiliar word more easily."] (P2) "Games and test mode dahil nadagdagan ang learning skills ko" ["Games and test mode because they increase my learning skills."] (P3)
Enhanced Academic Confidence	Multimodal Reinforcement of Vocabulary, Comprehension,	Expands vocabulary Unlocking new words Vocabulary development Usage of a word Context clues	"It's very helpful to me because it expands my vocabulary." (P1)

	Pronunciation, and Retention	Vocabulary improvement Pronunciation improvement Comprehension Memory Retention and Memorization	"The word 'effectiveness'. I learned it because of the Quizlet flashcard, and there's an example of where you can use the word effectiveness." (P2) "I describe my experience by using Quizlet. It helps me learn a new word and expand my vocabulary." (P3)
	Positive Attitude towards Quizlet Flashcards	Helpful Makes learning easier Motivated to learn	"It motivates me to learn English vocabulary because it's fun and expands my words." (P1) "Nakakatulong ito dahil mas nagiging excited ako para madagdagan ang aking vocabulary. ["It helps me because I get more excited to improve my vocabulary".] (P3) "It makes me more enthusiastic in learning and adding my favorite word that I learn in my vocabulary." (P5)
	Sustaining Long-Term Scholastic Growth through Quizlet Flashcards	Sustaining Long-Term Scholastic Growth through Quizlet Flashcards	"Yeah... Yes, because Quizlet helps me become more confident in answering quizzes and writing essays." (P5) "Yes it helps me to improve my vocabulary because before, I was so weak on pronunciation and how to answer the question. It's hard..ayy. the question.. Hard question.. It is me thankful for the app, which is Quizlet." ["Yes, it helps me improve my vocabulary because before, I was so weak on pronunciation and how to answer hard questions. I am thankful to the app, which is Quizlet."] (P4)
Socioeconomic and Infrastructural Barriers	Overcoming Barriers	Reading Novels Difficulty in learning with traditional methods Traditional reading and writing	"The difference between Quizlet and traditional methods like writing is that it's easy to answer when you use Quizlet, and there are a lot of words, and when it comes to traditional methods, it's hard for me because I didn't know how to pronounce or spell it." (P1)

		"Mas madali ito para sa akin dahil mas marami akong natutunan kesa sa pagsusulat o pagbabasa ng libro. ["Quizlet is easier for me because I learn a lot instead of just writing and reading a book."] (P3) "Umm for the difference is that writing note just tires you out and might bore you, while Quizlet entertains you at the same time." (P5)
Structural Hurdles Impacting Quizlet Flashcards Utilization in the Local Context	Financial Problem Internet Problem Offline mode accessibility	"Walang load dahil wala kaming pera [sic]." ["No budget for load because we don't have money."] (P3) "My only suggestion is that, for more subjects to use this method, or if possible, an offline mode for people who do not have a budget for load." (P5) "The only difficulty is… our slow internet connection." (P5)

Theme 1: Gamified Cognitive Engagement

In the context of Gamified Cognitive Engagement, focus group discussion (FGD) findings reveal a clear shift from traditional learning tools toward an interactive, technology-integrated environment. As digital tools reshape learning habits, Iswari (2019) observed that modern digital flashcard applications support asynchronous study, enabling students to master complex vocabulary alongside writing and listening skills. Participants highlighted how Quizlet's accessible and user-friendly interface supports autonomous learning, as reflected in their feedback:

"I describe my experience by using Quizlet. It helps me easier [sic] to know a new word and expand my vocabulary." (P4)

"Umm..In my experience, Quizlet offers a user-friendly interface and easy access, which makes it easier for me to learn." (P5)

These experiences align with findings by Alshammari (2020) and Dewi (2023), who described Quizlet as a practical "one-stop" platform whose usability directly boosts vocabulary retention and engagement. By removing navigational friction, the tool enables self-regulated learning, allowing students to independently direct their study pace and practice frequency (Dizon & Tang, 2020).

Gamified design features—such as matching games, test modes, and immediate feedback—further convert passive study into active cognitive processing. Chen, Liu , & Huang (2019) and Zhong (2024) noted that gamified mechanics sustain attention, drive intrinsic motivation, and improve academic performance far more effectively than non-gaming methods. Students explicitly linked these interactive features to enhanced recall and skill development:

"Gusto ko ang games dahil mas madali kong nareremember [sic] ang mga words na 'di familiar sa akin." ["I like the games because I remember unfamiliar word more easily."] (P2)"Games and test mode dahil nadagdagan ang learning skills ko" ["Games and test mode because they increase my learning skills."] (P3)

"Games and test mode dahil nadagdagan ang learning skills ko" ["Games and test mode because they increase my learning skills."] (P3)

This dynamic supports Cheng's (2020) assertion that game-based learning alleviates the boredom traditionally associated with vocabulary acquisition. Moreover, the combination of self-assessment and interactive play fosters broader critical thinking and problem-solving skills applicable across subjects, fulfilling modern learners' demand for engaging, non-traditional educational experiences

Theme 2: Enhanced Academic Confidence

In the context of Enhanced Academic Confidence, focus group discussion (FGD) findings reveal that interactive digital tools like Quizlet contribute to elevating student engagement, language acquisition, and self-efficacy. Instructors increasingly source real digital products to facilitate vocabulary growth, leveraging features such as visual aids, audio pronunciation, and contextual sentence examples to deepen word comprehension (Hjetland et al., 2021; Kohnke & Ting, 2021). Students noted that this multi-sensory exposure made learning both accessible and intrinsically motivating, driving personal enthusiasm for language practice (Muthmainnah, Yakin, & Seraj, 2023)

"It's very helpful to me because it expands my vocabulary." (P1)

"The word 'effectiveness'. I learned it because of the Quizlet flashcard, and there's an example of where you can use the word effectiveness." (P2)

"I describe my experience by using Quizlet. It helps me learn a new word and expand my vocabulary." (P3)"

"It motivates me to learn English vocabulary because it's fun and expands my words." (P1)

"Nakakatulong ito dahil mas nagiging excited ako para madagdagan ang aking vocabulary. ["It helps me because I get more excited to improve my vocabulary".] (P3)

"It makes me more enthusiastic in learning and adding my favorite word that I learn in my vocabulary." (P5)

This emotional and cognitive engagement translates directly into academic growth, bolstering students' confidence when tackling complex assessments and communicative tasks. As emotional investment and active participation rise, students demonstrate improved memory retention, stronger pronunciation, and elevated academic achievement (Abu & Belton, 2024; Wood, 2019). Beyond vocabulary mastery, learners reported a successful transfer of skills to broader literacy demands like essay writing and test-taking, supporting claims by Tawafak, Romli, Arshah, & Almaroof et al. (2018) and Valverde-Berrocoso, Acevedo-Borrega, & Cerezo-Pizarro (2022) that well-integrated digital flashcards build long-term academic confidence:

"Yeah... Yes, because Quizlet helps me become more confident in answering quizzes and writing essays." (P5)

"Yes it helps me to improve my vocabulary because before, I was so weak on pronunciation and how to answer the question. It's hard..ayy. the question.. Hard question.. It is me thankful for the app, which is Quizlet." ["Yes, it helps me improve my vocabulary because before, I was so weak on pronunciation and how to answer hard questions. I am thankful to the app, which is Quizlet."] (P4)

Theme 3: Socioeconomic and Infrastructural Barriers

In evaluating vocabulary instruction through the lens of Socioeconomic and Infrastructural Barriers, focus group discussion (FGD) findings demonstrate a clear tension between the pedagogical benefits of digital platforms and the material realities of students. Participants noted that traditional instruction often relies heavily on passive teacher-led delivery, whereas Quizlet offers interactive, engaging, and flexible learning experiences (Ahmed & Hamarai, 2022; Fawns, 2019). Students highlighted how the platform helped them overcome traditional learning fatigue and language barriers:

"The difference between Quizlet and traditional methods like writing is that it's easy to answer when you use Quizlet, and there are a lot of words, and when it comes to traditional methods, it's hard for me because I didn't know how to pronounce or spell it." (P1)

"Mas madali ito para sa akin dahil mas marami akong natutunan kesa sa pagsusulat o pagbabasa ng libro. ["Quizlet is easier for me because I learn a lot instead of just writing and reading a book."] (P3)

However, despite these interactive advantages, systemic digital divide challenges significantly hinder equitable educational access. Participants reported that financial constraints and spotty internet connectivity directly restricted their ability to utilize digital tools outside the classroom (Shiferaw, Workneh, Yirgu, Dinant, & Spigt, 2018). Students articulated these socioeconomic and technical barriers directly:

"Walang load dahil wala kaming pera [sic]." ["No budget for load because we don't have money."] (P3)

"My only suggestion is that, for more subjects to use this method, or if possible, an offline mode for people who do not have a budget for load." (P5)

"The only difficulty is… our slow internet connection." (P5)

These empirical accounts align with research by Ren and Su (2025), who noted that recurring expenses for cellular data, hardware access, and network infrastructure disproportionately penalize economically disadvantaged students. Without offline functionality and targeted institutional support, the benefits of technology-enhanced learning remain unevenly distributed, threatening to exacerbate pre-existing educational disparities among low-income and rural cohorts.

Table 6. Joint Display Table

Quantitative Findings	Qualitative Themes	Integrated Insights
Pretest, Midphase, Posttest mean scores M=15.59, M=25.8, M=30.95	Theme 1: Gamified Cognitive Engagement and Theme 2: Enhanced Academic Confidence	Interactive digital tools like Quizlet contribute to elevating student engagement, language acquisition, and self-efficacy.
Improvement in students' vocabulary skills $p < 0.001$, $X^2 = 74.0513$	Theme 2: Enhanced Academic Confidence and Theme 3: Socioeconomic and Infrastructural Barriers	Students highlighted how the platform helped them overcome traditional learning fatigue and language barriers. Students also noted that Quizlet made learning both accessible and intrinsically motivating, driving personal enthusiasm for language practice

Combining both quantitative and qualitative findings, the study demonstrated that technology-enhanced tools, particularly Quizlet, had a substantial positive impact on the vocabulary mastery of Grade 9 students. The steady rise in vocabulary scores across multiple assessments indicates not only immediate improvement but also sustained vocabulary development, attributed to repeated exposure and ongoing feedback provided by digital flashcard interventions. Qualitative data from the focus group discussion highlighted that Quizlet's interactive, user-friendly features and game-based learning elements fostered greater engagement, motivation, and independent study habits, offering a more effective and enjoyable alternative to traditional vocabulary instruction. Students reported improvements in vocabulary retention, pronunciation, writing, and academic confidence, but also noted challenges around digital access and internet reliability, suggesting the need for additional support and offline features. Overall, the integration of Quizlet led to demonstrable advancements in vocabulary acquisition, supporting its value as an effective instructional tool while highlighting the need for equitable access to maximize benefits for all students.

4. Conclusions

Based on the findings of the study, the following conclusions were drawn:

At the start of the study, student performance was low, even though the intervention occurred in the fourth quarter following exposure to vocabulary instruction since the beginning of the school year. This observed pattern indicates potential constraints in current instructional methods and suggests a need for engaging, individualized approaches to address foundational vocabulary gaps.

In the second test, most students demonstrated sufficient mastery with scores ranging from 20 to 35 (moderate level), alongside an increase in the overall mean score. The use of Quizlet flashcards coincided with higher reported student motivation, sustained practice, and active engagement.

Following the intervention, vocabulary mastery remained at a moderate level, while the mean score further increased. Students demonstrated continued score progression, with the majority achieving moderate or higher mastery levels and no students remaining at the minimal performance level.

Statistical analysis revealed a significant positive change in Grade 9 students' vocabulary test scores following exposure to Quizlet flashcards. The upward trajectory in summative test scores indicates that integration of digital tools is associated with improvements in vocabulary performance over a short implementation period.

Qualitative feedback indicated that student experiences with Quizlet were overwhelmingly positive. Students reported higher levels of engagement, motivation, and self-confidence, while citing perceived improvements in retention, pronunciation, and contextual understanding alongside the platform's game-based design. However, challenges related to internet access and financial constraints were noted, pointing to the importance of offline availability and institutional support for equitable learning access.

Consequently, exposure to Quizlet flashcards is associated with improved vocabulary mastery levels among Grade 9 students. Based on these observed outcomes, the researcher may utilize the Quizlet flashcard framework to inform the development of future instructional reading materials.

5. Recommendation

Based on the results of the study, the researcher proposes the following recommendations:

1. The school administration may support and promote the regular use of Quizlet Flashcards Software as a supplementary teaching tool in English classes. Given the significant improvements in students' vocabulary skills, teachers should be provided with training and resources to effectively integrate Quizlet into their lesson plans, making learning both engaging and effective.
2. The teachers may employ the Quizlet Flashcards to improve the vocabulary development of the students by downloading it to their laptops, mobile phones, and computer laboratory and using it for educational purposes.
3. Students may access Quizlet Flashcards beyond the classroom by requesting software copies from teachers or utilizing mobile-friendly versions at home. Supporting students in installing and using the app outside school hours will reinforce vocabulary learning, promote independent study habits, and help bridge learning gaps for those with limited classroom exposure.
4. Future researchers may consider integrating Quizlet flashcards as a tool to improve vocabulary skills and student engagement in the classroom and utilizing it in various educational activities.
5. Future studies should also adopt randomized controlled trial (RCT) or quasi-experimental control-group designs to isolate intervention effects from confounding variables.
6. Researchers should compare digital flashcards with alternative vocabulary interventions (e.g., morphological analysis, context-based instruction, and physical flashcards).
7. Replication of this study is highly recommended using the Quizlet Flashcards in improving the vocabulary skills of the students and extending the duration in terms of the intervention, especially for those students who have reading difficulties.
8. The researcher may develop instructional reading material that may be used in the classroom set-up. The material may be shared during the In-Service Training for Teachers (INSET) in Fatima National High School for proper usage and utilization of the material.
9. The researcher also recommends that future researchers may deploy alternate but equivalent test versions across time series to eliminate testing and practice effects caused by repeated exposure to identical test items..

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6. Limitations of the Study

This study focused on determining the effect of Quizlet Flashcards Software on the vocabulary skills of Grade 9 students at Fatima National High School during the School Year 2025-2026.

The subjects of the study were the selected Grade 9 students from Fatima National High School. The researcher aimed to determine the effect of Quizlet Flashcards software as an educational tool in building the vocabulary skills of the students in Fatima National High School. It was restricted only to the vocabulary skills of the students.

The study period took place during the fourth quarter of the 2025-2026 academic year, allowing enough time for implementation, observation, and evaluation of the intervention.

The study was conducted at Fatima National High School. It was located at Barangay Uhaw, General Santos City. The school had the facilities and equipment to assist this study. The classes had been conducted under the English subject area.

The study examined how Quizlet Flashcards Software improved students' vocabulary, comprehension, retention, and use, focusing solely on vocabulary learning before and after the intervention, and excluding other language skills. It involved administering a pre-test, series of tests, and post-test to assess the vocabulary development of the respondents. Quizlet Flashcards Software was used during the intervention period, and students' progress was evaluated through scores and interviews.

Supplementary Details

Supplementary Materials & Data availability statement:
The primary data were derived from raw scores from a series of tests and responses from focus group discussions conducted among selected Grade 9 students in Fatima National High School, General Santos City. These data served as the basis for analyzing the vocabulary level of the students before, during, and after using the Quizlet flashcards. To ensure transparency and academic integrity, selected anonymized data (e.g., raw test scores, interview guides, coded responses, and thematic summaries) may be available upon reasonable request from the corresponding author. All data were collected and handled in accordance with ethical research standards.

Author Contributions:

All authors contributed significantly to the development and completion of this study.

- Mary Leigh L. Laurente, LPT – Student researcher; led the conceptualization of the study, conducted data collection and analysis, and drafted the manuscript.

- Elloiza Mae L. Palapar, MAEd, Assistant Professor IV – Research adviser; supervised the implementation of the study, and reviewed the manuscript for language, coherence, and academic rigor, particularly in the field of language and literacy education.
- Jay D. Buscano, PhD, Professor VI – Dean of College of Natural Sciences and Mathematics; provided guidance of the research framework, contributed to the statistical data collection, and validated analytical procedures, and enhanced the overall presentation and scholarly quality of the manuscript.

Funding:

This research received no external funding. All aspects of the study, including data collection, analysis, and manuscript preparation were done by the researcher.

Institutional Review Board Statement:

Before conducting the study, the Mindanao State University – General Santos Institutional Ethics Review Committee (MSU – General Santos IERC) has recently reviewed the responses to the conditions placed upon the ethical approval for the research /project. The proposal is now deemed to meet the requirements of the PHREB (2017), and full ethical approval has been granted (Approval No. 438-2025-MSUGSC-IERC).

Informed Consent Statement:
Informed consent was obtained from all subjects prior to data collection. Participants were assured of confidentiality, voluntary participation, and the right to withdraw from the study at any time. No personal or sensitive identifying information was disclosed in the research.

Acknowledgments:

The authors express their sincere gratitude to Mindanao State University – General Santos City, Philippines, for providing institutional support and resources necessary for the completion of the study. Appreciation is also extended to the student subjects for their time and honest responses, as well as to colleagues and mentors who offered valuable feedback that strengthened the quality of this research.

Conflicts of Interest:

The authors declare no conflict of interest.

Disclosure Statement:

The authors utilized artificial intelligence (AI) tools in the preparation of the manuscript, specifically for paraphrasing, drafting, and language editing. The authors ensured that all AI-generated content has been reviewed and validated, taking full responsibility for the accuracy, originality, and integrity of the work.

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Cite as: Laurente, M. L., Palapar, E. M., & Buscano, J. (2026). Enhancing Vocabulary Skills through Quizlet Flashcards Software among Grade 9 Students. *Asia Pacific Journal of Educational Technologies, Psychology, and Social Sciences*, 2(2), 172-194. https://doi.org/10.70847/743745