



Reframing Vocabulary Learning in Rural EFL Education: Memrise-Assisted Project-Based Learning and Student Engagement in Indonesia

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Abstract

This study examined the application of Memrise-assisted Project-Based Learning to enhance vocabulary proficiency and student engagement in a rural Indonesian EFL classroom. The study examined the impact of a gamified mobile-assisted learning platform on students' vocabulary acquisition, classroom engagement, and collaborative learning during project-based instructional activities. The study utilized a Classroom Action Research design with a mixed-methods approach, involving 24 tenth-grade students at a rural secondary school in West Sulawesi, Indonesia. Data were gathered via vocabulary pre-tests and post-tests, classroom observations, reflective journals, interviews, and documentation. Quantitative data were analyzed using mean score analysis and paired-sample t-tests, supplemented by qualitative thematic interpretation. The results indicated a significant enhancement in students' vocabulary performance across the research cycles, with average scores rising from 53.4 in the initial phase to 69.8 in Cycle I and 83.1 in Cycle II. Student involvement, teamwork, confidence, and the use of contextual vocabulary significantly improved following instructional modifications. The findings indicate that integrating gamified mobile-assisted vocabulary learning with Project-Based Learning can convert vocabulary instruction from a memorization-focused approach to a more significant, interactive, and contextually relevant learning experience, especially in under-resourced rural EFL settings.

Keywords: Classroom Action Research; Gamified Vocabulary Learning; Mobile-Assisted Language Learning; Project-Based Learning; Rural EFL Education

Introduction

The swift proliferation of digital learning environments has fundamentally transformed the teaching and acquisition of English in various educational situations, especially where access to genuine linguistic contact is constrained. In English as a Foreign Language (EFL) education, vocabulary development remains pivotal, as lexical knowledge is fundamental to learners' comprehension of texts, participation in communication, and meaningful engagement with academic content (Schmitt, 2008; Xodabande et al., 2022; Yaşar & Koçoğlu, 2025). Modern educational systems are progressively adopting technology-enhanced instruction, leading to a redefinition of vocabulary acquisition from mere memorization of discrete lexical units to an interactive, socially mediated, and cognitively contextualized process facilitated by digital engagement, multimodal exposure, and learner autonomy (Hariyati & Aghisty, 2025; Lin & Lin, 2019). This transition has intensified due to the global digital transformation in education, wherein mobile-assisted language learning (MALL) applications, gamified platforms, and project-based pedagogies have arisen as significant methods for fostering continuous language engagement in secondary classrooms (Pinto, 2025; Saad et al., 2023; Yaqoob et al., 2025).

Notwithstanding these advancements, the pedagogical conditions of EFL instruction in numerous rural and under-resourced educational environments continue to exhibit significant discrepancies. In nations like Indonesia, English education in rural schools often depends on textbook-centric methodologies, instructor-led explanations, and isolated vocabulary exercises, frequently leading to diminished student engagement and restricted vocabulary retention (Bachtiar & Puspitasari, 2024; Mubarak & Irmayanti, 2025; Poonpon et al., 2022). Students are typically required to memorize lists of unfamiliar terms with limited chances to recycle, contextualize, or productively utilize vocabulary in communicative tasks. These instructional settings are especially troublesome in secondary education, because students must engage with increasingly complicated texts despite having an inadequate lexical repertoire to facilitate comprehension and expression. The problem is exacerbated by the restricted exposure to English outside the classroom, a defining trait of numerous EFL contexts in the Global South (Durante, 2025; Ebadi et al., 2023). As a result, vocabulary acquisition in rural settings frequently correlates with passive repetition instead of active engagement in meaning-making, so diminishing students' drive and confidence in utilizing English for genuine conversation.

Recent research in digital language learning has sought to mitigate these limitations by investigating the impact of mobile applications in facilitating vocabulary development. Platforms like Memrise, Quizlet, and Duolingo have garnered significant attention for their use of spaced repetition systems, gamification elements, multimedia resources, and self-directed learning frameworks (Cường & Nhật, 2026; ÖZDEMİR & Seçkin, 2024; Yazid & Hisham, 2026). Memrise has garnered significant attention for its capacity to integrate memory techniques, visual reinforcement, native-speaker pronunciation, and repeated lexical exposure in an interactive digital setting. Current research often demonstrates favorable outcomes of Memrise on vocabulary retention, learner motivation, and autonomous learning behaviors (Aminatun & Oktaviani, 2019; Cường & Nhật, 2026). The application's gamified framework, featuring points, levels, and instant feedback, seems to promote ongoing interest and mitigate the tedium sometimes linked to vocabulary retention (Alhawsawi & Alzaid, 2025; Demir, 2025). These findings correspond with extensive research indicating that digital gamification

might augment cognitive engagement and elevate students' propensity to engage in language learning activities (Huseinović, 2023; Rojabi et al., 2022).

Nonetheless, the expanding research on mobile-assisted vocabulary acquisition uncovers both conceptual and pedagogical constraints. Much of the current research continues to conceptualize vocabulary acquisition predominantly as an individual cognitive achievement assessed through test-score enhancement, frequently overlooking the wider social and environmental aspects of language learning. Vocabulary applications are often analyzed as independent tools instead of as elements integrated inside significant instructional frameworks (Simonnet et al., 2024; Xu et al., 2025). As a result, minimal focus has been placed on the integration of digital vocabulary platforms with collaborative and inquiry-based learning models that can convert vocabulary usage from mere recognition to genuine communicative practice. This issue is particularly apparent in studies conducted in secondary EFL classes, where vocabulary acquisition remains largely disconnected from productive language usage, creativity, and learner engagement.

Simultaneously, studies on Project-Based Learning (PjBL) have continuously highlighted the significance of contextualized learning, cooperation, and engagement in authentic tasks for facilitating deeper language acquisition (Benlaghrissi & Ouahidi, 2024; Shadiyarovna, 2026). PjBL promotes active knowledge construction among learners through exploration, problem-solving, and socially relevant projects, rather than treating them as passive receivers of information. Project-based methodologies in language education have been linked to enhanced learner autonomy, superior communication abilities, and heightened motivational engagement, as students must utilize language intentionally to accomplish tasks and present results (Aldobekhi & Abahussain, 2024; Sedubun & Nurhayati, 2024). Despite the considerable scholarly focus on both MALL and PjBL, their pedagogical convergence remains little investigated. Current research seldom investigates the synergistic potential of mobile vocabulary applications in conjunction with project-based learning to foster enduring vocabulary engagement in genuine classroom interactions. This disparity is particularly pronounced in rural educational settings, where limitations in digital infrastructure, unequal access to technology, and scarce instructional resources profoundly influence the adoption of innovative teaching methods.

The rural EFL context in Indonesia serves as a significant locus for examining this intersection. Despite the growing emphasis on digital integration and student-centered learning in educational regulations, numerous rural schools still encounter unreliable internet connectivity, restricted smartphone ownership, and inadequate technical resources for language instruction. These institutional constraints frequently generate contradictions between curriculum expectations and classroom realities (Guaqueta & Castro-Garcés, 2018; Li et al., 2018). The integration of digital learning resources in rural schools must be assessed not only in terms of technological efficacy but also concerning learner engagement, contextual flexibility, and pedagogical sustainability. In this context, comprehending student interactions with Memrise-assisted project activities in a rural classroom provides insights that transcend vocabulary achievement scores and enrich broader discussions on educational equity, digital engagement, and technology-facilitated language learning in under-resourced environments.

In this context, the current study reconceptualizes vocabulary acquisition not as a mere act of solitary lexical memory but as an interactive educational experience embedded within collaborative digital interaction. This study examines the enhancement of vocabulary acquisition through the integration of Memrise-assisted

vocabulary drill with Project-Based Learning activities in a rural Indonesian secondary school, focusing on contextualized, student-centered learning experiences. Specific focus is placed on how students interact with digital vocabulary assignments, cooperate throughout project execution, and navigate vocabulary application within significant communicative settings. The study conceptualizes digital vocabulary learning not as an isolated instructional variable, but as an integral component of a broader pedagogical ecosystem influenced by interaction, motivation, contextual restrictions, and classroom involvement.

The investigation is directed by four interconnected issues: the implementation of Memrise-assisted Project-Based Learning in a rural EFL classroom, the progression of students' vocabulary mastery throughout instructional cycles, the factors that facilitate or impede the learning process, and the impact of reflective revisions on classroom practices for pedagogical enhancement. The study employs a Classroom Action Research methodology that incorporates mixed-method approaches, utilizing vocabulary assessments, classroom observations, reflective diaries, interviews, and project documentation to record both quantifiable learning results and classroom interactions. This technique facilitates a comprehensive knowledge of vocabulary development by correlating quantitative advancements with qualitative shifts in learner involvement and participation.

This study's contribution encompasses three interrelated domains. This research enhances existing scholarship on mobile-assisted language learning by framing Memrise not solely as a digital vocabulary resource, but as an integral element of collaborative project-based teaching. Secondly, it enhances current discourse on rural digital education by highlighting the realities of technology integration in under-resourced EFL classrooms, a domain that remains little represented in international literature. The study promotes a socially contextualized comprehension of vocabulary acquisition, illustrating how lexical growth can arise from contextual interactions, collaborative construction of meaning, and technologically facilitated classroom engagement. This paper addresses the increasing demand for language pedagogy that transcends memorization-focused instruction, advocating for more relevant, equitable, and engagement-oriented methods of vocabulary acquisition in modern EFL education.

Research Methods

1. Research Design

This study utilized Classroom Action Research (CAR) combined with a mixed-methods approach to examine the efficacy of Memrise-assisted Project-Based Learning in enhancing students' vocabulary proficiency. CAR was chosen for its capacity to facilitate systematic educational enhancement via recurrent cycles of planning, acting, observing, and reflecting, in accordance with Kurt Lewin's paradigm. The cycle framework facilitated instructional modifications informed by classroom dynamics and students' learning reactions. Comprehensive findings were achieved by integrating quantitative and qualitative data through vocabulary test scores, classroom observations, reflective diaries, interviews, and documentation. This integration enabled a more profound analysis by linking quantifiable vocabulary enhancement with contextual understanding of student involvement, participation, and classroom interaction.

2. Research Setting and Participants

The research was carried out at UPTD SMA Negeri 2 Bambang, a public senior high school situated in Mamasa Regency, West Sulawesi, Indonesia. The school, situated in a rural educational context, exemplifies standard EFL classroom settings marked by minimal English exposure, unreliable internet connectivity, and constrained access to digital learning tools. The participants were tenth-grade students (Phase E), including 24 learners with diverse vocabulary proficiency and limited confidence in English communication. A multitude of students encountered challenges in language retention and contextual application. A comprehensive sampling strategy was utilized by including the entire class, with the researcher concurrently serving as both instructor and classroom observer.

Table 1. Research Setting and Participant Profile

Component	Description
School	UPTD SMA Negeri 2 Bambang
Location	Mamasa Regency, West Sulawesi, Indonesia
Educational Context	Rural EFL secondary education environment
Participants	24 tenth-grade students (Phase E)
Grade Level	Senior High School - Grade 10
Sampling Technique	Total Sampling
English Learning Background	Limited English exposure outside classroom
Digital Infrastructure	Unstable internet access and limited smartphone ownership
Initial Vocabulary Challenges	Low vocabulary retention and contextual usage
Researcher Role	Teacher-researcher and classroom observer

The table provides a detailed summary of the research environment, participants, and sample methods utilized in this study. It underscores the unique attributes of rural EFL education at UPTD SMA Negeri 2 Bambang, encompassing inadequate digital infrastructure, limited exposure to English, and difficulty in vocabulary acquisition among students. The table elucidates the demographic profile of participants and the justification for employing total sampling. The contextual elements are crucial since they directly influence students' engagement with technology-enhanced vocabulary education and affect the implementation of Memrise-assisted Project-Based Learning in rural Indonesian schools.

3. Research Procedures

The research procedures commenced with an initial observation to ascertain students' vocabulary challenges, classroom interaction dynamics, and baseline learning circumstances. The research was executed using two cycles of Classroom Action Research. During Cycle I, the researcher developed lesson plans, vocabulary resources, and research instruments prior to executing Memrise-assisted Project-Based Learning through collaborative vocabulary exploration and project activities. Classroom participation, engagement, and instructional difficulties were methodically monitored and assessed. Reflection outcomes guided modifications for Cycle II, encompassing enhanced educational methodologies and classroom governance. The second cycle prioritized enhanced vocabulary utilization, project presentations, and heightened learner engagement to thoroughly assess the intervention's efficacy.

4. Data Collection and Analysis

Data were gathered through various instruments to thoroughly assess students' vocabulary enhancement and classroom learning dynamics. Quantitative data were collected using pre-tests and post-tests aimed at evaluating language meaning, contextual application, spelling precision, and vocabulary recognition. Classroom observation sheets were utilized to assess students' participation, collaboration, attentiveness, engagement, and language usage throughout learning activities. Reflective notebooks recorded classroom occurrences, educator reflections, and students' learning reactions during the intervention. Semi-structured interviews were performed to investigate students' opinions of Memrise, Project-Based Learning, and digital learning experiences, while documentation comprised images, screenshots, project outputs, lesson plans, and instructional materials. Quantitative data were analyzed by vocabulary score computation, mean score evaluation, mastery percentage assessment, and paired-sample t-tests utilizing SPSS. Simultaneously, qualitative data adhered to Miles and Huberman's interactive methodology, encompassing data reduction, display, thematic interpretation, and conclusion verification to analyze engagement patterns, vocabulary habits, and classroom interactions.

5. Indicators of Success

The intervention's success was assessed using academic and behavioral markers that corresponded with the aims of Classroom Action Research. Individual achievement was deemed successful when pupils achieved the Minimum Mastery Criterion (KKM) score of no less than 75 in vocabulary examinations. The intervention was deemed effective at the classroom level when at least 85% of students attained mastery learning requirements. Alongside quantitative enhancement, behavioral indicators were highlighted, encompassing heightened learner engagement, increased classroom participation, enhanced confidence in oral and written vocabulary usage, and more robust collaborative interaction during project-based learning activities facilitated by the Memrise application.

Results and Discussion

Result

1. Preliminary Findings Before the Intervention

Initial observations indicated that students had significant challenges in vocabulary acquisition before the introduction of Memrise-assisted Project-Based Learning. The majority of pupils exhibited a deficient comprehension of word meanings, erroneous spelling, inadequate vocabulary recognition, and challenges in the effective application of language in contextual communication. These constraints manifested in students' diminished confidence during speaking and writing tasks, resulting in numerous learners' reluctance to articulate thoughts in English. Classroom engagement was notably low, with pupils predominantly remaining passive during instructional exercises and primarily depending on teacher explanations.

The classroom setting was initially defined by teacher-centered instructional methods and limited incorporation of digital learning tools. Vocabulary education primarily focused on memory and translation tasks, leading to restricted opportunities for substantive interaction and cooperative learning. Observational data revealed that pupils relied predominantly on rote learning techniques and exhibited minimal involvement during English classes.

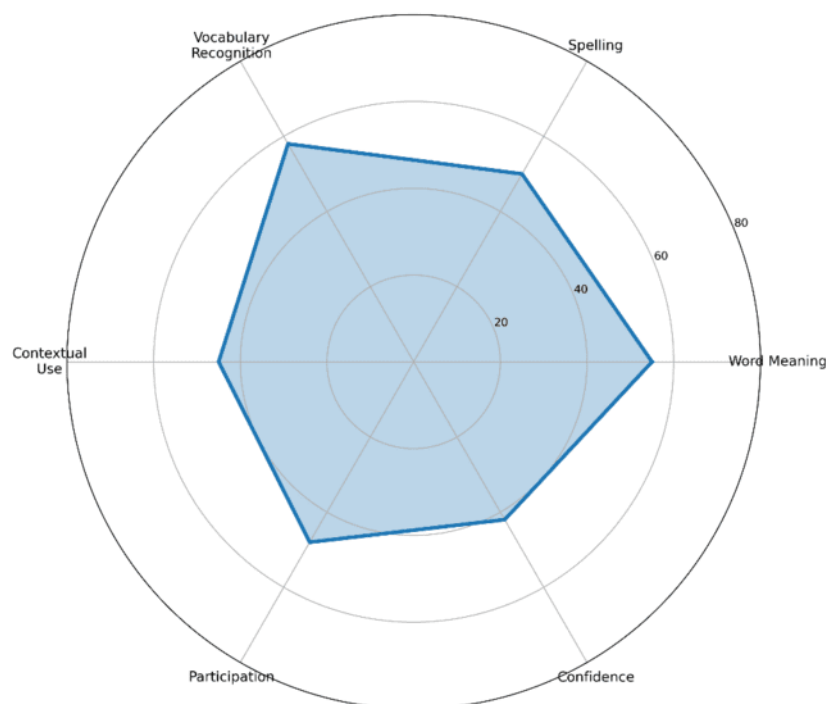
The pre-test findings statistically validated these conditions, indicating poor baseline vocabulary scores and restricted mastery achievement during the class. A limited percentage of students met the Minimum Mastery Criterion (KKM ≥ 75), whereas the majority encountered difficulties with contextual vocabulary application and lexical identification tasks. These findings established the educational foundation for launching a more interactive and technology-enhanced vocabulary learning strategy.

Table 2. Students' Preliminary Vocabulary Mastery Scores

Student	Pre-Test Score	Achievement Status
S1	48	Below KKM
S2	52	Below KKM
S3	55	Below KKM
S4	50	Below KKM
S5	60	Below KKM
S6	45	Below KKM
S7	58	Below KKM
S8	62	Below KKM
S9	47	Below KKM
S10	53	Below KKM
S11	57	Below KKM
S12	49	Below KKM
S13	51	Below KKM
S14	54	Below KKM
S15	46	Below KKM
S16	59	Below KKM
S17	61	Below KKM
S18	44	Below KKM
S19	56	Below KKM
S20	52	Below KKM
S21	50	Below KKM
S22	63	Below KKM
S23	48	Below KKM
S24	55	Below KKM

The table displays students' initial vocabulary proficiency before the introduction of Memrise-assisted Project-Based Learning. The findings reveal that the majority of students scored below the Minimum Mastery Criterion (KKM ≥ 75), hence affirming the presence of significant vocabulary acquisition challenges in the classroom. The low pre-test results indicate insufficient lexical comprehension, poor contextual vocabulary application, and inadequate word recognition abilities among students. These findings indicate the necessity for a more interactive and technologically advanced instructional method that can boost students' vocabulary retention and engagement. The table provides the quantitative basis for assessing vocabulary enhancement during the Classroom Action Research cycles.

Figure 1. Baseline Vocabulary and Classroom Engagement Ecology



The graphic depicts the multifaceted state of students' foundational vocabulary proficiency and classroom involvement using a radar-based ecological representation. The figure indicates that pupils displayed notably poor performance in all assessed areas, especially in contextual language usage, confidence, and classroom engagement. Vocabulary recognition and word comprehension exhibited marginally superior outcomes however fell short of anticipated learning benchmarks. The picture underscores the interrelatedness of vocabulary proficiency and behavioral engagement in rural EFL classrooms. The picture concurrently presents cognitive and participation elements, providing a comprehensive depiction of the classroom's baseline condition before the digital and project-based educational intervention.

2. Cycle I Findings

Cycle I commenced with the development of lesson plans, vocabulary resources, research instruments, and the implementation of Memrise-enhanced Project-Based Learning activities specifically aimed at instructing procedural texts. The implementation phase encompassed utilizing Memrise for vocabulary acquisition, enabling students to interactively investigate target vocabulary and apply newly acquired terms in group projects. Throughout project activities, students engaged in discussions regarding vocabulary definitions, pronunciation, and contextual application while developing procedural texts and presenting presentations.

Classroom observations indicated a moderate enhancement in student participation and engagement relative to initial conditions. A number of students exhibited interest while utilizing Memrise features, including audio pronunciation, repetition activities, and visual vocabulary reminders. Collaborative engagement during group activities became increasingly apparent, however participation among students remained inconsistent. Certain learners continued to rely significantly on peers and teacher assistance throughout vocabulary application tasks. Numerous hurdles arose during Cycle I, such as restricted smartphone ownership, inconsistent internet connectivity, passive engagement in the classroom, and obstacles

in contextual vocabulary application. Reflective journals revealed that despite the learning environment being more participatory, certain students persisted in feeling hesitant and lacking confidence in autonomously applying terminology.

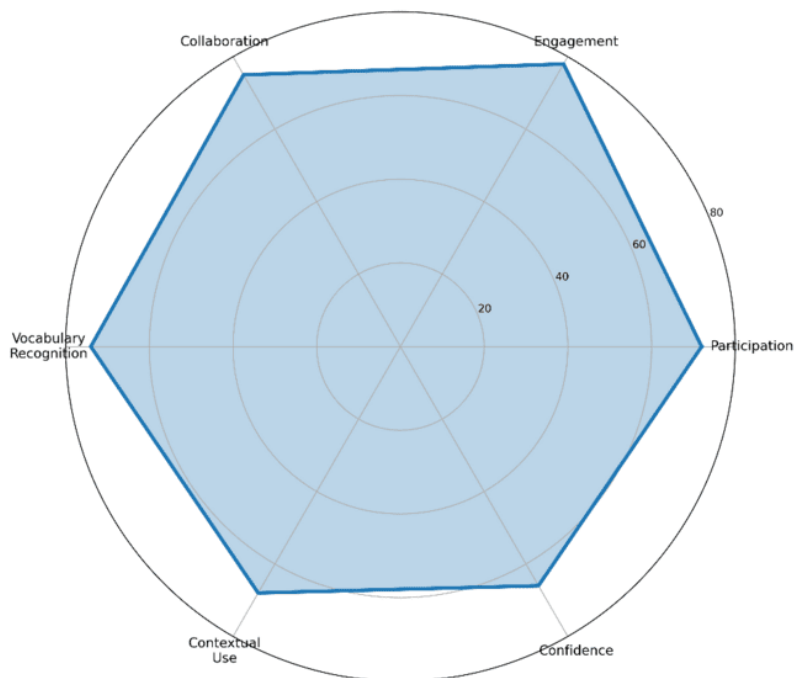
The post-test results indicated significant vocabulary enhancement relative to the pre-test scores, evidenced by elevated mean achievement and enhanced mastery percentages. Statistical analysis employing a paired-sample t-test revealed substantial enhancement, demonstrating that Memrise-assisted Project-Based Learning favorably influenced students' vocabulary development during Cycle I.

Table 3. Comparison of Pre-Test and Post-Test Cycle I Scores

Student	Pre-Test	Post-Test Cycle I	Improvement
S1	48	65	17
S2	52	68	16
S3	55	70	15
S4	50	66	16
S5	60	75	15
S6	45	62	17
S7	58	73	15
S8	62	78	16
S9	47	64	17
S10	53	69	16
S11	57	72	15
S12	49	65	16
S13	51	67	16
S14	54	70	16
S15	46	63	17
S16	59	74	15
S17	61	76	15
S18	44	60	16
S19	56	71	15
S20	52	68	16
S21	50	66	16
S22	63	80	17
S23	48	64	16
S24	55	72	17

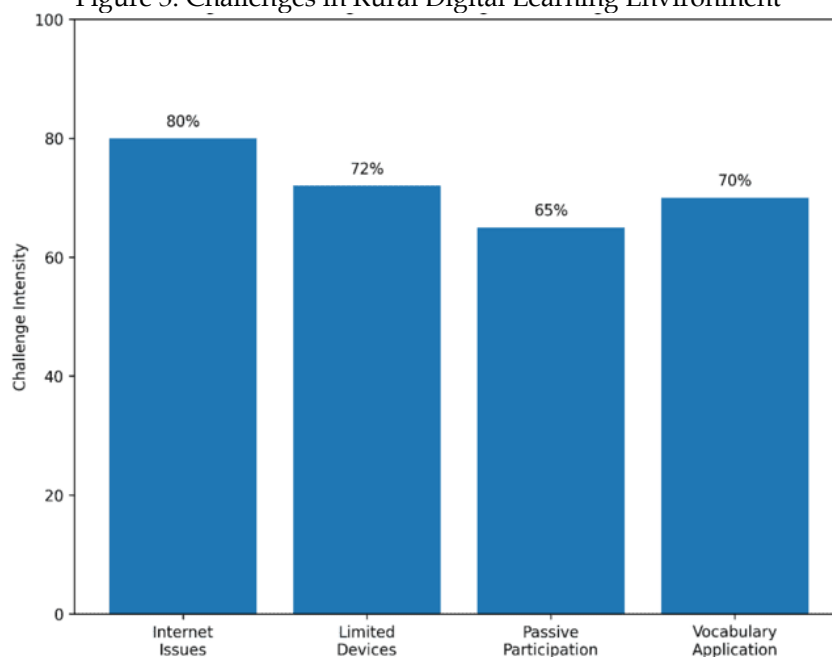
The table contrasts students' vocabulary proficiency prior to and following the introduction of Memrise-assisted Project-Based Learning in Cycle I. The results indicate significant enhancement in post-test scores among the majority of participants, reflecting favorable vocabulary advancement following the intervention. The rise in scores indicates that collaborative digital vocabulary activities enhanced lexical comprehension and classroom engagement. The table illustrates differing levels of improvement among students, indicating variations in involvement, technological access, and learning adaptation within the rural EFL classroom context.

Figure 2. Vocabulary Improvement and Engagement Ecology Across Cycle I



The radar-based image depicts the correlated enhancement of word proficiency and classroom participation throughout Cycle I. The graphic illustrates enhanced engagement, collaboration, and vocabulary recognition following the deployment of Memrise-assisted Project-Based Learning. Engagement levels significantly rose, demonstrating that students reacted favorably to gamified vocabulary exercises and collaborative project assignments. Nevertheless, the application of contextual vocabulary and confidence levels were comparatively diminished, indicating that certain learners still necessitated further assistance in utilizing vocabulary effectively in communicative contexts and autonomous classroom engagement.

Figure 3. Challenges in Rural Digital Learning Environment



The image illustrates the main obstacles faced in the execution of digital vocabulary learning within rural classroom settings. Internet connectivity challenges surfaced as the primary impediment, succeeded by restricted smartphone ownership and complications in the use of contextual vocabulary. Passive engagement among numerous students was also seen throughout collaborative tasks. The image underscores the structural and pedagogical intricacies of incorporating technology-enhanced learning in under-resourced educational settings and stresses the necessity of adaptive instructional practices to facilitate equitable classroom engagement.

3. Reflection and Instructional Revision

Analysis of Cycle I revealed that the integration of Memrise-assisted Project-Based Learning significantly enhanced students' vocabulary engagement and classroom participation, despite the persistence of certain pedagogical restrictions. The instructional activities effectively enhanced students' engagement in vocabulary acquisition via interactive digital exercises and collaborative projects. The evaluation indicated disparate engagement among students, especially during group discussions and vocabulary application exercises. Numerous students continued to rely significantly on peer support and instructor help when formulating sentences and utilizing language in context. Challenges in internet accessibility and restricted smartphone ownership adversely impacted the continuity of educational activities and diminished the efficacy of certain digital exchanges.

The introspective process also revealed deficiencies in classroom management and educational scaffolding. Certain students necessitated more explicit direction concerning project protocols, lexical objectives, and cooperative duties. As a result, multiple modifications were executed in Cycle II to enhance learning efficacy. Classroom management practices were enhanced to promote equitable engagement among group members. Supplementary scaffolding methods, such as guided vocabulary exercises and organized peer assistance, were implemented to aid underperforming pupils. The Memrise exercises were carefully modified to incorporate clearer vocabulary progression, targeted review sessions, and contextualized project objectives to facilitate meaningful vocabulary application and collaborative involvement.

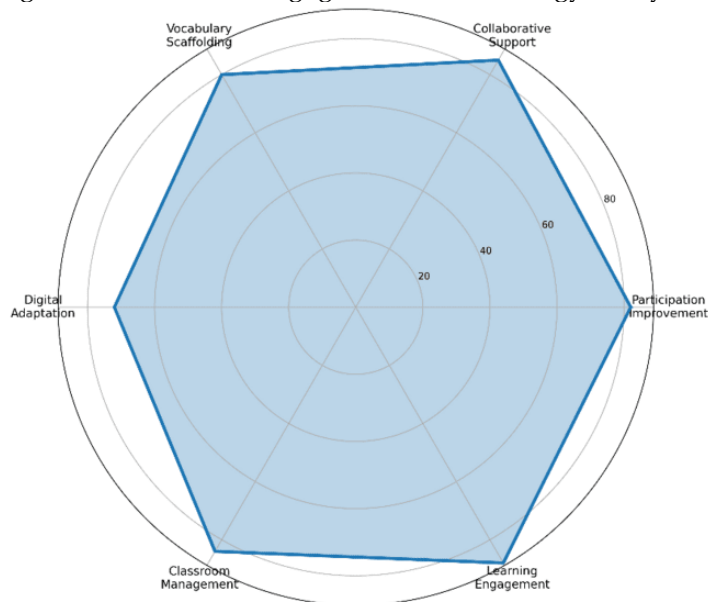
Table 4. Reflection Outcomes and Instructional Revisions

Cycle I Reflection Findings	Instructional Revisions for Cycle II
Uneven student participation	Balanced collaborative task distribution
Dependence on peer assistance	Structured peer-support mechanisms
Difficulties in contextual vocabulary use	Contextualized vocabulary practice
Internet connectivity problems	Offline-supported learning alternatives
Limited smartphone ownership	Flexible group-sharing device strategy
Insufficient instructional scaffolding	Additional guided vocabulary scaffolding
Passive collaboration patterns	Enhanced collaborative monitoring

The table delineates the principal educational insights discerned during the reflection phase of Cycle I and the associated instructional modifications executed in Cycle II. The findings suggest that issues of participation disparity, restricted digital access, inadequate collaborative engagement, and deficient vocabulary support necessitate comprehensive instructional modifications. The updated approach highlighted cooperative assistance, contextual vocabulary utilization, and enhanced

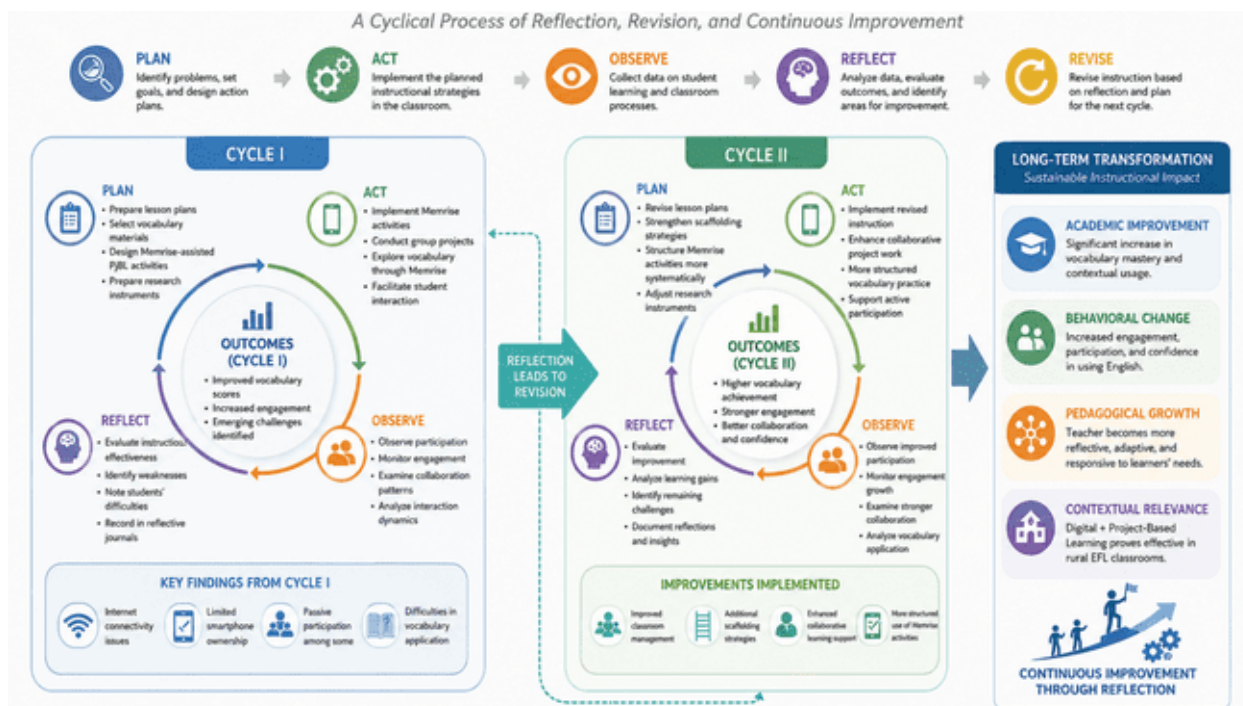
classroom management. The table illustrates how reflective evaluation in Classroom Action Research facilitated ongoing pedagogical enhancement and allowed the researcher to adapt learning activities more effectively to meet students' academic and behavioral requirements in the rural EFL classroom setting.

Figure 4. Reflective Pedagogical Revision Ecology for Cycle II



The radar visualization depicts the multifaceted instructional enhancements designed for Cycle II subsequent to the reflection phase. The chart illustrates that learning engagement, classroom management, and collaborative support emerged as the central emphasis of pedagogical reform. Vocabulary scaffolding and participation enhancement demonstrated significant emphasis, indicating endeavors to establish more structured and equal learning experiences. The visualization underscores the ecological connection between reflective teaching and instructional adaptation, asserting that successful vocabulary acquisition in rural EFL classrooms necessitates both digital resources and a pedagogical redesign that is responsive to classroom dynamics and learner challenges.

Figure 5. Reflective Instructional Transformation Across CAR Cycles



The picture illustrates a conceptual flow of pedagogical change throughout the Classroom Action Research cycles, commencing with the detection of instructional deficiencies and progressing toward reflective evaluation and modified instructional practices. The visualization illustrates how reflective teaching enabled systematic enhancement of the classroom by connecting identified learning issues with specific pedagogical adjustments. The cyclical structure illustrates the dynamic essence of Classroom Action Research, wherein instructional decisions perpetually adapt based on classroom evidence, learner engagement trends, and contextual educational challenges faced during the execution of Memrise-assisted Project-Based Learning.

4. Cycle II Findings

Cycle II shown significant enhancement subsequent to the instructional modifications enacted during the reflection phase of Cycle I. The educational processes were enhanced by improved classroom management, more defined vocabulary objectives, and supplementary scaffolding techniques. The facilitation by teachers markedly improved, especially in directing vocabulary exploration, overseeing collaborative interactions, and assisting students with project execution and presentation tasks. These modifications facilitated a more structured and engaging educational atmosphere.

Classroom observations indicated significant behavioral alterations among children. Participation levels significantly increased, and students became more actively involved throughout Memrise-assisted vocabulary exercises and collaborative project discussions. Group interaction seemed more equitable, as students exhibited increased confidence in articulating language both vocally and in writing. The application of vocabulary has also enhanced, with learners demonstrating more precise word usage, heightened contextual comprehension, and superior performance in project presentations and written assignments.

Reflective journals and interviews demonstrated favorable student attitudes regarding Memrise and Project-Based Learning. Students characterized the learning

experience as pleasurable, engaging, and inspiring, especially when digital vocabulary exercises alleviated monotony and fostered autonomous learning. Identified themes encompassed heightened motivation, enhanced autonomous learning behavior, and improved collaborative engagement.

The quantitative results of post-test Cycle II indicated a substantial enhancement in vocabulary relative to earlier study phases. The majority of students met the Minimum knowledge Criterion (KKM), and paired-sample t-test analysis validated the statistical significance and overall efficacy of the intervention in enhancing vocabulary knowledge and classroom engagement.

Table 5. Post-Test Cycle II Vocabulary Scores

Student	Post-Test Cycle II	Achievement Status
S1	78	Achieved KKM
S2	82	Achieved KKM
S3	84	Achieved KKM
S4	80	Achieved KKM
S5	88	Achieved KKM
S6	76	Achieved KKM
S7	86	Achieved KKM
S8	90	Achieved KKM
S9	79	Achieved KKM
S10	83	Achieved KKM
S11	85	Achieved KKM
S12	78	Achieved KKM
S13	81	Achieved KKM
S14	84	Achieved KKM
S15	77	Achieved KKM
S16	87	Achieved KKM
S17	89	Achieved KKM
S18	75	Achieved KKM
S19	85	Achieved KKM
S20	82	Achieved KKM
S21	80	Achieved KKM
S22	92	Achieved KKM
S23	78	Achieved KKM
S24	86	Achieved KKM

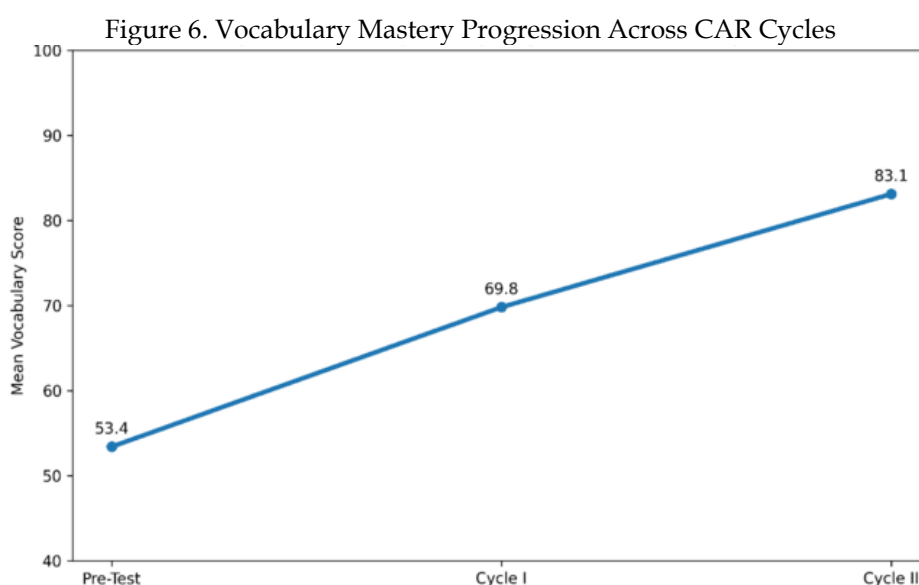
The table displays students' vocabulary proficiency following the application of the updated instructional strategies in Cycle II. The findings indicate significant enhancement in vocabulary proficiency, with the majority of pupils meeting the Minimum Mastery Criterion (KKM \geq 75). The results demonstrate that the incorporation of Memrise-assisted Project-Based Learning, enhanced scaffolding, and refined classroom management positively impacted students' lexical comprehension, contextual vocabulary usage, and overall academic performance in the rural EFL classroom setting.

Table 6. Comparison of Vocabulary Achievement Across Cycles

Research Phase	Mean Score	KKM Achievement (%)
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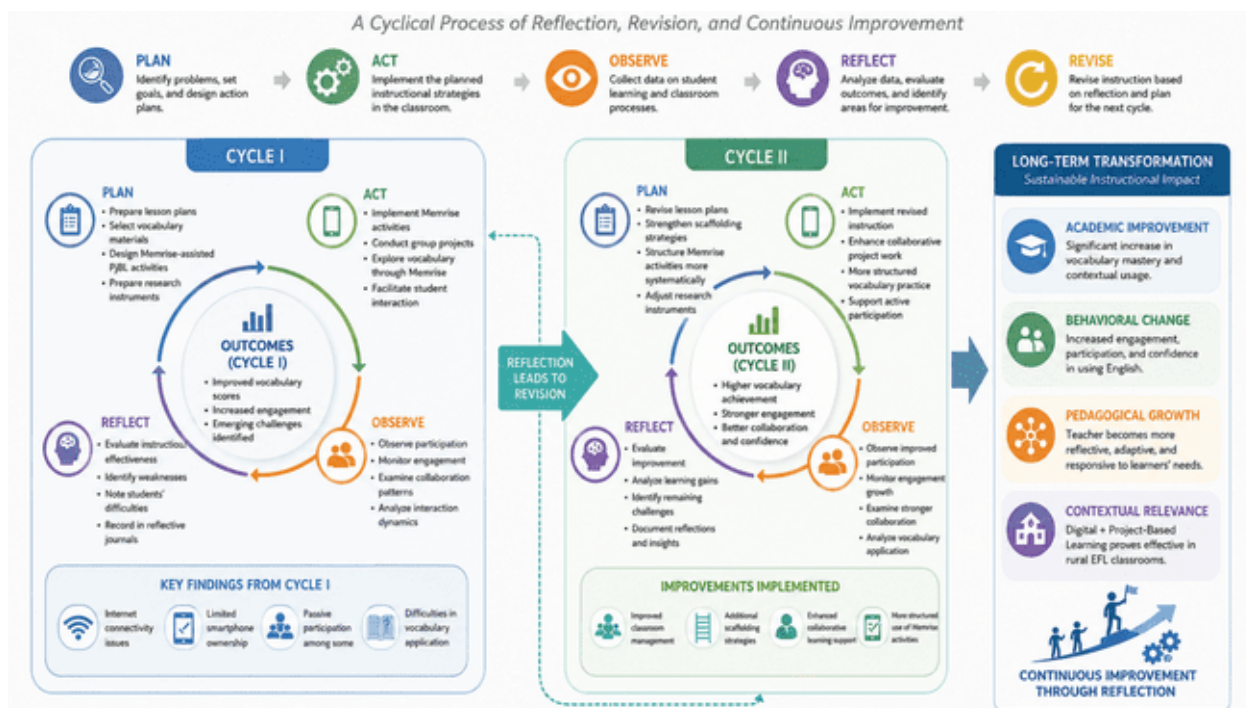
Pre-Test	53.4	8
Cycle I	69.8	54
Cycle II	83.1	92

The comparison chart demonstrates the incremental enhancement of students' vocabulary proficiency over all study phases, encompassing the pre-test, Cycle I, and Cycle II. The findings indicate sustained increases in average scores and mastery accomplishment rates during the Classroom Action Research process. The statistics indicate that reflective instructional modifications and systematic digital project integration substantially enhanced vocabulary acquisition. The chart illustrates the efficacy of iterative pedagogical enhancement in fostering sustained learner engagement and vocabulary development.



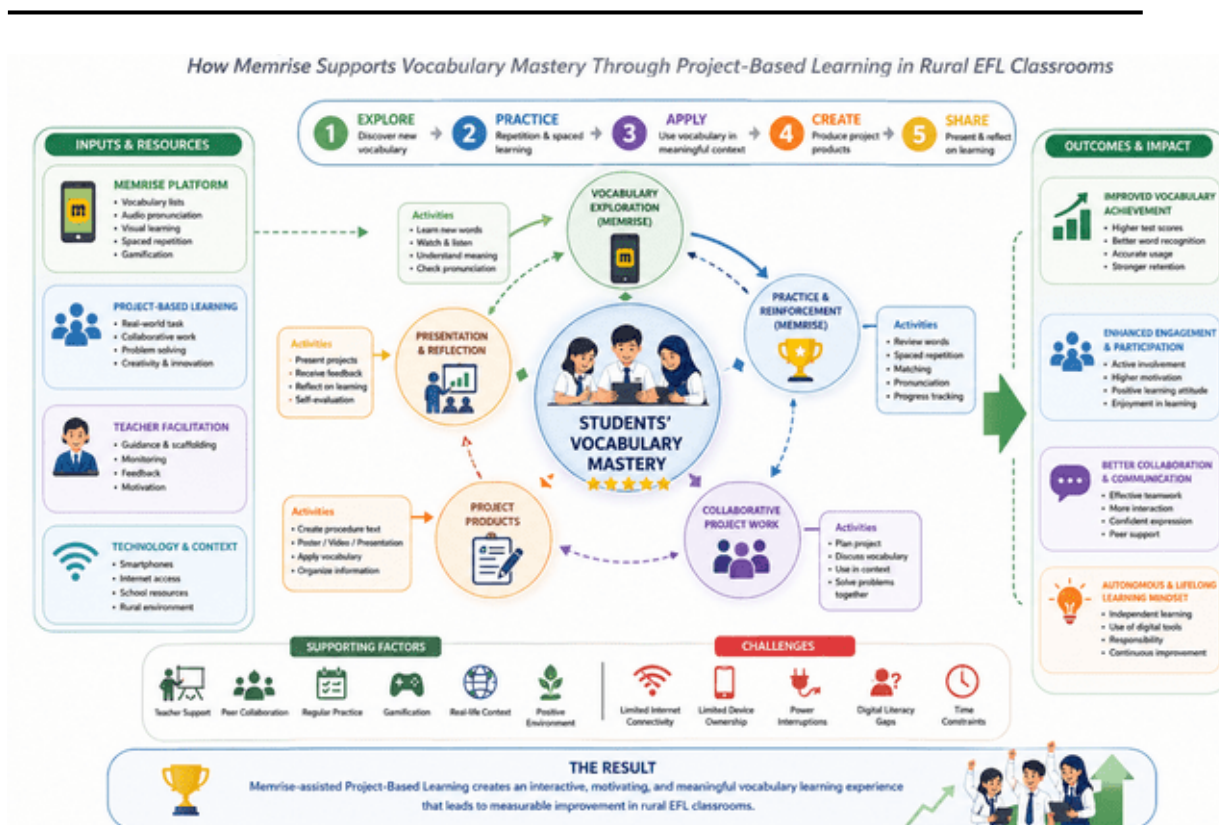
The chart illustrates the incremental enhancement of students' vocabulary proficiency over the three phases of the study. The increasing trend signifies significant improvements in average vocabulary scores from the initial phase to Cycle II. The graphic indicates that the instructional modifications made during the Classroom Action Research cycles positively impacted students' vocabulary growth. The image illustrates the cumulative effect of Memrise-assisted Project-Based Learning on students' lexical comprehension, contextual vocabulary usage, and classroom engagement.

Figure 7. Reflective Instructional Transformation Across CAR Cycles



The picture illustrates a conceptual flow of pedagogical change throughout the Classroom Action Research cycles, commencing with the detection of instructional deficiencies and culminating in reflective evaluation and the modification of instructional methods. The visualization illustrates how reflective teaching enabled systematic enhancement of the classroom by connecting identified learning issues with specific pedagogical adjustments. The cyclical structure illustrates the dynamic essence of Classroom Action Research, wherein instructional decisions perpetually adapt based on classroom evidence, learner engagement trends, and contextual educational challenges faced during the execution of Memrise-assisted Project-Based Learning.

Figure 8. Memrise-Assisted Learning Interaction Map



The picture depicts a conceptual interaction map that demonstrates how Memrise-facilitated vocabulary acquisition enhanced collaborative project endeavors and vocabulary proficiency advancement. The visualization illustrates the interrelated progression of digital vocabulary practice, cooperation, project execution, classroom presentation, and enhanced lexical proficiency. The interaction map illustrates the ecological framework of technology-enhanced learning, wherein vocabulary acquisition arises via repetition, social contact, contextualized communication, and collaborative engagement in project-based learning activities.

Discussion

The results demonstrate that Memrise-facilitated Project-Based Learning significantly transformed students' vocabulary acquisition, transitioning the classroom from passive memorizing to more participatory, collaborative, and contextually relevant language application. Throughout the two action cycles, students exhibited enhanced vocabulary proficiency, increased participation, heightened confidence, and greater engagement in project-based activities. The research hypotheses were thus validated: Memrise could be incorporated into PjBL methodologies, students' vocabulary proficiency grew incrementally, various contextual obstacles influenced the implementation process, and reflective revisions enhanced the efficacy of the second cycle.

The primary finding is to the enhancement of vocabulary proficiency following students' participation in Memrise-assisted vocabulary exercises. This enhancement can be understood through the principles of repeated exposure, multimodal input, and spaced retrieval. Acquiring vocabulary seldom occurs through a solitary encounter; learners require several exposures to lexical items in various modalities and settings before these words become accessible for recognition and application (Bisson et al., 2014; Serrano & Pellicer-Sánchez, 2024; Uchihara et al., 2019). Memrise facilitated this process

by offering auditory and visual cues, repetition, and prompt feedback, which aided students in recognizing word forms, associating them with meanings, and practicing them more methodically. The program served not only as a digital dictionary or memorizing aid but also as an organized rehearsal environment that equipped students for subsequent vocabulary application in project activities (Nguyen et al., 2023; Zakian et al., 2022).

A second significant discovery pertains to the function of Project-Based Learning in converting language from receptive understanding into active classroom application. Memrise facilitated vocabulary acquisition and revision, whereas Project-based Learning (PjBL) necessitated the application of lexical elements in substantive tasks such as discussions, procedural text creation, and presentations. This discovery corresponds with constructivist viewpoints, which perceive learning as an active endeavor of meaning-making through engagement, cooperation, and contextual problem-solving (Jedi-Sari-Biglar & Kaban, 2023; Wang, 2025). Students were required not only to memorize vocabulary but also to engage in meaning negotiation with peers, select appropriate terms for their project, and publicly express their concepts. These activities certainly enhanced vocabulary depth, especially in contextual usage, collocation awareness, and confidence in expressing.

The enhancement of student participation warrants consideration. Prior to the intervention, vocabulary acquisition predominantly relied on teacher elucidation, translation, and rote memorization. During the intervention, students exhibited increased engagement due to Memrise's incorporation of gamified elements and PjBL's provision of social relevance. This corroborates previous research indicating that mobile-assisted and gamified learning can enhance motivation, autonomy, and perseverance in language acquisition (Jedi-Sari-Biglar & Kaban, 2023; Panmei & Waluyo, 2022). Nevertheless, the current study expands this body of work by demonstrating that engagement was not solely generated by the program. Engagement resulted from the integration of digital practices, peer cooperation, instructor support, and project fulfillment. This indicates that technology attains pedagogical significance just when integrated into a thoughtfully constructed learning environment.

The results align with previous studies indicating beneficial impacts of Memrise and other mobile-assisted language learning applications on vocabulary acquisition (Hao et al., 2021; Lin & Lin, 2019; Zhou & Zhou, 2025). This study, however, diverges from numerous prior investigations that regard digital vocabulary applications as standalone therapies evaluated mainly through test scores. This study demonstrates that vocabulary learning is both cognitive and social by placing Memrise within a project-based classroom action framework. The findings also refine assertions that mobile applications inherently improve learning. During Cycle I, numerous students exhibited passivity, and challenges with internet connectivity, device ownership, and vocabulary utilization continued to exist. These obstacles indicate that digital learning in rural EFL classrooms is intrinsically linked to concerns over access, infrastructure, and classroom management.

The reflective transition from Cycle I to Cycle II further substantiates the efficacy of Classroom Action Research as a framework for educational enhancement. The initial cycle demonstrated that digital tools by themselves could not ensure fair participation or significant vocabulary utilization. Modifications in Cycle II, encompassing more precise vocabulary objectives, more instructor facilitation, organized peer help, and a more methodical application of Memrise, resulted in a more equitable learning environment. This discovery underscores that successful technology integration relies

on instructor adaptability and iterative instructional design. In rural classrooms, where technology circumstances may be unreliable, reflexive adaptation is particularly crucial.

This study theoretically advances language acquisition research by reconceptualizing word mastering as a socially contextualized and digitally facilitated process. It connects mobile-assisted vocabulary acquisition with project-based pedagogy, demonstrating that lexical enhancement can be fortified when successive digital exposure is succeeded by collaborative and contextual application. The study enhances discourse on rural EFL teaching by emphasizing the conditions of under-resourced classrooms, where innovation must be tailored to local limitations instead of being applied as a rigid paradigm.

The findings indicate that English educators may utilize Memrise as a preparatory instrument for vocabulary exposure and revision, whereas Project-Based Learning (PjBL) might offer a communicative environment for vocabulary application. Educators should not depend solely on application-based learning; they must provide activities, oversee participation, offer scaffolding, and guarantee that students convert lexical knowledge into significant output. The findings underscore the necessity for schools to expand digital infrastructure, ensure device accessibility, and provide teacher training to facilitate equitable participation of rural students in technology-enhanced English learning.

Limitations and Future Research

Numerous constraints must be recognized. The study was conducted in a singular rural secondary school, which constrains larger generalization. The intervention was executed over two action cycles, complicating the assessment of long-term language retention. The study largely concentrated on vocabulary mastery and engagement, neglecting a thorough examination of other language outcomes, such as speaking fluency or writing accuracy. Fourth, students' access to smartphones and internet connectivity varied, potentially impacting their involvement and performance. Future research may encompass bigger and more heterogeneous samples, compare rural and urban educational settings, analyze delayed post-test outcomes, and explore the impact of Memrise-assisted Project-Based Learning on productive abilities, including speaking and writing. Longitudinal and quasi-experimental approaches would elucidate the sustainability and applicability of the intervention.

This study illustrates that vocabulary acquisition in rural EFL education can be effectively restructured by the incorporation of gamified mobile learning and project-based pedagogy. Memrise offered repetitive, multimodal vocabulary exposure, but PjBL converted lexical knowledge into collaborative and contextual application. The study's value resides in enhanced vocabulary outcomes and its illustration that digital innovation is most effective when integrated with reflective instruction, contextual awareness, and substantive classroom interaction.

Conclusion

This study investigated the impact of Memrise-assisted Project-Based Learning on vocabulary acquisition and student engagement in a rural Indonesian EFL classroom. The study aimed to transform vocabulary training from passive memorization to more meaningful, contextualized, and interactive learning experiences by mixing gamified mobile-assisted vocabulary practice with collaborative project-based activities.

The results reveal numerous significant outcomes. The use of Memrise into Project-Based Learning markedly enhanced students' vocabulary proficiency, especially in

recognition, contextual application, and confidence in language use. The intervention enhanced classroom engagement, seen by heightened involvement, collaboration, and learner motivation in vocabulary exercises. Third, the iterative reflective process of

Classroom Action Research facilitated ongoing pedagogical enhancement, leading to more effective instructional methods in Cycle II. The study indicated that digital vocabulary acquisition in rural settings is influenced by instructional design, technological accessibility, classroom management, and instructor facilitation. The integration of continuous digital exposure and collaborative project work facilitated the shift from receptive vocabulary knowledge to more productive and meaningful language application.

The study theoretically advances the field of mobile-assisted language learning by illustrating how vocabulary acquisition can be enhanced through the use of gamified digital tools and project-based pedagogy. The findings demonstrate that rural EFL classes can gain from context-sensitive digital learning methods when bolstered by reflective teaching and collaborative learning frameworks. Educators should deliberately use mobile applications in communicative classroom activities, while policymakers and educational institutions must enhance digital infrastructure, teacher training, and equal access to learning tools in underfunded educational environments. Future research may evaluate extensive implementations across varied educational settings, assess long-term vocabulary retention, and analyze the impact of Memrise-assisted Project-Based Learning on additional language competencies, including speaking, writing, and communicative fluency.

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