

QR Code-Based Vocabulary Practice and Its Effect on Speaking Skills: A Pre-Experimental Study at SMAN 1 Polewali

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Abstrak

Penelitian ini dilakukan untuk menguji efektivitas pembelajaran kosakata harian berbasis QR Code dalam meningkatkan kemampuan berbicara siswa di SMAN 1 Polewali. Pendekatan eksperimental kuantitatif digunakan dalam penelitian ini dengan memanfaatkan desain tes awal dan tes akhir pada satu kelompok. Sebanyak 34 siswa kelas sebelas berpartisipasi dalam penelitian ini. Kemampuan berbicara dievaluasi melalui rubrik berbicara analitis yang mencakup lima komponen, yaitu pelafalan, kosakata, tata bahasa, kelancaran, dan pemahaman. Analisis data dilakukan menggunakan statistik deskriptif dan Uji Rangking Bertanda Wilcoxon. Hasil penelitian menunjukkan bahwa kemampuan berbicara siswa mengalami peningkatan yang signifikan setelah penerapan pembelajaran berbasis QR Code. Skor rata-rata yang diperoleh pada tes awal adalah 61,21, yang menunjukkan kemampuan berbicara awal yang relatif rendah, kemudian meningkat menjadi 82,14 pada tes akhir setelah perlakuan diberikan.

Kata Kunci: QR; Kosakata; Berbicara

Abstract

This research was conducted to examine the effectiveness of QR Code-based daily vocabulary learning in enhancing students' speaking abilities at SMAN 1 Polewali. A quantitative experimental approach was employed, utilizing a single-group pre-test and post-test design. A total of 34 eleventh-grade students participated in this study. Speaking proficiency was evaluated through an analytic speaking rubric encompassing five components: pronunciation, vocabulary, grammar, fluency, and comprehension. Data analysis was performed using descriptive statistics and the Wilcoxon Signed Rank Test. The results demonstrated that students' speaking abilities improved markedly after the application of QR Code-based learning. The mean score obtained in the pre-test was 61.21, indicating relatively low initial speaking proficiency, which subsequently increased to 82.14 in the post-test following the treatment. Additionally, the percentage of students achieving the minimum speaking proficiency criterion (≥ 80) rose dramatically from 20% during the pre-test to roughly 90% during the post-test. A statistically significant difference was found between pre-test and post-test scores based on the Wilcoxon Signed Rank Test analysis ($p < 0.05$). These results demonstrate that QR Code-based daily vocabulary learning is effective in developing students' speaking skills and can be regarded as a practical teaching method in EFL classrooms.

Keywords: QR; Daily Vocabulary; Speaking Skill

Introduction

Speaking skill represents one of the most crucial competencies in English language acquisition, especially for learners at the senior high school level. Through speaking, individuals can convey ideas, perspectives, and emotions via oral communication. However, achieving mastery in speaking poses significant challenges for English as a Foreign Language (EFL) learners, given that it demands the consolidation of various linguistic components,

encompassing vocabulary, pronunciation, grammar, and fluency (Leong & Ahmadi, 2017; Richards, 2020). Recent scholarly works emphasize that speaking competence functions as a pivotal determinant of communicative success within EFL environments (Derakhshan, Khalili, & Beheshti, 2022).

An initial investigation undertaken at SMAN 1 Polewali, particularly involving eleventh-grade students, indicated that students' speaking abilities were relatively underdeveloped. A considerable number of students struggled to articulate themselves orally in English, primarily due to constrained vocabulary knowledge, limited self-assurance, and anxiety concerning mistakes. Comparable conclusions have been presented by Al-Sobhi and Preece (2018) and Derakhshan et al. (2021), who asserted that apprehension and inadequate lexical resources considerably obstruct EFL learners' oral performance. As a result, students tend to remain inactive during speaking exercises and rarely utilize English in their daily interactions.

A primary factor contributing to students' inadequate speaking performance is their limited repertoire of everyday vocabulary. Vocabulary instruction in numerous EFL classrooms continues to rely predominantly on traditional approaches, such as memorizing isolated word lists from textbooks, which frequently lack meaningful contextual connections. Nation (2020) contends that vocabulary acquired without exposure to authentic contexts proves challenging to retain and apply in genuine communicative situations. Furthermore, Schmitt (2020) emphasizes that contextualized vocabulary acquisition is indispensable for the development of productive language skills, particularly speaking.

Within the contemporary landscape of digital education, the incorporation of technology into language instruction has assumed progressively significant importance. Technology-driven learning platforms can deliver flexible, interactive, and learner-centered educational experiences that facilitate language acquisition (Hockly, 2022). One technological innovation that has yet to be fully exploited in English language education is the QR Code (Quick Response Code). QR Code technology enables learners to access instructional materials instantaneously through mobile devices, thereby promoting ubiquitous and self-directed learning (Çakmak & Erçetin, 2020).

One significant factor underlying students' unsatisfactory speaking performance is their deficiency in daily-use vocabulary. Traditional vocabulary teaching methods continue to dominate many EFL classrooms, such as the memorization of decontextualized word lists from textbooks, which often lack meaningful situational relevance. According to Nation (2020), vocabulary acquired in the absence of contextual exposure proves difficult to remember and utilize in authentic communication. Additionally, Schmitt (2020) maintains that contextual vocabulary learning is fundamental for the development of productive linguistic abilities, especially speaking proficiency.

In the current era of digital education, the integration of technological tools into language pedagogy has become increasingly crucial. Instructional media grounded in technology can offer flexible, interactive, and student-centered learning experiences that enhance language development (Hockly, 2022). Among the technological resources available, QR Code (Quick Response Code) technology remains underutilized in English language instruction. This technology permits learners to access educational content immediately via mobile devices, thereby supporting continuous and autonomous learning (Çakmak & Erçetin, 2020).

Vocabulary constitutes a fundamental element in the development of speaking proficiency. Without adequate vocabulary knowledge, learners encounter significant difficulties in constructing meaningful sentences or communicating ideas effectively through oral discourse. Empirical research demonstrates that vocabulary repertoire size exhibits strong correlations with speaking fluency, accuracy, and self-assurance (Koizumi & In'nami, 2020;

Nation, 2020). Learners possessing restricted vocabulary inventories tend to pause frequently during speech, depend excessively on their native language, and exhibit reluctance toward engaging in speaking tasks.

For EFL learners, vocabulary instruction should be situated within meaningful contexts and maintain direct relevance to students' everyday experiences. Vocabulary items that learners encounter regularly in authentic situations demonstrate greater memorability and applicability in communicative contexts (Schmitt & Schmitt, 2020). Consequently, establishing connections between vocabulary acquisition and students' immediate surroundings assumes critical importance. The implementation of QR Codes containing commonly-used English vocabulary strategically positioned throughout the school environment can facilitate contextual learning and stimulate meaningful speaking practice (Çakmak & Erçetin, 2020; Hockly, 2022).

The speaking difficulties encountered by eleventh-grade students at SMAN 1 Polewali encompass restricted vocabulary, imprecise pronunciation, inadequate fluency, and diminished confidence when communicating in English. These challenges align with findings from prior EFL investigations, which indicate that learners frequently depend on memorized dialogue scripts and demonstrate hesitancy toward spontaneous verbal expression (Derakhshan et al., 2021). The scarcity of opportunities for authentic speaking practice further intensifies these linguistic obstacles (Richards, 2020).

Another significant challenge relates to the continued prevalence of teacher-centered instructional approaches that have not comprehensively integrated digital technological tools. This pedagogical situation adversely affects students' motivation and active involvement in speaking exercises. Hockly (2022) emphasizes that inadequate technology integration impedes learner autonomy and reduces opportunities for authentic language exposure. Consequently, students struggle to develop self-directed learning habits that support sustained progress in speaking proficiency.

Based on an examination of contemporary classroom practices and insights derived from previous scholarly investigations, several research deficiencies become apparent. First, conventional teaching approaches have not succeeded in meaningfully improving students' speaking skills, particularly concerning fluency and vocabulary application (Richards, 2020). A substantial body of literature indicates enhancements in receptive abilities while revealing limited development in productive speaking performance. Second, although QR Generator Code technology has been deployed across numerous educational contexts, its exploitation as a vocabulary learning instrument integrated with the school environment to foster speaking skill enhancement remains considerably underexploited. Most prior research utilized QR Codes as peripheral resources for accessing instructional materials rather than as fundamental components of ongoing, contextualized learning strategies specifically targeting speaking improvement (Çakmak & Erçetin, 2020; Hockly, 2022).

Prior research has demonstrated that the integration of digital media within English language instruction can enhance both student motivation and learning outcomes. The effectiveness of mobile-assisted language learning (MALL) in facilitating vocabulary acquisition and fostering learner autonomy has been well established (Kukulka-Hulme & Shield, 2008; Koizumi & In'nami, 2020). More recent investigations have further confirmed that learning through mobile devices sustains student engagement beyond the traditional classroom setting (Hockly, 2022).

A substantial body of research examining QR Code implementation has documented favorable outcomes in vocabulary development and reading comprehension. Çakmak and Erçetin (2020), for instance, demonstrated that materials incorporating QR Codes facilitated improved vocabulary retention by providing contextual exposure. In contrast, investigations

targeting speaking skill enhancement have predominantly utilized audio-visual resources, mobile applications, or communicative language teaching methodologies, rather than QR Code-based contextual learning approaches (Derakhshan et al., 2022).

Although considerable research has been conducted on vocabulary learning and educational technology, investigations that combine QR Code-based contextual vocabulary learning within school environments with speaking skill development remain limited. The majority of existing studies examine vocabulary proficiency and technology utilization as separate domains, rather than synthesizing both elements into an integrated contextual learning framework. Consequently, this research contributes originality by merging QR Code-based vocabulary acquisition with authentic speaking practice within school contexts.

Review Of Related Literature

1. Speaking Skills and Vocabulary in EFL Contexts.

Convey meaning and engage in effective interaction (Richards, 2020). Possessing adequate vocabulary knowledge serves as an essential prerequisite for successful oral communication, given that insufficient vocabulary frequently results in hesitation, pauses, and difficulties in articulating thoughts clearly (Nation, 2020). In EFL contexts, research has demonstrated that vocabulary size correlates with speaking fluency and confidence, implying that vocabulary instruction warrants greater emphasis to advance learners' speaking development (Koizumi & In'nami, 2020; Nation, 2020).

2. Components of Speaking Skill

Pronunciation pertains to the clarity and accuracy of speech sounds, which influence the extent to which a speaker is understood (Brown, 2004).

a. Vocabulary encompasses the range and appropriateness of words employed to convey meaning in spoken communication (Hughes, 2003).

b. Grammar pertains to the accurate utilization of sentence structures to express effectively (Brown, 2007).

c. Fluency concerns the smoothness and continuity of speech characterized by minimal hesitation (Luoma, 2004).

d. Comprehension denotes the speaker's capacity to comprehend spoken input and respond appropriately during interaction (Richards, 2006).

3. Mobile Assisted Vocabulary and Speaking Learning

Mobile-assisted language learning (MALL) has attracted considerable attention owing to its adaptability and capacity to facilitate language learning beyond traditional classroom settings. Stockwell (2010) demonstrated that mobile learning platforms enabled students to access linguistic content at any time and from any location, substantially enhancing vocabulary retention and learner autonomy. Likewise, Kukulska-Hulme and Shield (2008) emphasized that mobile technology promotes motivation and autonomy, which are crucial for language acquisition, encompassing speaking practice in authentic environments. These investigations substantiate the incorporation of mobile technologies to develop both vocabulary proficiency and speaking competencies.

4. QR Code in Language Learning

QR Code technology, representing a form of mobile-enabled augmented media, has been increasingly employed to connect learners with digital content through quick scan-based access. Within language learning contexts, instruction utilizing QR Codes enables students to access multimedia resources—including audio recordings, videos, and pronunciation models—immediately, thereby facilitating vocabulary acquisition and speaking practice (Celik, 2023). For instance, Celik's investigation conducted at TISHK

International University demonstrated that QR Code-based instruction yielded significant improvements in EFL learners' vocabulary knowledge and pronunciation accuracy when compared to conventional teaching methods (p values = .002 and .003), utilizing recorded audio tracks and associated multimedia content accessed through QR codes.

A separate international investigation examining QR code-enhanced writing and speaking practices found that the incorporation of QR codes in English language classrooms increased L2 learners' engagement and active involvement in speaking activities. Participants indicated that QR code activities promoted interaction, collaboration, and regular use of the target language, thereby demonstrating that QR codes serve as an effective scaffolding tool for speaking instruction.

5. QR Code and Vocabulary Acquisition

Research examining QR codes in language education similarly demonstrates favorable outcomes for vocabulary acquisition. Although numerous investigations emphasize receptive skills, a study conducted at a Malaysian primary school revealed that vocabulary activities incorporating QR codes substantially improved students' vocabulary gains, supporting the notion that QR codes can facilitate contextualized word learning. These results are consistent with research on technology-mediated vocabulary learning, which indicates that mobile technologies enhance the learning environment by delivering multimodal and interactive vocabulary input that learners can encounter in contextual settings, thereby promoting recall and productive utilization (Stockwell, 2010; Kukulska-Hulme & Shield, 2008).

6. QR Codes and Speaking Skills.

Although the body of research examining QR Code integration in language classrooms continues to expand, investigations specifically establishing connections between QR Code-based vocabulary learning and speaking improvement remain comparatively scarce, particularly within international contexts. Nevertheless, the QR Generator code-enriched writing and speaking practices study illustrated how QR Generator codes can be incorporated into speaking instruction to foster active engagement, supportive feedback activities, and learner autonomy in L2 speaking tasks, indicating potential advantages for speaking performance.

Furthermore, additional QR Code studies (such as those examining textbook QR codes with multimedia content for listening and speaking) have documented statistically significant enhancements in speaking outcomes when learners interacted with QR code-linked resources integrated into instructional materials, including textbooks featuring QR-linked exercises

Recent scholarly investigations have examined the application of QR Code-enhanced materials within English language learning environments, demonstrating favorable impacts on speaking abilities through quasi-experimental methodologies (e.g., Izza, Praherdhiono & Soepriyanto, 2024; Igirisa, Fatsah & Danial, 2025). Nevertheless, the majority of studies published in reputable international journals have predominantly addressed QR Codes in relation to vocabulary acquisition, listening comprehension, or integrated skill development, rather than investigating their direct influence on everyday speaking performance. This indicates a notable absence in the literature concerning QR Code-supported contextual vocabulary instruction and speaking proficiency development within EFL settings, particularly at the secondary education level.

Method

This investigation adopted a quantitative research methodology utilizing a pre-experimental design, specifically the one-group pre-test–post-test framework. This particular design was chosen to assess the efficacy of QR Generator Code-supported daily vocabulary instruction in enhancing learners' speaking abilities. The quantitative approach is well-suited to the present study, as it enables researchers to quantify and objectively evaluate changes in participant performance prior to and following the intervention (Creswell, 2014).

The pre-experimental design is frequently employed in classroom-based investigations where random assignment and the establishment of control groups present considerable challenges due to institutional and practical limitations (Sugiyono, 2019). As noted by Ary, Jacobs, Irvine, and Walker (2014), the one-group pre-test–post-test design permits researchers to detect changes attributable to a specific treatment by means of comparing participants' performance measurements before and after the intervention is implemented.

In this design, a single cohort of participants was assessed prior to and following the intervention. An initial assessment was administered to establish baseline speaking proficiency, subsequent to which the implementation of QR Generator Code-supported daily vocabulary instruction served as the intervention. Upon completion of the intervention phase, a subsequent assessment was administered to measure potential gains in participants' speaking abilities. The discrepancy between the pre-intervention and post-intervention assessment scores served to evaluate the efficacy of the treatment, in accordance with established protocols in experimental and quasi-experimental investigations within educational contexts (Fraenkel, Wallen, & Hyun, 2012).

The research design can be illustrated as follows:

$O_1 - X - O_2$

Where:

O_1 = Pre-test (students' speaking skill before treatment)

X = Treatment (QR Generator Code-based daily vocabulary learning)

O_2 = Post-test (students' speaking skill after treatment)

The study was conducted at SMAN 1 Polewali from October to November in academic year 2025/2026, focusing on eleventh-grade students. The subject of this study were 34 students, who were selected using total sampling technique, as the entire class was involved in the study. This sampling technique was chosen to ensure that all students had equal exposure to the treatment and to reflect authentic classroom conditions. A speaking assessment served as the primary data collection instrument in this investigation. This assessment was administered on two occasions—prior to and following the intervention—to evaluate participants' oral proficiency in relation to the implementation of QR Generator Code-supported daily vocabulary instruction. The speaking assessment was specifically developed to measure learners' capacity to employ English in spoken form within authentic everyday academic contexts.

Analytic Assessment Criteria

Participants' oral productions were evaluated through an analytic assessment framework, derived from established speaking evaluation criteria within EFL scholarship. The framework encompassed five dimensions as delineated by H. Douglas Brown (2004).

1. Scoring Category of Students' Speaking Skill

Score Range	Category	Description
80–100	Very Good	Students speak fluently with clear pronunciation, appropriate vocabulary, accurate grammar, and good comprehension.
66–79	Good	Students demonstrate understandable speech with minor errors that do not interfere with meaning.
56–65	Fair	Students convey ideas with frequent errors and limited fluency.
≤ 55	Poor	Students have serious difficulties in expressing ideas clearly.

2. Analytic Speaking Rubric

Component	Score 1	Score 2	Score 3	Score 4
Pronunciation	Very unclear	Frequent errors	Minor errors	Clear and accurate
Vocabulary	Very limited	Limited	Adequate	Appropriate and varied
Grammar	Dominated by errors	Frequent errors	Minor errors	Accurate
Fluency	Halting speech	Frequent pauses	Generally fluent	Smooth and fluent
Comprehension	Unable to respond	Limited understanding	Understands most	Fully understands

3. Classification of Scoring Category

Category	Score Range	Interpretation
Very Good	80–100	Students have achieved speaking proficiency
Good	66–79	Students show acceptable speaking ability
Fair	56–65	Students need improvement
Poor	≤ 55	Students require intensive practice

Scoring Methodology

The highest attainable score on the speaking assessment was 25 points, calculated by multiplying five assessment dimensions by the maximum value of 5 points per criterion. Participant scores were subsequently transformed into percentage values to enable more straightforward analysis and comparison between pre-intervention and post-intervention performance measurements.

Research Procedure

The research procedure consisted of three main stages:

1. Pre-test

Before the treatment, students were given a speaking pre-test to measure their initial speaking ability. The results of the pre-test served as baseline data.

2. Treatment

During the treatment, QR Generator Codes containing daily-used English vocabulary were introduced and placed in various locations around the school. Students were encouraged to scan the QR Codes using their mobile devices to learn vocabulary, listen to pronunciation models, and practice short speaking tasks both inside and outside the classroom. The use of QR Codes enabled flexible and autonomous learning, allowing students to repeatedly access learning materials beyond classroom hours, which supports vocabulary retention and speaking development (Godwin-Jones, 2018). The treatment was conducted over eight meetings within a four-week period, with each meeting lasting approximately 90 minutes, following the regular English class schedule. This duration provided sufficient exposure and practice opportunities for students to internalize vocabulary and apply it in speaking activities. Each meeting focused on different sets of vocabulary related to the school environment and daily communication, gradually increasing task complexity to promote fluency and accuracy in speaking (Nation, 2013).

According to Fraenkel, Wallen, and Hyun (2012), administering a treatment across multiple sessions enhances the validity of pre-test and post-test comparisons by reducing the influence of short-term learning effects. Therefore, implementing QR Generator Code-based daily vocabulary learning over eight meetings ensured that any improvement in students' speaking skills could be more reliably attributed to the intervention.

3. Post-test

After the treatment period, a speaking post-test was administered using tasks similar to those in the pre-test. The post-test results were compared with the pre-test scores to identify improvements in students' speaking skills.

Data Analysis Technique

The gathered data were subjected to analysis utilizing the Statistical Package for the Social Sciences (SPSS) version 30. Prior to proceeding with hypothesis testing, a normality assessment was administered to ascertain whether the data followed a normal distribution. The Shapiro-Wilk test was selected given its suitability for limited sample sizes ($n < 50$).

That the pre-test and post-test scores did not adhere to a normal distribution ($p < 0.05$). Consequently, a non-parametric statistical procedure was implemented. To investigate the discrepancy between participants' the pre-test and post-test speaking scores, the Wilcoxon Signed-Rank Test was utilized.

The significance was established at $\alpha = 0.05$. The Wilcoxon Signed-Rank Test was chosen given its appropriateness for comparing two related samples when the assumption of normality is not met. The test outcomes were interpreted utilizing the Z value and Asymp. Sig. (2-tailed) parameters. Additionally, an effect size coefficient (r) was computed to ascertain the magnitude of the intervention's impact.

Statistical Hypothesis

H_0 (Null Hypothesis): There is no significant difference between students' pre-test and post-test speaking scores.

H_1 (Alternative Hypothesis): There is a significant difference between students' pre-test and post-test speaking scores after the treatment. The decision rule stated that the null hypothesis (H_0) would be rejected if the significance value was less than 0.05 ($p < 0.05$). The results of the Wilcoxon Signed-Rank Test yielded a Z value of -4.733 and an Asymp. Sig. (2-tailed) $< .001$, leading to the rejection of the null hypothesis. These findings indicate a statistically significant improvement in students' speaking scores following the intervention.

Additionally, descriptive statistics were calculated to examine the mean score difference between the pre-test and post-test. The results of the descriptive analysis are presented in Table 1.

Table 1

Wilcoxon Signed-Rank Test

Test Type	Mean Score	N	Z-value	Asymp. Sig. (2-tailed)
Pre-test	63.24	34		
Post-test	83.59	34	-4.733	$< .001$

The outcomes of the pre-test and post-test assessments reveal a notable enhancement in participants' speaking proficiency following the implementation of QR Generator Code-supported daily vocabulary instruction. Prior to the test, the average pre-test speaking score among participants stood at 63.24, indicating a comparatively moderate level of oral communicative competence. Subsequent to the completion of the intervention, the average post-test score rose to 83.59, signifying a considerable advancement in participants' speaking abilities.

This increase of 20.35 points between the pre-test and post-test means suggests that the intervention had a positive impact on students' overall speaking performance. The improvement was consistently observed across all speaking components, including pronunciation, vocabulary, grammar, fluency, and comprehension.

This investigation was designed to evaluate the effectiveness of QR Generator Code-supported daily vocabulary learning in enhancing learners' speaking abilities. The results indicated a statistically significant enhancement in participants' speaking performance subsequent to the intervention. The descriptive analysis demonstrated that the average speaking score from 63.24 during the pre-test assessment to 83.59 during the post-test assessment, reflecting a notable improvement of 20.35 points.

The result of the Wilcoxon Signed-Rank Test further confirmed the effectiveness of the intervention. The analysis yielded a Z value of -4.733 with an Asymp. Sig. (2-tailed) value of $p < .001$, leading to the rejection of the null hypothesis. This indicates that the improvement in students' speaking scores was statistically significant and not attributable to chance.

The improvement in speaking performance can be theoretically explained by the role of vocabulary knowledge in oral communication. According to I. S. P. Nation (2013), vocabulary is a fundamental component of speaking proficiency, as learners need sufficient lexical resources to express ideas fluently and accurately. When students possess adequate vocabulary, they are more confident and capable of producing spoken language effectively.

Furthermore, the consistent enhancement observed across all oral production dimensions including pronunciation, lexical repertoire, grammatical accuracy, discourse fluency, and communicative comprehension reinforces the perspective that speaking constitutes a multifaceted competence. H. Douglas Brown (2004) underscores that oral proficiency ought to be evaluated analytically, as advancement in one dimension frequently influences the

development of other dimensions. Within the context of this investigation, grammatical accuracy exhibited the most substantial improvement, indicating that sustained engagement with lexical items through contextually embedded learning activities facilitated learners' capacity to formulate more precise sentences during oral communication exercises.

The implementation of QR Generator Codes as an instructional medium likewise conforms to theoretical frameworks of mobile-assisted language learning (MALL). Robert Godwin-Jones (2018) contends that mobile technologies foster learner autonomy and enhance exposure to linguistic input beyond the confines of traditional classroom settings. Through scanning QR Codes strategically positioned throughout the school environment, learners gained the ability to access vocabulary resources repeatedly and rehearse oral production both within and beyond the classroom setting. This inherent flexibility probably contributed to heightened engagement and more consistent oral rehearsal opportunities.

Overall, the outcomes of this investigation corroborate prior scholarly work indicating that vocabulary instruction enhanced through technology can substantially advance learners' oral proficiency. The incorporation of QR Generator Code-supported daily vocabulary instruction delivered meaningful linguistic input, consistent practice opportunities, and contextually grounded learning experiences, which together resulted in the documented enhancement in participants' speaking performance.

To offer a more comprehensive account of learners' oral development, descriptive statistical analyses were computed for each speaking dimension, encompassing pronunciation, lexical repertoire, grammatical accuracy, discourse fluency, and communicative comprehension. The average scores of the pre-intervention and post-intervention assessments were juxtaposed to determine the extent of improvement in each dimension. This examination was undertaken to ascertain which facets of oral production derived the greatest benefit from the implementation of QR Generator Code-supported daily vocabulary instruction. The outcomes of this dimension-specific enhancement are delineated in Table 2.

Table 2

Improvement Across Speaking Components

Component	Pre-test Mean	Post-test Mean	Mean Difference	Improvement (%)
Pronunciation	7.79	12.11	4.32	55.45%
Vocabulary	9.69	12.46	2.77	28.59%
Grammar	4.67	10.46	5.79	124.01%
Fluency	8.30	12.89	4.59	55.30%
Comprehension	9.08	12.71	3.63	39.98%
Overall	63.24	83.59	20.35	32.18%

The most substantial improvement was noted in grammar (124.01%), suggesting that greater vocabulary exposure enabled learners to formulate more precise sentences. Pronunciation and fluency also demonstrated notable advancements, indicating increased confidence and more fluid speech delivery. Collectively, the findings validate that incorporating daily vocabulary practice through QR Codes had a comprehensive positive impact on learners' speaking performance.

This improvement trend aligns with the findings of Agnes Kukulska-Hulme (2012), suggesting that mobile-assisted language learning enhances learner engagement and provides greater opportunities for oral language practice. Research on QR Code-assisted instruction

conducted by Sung-Yao Liu et al. (2014) also indicates that QR-based learning environments have a positive impact on students' vocabulary mastery and speaking abilities.

Analysis of Learners' Engagement and Motivation

Throughout the implementation of QR Generator Code-supported daily vocabulary instruction, participants exhibited greater engagement and motivation in speaking activities, attributable to convenient access to vocabulary and pronunciation resources. This outcome aligns with mobile-assisted language learning research, which indicates that QR Code-facilitated learning fosters learner autonomy and sustained engagement.

Pedagogical Implications

To integrate QR Codes as a supplementary instructional resource to provide learners with continuous access to vocabulary input beyond scheduled class time. By exposing students to commonly used everyday vocabulary in a flexible and contextualized manner, educators can help reduce learners' anxiety and hesitation in oral communication. This approach supports learner autonomy and aligns with communicative language teaching principles, which emphasize meaningful interaction and student-centered learning (Communicative Language Teaching Today). Accordingly, incorporating straightforward digital tools such as QR Codes can serve as a practical and innovative strategy to address typical speaking challenges in EFL classrooms.

Discussion

The results of this investigation reveal that QR Code-supported daily vocabulary learning significantly enhanced learners' speaking abilities at SMAN 1 Polewali. The pre-test and post-test outcomes demonstrated a considerable improvement in participants' speaking performance, evidenced by the increase in the proportion of students attaining the minimum speaking proficiency score (≥ 80) from 20% in the pre-test to approximately 90% in the post-test. This enhancement indicates that exposing learners regularly to commonly used everyday vocabulary through QR Codes helped diminish their linguistic constraints and improved their capacity to articulate ideas verbally. This outcome supports the perspective that vocabulary proficiency is fundamental to speaking development, given that limited vocabulary frequently impedes learners' oral communication (Testing for Language Teachers).

Furthermore, enhancements were noted across all dimensions of speaking proficiency, encompassing pronunciation, grammatical accuracy, discourse fluency, and comprehension. The observed gains in fluency and comprehension suggest that participants developed greater confidence and reduced hesitation in oral production following systematic vocabulary exposure. The accessibility afforded by QR Codes enabled learners to pursue autonomous and repetitive study beyond traditional classroom settings, which corresponds with communicative language teaching principles that prioritize meaningful interaction and student-centered learning (Communicative Language Teaching Today). Consequently, the incorporation of QR Code-supported vocabulary instruction may serve as a viable alternative to conventional pedagogical approaches in developing EFL learners' oral proficiency.

Conclusion

This study demonstrates that using QR Codes for daily vocabulary practice led to meaningful improvements in students' speaking abilities at SMAN 1 Polewali. Statistical analysis using the Wilcoxon Signed Rank Test revealed a significant difference between students' speaking performance before and after the intervention ($p < 0.05$). The pre-test results

indicated that students began with relatively limited speaking proficiency, while the post-test scores reflected substantial gains following the implementation of QR Code-based learning.

The quantitative data further showed a notable increase in the proportion of students who met the minimum speaking proficiency threshold (≥ 80), rising from 20% on the pre-test to roughly 90% on the post-test. This substantial improvement suggests that consistent exposure to commonly used vocabulary through QR Code technology had a positive impact on students' speaking development. In conclusion, the findings indicate that incorporating QR Code-based vocabulary learning can function as a valuable teaching approach to strengthen EFL learners' speaking skills and help overcome typical speaking challenges encountered in senior high school settings.

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