



Enhancing Vocabulary Mastery in Elementary Students through Liveworksheets

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Abstract

This study examines the effect of implementing Liveworksheets on the English vocabulary mastery of fourth-grade students at SD Negeri 1 Astina. Utilizing a quasi-experimental design with a post-test-only control group, the research involved a sample of 54 students, evenly distributed into an experimental group and a control group, each comprising 27 participants. Data were collected through a vocabulary post-test, and the results were analyzed using inferential statistical methods via IBM SPSS Statistics 26. The findings reveal that the experimental group achieved a significantly higher mean post-test score ($M = 87.03$) compared to the control group ($M = 71.66$). The independent samples t-test indicated a statistically significant difference between the groups ($p = 0.000$). Additionally, the effect size computed using Cohen's d (1.926) reflects a large impact of the intervention. These results suggest that Liveworksheets, as an interactive digital learning tool, substantially enhances students' mastery of English vocabulary. In conclusion, the implementation of Liveworksheets proves to be an effective pedagogical strategy to improve vocabulary acquisition among elementary students. The significant improvement observed in the experimental group underscores the potential of interactive digital tools to foster more engaging and effective learning environments. Educators are encouraged to integrate such technology-based interventions to augment traditional teaching methods and optimize student outcomes in language learning.

Keywords: Liveworksheets; English; Vocabulary; Elementary

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1. Introduction

Teaching English at the elementary level presents distinctive challenges that differ markedly from those encountered in higher education. Teachers frequently emphasize grammatical instruction, often at the expense of authentic language use necessary for effective daily communication (Padmadewi et al., 2018). The efficacy of language instruction is impeded by both external constraints—such as limited instructional time and insufficient teaching resources—and internal barriers, including inadequate teacher qualifications and fluctuating levels of student motivation (Falah, 2023). To address these issues, there is an urgent need for innovative educational media that can enrich the learning experience (Nitiasih et al., 2022; Dharsana, 2025). Moreover, the integration of technology into pedagogical practices, coupled



with enhancements in assessment methodologies, plays a critical role in supporting effective language acquisition (Huang, 2023). The incorporation of 21st-century skills, facilitated by technology-enhanced assessments, is paramount in nurturing students' core English competencies (Padmadewi et al., 2022; Pramesti et al., 2025).

Indonesia's persistently low English proficiency, particularly in rural and marginalized areas such as SD Negeri 1 Astina, highlights the urgent necessity for improved language instruction methodologies. Traditional teaching approaches, which predominantly focus on rote memorization and grammar drills, prove inadequate in meeting the communicative needs of contemporary learners. Although digital technologies like Liveworksheets have shown potential in enhancing student engagement and learning outcomes, there remains a conspicuous gap in empirical research examining their specific effectiveness in improving vocabulary acquisition among elementary school students in underserved communities. This research gap is especially critical given vocabulary's foundational role in literacy development and overall language competence.

A robust vocabulary foundation is indispensable for literacy advancement and effective communication, enabling students to articulate ideas clearly and interact meaningfully with educational content (Ratminingsih et al., 2023; Ulya, 2016; Permana, 2020). Vocabulary acquisition not only facilitates oral and written communication but also constitutes a fundamental pillar for successful foreign language learning (Paivio, 1986). Nevertheless, effective vocabulary learning necessitates strategic and interactive pedagogical approaches that transcend conventional memorization, fostering improved retention and fluency (Sagarra & Alba, 2006; Strickland, 2004; Hummel, 2010).

The inquiry-based Lembar Kerja Peserta Didik (LKPD) cultivates essential 21st-century competencies such as critical thinking, communication, and collaborative teamwork by actively involving students in questioning and problem-solving processes (Yuniar et al., 2022). Coupled with contextual teaching methods and explicit instruction, the integration of educational media substantially elevates students' comprehension and engagement (Fauziah, 2019; Indriyani, 2021; Budasi, 2020), thereby fostering a more interactive and learner-centered classroom environment.

Liveworksheets, a dynamic digital platform offering interactive, multimedia-enriched worksheets, has been increasingly recognized for its capacity to support assessment and enhance engagement in elementary English classrooms (Rhosityda, 2021). Its facilitation of self-directed learning and active audio-text interaction is particularly beneficial for vocabulary development (Yusuf, 2022). Despite the growing adoption of ICT tools in EFL instruction and their acknowledged motivational benefits (Ratminingsih & Budasi, 2020; Aunurrahman, 2023; Utami & Mahardika, 2023), there remains a critical lack of rigorous, empirical studies that specifically evaluate the effectiveness of Liveworksheets in promoting vocabulary mastery among elementary students situated in marginalized, resource-scarce rural contexts.

This research addresses a significant and pressing gap by focusing specifically on SD Negeri 1 Astina, a rural school emblematic of the educational challenges faced in underserved communities. Unlike prior studies that have predominantly explored digital tools in more resourced or urban schools, this study's novelty lies in its contextualized investigation of how Liveworksheets can serve as a transformative educational intervention in a rural setting where



traditional methods remain dominant. By providing a systematic comparison between conventional vocabulary teaching approaches and this innovative digital medium, the study aims to generate novel empirical evidence on the potential of Liveworksheets to not only enhance vocabulary acquisition but also to foster learner autonomy and contribute to more inclusive and equitable English language education in marginalized elementary schools.

2. Method

Research Design

This study employed a quasi-experimental design featuring a post-test only control group. Two groups were involved: an experimental group that received the Liveworksheet intervention and a control group taught through traditional methods. This design enabled a direct comparison of vocabulary mastery outcomes between groups after the intervention, ensuring a focus on internal validity to ascertain the causal impact of the Liveworksheet on vocabulary acquisition.

Setting and Participants

The research was conducted at SD Negeri 1 Astina, located in Singaraja, Bali. The participants comprised two intact fourth-grade classes, each with 27 students. One class was randomly assigned as the experimental group, which utilized the digital Liveworksheet platform for vocabulary enhancement, while the other served as the control group, continuing conventional vocabulary instruction. The random assignment minimized confounding variables, supporting the reliability of between-group comparisons.

Research Procedure

Initially, approval was secured from the school administration. The population was identified, followed by the selection of the two sample groups. Research instruments were developed and validated to ensure their reliability and validity for assessing vocabulary mastery. Prior to the intervention, homogeneity and normality tests were conducted to confirm comparability between the groups. The treatment spanned eight teaching sessions, during which the experimental group used the Liveworksheet platform, whereas the control group received standard instruction. Upon completion of the treatment, a post-test was administered to both groups to evaluate vocabulary proficiency. Data analysis was performed using SPSS software, incorporating descriptive and inferential statistics to assess treatment effects comprehensively.

Data Collection

Data were collected through post-tests immediately after the intervention and delayed post-tests to measure retention of vocabulary mastery. Descriptive statistics summarized key data characteristics including means and variability. Inferential statistics, specifically independent samples t-tests, were utilized to examine significant differences in vocabulary scores between the experimental and control groups. This mixed analytic approach ensured an in-depth understanding of the intervention's effectiveness.

Data Analysis

Descriptive statistical measures—mean, and standard deviation—were calculated to interpret score distribution and central tendency of vocabulary mastery. Independent samples t-tests assessed the statistical significance of score differences between groups. Furthermore,

effect size calculations were conducted to determine the practical significance and educational relevance of the findings. These analytical procedures allowed the results to be generalized with caution, despite the quasi-experimental constraints, thereby illuminating the potential of the Liveworksheet tool to enhance vocabulary learning among elementary students.

3. Findings

Table 1 compares vocabulary mastery scores between an experimental group and a control group. The experimental group was taught using Liveworksheet, a digital learning platform, while the control group received conventional teaching methods.

Table 1. Descriptive Analysis

Data	Mean	Standard Deviation
Experiment	87.03	7.240
Control	71.67	8.660

The experimental group had a mean score of 87.03, which was notably higher than the control group's mean score of 71.67. This indicates that students who learned through Liveworksheet performed better on average in vocabulary mastery than those taught by traditional methods. Additionally, the standard deviation for the experimental group was 7.240, slightly lower than the control group's 8.660. This suggests that the scores in the experimental group were more consistent and clustered closer to the average, while the control group showed greater variability in student performance. Overall, these results imply that the use of Liveworksheet as a teaching tool was more effective in improving vocabulary mastery and helped most students achieve relatively similar and higher scores compared to conventional teaching methods. The next, a normality test was conducted. These tests help determine whether the data follow a normal distribution, which is a key assumption for many parametric statistical analyses. The results are presented in Table 2.

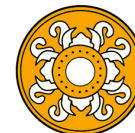
Table 2. Normality Test

Data	Statistic	Sig. (p-value)
Experiment	0.176	0.051
Control	0.132	0.200

For the experimental group, the Kolmogorov-Smirnov test yielded a p-value of 0.051, which is just above the conventional threshold of 0.05. Similarly, the control group's Kolmogorov-Smirnov test resulted in a p-value of 0.200, exceeding the 0.05 cutoff. Since all these p-values are greater than 0.05, the data are normally distributed for both groups. The next analysis conducted was independent sample t test as shown in Table 3.

Table 3. Independent Sample t Test

F	Sig	t	Sig. (2-tailed)
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1.289	0.262	7.056	0.000
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The table presents the results of an independent samples t-test conducted to compare the mean scores between the experimental group, which was taught using Liveworksheet, and the control group, which received conventional teaching. Before performing the t-test, Levene's test for equality of variances was conducted to check if the variances between the two groups were equal. The Levene's test yielded an F value of 1.289 with a significance level (p-value) of 0.262, which is greater than the 0.05 threshold. This indicates that the assumption of equal variances was met, allowing the use of the t-test results under the "Equal variances assumed" row. The t-test results show a t-value of 7.075 with 52 degrees of freedom, and a highly significant p-value of .000 ($p < 0.001$), indicating a statistically significant difference between the two groups' mean scores. The mean difference between the experimental and control groups was 15.37, with a standard error of 2.17. The 95% confidence interval for the difference in means ranged from approximately 11.01 to 19.73, which does not include zero, further confirming the significance of the difference. In summary, these results demonstrate that the experimental group, taught with Liveworksheet, scored significantly higher on the measured outcome compared to the control group taught with conventional methods. This suggests that the Liveworksheet teaching method had a positive and statistically significant effect on the students' vocabulary mastery.

After the t-test results indicated a significant impact of using Liveworksheets in enhancing vocabulary mastery among fourth-grade students, an effect size analysis was performed. This analysis was carried out to determine the extent to which the independent variable influenced the dependent variable. The calculated effect size was 1.926. Based on Cohen's classification, this value falls into the large category. This suggests that the implementation of Liveworksheets had a large effect on the vocabulary mastery of fourth-grade students.

4. Discussions

In the experimental group, vocabulary instruction was implemented through the use of Liveworksheets, which were adapted for whole-class application due to the unavailability of individual student devices. Students engaged with printed versions of the worksheets derived from the digital format, while the teacher facilitated the lessons by projecting multimedia content, including audio, images, and videos, to guide interactive activities. This approach fostered student engagement by integrating both visual and auditory stimuli, thereby creating a collective digital learning environment. According to Teng (2023), multimedia input—especially when combining lexical definitions with video content—substantially enhances vocabulary acquisition and retention among EFL learners. Educators can leverage educational videos as precise and convenient learning resources that promote autonomous learning (Wibawa et al., 2022; Pradnyana et al., 2022). In this study, students participated in various activities such as matching words to images, completing gap-fill exercises focused on time-related vocabulary, and practicing oral responses through choral repetition, all supported by Liveworksheets content aligned with Units 8 and 9 of the My Next Words textbook.



The integration of multimedia elements in these lessons enabled students to establish connections between lexical form, phonology, and semantics, which are critical components of vocabulary development. Although the Liveworksheets were not completed online, their audio-visual features were effectively utilized to simulate digital interactivity, complemented by printed worksheets for individual practice. This blended approach aligns with the adaptation described by Husein et al. (2024), who emphasize the feasibility of digital worksheet integration in low-tech classroom settings. Conversely, the control group relied on traditional textbook worksheets devoid of multimedia support. Their learning activities primarily involved handwriting, teacher-led explanations, and straightforward exercises, lacking the multisensory engagement opportunities afforded to the experimental group. Rahimi and Allahyari (2019) highlight that conventional worksheets often result in diminished student engagement compared to media-enriched instructional methods.

Post-test results revealed a marked difference between the two groups. The experimental group, which received instruction via Liveworksheets and multimedia-guided interaction, achieved a mean score of 87.03, whereas the control group scored 71.66. Additionally, the experimental group exhibited a lower standard deviation (7.24 versus 8.66), indicating more consistent learning outcomes. These findings corroborate Alhazmi's (2023) research, which demonstrated that multimedia instruction yields significantly higher vocabulary gains and improved long-term retention relative to text-only methods. The statistical analysis further confirmed this distinction, with a t-test significance level of 0.000, underscoring the superior vocabulary mastery of students exposed to Liveworksheets. Moreover, Husein et al. (2024) argue that the efficacy of multimedia tools such as Liveworksheets is not contingent solely upon direct online access but rather on the manner in which their interactive design is facilitated, whether through student devices or teacher-led delivery. This perspective supports the current study's methodology, where projection and printed materials were combined to emulate a digital learning experience, achieving notable educational outcomes.

Hypothesis testing reinforced the significant impact of Liveworksheets on vocabulary mastery. The independent samples t-test yielded a two-tailed significance value of 0.000, indicating a statistically significant difference between groups. The calculated Cohen's d effect size of 1.926 denotes a large effect, further validating the intervention's effectiveness. These results are consistent with findings from Sabaru et al. (2023), who reported substantial vocabulary score improvements following Liveworksheets use, with average scores rising from 3.54 to 8.0. Similarly, Wati et al. (2023) observed that 75% of students demonstrated enhanced vocabulary mastery through the drag-and-drop features of Liveworksheets, highlighting its efficacy in language skill development. Felitasari and Rusmini (2023) also emphasized the practicality and effectiveness of Liveworksheets in improving cognitive and collaborative learning outcomes. Collectively, these studies affirm that Liveworksheets significantly facilitate vocabulary acquisition and overall language proficiency.

The positive outcomes observed in this study are underpinned by established educational theories and prior empirical research. The Technology Acceptance Model (TAM) posits that perceived usefulness and ease of use influence the adoption of educational technologies (Davis, 1989). Annisa and Putri (2023) applied TAM to evaluate students'



perceptions of Liveworksheets, finding that its perceived utility and user-friendly interface enhanced motivation and engagement. Furthermore, Mayer's (2005) Cognitive Theory of Multimedia Learning suggests that integrating verbal and pictorial information promotes deeper understanding and retention. The interactive audio-visual features of Liveworksheets align with this theory by providing multimodal input that accommodates diverse learning styles. Additionally, Oktafiani et al. (2023) demonstrated that Liveworksheets, when incorporated into a problem-based learning framework, significantly improved students' critical thinking skills in biology, indicating the tool's versatility and potential to foster higher-order cognitive abilities.

Despite the absence of individual devices, the use of Liveworksheets in this study offered several notable advantages. Primarily, it facilitated multimodal learning by integrating visual, auditory, and kinesthetic elements. Students encountered vocabulary through written text, images, audio, and interactive visuals, which strengthened their associative learning between words and meanings (Khalid & Abdul Aziz, 2022). Research indicates that Liveworksheets enhances student engagement and motivation by providing interactive and personalized learning experiences (Suharsono & Handayani, 2021). Khalid and Abdul Aziz (2022) further assert that Liveworksheets enables real-time interaction and meaningful practice, significantly improving vocabulary retention among primary school learners.

Although students did not access Liveworksheets directly through personal devices, the integration of projected multimedia content alongside printed worksheets created a meaningful and accessible learning environment. The teacher-led approach, augmented by multimedia elements, effectively maintained student focus and fostered active participation throughout the sessions. Visual aids, such as illustrated clocks and images depicting daily activities, enhanced students' comprehension, while embedded audio components supported the development of pronunciation and listening skills (Afifah & Junaedi, 2024). Additionally, the immediate feedback provided during group discussions proved advantageous. As students completed worksheets and engaged actively in class interactions, the teacher was able to promptly identify and correct errors, thus reinforcing learning. This practice aligns with Suharsono and Handayani's (2021) findings, which highlight that teacher-facilitated Liveworksheets sessions enable effective formative assessment, particularly when integrated with classroom dialogue.

A possible challenge of this instructional approach included limited student interaction with the digital platform itself, as the absence of personal devices removed the opportunity for individualized exploration of Liveworksheets. This may have constrained students' autonomous learning and limited exposure to self-paced practice. Furthermore, reliance on projection equipment and printed materials could introduce logistical difficulties, such as technical malfunctions or delays in distributing worksheets, which may hinder smooth lesson flow. Lastly, managing a whole class with diverse learning paces required the teacher's close attention to ensure that all students remained engaged and adequately supported.

5. Conclusion and Suggestion

This study demonstrates that the integration of multimedia tools, particularly Liveworksheets, significantly enhances vocabulary mastery among EFL learners. Despite the limitation of not having individual student devices, the strategic use of projected multimedia

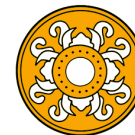


content combined with printed worksheets created an effective blended learning environment. The experimental group, engaging with Liveworksheets-supported instruction, outperformed the control group in vocabulary acquisition, as evidenced by higher mean scores and consistent results. These findings corroborate previous research emphasizing the benefits of multimedia input, interactive learning, and multimodal engagement in language education. Moreover, the pivotal role of teacher facilitation in maximizing digital tools' potential under limited access conditions was highlighted. The incorporation of audio, visual, and kinesthetic elements fostered deeper cognitive connections between lexical form, meaning, and pronunciation, in line with Mayer's Cognitive Theory of Multimedia Learning. Additionally, the positive impact on student motivation, engagement, and critical thinking skills underscores the broader educational value of Liveworksheets beyond vocabulary acquisition.

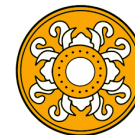
Looking ahead, future research could explore the use of other multimedia and interactive platforms, such as mobile applications or virtual reality, to further enhance vocabulary learning and other language skills including reading, writing, and speaking. Investigating the effects of providing individual student devices for direct interaction with Liveworksheets may reveal the added benefits of personalized and autonomous learning experiences. Longitudinal studies assessing long-term retention of vocabulary and language skills acquired through multimedia tools would provide valuable insights into the sustainability of these instructional methods. Furthermore, research could examine how Liveworksheets and similar tools can be integrated into problem-based learning or critical thinking frameworks across disciplines to foster higher-order cognitive skills. Studies on effective teacher training programs for optimal multimedia tool implementation in diverse classrooms could enhance instructional fidelity and outcomes. Finally, inquiry into students' attitudes, motivation, and perceived ease of use regarding multimedia tools would inform the design of more engaging and user-friendly educational technologies.

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