

IMPROVING STUDENTS' VOCABULARY THROUGH INSTAGRAM-BASED INTERACTIVE DIGITAL LEARNING MEDIA AT SMPN 4 PALOPO

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Abstract. Vocabulary mastery is a crucial component of English language learning. Using Instagram as a learning medium offers visual and interactive activities that support students' vocabulary acquisition. This study aimed to examine the difference in English vocabulary mastery before and after the implementation of Instagram-based interactive learning among eighth-grade students at SMP Negeri 4 Palopo. The study employed a quantitative approach with a one-group pretest-posttest design. The sample consisted of 20 students selected through purposive sampling. The research instrument was a 30-item vocabulary test administered before and after the four-session learning intervention. Learning activities utilized features such as posts, captions, Stories, polls and quizzes, comments, and Reels. Data were analyzed using descriptive statistics and a paired-samples t-test. The results showed that the mean score increased from 75.20 on the pretest to 88.35 on the posttest, a difference of 13.15 points. The paired-samples t-test indicated a significant difference ($t = -4.82$; $df = 19$; $p < 0.001$). These findings demonstrate an improvement in students' vocabulary mastery following the implementation of Instagram-based interactive learning.

Keywords: Instagram, Interactive Learning, Vocabulary Mastery, English, Middle School Students.

Abstrak. Penguasaan kosakata merupakan salah satu komponen penting dalam pembelajaran bahasa Inggris. Penggunaan Instagram sebagai media pembelajaran menawarkan aktivitas yang visual dan interaktif untuk mendukung penguasaan kosakata siswa. Penelitian ini bertujuan untuk menguji perbedaan penguasaan kosakata bahasa Inggris sebelum dan sesudah penerapan *Instagram-Based Interactive Learning* pada siswa kelas VIII SMP Negeri 4 Palopo. Penelitian menggunakan pendekatan kuantitatif dengan desain *One-Group Pretest-Posttest*. Sampel terdiri atas 20 siswa yang dipilih melalui *purposive sampling*. Instrumen penelitian berupa tes penguasaan kosakata sebanyak 30 butir yang diberikan sebelum dan sesudah penerapan pembelajaran selama empat pertemuan. Aktivitas pembelajaran memanfaatkan fitur *posts*, *captions*, *Stories*, *polling quizzes*, komentar, dan *Reels*. Data dianalisis menggunakan statistik deskriptif dan *paired-samples t-test*. Hasil menunjukkan bahwa rata-rata skor meningkat dari 75,20 pada *pre-test* menjadi 88,35 pada *post-test*, dengan selisih 13,15 poin. Hasil *paired-samples t-test* menunjukkan perbedaan yang signifikan ($t = -4,82$; $df = 19$; $p < 0,001$). Temuan ini menunjukkan adanya peningkatan penguasaan kosakata siswa setelah penerapan *Instagram-Based Interactive Learning*.

Kata Kunci: Instagram, pembelajaran interaktif, penguasaan kosakata, bahasa Inggris, siswa SMP

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INTRODUCTION

Vocabulary is a fundamental component of English language learning because it supports students' ability to understand and produce language in listening, speaking, reading, and writing (Putri, 2026). However, vocabulary mastery remains a challenge for many English as a Foreign Language (EFL) learners. Students may experience difficulties in understanding word meanings, using vocabulary appropriately in sentences, remembering new words, and applying them in communication (Amalia, 2022; Damanik et al., 2024). Limited exposure to English outside the classroom can further restrict opportunities for vocabulary development (Rambe, 2024). These conditions indicate the need for learning activities that provide repeated, contextualized, and engaging exposure to vocabulary.

The development of digital technology provides opportunities to address this challenge. Digital media can combine texts, images, videos, and interactive activities to increase students' exposure to language and support more engaging learning experiences (Agustina et al., 2023; Ningtyas & Amirudin, 2025). Social media is particularly relevant because it is closely connected to students' everyday digital environments and can provide access to authentic language materials (Nasution, 2022). Among various platforms, Instagram offers visual and interactive features such as posts, captions, Stories, comments, Reels, and polls that can be adapted for vocabulary learning (Faatihah & Rahmawati, 2026; Nasution, 2023).

The potential of Instagram for vocabulary learning has been supported by previous studies. Pujiani and Almustaflikhah (2022) found that Instagram-based activities can provide students with accessible and engaging language exposure, while Sutrisna et al. (2025) reported that Instagram captions can support vocabulary acquisition. More specifically, Dewi and Ramendra (2023) found a significant difference in vocabulary mastery between students who learned using Instagram and those in the control group. These findings indicate that Instagram has potential as a vocabulary learning medium, but previous research has generally examined Instagram use broadly or emphasized individual features rather than an integrated set of interactive features.

An empirical problem was also identified during the researcher's teaching practicum at SMP Negeri 4 Palopo in 2024. Eighth-grade students continued to experience difficulties in understanding unfamiliar English words, selecting appropriate vocabulary for sentences, and retaining newly learned vocabulary. Their vocabulary knowledge was also largely concentrated on words frequently encountered in classroom activities. This condition indicates a need for learning activities that provide broader and more contextual exposure to English vocabulary.

Despite previous evidence supporting Instagram for vocabulary learning, a specific gap remains concerning the integrated use of multiple Instagram features within a structured interactive learning approach for junior high school students in the Indonesian EFL context. Previous studies have tended to focus on Instagram as a general learning platform or on particular features, such as captions, images, or Reels. The use of Stories, captions, polling quizzes, comments, and Reels as interconnected activities for vocabulary learning has received comparatively limited attention. In addition, differences in educational level and learner characteristics suggest the need for further evidence involving junior high school students.

Therefore, this study examines the implementation of Instagram-Based Interactive Learning by integrating multiple Instagram features to support vocabulary learning among eighth-grade students at SMP Negeri 4 Palopo. The novelty of this study lies in the integration of these features into a single interactive vocabulary learning approach and its application in a junior high school EFL context. The study specifically examines changes in students' vocabulary mastery before and after the implementation, providing empirical evidence of the potential of integrated Instagram-based activities for vocabulary learning.

METHOD

This study employed a quantitative approach with a pre-experimental One-Group Pretest–Posttest Design. The design involved one group assessed before and after the treatment without a control group (Nambiar et al., 2023). The research was conducted at SMP Negeri 4 Palopo, South Sulawesi, during March 2026. The study consisted of three stages: pre-test, Instagram-based interactive learning treatment, and post-test.

Table 1. One-group pretest–posttest design

Stage	Treatment	Stage
O ₁	X	O ₂
Pre-test	Instagram-Based Interactive Learning	Post-test

Note: O₁ = vocabulary proficiency measurement before treatment; X = Instagram-based vocabulary learning; O₂ = vocabulary proficiency measurement after treatment.

The independent variable (X) was Instagram-Based Interactive Learning, defined as the use of Instagram as an interactive medium for English vocabulary learning. The dependent variable (Y) was students' vocabulary proficiency. The treatment was implemented in four sessions using posts, captions, Stories, polling quizzes, comments, and Reels. The activities covered vocabulary related to school, daily activities, and describing people. A total of 105 target vocabulary items were introduced during the treatment. The population consisted of 120 eighth-grade students distributed across six classes. A sample of 20 students from class VIII A

was selected using purposive sampling. The class was selected because the students were eighth-grade learners, had received basic English instruction, had not previously participated in Instagram-based vocabulary learning, and were recommended by the English teacher as suitable for the study. All 20 students in the selected intact class participated in the research.

The instrument was a 30-item vocabulary proficiency test developed according to three indicators: (1) meaning of the word, (2) word association and usage, and (3) vocabulary use in context. The indicators, item numbers, and question formats were aligned before the instrument was administered. The same test structure was used for the pre-test and post-test, with different but equivalent items.

Table 2. Vocabulary proficiency test blueprint

No.	Indicator	Item Number	Total	Question Format
1	Meaning of the Word	1–10	10	Multiple Choice
2	Word Association and Usage	11–20	10	Matching
3	Vocabulary Use in Context	21–30	10	Fill in the Blanks
Total			30	

The test items represented the vocabulary categories taught during the treatment. The distribution was based on the target words included in the learning activities.

Table 3. Distribution of vocabulary categories in the test

Vocabulary Category	Item Number	Total
Nouns	1, 2, 4, 6, 8, 9, 10, 21, 24, 25	10
Verbs	3, 7, 11–20, 26, 30	14
Adjectives	5, 22, 23, 27, 28, 29	6
Total		30

Content validity was established through expert evaluation by an English education lecturer with expertise in language teaching and assessment. The evaluation examined the alignment of the items with the three vocabulary indicators, learning objectives, language clarity, difficulty level, and students' characteristics. The instrument was revised according to the expert's recommendations. Reliability was assessed through a pilot test involving students with characteristics similar to the research sample but who were not included in the study. Cronbach's Alpha was calculated using SPSS, with ≥ 0.70 considered acceptable for internal consistency. Data collection consisted of pre-test, treatment, and post-test. Each correct answer received one point and each incorrect answer received zero. The students' final scores were calculated as follows:

$$Score = \frac{R}{N} \times 100$$

where R is the number of correct answers and N is the total number of items.

Descriptive statistics were used to summarize the minimum, maximum, mean, and standard deviation of the pre-test and post-test scores. The mean was calculated using:

$$\bar{X} = \frac{\sum X}{N}$$

where $\bar{X}$ is the mean score, $\sum X$ is the total score, and N is the number of students.

Because the sample consisted of fewer than 50 students ($n = 20$), normality was assessed using the Shapiro–Wilk test. Data were considered normally distributed when $p > 0.05$. For normally distributed data, the difference between pre-test and post-test scores was tested using the Paired-Samples t-test. If the normality assumption was not met, the Wilcoxon Signed-Rank Test was used. The significance level was set at $\alpha = 0.05$. To complement the significance test, the magnitude of the pre-test and post-test difference was evaluated using an effect-size measure. For the paired comparison, Cohen's d was calculated based on the mean difference and the pooled standard deviation:

$$d = \frac{\bar{X}_{post} - \bar{X}_{pre}}{SD_{pooled}}$$

where $\bar{X}_{post}$ is the post-test mean, $\bar{X}_{pre}$ is the pre-test mean, and SD_{pooled} is the pooled standard deviation. The effect size was interpreted using the following criteria.

Table 4. Interpretation of Cohen's d

Cohen's d	Interpretation
0.20	Small effect
0.50	Moderate effect
≥ 0.80	Large effect

The analysis therefore examined both the statistical difference and the magnitude of change in students' vocabulary proficiency following the implementation of Instagram-Based Interactive Learning.

RESULTS

The results were obtained from the pre-test and post-test administered to 20 eighth-grade students at SMP Negeri 4 Palopo. Descriptive statistics were used to examine changes in students' vocabulary proficiency before and after the implementation of Instagram-Based Interactive Learning.

Table 5. Descriptive statistics for pre-test and post-test scores

Measurement	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test	20	63.00	87.00	75.20	8.48
Post-test	20	77.00	97.00	88.35	6.24

Table 5 shows that the mean score increased from 75.20 in the pre-test to 88.35 in the post-test, representing an increase of 13.15 points. The minimum score increased from 63.00 to 77.00, while the maximum score increased from 87.00 to 97.00. The standard deviation decreased from 8.48 to 6.24. The distribution of students' achievement categories also changed. In the pre-test, 8 students (40%) were classified as very good, 7 students (35%) as good, and 5 students (25%) as average. In the post-test, 10 students (50%) were classified as excellent, 9 students (45%) as very good, and 1 student (5%) as good. No students remained in the average category or below.

Hypothesis Testing

A paired-samples *t*-test was conducted to determine whether the difference between the pre-test and post-test scores was statistically significant. The test was performed at a significance level of $\alpha = 0.05$.

Table 6. Results of the paired-samples *t*-test

Parameter	Value
Mean Pre-test	75.20
Mean Post-test	88.35
Mean Difference	13.15
Std. Deviation Difference	12.19
Std. Error Mean	2.73
<i>t</i>	-4.82
df	19
Sig. (2-tailed)	< 0.001
95% CI	-18.86 to -7.44

As shown in Table 6, the paired-samples *t*-test produced $t = -4.82$, $df = 19$, and $p < 0.001$. Because the significance value was below $\alpha = 0.05$, the difference between the pre-test and post-test scores was statistically significant. Thus, the null hypothesis was rejected.

DISCUSSION

The statistical findings indicate a substantial change in students' vocabulary proficiency following the implementation of *Instagram-Based Interactive Learning*. The increase in the mean score, together with the shift toward higher achievement categories, indicates that students performed better after participating in the learning activities. However, because the study employed a one-group pretest-posttest design without a control group, the result should be interpreted as a significant pre-test to post-test change rather than definitive evidence of a causal effect of Instagram. The observed improvement can be understood from the way

Instagram features were incorporated into the learning activities. Rather than using Instagram solely as a communication or entertainment platform, the learning activities combined *posts*, *captions*, *Stories*, *polling quizzes*, comments, and *Reels* with vocabulary exercises. The combination of visual, textual, and interactive materials provided students with repeated exposure to vocabulary and opportunities to recognize word meanings and apply words in context. This interpretation is consistent with previous research indicating that Instagram can support vocabulary learning among junior high school students (Dewi & Ramendra, 2023).

An important aspect of the present study is the integration of multiple Instagram features into a single instructional sequence. Previous studies have often examined Instagram as a general social media platform or focused on particular forms of content, such as captions or images. In contrast, this study combined several interactive features with structured vocabulary activities, including matching, sentence completion, caption creation, and quizzes. This integrated use provides a more specific contribution to the literature by illustrating how a familiar social media environment can be organized into a structured vocabulary learning experience.

The findings also suggest that the pedagogical design surrounding the technology is important. The improvement cannot be attributed to the platform alone because Instagram was accompanied by explicit learning objectives, teacher-guided activities, vocabulary practice, and evaluation. The results therefore support the view that digital technology is more meaningful for language learning when its features are deliberately aligned with instructional objectives and learners' needs. Nevertheless, the findings should be considered within the methodological limitations of the study. The absence of a control group means that factors such as regular classroom learning, repeated testing, familiarity with the test format, or other experiences during the research period may also have contributed to the observed change. The findings therefore provide evidence of a significant improvement in vocabulary proficiency after the intervention, but they do not establish that Instagram-based learning alone caused the improvement.

Overall, the study indicates that *Instagram-Based Interactive Learning* is a potentially useful alternative for vocabulary instruction at the junior high school level. Its contribution lies particularly in the integration of multiple Instagram features into structured learning activities rather than in the use of Instagram as a platform by itself. Further research using a control or comparison group and a larger sample would be needed to determine the extent to which the observed improvement can be attributed specifically to the intervention.

CONCLUSION

Based on the research findings, Instagram-Based Interactive Learning had a significant effect on the English vocabulary proficiency of eighth-grade students at SMP Negeri 4 Palopo. The integration of posts, captions, Stories, polling quizzes, comments, and Reels provided students with a visual, contextualized, and interactive learning experience. This was reflected in the increase in the students' mean score from 75.20 on the pre-test to 88.35 on the post-test, representing an improvement of 13.15 points. The results of the paired-samples t-test showed a t-value of -4.82, $df = 19$, and $p < 0.001$, indicating a statistically significant difference in students' vocabulary proficiency before and after the treatment. The findings demonstrate that Instagram has potential as an English language learning medium, particularly for improving vocabulary proficiency among junior high school students, when it is implemented through structured learning activities aligned with instructional objectives. The integration of visual elements, text, and interactive activities helped students acquire vocabulary through more meaningful contexts and supported their engagement throughout the learning process. The use of Instagram can therefore serve as an alternative for teachers seeking to develop more engaging vocabulary instruction that aligns with the digital environment familiar to students.

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