

The Influence Of Interactive Media On The Students Reading Comprehension Of Tenth Grade SMK PGRI 3 Kediri

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Abstrak

Pemahaman membaca merupakan kompetensi dasar dalam pembelajaran Bahasa Inggris sebagai Bahasa Asing (EFL), namun siswa sekolah menengah kejuruan sering mengalami kesulitan dalam mengidentifikasi gagasan utama, menemukan informasi spesifik, memahami kosakata, mengenali kata rujukan, dan membuat inferensi. Penelitian ini bertujuan untuk mengkaji perubahan kemampuan pemahaman membaca siswa kelas X setelah mengikuti pembelajaran yang didukung oleh PowerPoint interaktif. Penelitian ini menggunakan pendekatan kuantitatif dengan desain pra-eksperimen *one-group pretest-posttest* yang melibatkan 14 siswa yang dipilih melalui teknik *total sampling* di sebuah sekolah menengah kejuruan di Indonesia. Data dikumpulkan menggunakan tes pemahaman membaca berbentuk pilihan ganda yang terdiri atas 20 butir soal, kemudian dianalisis menggunakan statistik deskriptif dan uji *paired-samples t-test*. Hasil penelitian menunjukkan bahwa rata-rata skor pemahaman membaca meningkat dari 43,21 pada *pretest* menjadi 83,93 pada *posttest*, yang menunjukkan adanya peningkatan yang signifikan setelah pemberian perlakuan. Temuan ini menunjukkan bahwa PowerPoint interaktif yang dirancang secara sistematis dengan mengintegrasikan unsur teks, visual, kosakata, dan dukungan terhadap pemahaman bacaan dapat mendukung pembelajaran membaca dalam konteks EFL. Penelitian ini memberikan bukti yang bersifat kontekstual mengenai pembelajaran berbasis multimedia serta menawarkan alternatif strategi pembelajaran yang praktis bagi pembelajaran Bahasa Inggris di sekolah menengah kejuruan.

Kata Kunci: Pemahaman membaca EFL, PowerPoint interaktif, pembelajaran berbasis multimedia, sekolah menengah kejuruan, penelitian pra-eksperimen.

Abstract

Reading comprehension is a fundamental competence in EFL learning, yet vocational high school students often experience difficulties in identifying main ideas, locating specific information, understanding vocabulary, recognizing references, and making inferences. This study aimed to examine changes in tenth-grade students' reading comprehension following interactive PowerPoint-supported instruction. A quantitative pre-experimental one-group pretest-posttest design was employed with 14 students selected through total sampling at an Indonesian vocational high school. Data were collected using a 20-item multiple-choice reading-comprehension test and analyzed using descriptive statistics and paired-samples t-test procedures. The findings showed that the mean reading-comprehension score increased from 43.21 on the pretest to 83.93 on the posttest, indicating a substantial improvement following the intervention. These findings suggest that systematically designed interactive PowerPoint integrating textual, visual, vocabulary, and comprehension-support elements may support EFL reading instruction. The study contributes context-specific evidence to multimedia-supported learning and offers a practical instructional option for vocational high school English classrooms.

Keywords: *EFL reading comprehension, interactive PowerPoint, multimedia learning, vocational high school, pre-experimental study*

Introduction

Reading comprehension is a fundamental component of English as a Foreign Language (EFL) learning because it enables learners to construct

meaning from written texts, acquire new knowledge, expand vocabulary, and engage with increasingly complex academic and real-world information. In contemporary education, this competence has become particularly important as learners are required to process information presented through both printed and digital texts. Nevertheless, reading proficiency remains a major educational challenge in many contexts. The Programme for International Student Assessment (PISA) 2022 showed that only approximately 25% of Indonesian 15-year-old students attained Level 2 or higher in reading, substantially below the OECD average of 74%. At this proficiency level, students are expected, at minimum, to identify the main idea of a moderately long text, locate explicitly stated information according to specified criteria, and reflect on the purpose and form of a text (OECD, 2023). These findings indicate that strengthening students' ability to comprehend written information remains an urgent educational priority in Indonesia. The issue is particularly relevant in EFL settings, where learners must simultaneously process linguistic forms, vocabulary, textual relationships, and meaning in a language that is not primarily used in their everyday communication (Cárcamo & Pino, 2025).

This broader literacy challenge is also reflected in the local instructional context of the present study. Preliminary observations at SMK PGRI 3 Kediri indicated that tenth-grade students experienced difficulties in comprehending English reading texts, particularly descriptive texts. Their difficulties involved identifying main ideas, locating specific information, understanding vocabulary in context, recognizing referential relationships, and making inferences from textual information. These dimensions are essential for constructing coherent meaning rather than merely decoding individual words or sentences. In addition, classroom reading activities tended to follow a conventional sequence in which the teacher explained the material, students read a text, and they subsequently answered comprehension questions. Although such activities can provide opportunities for comprehension practice and assessment, their predominantly teacher-directed nature may offer limited opportunities for students to interact meaningfully with textual content, visual representations, and contextual information. Consequently, there is a pedagogical need for instructional approaches that do not merely present reading texts but also scaffold students' processing of meaning through more structured, contextualized, and engaging learning experiences.

One potential pedagogical response to this challenge is the integration of interactive multimedia into reading instruction, particularly through interactive PowerPoint-supported learning. The theoretical rationale for such an approach can be explained through Mayer's (2020) Cognitive Theory of Multimedia Learning, which proposes that meaningful learning can be enhanced when learners actively process and integrate appropriately designed verbal and visual representations. Multimedia instruction is therefore not simply the addition of decorative pictures or technological features; rather, its pedagogical value depends on how words, images, organizational cues,

and interactive elements are designed to facilitate the selection, organization, and integration of relevant information (Mayer, 2020). In reading instruction, interactive PowerPoint can combine written texts with contextual images, highlighted information, animations, vocabulary support, guided questions, and comprehension activities. Such features may help learners visualize the subject of a text, connect unfamiliar vocabulary with contextual cues, focus attention on relevant information, and engage more actively with the reading process. In the present study, these principles were operationalized through interactive PowerPoint materials containing descriptive texts, visual representations, structured explanations, vocabulary activities, and comprehension tasks related to topics such as Raja Ampat and Mount Rinjani.

Previous research provides empirical support for the potential contribution of multimedia and interactive digital resources to language and reading instruction, although the evidence varies considerably across technologies, populations, and educational settings. Zhang et al. (2020), in a systematic review of 52 studies on e-book-based language learning, identified multimedia, feedback, gamification, and personalization as frequently used features and reported generally positive language-learning outcomes. However, their review also showed considerable variation in participants and technological formats, with preschool children and university students among the populations most frequently investigated, indicating that findings from broad digital-learning environments cannot automatically be generalized to specific secondary EFL contexts (Zhang, 2024). More specifically, Zahara and Jupri (2022) reported that third-grade elementary students receiving instruction with Microsoft PowerPoint interactive media demonstrated greater improvement in reading comprehension than students receiving conventional instruction. Similarly, Nasr (2024) found statistically significant advantages for an experimental group taught through interactive PowerPoint presentations in reading-comprehension performance compared with conventionally taught primary-stage students. Collectively, these studies suggest that interactive and multimodal presentation may support reading development; however, their contexts, learner characteristics, target languages, instructional levels, and research designs differ substantially from those of Indonesian vocational high school EFL learners.

Despite these promising findings, several research gaps remain. First, much of the existing evidence on multimedia-supported language learning addresses broad digital formats such as e-books or focuses on populations outside the vocational secondary-school context (Zhang et al., 2020). Second, studies specifically investigating interactive PowerPoint and reading comprehension have largely involved primary-school learners, as demonstrated by Zahara and Jupri (2022) and Nasr (2024), leaving the applicability of such findings to adolescent EFL learners insufficiently explored. Third, the linguistic and educational contexts also differ: Zahara and Jupri (2022), for example, investigated Indonesian-language reading among

elementary students, whereas the present study concerns English reading comprehension among vocational high school learners who must process texts in a foreign language. Consequently, there remains a need for context-specific empirical evidence regarding whether students' EFL reading performance changes following interactive PowerPoint-supported instruction at the vocational high school level. The present study addresses this gap by focusing on tenth-grade students in an Indonesian vocational school and conceptualizing reading comprehension through five measurable dimensions—identifying main ideas, locating specific information, understanding vocabulary in context, identifying references, and making inferences. Given the absence of a control group in the present one-group pretest–posttest design, however, the study is positioned to examine statistically significant pre–post changes rather than to establish definitive causal effects attributable solely to the instructional medium.

Accordingly, this study aimed to investigate the reading comprehension performance of tenth-grade students at SMK PGRI 3 Kediri before and after the implementation of interactive PowerPoint-supported instruction and to determine whether the difference between their pretest and posttest scores was statistically significant. By examining this issue in a vocational EFL context, the study is expected to make both theoretical and practical contributions. Theoretically, it extends the application of multimedia learning principles to EFL reading instruction by providing empirical evidence from a relatively underexplored population—Indonesian vocational high school students—and by examining reading comprehension through multiple dimensions of textual understanding. The study also contributes context-specific evidence to the growing literature on multimedia-supported language learning, complementing previous research conducted with different age groups and instructional environments. Practically, the findings may provide English teachers with evidence for designing reading instruction that integrates textual, visual, and interactive elements to support students' engagement with descriptive texts and comprehension tasks. For schools, the study may inform pedagogically purposeful technology integration, emphasizing that the educational value of PowerPoint lies not merely in its technological use but in the systematic design of multimedia content that supports learners' cognitive processing and active interaction with written texts (Shafiee Rad, 2025).

Methods

This study employed a quantitative approach with a pre-experimental design, specifically a one-group pretest–posttest design, to examine changes in students' reading comprehension before and after the implementation of interactive PowerPoint-supported instruction. Quantitative research is appropriate when numerical data are systematically collected and statistically analyzed to examine differences, relationships, or patterns associated with predefined research questions and hypotheses (Creswell & Creswell, 2023). In the present design, the same group of students was assessed at two

measurement points: before the intervention (O_1), followed by instructional treatment using interactive PowerPoint (X), and after the intervention (O_2), represented as O_1-X-O_2 . The pretest established the students' baseline reading-comprehension performance, whereas the posttest measured their performance following the instructional intervention. Because the study involved only one group and did not include a randomized control or comparison group, the design was intended to identify statistically significant pre-post changes rather than establish definitive causality. Accordingly, the findings should be interpreted as evidence of changes following the intervention while acknowledging potential threats to internal validity inherent in a one-group pre-experimental design (Creswell & Creswell, 2023; Repke et al., 2024).

The study was conducted at SMK PGRI 3 Kediri, Indonesia, during the 2025/2026 academic year, with data collection carried out in June 2026. The accessible population consisted of 14 tenth-grade students enrolled at the school. These students constituted the population relevant to the study because the research specifically investigated English reading comprehension at the tenth-grade vocational high school level. Preliminary classroom observations indicated that students experienced difficulties in several dimensions of reading comprehension, particularly identifying main ideas, locating specific information, understanding vocabulary in context, recognizing textual references, and making inferences. These difficulties provided the contextual basis for implementing an instructional intervention designed to integrate textual and visual support. The study therefore focused on reading comprehension of descriptive texts within the participants' regular English-learning context rather than examining reading performance across multiple schools or broader student populations.

Participant selection employed total sampling, categorized in this study as a non-probability sampling approach because no random selection procedure was applied. All 14 members of the accessible population were included as research participants. This approach was considered appropriate because the population available for the study was small and could be included in its entirety, thereby avoiding the exclusion of potentially relevant participants from the identified school population. Ahmed (2024) emphasizes that the choice of sampling technique should correspond to the characteristics of the target population, accessibility of participants, research objectives, and intended scope of inference. In the present study, the use of total sampling enabled data to be collected from the entire accessible tenth-grade population identified in the research setting. The participants consisted of seven male and seven female students. Nevertheless, because the participants were drawn from a single school context and were not randomly selected from the broader population of Indonesian vocational high school students, the findings should not be interpreted as statistically representative of all EFL learners at the vocational secondary level.

The primary data-collection instrument was a reading-comprehension test administered as a pretest and a posttest. No questionnaire or interview was used as the principal instrument for measuring the research outcome. The test consisted of 20 multiple-choice items, with four response options (A, B, C, and D) for each item and one correct answer. Each correct response was assigned five points and each incorrect response received zero points, resulting in a maximum possible score of 100. The instrument operationalized reading comprehension through five dimensions: main idea, specific information, vocabulary, reference, and inference. Each dimension was represented by four test items: items 1–4 assessed the identification of main ideas, items 5–8 assessed the retrieval of specific information, items 9–12 assessed vocabulary comprehension, items 13–16 assessed reference identification, and items 17–20 assessed inference. This structure ensured that the test covered multiple aspects of text comprehension rather than relying on a single general reading indicator.

The test items were developed according to the five reading-comprehension indicators specified in the original research framework. The available thesis does not explicitly document that the test items were adopted or adapted from a previously validated instrument, nor does it provide sufficiently detailed evidence concerning expert judgment, pilot testing, item-validity coefficients, or a reliability coefficient for the 20-item test. Consequently, the present article should not claim that the instrument had established validity or reliability unless supporting documentation from the original research records is available. Contemporary measurement methodology emphasizes that validity is supported by accumulated theoretical and empirical evidence concerning whether an instrument adequately represents the construct it is intended to measure, while reliability concerns the consistency of the resulting measurements (Repke et al., 2024). Thus, if records of expert validation, item analysis, pilot testing, or reliability analysis exist outside the thesis manuscript, these should be reported in the final journal submission. In the absence of such evidence, this limitation should be stated transparently rather than retrospectively generating or assuming psychometric properties that were not established during the original study.

The instructional treatment consisted of interactive PowerPoint-supported reading instruction focusing on descriptive texts. The PowerPoint materials were designed to integrate written texts, relevant images, animations, structured explanations, vocabulary activities, and comprehension questions to support students' engagement with reading materials. The intervention was implemented over two instructional meetings. During the first treatment session, students were introduced to the definition, social function, generic structure, and language features of descriptive texts, followed by guided reading activities that required them to identify main ideas, locate specific information, and interpret vocabulary. During the subsequent session, students engaged with additional descriptive texts and comprehension

exercises supported by visual and interactive features. Instructional materials included descriptive content related to Indonesian destinations such as Raja Ampat and Mount Rinjani, allowing visual representations to provide contextual support for the written passages. Across the sessions, the instructional sequence generally included topic introduction, text presentation, guided reading, comprehension practice, discussion, and lesson review.

The research procedure was implemented sequentially through pretesting, treatment, and posttesting. At the initial stage, the pretest was administered individually to obtain baseline scores reflecting students' reading-comprehension performance before exposure to the intervention. Following the pretest, students participated in interactive PowerPoint-supported instruction during the two treatment sessions conducted in June 2026. The learning activities were designed to provide guided practice in understanding descriptive texts using textual, visual, and interactive instructional elements. After the intervention had been completed, the same group completed a posttest to measure their reading-comprehension performance following instruction. The resulting paired pretest and posttest scores constituted the primary quantitative dataset for the study. Regarding research ethics, the available thesis does not explicitly document formal institutional ethical approval, written informed consent, parental consent, or participant assent procedures. Therefore, the journal manuscript should report only ethical procedures that can be verified from the original research records, such as school authorization, participant information, confidentiality safeguards, or voluntary participation, and should not claim an ethical approval number or consent procedure that was not actually obtained.

Data were analyzed quantitatively using IBM SPSS Statistics Version 20. The analysis began with descriptive statistics to summarize students' pretest and posttest performance, including the number of participants, mean scores, standard deviations, minimum scores, and maximum scores where available. Before inferential analysis, the Shapiro–Wilk test was employed according to the original analytical procedure to examine whether the score distributions met the normality criterion for parametric testing, using a significance threshold of .05. The pretest and posttest scores of the same 14 students were subsequently compared using a paired-samples *t*-test, an appropriate procedure for examining mean differences between two related measurements obtained from the same participants at different measurement points (Talikan et al., 2024). Statistical significance was evaluated at $\alpha = .05$: a *p*-value below .05 was interpreted as evidence of a statistically significant pre–post difference, leading to rejection of the null hypothesis, whereas a *p*-value above .05 indicated insufficient evidence to reject the null hypothesis. The final journal report should present the verified descriptive statistics, mean difference, *t* value, degrees of freedom, exact or appropriately reported *p* value, and confidence interval; any effect-size statistic should be calculated from the verified raw data before publication.

Results

The study involved 14 tenth-grade students of SMK PGRI 3 Kediri who completed a reading-comprehension pretest before receiving interactive PowerPoint-supported instruction and a posttest after the instructional intervention. The tests were designed to assess reading comprehension across five dimensions: identifying main ideas, locating specific information, understanding vocabulary in context, identifying references, and making inferences. The descriptive statistics demonstrated a substantial difference between students' reading-comprehension performance before and after the intervention.

As presented in Table 1, the students obtained a mean pretest score of 43.21 (SD = 8.46), with scores ranging from 30 to 55. These results indicate that, before the intervention, the students demonstrated considerable difficulty in responding successfully to the reading-comprehension tasks included in the assessment. Following the interactive PowerPoint-supported instruction, the mean posttest score increased to 83.93, with scores ranging from 75 to 95. The total posttest score obtained by the 14 participants was 1,175. Thus, the observed mean increase from pretest to posttest was 40.72 points.

Gambar dan Tabel

Table 1. Descriptive Results of Students' Reading Comprehension

Measure	N	Mean	SD	Minimum	Maximum	Mean Change
Pretest	14	43.21	8.46	30	55	–
Posttest	14	83.93	<i>To be recalculated</i>	75	95	+40.72

Note. The posttest mean of 83.93 is based on the verified total score of 1,175 for 14 students. The posttest standard deviation should be recalculated from the final verified individual scores before journal submission.

The comparison between the two measurement points shows a clear upward shift in overall reading-comprehension performance. Before the intervention, even the highest observed pretest score was 55, whereas the lowest reported posttest score was 75. At the group level, therefore, the post-intervention score distribution was located substantially above the pre-intervention distribution. This descriptive pattern addresses the first two research questions: students demonstrated relatively limited reading-comprehension performance before receiving interactive PowerPoint-supported instruction, whereas their overall performance was markedly higher following the instructional intervention.

The magnitude of the descriptive change is also pedagogically notable. The increase of 40.72 points suggests that students were able to respond more successfully to the reading-comprehension assessment after participating in instruction that combined descriptive texts, pictures, animations, vocabulary support, guided explanations, and comprehension activities. Nevertheless, the

available aggregate results do not permit the conclusion that each of the five reading-comprehension dimensions improved to the same extent. Although the assessment contained four items for each dimension—main idea, specific information, vocabulary, reference, and inference—the thesis did not report separate pretest and posttest scores for each dimension. Consequently, the present results should be interpreted as evidence of improvement in overall reading-comprehension performance, rather than as statistical evidence of significant improvement in each individual reading skill.

The third research question concerns whether the difference between pretest and posttest scores was statistically significant. The original thesis contains a paired-samples *t*-test reporting a statistically significant result; however, that statistical output is associated with a conflicting posttest mean of 95.50 rather than the verified mean of 83.93 used in the revised article. Therefore, the original *t*, *p*, confidence interval, and effect-size values should not be retained in the publication manuscript without reanalysis. A paired-samples *t*-test must be rerun using the final verified individual pretest and posttest scores. Until that reanalysis is completed, the defensible conclusion from the present dataset is that there was a substantial descriptive improvement in students' reading-comprehension performance following the intervention, while the precise inferential significance and effect size remain to be verified.

Discussion

The findings of this study demonstrate a substantial improvement in the overall reading comprehension performance of tenth-grade students after participating in interactive PowerPoint-supported instruction. The students' mean score increased from 43.21 on the pretest to 83.93 on the posttest, representing an observed mean gain of 40.72 points. Before the intervention, students generally experienced difficulties in comprehending descriptive texts, particularly in dealing with tasks related to identifying main ideas, locating specific information, understanding vocabulary in context, recognizing references, and making inferences. Following the instructional intervention, their overall test performance increased considerably. This pattern indicates that the learning activities implemented through interactive PowerPoint were associated with improved reading-comprehension performance. Nevertheless, because the study employed a one-group pretest–posttest design without a control or comparison group, the observed improvement should be interpreted cautiously as a change following the intervention rather than definitive evidence that interactive PowerPoint alone caused the increase.

The improvement can be theoretically interpreted through the Cognitive Theory of Multimedia Learning proposed by Mayer (2020). This theory explains that meaningful learning can be facilitated when verbal and visual information are appropriately integrated and when learners actively select, organize, and connect relevant information with their existing knowledge. In

the present study, PowerPoint was not used merely as a conventional presentation medium but as an instructional environment combining descriptive texts, relevant pictures, structured explanations, animations, vocabulary support, and comprehension activities. The use of visual representations related to topics such as Raja Ampat and Mount Rinjani may have helped students construct clearer mental representations of the objects and places described in the texts. At the same time, vocabulary explanations, highlighted information, and guided comprehension questions may have directed students' attention toward important textual elements. Thus, the potential value of interactive PowerPoint in this study lies not simply in the use of technology itself, but in the systematic integration of verbal, visual, and interactive components that supported students' engagement with the reading materials.

Several instructional factors may also explain the observed increase in students' scores. First, the students began with a relatively low mean pretest score of 43.21, indicating considerable room for improvement. Second, the intervention was closely aligned with the content and skills measured in the reading-comprehension test. Students received instruction on descriptive texts, including their social function, generic structure, language features, vocabulary, and comprehension processes, while the assessment also focused on comprehension of descriptive texts. Such alignment may have increased students' familiarity with both the genre and the types of comprehension tasks assessed in the posttest. Third, the visual and interactive elements of the PowerPoint may have provided contextual support that helped students connect linguistic information with recognizable images and concepts. However, because variables such as motivation, engagement, cognitive load, and attention were not directly measured using validated instruments, these factors should be regarded as theoretically plausible explanations rather than empirically confirmed mediating variables.

The findings are broadly consistent with previous research suggesting that multimedia-supported learning can contribute positively to language and reading development. Zhang et al. (2020), through a systematic review of research on e-book-based language learning, found that multimedia, feedback, gamification, and personalization were frequently incorporated into digital learning environments and were generally associated with positive language-learning outcomes. However, their review also revealed considerable variation in technologies, research designs, and participant characteristics, indicating that the effectiveness of multimedia cannot be generalized uniformly across educational contexts (Simsek et al., 2025). The present study extends this body of evidence by examining a specific and relatively underrepresented population, namely tenth-grade EFL learners in an Indonesian vocational high school, using interactive PowerPoint as a relatively accessible instructional technology.

The findings also correspond with those of Zahara and Jupri (2022), who reported greater improvement in reading comprehension among elementary students taught using Microsoft PowerPoint interactive media compared with conventional instruction. Similarly, Nasr (2024) found that interactive PowerPoint presentations positively supported students' reading-comprehension performance. Although these studies provide supporting evidence, important contextual differences should be acknowledged. Zahara and Jupri (2022) investigated elementary-school students learning reading in Indonesian, whereas the present research focused on vocational high school students comprehending English texts as a foreign language. Nasr (2024) also involved younger learners and employed a stronger comparative design. Therefore, the present study does not merely replicate previous findings but extends the discussion of interactive PowerPoint into a different educational level, linguistic context, and learner population.

At the same time, previous research suggests that multimedia instruction should not be interpreted as inherently superior simply because it combines multiple modes of information. Kim (2021), for example, found that different combinations of e-book, audiobook, and multimodal presentation did not produce uniformly superior comprehension outcomes across all conditions. This indicates that the effectiveness of multimedia depends on the relationship between the instructional mode, the target skill, learner characteristics, and the quality of instructional design. In the context of the present study, the apparent benefit of interactive PowerPoint is therefore more plausibly associated with the purposeful integration of visual support, textual information, vocabulary scaffolding, and guided reading activities than with PowerPoint technology itself (Almadhi & Alanazi, 2024). This interpretation is consistent with Mayer's (2020) argument that multimedia learning is effective when instructional elements facilitate relevant cognitive processing rather than simply adding decorative or technologically sophisticated features.

From a theoretical perspective, this study contributes context-specific evidence to the application of multimedia learning principles in EFL reading instruction. The findings are consistent with the theoretical expectation that appropriately combined verbal and visual representations can support learners in constructing meaning from written information. However, the study did not directly measure the cognitive mechanisms proposed by Multimedia Learning Theory, such as dual-channel processing, cognitive load, or knowledge integration. Therefore, the results should be interpreted as supporting the contextual applicability of multimedia-learning principles rather than as a direct experimental test of the theory. The study also contributes empirically by focusing on vocational high school learners, a population less frequently represented in multimedia-supported reading research compared with elementary-school and university-level participants.

Practically, the findings suggest that interactive PowerPoint may be used as a structured instructional medium for EFL reading rather than merely

as a tool for displaying lecture notes. Teachers can integrate written texts with relevant images, vocabulary scaffolding, highlighted information, guided comprehension questions, and interactive activities to help students engage more actively with reading materials. This approach may be particularly suitable for descriptive texts, in which visual representations can provide contextual support for understanding descriptions of people, places, objects, or natural environments. Nevertheless, the pedagogical effectiveness of PowerPoint depends on instructional design. Excessive text, irrelevant animations, or decorative visual elements may distract learners rather than facilitate comprehension. Therefore, teachers should ensure that multimedia components are directly aligned with learning objectives and support, rather than compete with, the processing of textual information.

Despite the substantial increase in students' scores, several limitations must be considered. The absence of a control group means that alternative explanations such as testing effects, increased familiarity with the assessment format, maturation, ordinary classroom learning, or researcher influence cannot be fully excluded. The sample was also limited to 14 students from one vocational high school, restricting the generalizability of the findings. In addition, the intervention was conducted over only two instructional meetings, meaning that the study primarily reflects immediate post-intervention performance and does not establish whether the improvement would be sustained over time. The available thesis also does not provide sufficiently documented evidence regarding the validity and reliability of the 20 item reading-comprehension test. Furthermore, although the instrument measured five dimensions main idea, specific information, vocabulary, reference, and inference the available analysis was based on total scores; consequently, it cannot be concluded that each dimension improved to the same extent.

These limitations provide important directions for future research. Subsequent studies should employ quasi-experimental or experimental designs with control or comparison groups to strengthen causal interpretation. Larger samples from multiple schools would improve external validity, while longer interventions and delayed posttests would help determine whether improvements are sustained over time. Future research should also analyze the five reading-comprehension dimensions separately to identify which aspects are most responsive to multimedia-supported instruction. Instrument quality should be strengthened through content validation, pilot testing, item analysis, and reliability testing before data collection. In addition, studies interested in students' motivation, engagement, or attitudes toward interactive PowerPoint should measure these variables explicitly using validated instruments rather than relying solely on classroom observations. Overall, the present study provides preliminary evidence that systematically designed interactive PowerPoint-supported instruction is associated with improved overall EFL reading-comprehension performance among vocational high school students and offers a relevant basis for further investigation of

accessible multimedia-supported reading instruction in similar educational contexts.

Conclusion

This study examined changes in the EFL reading comprehension of tenth-grade students at an Indonesian vocational high school following interactive PowerPoint-supported instruction. The findings showed a substantial improvement in students' overall reading-comprehension performance, with the mean score increasing from 43.21 on the pretest to 83.93 on the posttest. These results indicate that students demonstrated considerably better performance after participating in instruction that integrated descriptive texts, relevant visual representations, structured explanations, vocabulary support, and interactive comprehension activities. Thus, the study provides evidence that interactive PowerPoint-supported instruction can serve as a potentially useful pedagogical approach for supporting students' engagement with and comprehension of English descriptive texts. Nevertheless, because the study employed a one-group pretest–posttest design without a control group, the improvement should be interpreted as a change observed following the intervention rather than as definitive evidence of a causal effect attributable solely to interactive PowerPoint.

Theoretically, this study contributes context-specific evidence to the application of multimedia-supported learning in EFL reading instruction. The findings reinforce the proposition that the purposeful integration of verbal, visual, and interactive instructional elements may support learners in constructing meaning from written texts. More specifically, the study extends the discussion of multimedia-supported reading instruction to Indonesian vocational high school learners, a context that has received relatively limited attention compared with elementary and university-level populations. Practically, the findings suggest that English teachers can utilize interactive PowerPoint not merely as a presentation tool but as a structured instructional medium that integrates textual information, contextual visuals, vocabulary scaffolding, and guided comprehension activities. Such an approach may provide an accessible option for schools seeking to integrate technology into EFL instruction without relying on highly complex or resource-intensive digital platforms.

Several limitations should be considered when interpreting the findings. The study involved only 14 students from a single vocational high school and did not include a control or comparison group, limiting both causal interpretation and the generalizability of the results. The instructional intervention was also conducted over a relatively short period of two meetings, so the study cannot determine whether the observed improvement would be sustained over time. In addition, the available research documentation does not provide sufficiently detailed evidence regarding the validity and reliability

of the reading-comprehension instrument, and the five measured dimensions—main idea, specific information, vocabulary, reference, and inference—were analyzed only through an overall reading-comprehension score rather than separately. These limitations indicate that the findings should be regarded as preliminary and context-specific rather than broadly generalizable.

Future research should employ stronger quasi-experimental or experimental designs involving control or comparison groups, larger samples, and participants from multiple vocational schools. Longer instructional interventions and delayed posttests are recommended to determine whether improvements in reading comprehension are sustained beyond the immediate post-intervention period. Future studies should also use systematically validated and reliable assessment instruments and conduct separate analyses of main idea, specific information, vocabulary, reference, and inference to identify which dimensions of reading comprehension are most responsive to multimedia-supported instruction. Furthermore, variables such as learner motivation, engagement, and attitudes toward interactive learning should be examined using validated instruments when researchers seek to explain the mechanisms underlying achievement gains. Through these methodological improvements, future research can provide stronger evidence regarding the effectiveness, sustainability, and pedagogical mechanisms of interactive PowerPoint-supported instruction in EFL reading contexts.

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