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The Impact of Infographic Media and Peer Collaboration on Students' Speaking Ability in Describing Someone

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Abstract

This study investigates the effect of infographic media and peer collaboration on students' speaking ability in descriptive text learning. Employing a quasi-experimental design with a mixed-methods approach, the research was conducted at a vocational high school (SMK) in Cimahi, Indonesia. The participants consisted of 40 tenth-grade students, divided into an experimental group (n=20) and a control group (n=20). The experimental group received instruction using infographic media and peer collaboration, while the control group followed conventional teaching methods. Data were collected through pre-tests and post-tests to measure speaking ability and semi-structured interviews to understand students' experiences. The results revealed that the experimental group showed a significant improvement in speaking scores, with a mean increase from 69.00 to 79.00, compared to the control group's increase from 68.90 to 74.80. The independent sample t-test showed a significant difference ($t = 2.520$, $p = 0.016$) between the two groups. Qualitative findings indicated that infographics enhanced comprehension and organization of ideas, while peer collaboration provided practice opportunities and constructive feedback. However, challenges such as unequal participation and the complexity of some infographics were noted. These findings suggest that integrating visual and collaborative learning strategies can effectively enhance students' speaking ability in descriptive tasks.uld not repeat the information already present in the title. The abstract should be written in English.

Keywords: Infographic Media; Peer Collaboration; Speaking Ability; Mix-Method

INTRODUCTION

Speaking is widely regarded as a core component of communicative competence in English as a Foreign Language (EFL) learning. It reflects a learner's ability to produce language fluently, accurately, and appropriately in social interactions. According to Brown (2004), speaking encompasses several subskills including fluency, vocabulary usage, grammatical accuracy, and pronunciation. In practice, mastering speaking skills is often more challenging for EFL learners than receptive skills such as reading or listening. Students in vocational high schools, in particular, frequently struggle to express themselves orally due to limited exposure to authentic language use and inadequate classroom interaction (Juhana, 2012). These difficulties are often worsened by the overuse of teacher-centered instruction, reliance on memorization, and lack of opportunities for collaborative communication. As a result, innovative instructional strategies are urgently needed to foster active student participation and increase their speaking performance, especially in specific tasks like describing people or objects.

One promising innovation is the integration of infographic media in English language teaching. Infographics are visual tools that combine images, text, and graphic elements to present information in an engaging and organized way (Smiciklas, 2012). In language learning, they support students' comprehension, vocabulary retention, and ability to generate ideas for

speaking (Clark & Mayer, 2016). Recent studies have shown that visual-based instruction using infographics significantly improves learners' understanding and helps structure their speech, especially in descriptive and narrative contexts (Fatmawati & Widiyati, 2024; Supraba & Silvana, 2020; Taufiq et al., 2024; Alyahya, 2019). Moreover, infographics can reduce cognitive overload by focusing attention on essential concepts, which aligns with Sweller's (1994) Cognitive Load Theory. In Indonesian classrooms, however, the use of infographics remains relatively underutilized, and their impact on speaking tasks is still not widely explored, particularly at the vocational high school level.

Alongside visual media, peer collaboration has emerged as another effective strategy to promote speaking development. Grounded in Vygotsky's (1978) Zone of Proximal Development (ZPD), peer collaboration enables learners to co-construct knowledge through interaction, feedback, and shared meaning-making. In collaborative environments, learners feel more confident, practice language in a low-stress setting, and benefit from immediate correction or modeling by peers (Gillies, 2016). Recent findings by Tabatabaei et al. (2015) suggest that students engaged in peer-based tasks demonstrate improved participation and higher levels of oral output. However, the success of collaborative learning depends on how roles are assigned and how well students manage group dynamics. Despite its potential, peer collaboration is often poorly implemented in classrooms where individual accountability is weak or where students are hesitant to take active roles due to language anxiety or differences in proficiency levels (Liu & Jackson, 2008; Al-Sobhi & Preece, 2018).

While many studies have examined the individual effects of infographics or peer collaboration on learning outcomes, few have investigated their combined impact particularly on speaking ability in descriptive text learning. This gap is critical, considering that both strategies target complementary areas: infographics improve comprehension and idea generation, while collaboration facilitates oral practice and feedback. The integration of these two approaches could create a more engaging, cognitively supportive, and socially interactive learning environment, especially for EFL learners in vocational contexts. Furthermore, limited research has explored students' own perceptions of this combination, which is crucial for assessing not only effectiveness but also acceptability and feasibility. Therefore, this study aims to fill this research gap by investigating both the measurable effects and the subjective experiences of students involved in infographic-based collaborative speaking tasks.

To address the issues identified and respond to the research gap regarding the combined use of infographic media and peer collaboration in speaking instruction, particularly in vocational EFL contexts, this study aims to investigate both the measurable effects and the students' perceptions of these integrated strategies. Specifically, it explores (1) the effect of using infographic media and peer collaboration on students' speaking ability in descriptive text learning, and (2) how students perceive the role of these strategies in enhancing their speaking performance. By employing a mixed-method approach, this research not only provides empirically grounded and contextually relevant insights, but also emphasizes the novelty of combining visual and collaborative techniques to enrich current pedagogical practices in Indonesian EFL classrooms.

METHOD

This study employed a mixed-method approach, integrating both quantitative and qualitative data to examine the effect of infographic media and peer collaboration on students' speaking ability in descriptive tasks. According to Creswell (2009), the mixed-method design provides a comprehensive understanding of research problems by combining statistical trends with participants' personal experiences and perspectives. The quantitative strand used a quasi-experimental design with a pre-test and post-test control group, which is suitable in educational contexts where random assignment is not feasible (Fraenkel et al., 2011). The qualitative strand

adopted a descriptive qualitative approach, employing semi-structured interviews to explore students' perceptions of the intervention in depth. The participants of this study were 40 tenth-grade students from a vocational high school (SMK) in Cimahi, Indonesia. A purposive sampling technique was used to select two classes with comparable academic performance and English proficiency levels, based on teacher recommendation and previous English scores. One class (n=20) was assigned as the experimental group, while the other (n=20) served as the control group. The intervention was conducted over six sessions within three weeks, with each session lasting 90 minutes. The experimental group received instruction using infographic media and peer collaboration techniques. Infographics were used as visual aids to guide students in describing people, and students worked in pairs or small groups to complete speaking tasks collaboratively. Meanwhile, the control group received instruction using conventional methods, such as textbook-based learning and individual speaking tasks without infographics or peer collaboration. Pre-tests and post-tests were administered to both groups using a descriptive speaking rubric adapted from Brown (2004), covering four criteria: fluency, vocabulary, grammar, and pronunciation. Each student was asked to describe a person based on a visual prompt for approximately 2–3 minutes. After the intervention, semi-structured interviews were conducted with all students in the experimental group to explore their experiences. Interview questions focused on their perceptions of infographics, peer collaboration, challenges faced, and perceived improvements. During each session, classroom observations were carried out by the researcher to monitor student participation, interaction patterns, and engagement. Quantitative data were analyzed using SPSS 21, including descriptive statistics, normality tests, and independent samples t-test to compare the speaking performance between the experimental and control groups. Qualitative data from interviews were analyzed using Nvivo 12, following a thematic analysis process (Kvale, 2011). The responses were transcribed, coded, and categorized into recurring themes and subthemes to capture students' perceptions. This methodological framework ensured a robust investigation by combining measurable outcomes with student insights, thereby enriching the interpretation of results.

RESULTS AND DISCUSSION

Results

Qualitative Data Results

The findings of this research are presented in two parts: quantitative findings derived from the pre-test and post-test results, and qualitative findings obtained from semi-structured interviews and observational data. This research includes the results by presenting descriptive statistical analysis of students' speaking abilities before and after intervention in the control and experimental groups. SPSS 21 is used to analyze the quantitative data. Table 1 shows the statistics of the mean pre-test and post-test scores from the experimental class and control class as a comparison.

Table 1. Descriptive Statistic

Class		*N*	*Mean*	*Minimum*	*Maximum*	*Std. Deviation*
Pretest	Experiment	20	69,00	60	76	4,834
	Control	20	68,90	58	76	5,046
Posttest	Experiment	20	79,00	68	88	5,171
	Control	20	74,80	64	84	5,367

Based on tabel 1, the pretest result of the experimental group have a mean score of 69.00 with a minimum of 60 and a maximum of 76, and a standard deviation of 4.834 while the pretest result of the control group have a slightly lower mean score of 68.90 with a minimum of 58 and a maximum of 76, with a standard deviation of 5.046. These results indicate that both groups have similar performance levels before the intervention. On the other hand, in the posttest result, the experimental group's mean score increased to 79.00, with scores ranging from 68 to 88, and a standard deviation of 5.171 while the control group also showed improvement, achieving a mean score of 74.80, with a minimum of 64 and a maximum of 84, and a standard deviation of 5.367. It can be concluded that the experimental group showed a greater improvement in scores compared to the control group, suggesting a positive effect of the intervention. Overall, the experimental class showed a greater increase in the average score from pretest to posttest compared to the control class, indicating that the applied of infographic media through peer collaboration was effective in enhancing students' speaking ability.

Table 2. The Normality Test of Posttest Result

Class		*Kolmogorov-Smirnov*[a]			*Shapiro-Wilk*		
		Statistic	*df*	*Sig.*	*Statistic*	*df*	*Sig.*
Posttest	Experiment	,177	20	,102	,946	20	,313
	Control	,188	20	,061	,922	20	,107

a. Lilliefors Significance Correction

Before testing the hypothesis, researchers carry out a data normality test to find out whether the data is normally distributed or not. Shapiro-Wilk is used because the number of samples for each group is less than 50. According to Aulia et al. (2024), data is said to be normal if the sig value is greater than 0.05. Based on tabel 2, known that the significance value for experiment class is 0,313 while control class is 0,107. Since the significance values (Sig.) in both tests are greater than 0.05, the data for both the experimental and control groups are considered normally distributed.

Table 3. Independent Sample Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Belajar	Equal variances assumed	,058	,811	2,520	38	,016	4,200	1,666	,827	7,573
	Equal variances not assumed			2,520	38.000	,016	4,200	1,666	,826	7,574

Based on the result above, the Levene's Test for Equality of Variances yielded a significance value of 0.811, which exceeds the threshold of 0.05. This indicates that the assumption of homogeneity of variances is met, and therefore the variances between the experimental and control groups are statistically equal (Field, 2013). Therefore, the interpretation of the Independent Sample Test output table above is guided by the value contained in the "Equal Variance Assumed" table. Based on the Independent Sample Test output table in Equal Variances Assemed section, the Sig. (2-tailed) value is 0,016 < 0,05, it can be concluded that H0 is rejected and Ha is accepted. Thus, it can be concluded that there is a significant (real)

difference between the average learning outcome of students in experiment class and control class.

Qualitative Data Result

The qualitative data in this study were obtained through semi-structured interviews with the 20 students in the experimental group, aiming to explore their perceptions and experiences regarding the use of infographic media and peer collaboration in descriptive speaking tasks. The data were analyzed thematically using NVivo 12, resulting in four main themes: (1) experience with infographics, (2) perceived effectiveness of infographics, (3) experience with peer collaboration, and (4) perceptions of the combined strategy. The following are the results of interviews from 20 experimental class students which have been divided according to the theme of each question.

Experience with Infographics

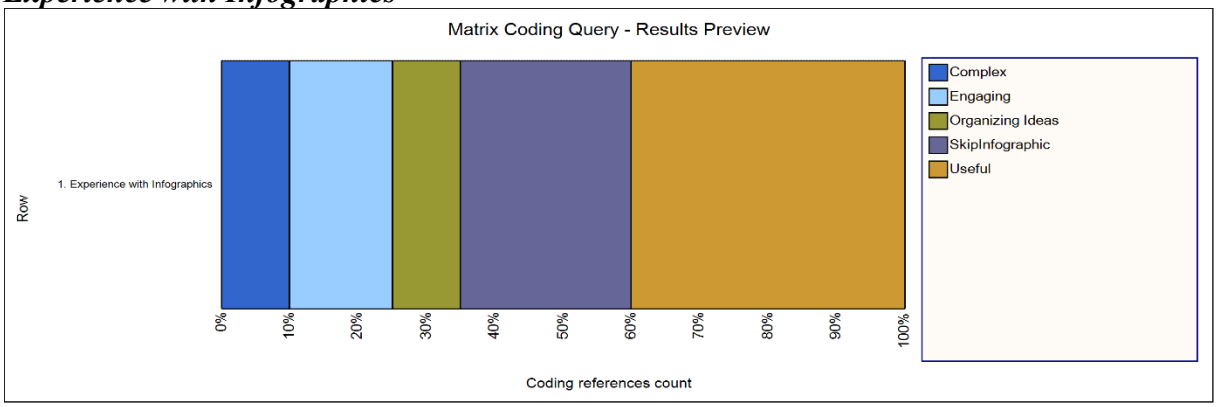

Figure 1. Students Experience with Infographic Media

The graphical representation in Figure 1 provides insights into students' perceptions of infographic media as a learning tool. The matrix coding query displays different aspects of student experiences, categorized into five main themes: usefulness, engagement, idea organization, complexity, and avoidance (skipping infographics). Based on the student responses, 40% of students found infographics useful, suggesting that visual representation aids comprehension and enhances learning effectiveness. As one student expressed, "*The infographic helped me understand the topic faster than just reading the text*" (Student A). Additionally, 10% stated that infographics helped them organize their ideas, indicating that structured visual elements support logical thinking and content structuring. "*I used the infographic to plan what to say first, like the person's name, then their appearance*," shared another student (Student B). Furthermore, 15% of students found infographics engaging, reinforcing the idea that multimedia elements, when effectively integrated, can increase student motivation and interaction with learning materials (Clark & Mayer, 2016). One student remarked, "*The colors and pictures made it more fun, so I wanted to talk more in class*" (Student C). However, 10% of students perceived infographics as complex visual aids, suggesting that while visuals can facilitate understanding, excessive details or unclear layouts may require additional explanation from teachers or peers. "*Sometimes I didn't know what the icons meant, so I just skipped that part," admitted a participant* (Student D). Lastly, 25% preferred to skip infographics, which may indicate varying learning preferences, emphasizing the need for differentiated instructional strategies to accommodate both visual and text-based learners (Fleming, 2006). As one student explained, "*I prefer written text because pictures confuse me sometimes. It's hard to know what to focus on*." (Student E). Moreover, during learning, many of them are still confused about how to design good infographics, and are still confused about using design applications such as Canva, and so on.

Effectiveness of Infographics

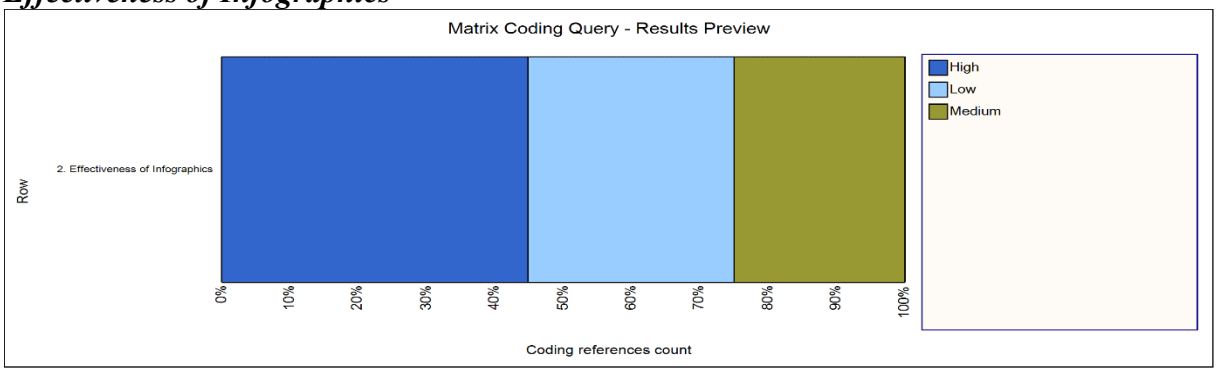

Figure 2. Students Perception of Effectiveness of Infographic

Based on the results related to the effectiveness of infographic media, 45% of students perceived infographics as beneficial for improving their speaking ability. The combination of images and text enabled them to construct descriptive sentences with more confidence. One student explained, *"I used to be nervous when speaking, but with the infographic, I could see what to say and felt more sure about it"* (Student A). Additionally, 25% of students highlighted that infographics reduced their reliance on memorization, allowing for more spontaneous speech. As another student shared, *"Instead of memorizing a script, I just looked at the picture and started talking freely"* (Student B).

Nevertheless, 30% of students mentioned that certain infographics lacked clarity, making it difficult to extract relevant details for speaking tasks. One participant commented, *"Some infographics had too many words or strange symbols. I didn't know which parts were important"* (Student D). To address this issue, it is important to include instructional sessions in which students are explicitly taught how to create effective infographics using user-friendly design tools such as Canva. This not only helps them become more critical consumers of visual materials but also empowers them as producers of content, reinforcing both their digital literacy and language proficiency. As suggested by one student, *"If we learn how to make our own infographics, maybe we can also understand how to use them better"* (Student E).

Experience with Peer Collaboration

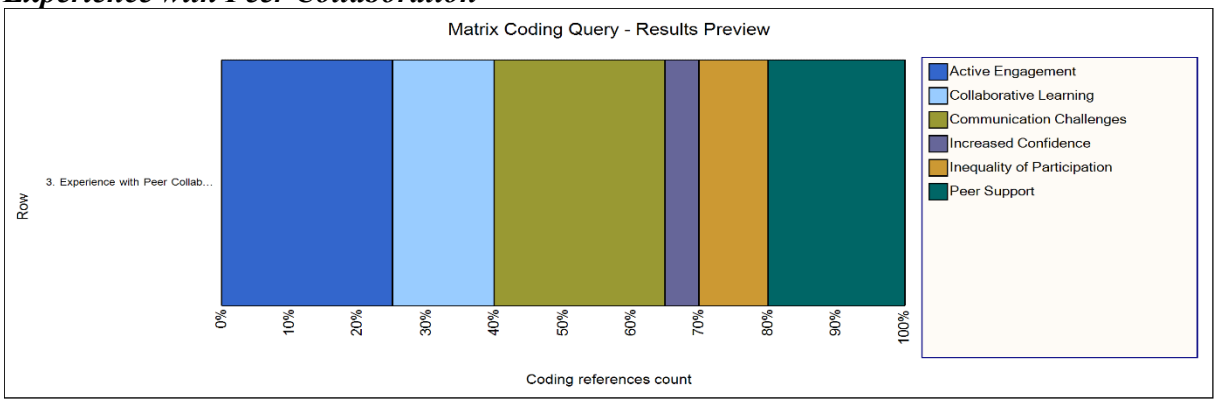

Figure 3. Students Experience with Peer Collaboration

The data in Figure 3 illustrates students' experiences with peer collaboration, highlighting both its benefits and challenges. 25% of students found peer collaboration highly engaging, as it

provided a low-pressure environment for practicing speaking. One student shared, "*It's easier to talk with friends first before speaking in front of the whole class. I feel more relaxed and less afraid of making mistakes*" (Student A). Meanwhile, 15% believed that peer collaboration encouraged active participation, especially when tasks were designed to require equal contributions. As one participant noted, "*My group made me talk, and that helped me stay involved instead of just watching others speak*" (Student B). In addition, 20% of students appreciated receiving peer support and immediate feedback, stating that corrections from peers were often easier to understand and apply. One student reflected, "*My partner told me how to say it better, and I remembered it because we practiced it together right away*" (Student C). 5% of students reported increased confidence as a result of collaborative learning, especially when working with supportive and encouraging peers. A respondent commented, "*When my group cheered me on, I felt proud and wanted to try harder*" (Student D).

However, 10% of students encountered challenges related to unequal participation, where certain group members dominated the discussion while others remained passive. "*Sometimes one person did all the talking, and I didn't get a chance*," admitted one student (Student N). Furthermore, 25% expressed difficulties in communication, particularly when group members had varying levels of English proficiency or lacked cooperative attitudes. "*I tried to speak, but my group didn't listen or speak back. It was frustrating,*" explained another (Student O). These findings suggest that while peer collaboration fosters engagement and mutual support, issues such as uneven participation and communication barriers remain critical concerns. Teachers must provide clear guidelines, role assignments, and monitoring to ensure productive and inclusive group dynamics.

Combination of Infographics and Peer Collaboration

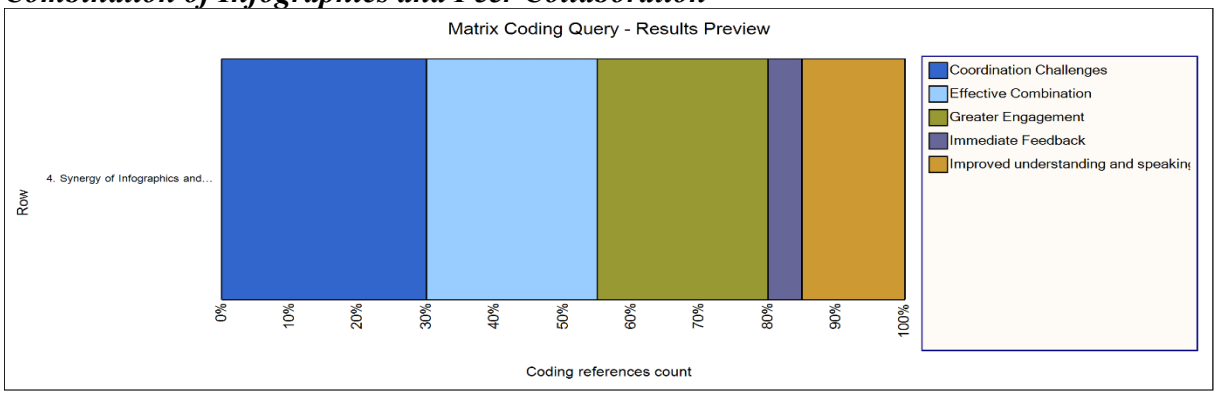

Figure 4. Students Perception about the Combination of Infographic and Peer Collaboration

The graphical representation in Figure 4 illustrates students' perceptions of combining infographic media with peer collaboration, categorized into five key aspects: coordination challenges, effective combination, greater engagement, immediate feedback, and improved understanding and speaking skills. Based on student responses, 30% of students experienced coordination challenges, indicating difficulties in managing tasks and roles during group activities. One student admitted, *"We didn't know who should explain which part of the infographic, so sometimes we just talked over each other or got stuck"* (Student P). Meanwhile, 25% of students perceived the combination as effective, as it enhanced their overall learning experience. *"Using the infographic while working with a partner helped me organize my ideas and say them better,"* shared one student (Student A). Additionally, 25% found that the combination increased engagement, making learning more interactive and enjoyable through visuals and teamwork. One participant explained, *"We were more active because the pictures made us curious, and we had to talk about them with our group"* (Student R).

5% of students valued the immediate feedback they received during collaboration, which helped them improve their performance on the spot. A student remarked, *"When I said something wrong, my friend corrected me right away using the infographic, and I could fix it fast"* (Student S). Furthermore, 15% reported improved understanding and speaking skills, suggesting that visual aids combined with peer discussions supported deeper processing and more confident speaking. One student reflected, *"I understood the topic better because the infographic showed the points clearly, and my group helped me express them in English"* (Student T). Overall, while the combination of infographics and peer collaboration offers significant engagement and learning benefits, coordination challenges remain a concern for some students. This indicates a need for clearer role distribution and structured group guidance to ensure that all members can contribute meaningfully and efficiently during collaborative tasks.

Discussion

This research aims to obtain empirical evidence regarding the influence of the use of infographic media and peer collaboration on students' speaking abilities in learning descriptive texts at the vocational school level. The research results showed that the experimental class that received treatment with infographic media and peer collaboration experienced an increase in the average score from 69.00 on the pre-test to 79.00 on the post-test. In contrast, the control class taught using conventional methods only increased from 68.90 to 74.80. Statistical analysis using the independent t-test produced a Sig. (2-tailed) value of $0.016 < 0.05$, indicating a significant difference in mean scores between the experimental and control classes.

These findings align with previous studies emphasizing the role of infographic media in enhancing students' comprehension and engagement. For instance, Supraba & Silvana (2020) and Taufiq et al. (2024) found that infographics increased students' interest and helped make learning materials more comprehensible. Similarly, Cahyani & Desi (2020) showed improved outcomes in Social Sciences through infographic use. In the context of EFL learning, the visual appeal and clarity of infographics support students in retaining vocabulary and understanding descriptive structures more efficiently, reinforcing the cognitive theory of multimedia learning (Clark & Mayer, 2016), which states that learners learn better through the combination of words and pictures.

Furthermore, peer collaboration also plays a critical role in improving students' speaking performance, in line with social constructivist theory (Vygotsky, 1978), which emphasizes the importance of social interaction in cognitive development. Gillies (2016) highlighted that cooperative learning promotes communication and mutual understanding among peers. Arochman et al. (2023) demonstrated how integrating infographic media into a problem-based learning model enhanced collaboration skills. Nhan & Hoang Yen (2021) also confirmed the efficacy of infographics in simplifying complex data, aiding students in better understanding and expressing ideas verbally. Mubarok et al. (2022) concluded that infographic media encouraged greater learning interest and motivation, aligning with these findings.

However, despite the overall positive impact, the study also revealed that some students experienced challenges in adapting to infographic use and group dynamics. This is consistent with Liu & Jackson (2008), who found that peer tutoring, while beneficial for collaboration, may intimidate less confident students. Alyahya (2019) noted that infographics do not suit all learners, as some require more time to process visual data than traditional texts. Rachmayani et al. (2018) similarly observed that collaboration can be hindered by mismatched student abilities and insufficient communication skills. These obstacles suggest that successful implementation of such methods requires careful scaffolding, differentiated instruction, and teacher facilitation to support all learners.

In conclusion, the integration of infographic media and peer collaboration contributes meaningfully to the enhancement of speaking skills in EFL classrooms. This study not only supports existing evidence but also highlights the novelty of combining visual media with collaborative learning in vocational school contexts, which remain underrepresented in current literature. By situating these findings within both multimedia learning and social constructivist frameworks, this research contributes to the broader scholarly discourse on multimodal and interactive pedagogies in English language teaching.

CONCLUSION

This study set out to explore the impact of integrating infographic media and peer collaboration on students' speaking ability in descriptive text learning. The results revealed that students in the experimental group, who received instruction using both strategies, achieved a significantly higher improvement in speaking performance compared to those taught through conventional methods. Quantitative data showed a notable increase in post-test scores, indicating that the use of visuals and cooperative learning techniques effectively enhanced learners' ability to describe someone orally. Meanwhile, qualitative findings supported these results by highlighting students' positive experiences with infographics and peer interaction. Students reported that infographics made it easier for them to structure their ideas and recall vocabulary, while peer collaboration provided a more relaxed environment for practicing and refining their speech. Despite these benefits, some challenges were also identified, such as the complexity of certain visual materials and coordination issues during group work. Overall, the study concludes that the combination of infographic media and peer collaboration represents a promising instructional approach for improving speaking skills in EFL classrooms, particularly in the context of vocational education. The findings of this research carry several important implications for classroom practice and instructional design. First, they underscore the value of incorporating visual learning tools, such as infographics, to support students in organizing their thoughts and engaging more actively with content. Teachers should be encouraged to integrate well-designed, student-friendly infographics into their lesson plans to promote clarity and motivation. Second, the study highlights the potential of peer collaboration to create low-anxiety speaking environments where learners can build confidence, practice language in real time, and provide each other with constructive feedback. In implementing group work, educators must be mindful of group composition and assign clear roles to ensure balanced participation and accountability. Finally, it is essential for teacher training programs and curriculum developers to adopt a more multimodal and collaborative pedagogical approach, particularly in the context of speaking instruction, as these strategies are well aligned with the evolving demands of interactive, learner-centered classrooms in the current era of education.

Based on the limitations and scope of this study, several directions for future research are recommended. Future studies may expand the sample size and involve students from various school levels and regions to enhance the generalizability of the findings. Additionally, researchers could explore the long-term effects of infographic-based peer collaboration by conducting delayed post-tests to assess retention in speaking performance. Another promising avenue is to examine the comparative effectiveness of different types of visual media, such as mind maps, flowcharts, or interactive digital infographics, in supporting speaking skills. Furthermore, future investigations should consider the role of individual learning styles, such as visual versus verbal preferences, in mediating the effectiveness of visual-collaborative instruction. Finally, qualitative research that focuses on teacher perceptions and classroom implementation challenges could provide deeper insights into how these strategies function in diverse educational contexts, particularly in resource-limited or rural schools.

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