Investigating the Effects of Infographics-Based Teaching on EFL Students' Grammar Retention

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ABSTRACT: Infographics have become more common in education as a way to graphically convey complex information. They offer a visually appealing structure that facilitates comprehension and retention, particularly for language acquisition. This study examines the impact of infographics in grammar courses on grammar retention as well as the attitudes of first-year non-English majors toward using infographics in grammar lessons. Freshmen at Mekong Delta University taking General English classes at the beginning of their first semester made up the participants. The goal of the study is to determine whether infographics assist students in remembering grammar and what they think of it. It emphasizes remembering five English tenses. As part of a quantitative research methodology using a quasi-experimental design, participants were split into two groups: an experimental group (EG) that received instruction via infographics and a CG that received traditional schooling. The study used a pre-test, post-test, delayed post-test, and a questionnaire to assess attitudes and retention. The findings suggest that including infographics into English language training can enhance students' perspectives on the subject and their memory of grammar. Teachers should consider the attitudes of their students while developing foreign language teaching materials and techniques.

KEYWORDS: Infographics, Infographic-based teaching, grammar retention, tenses, attitudes, Vietnamese EFL students

INTRODUCTION

English grammar is a crucial aspect of learning English as a foreign language (EFL) and is essential for effective communication in various fields. However, mastering English grammar can be challenging due to its complexity, numerous rules, and differences from other languages. The vast array of tense, verb forms, and sentence structures can be overwhelming, and learners may need help to use them accurately in spoken and written communication (Kelly & Tomsic, 2019).

To address this issue, grammar instruction should focus on helping students comprehend the proper usage of grammatical terms or sentence constructions. However, some educators struggle to keep students' interest and make grammar lessons enjoyable. The fundamental tenses of English grammar are crucial in studying English as the target language, and researchers are looking for more efficient ways to teach the proper English tenses (Borg & Alshumaimeri, 2018).

Traditionally, grammar is taught through memorization and rote learning, which can be tedious and demotivating for students. However, recent years have seen a shift towards more student-centered and interactive teaching methods, such as infographic-based teaching. Infographics are graphic visual representations of information, data, or knowledge that can help learners retain complex concepts, improving retention and recall (Kostolanyova & Safarikova, 2021).

Infographic-based teaching has gained popularity in recent years, as it uses visual aids to convey information and is effective in various learning contexts. It is preferred by both teachers and students due to its transparency and motivation. Printing out explanations is also a good idea, as students can consult colorful handouts before engaging in connected generative grammar exercises (Mmdin & Ismail, 2020).

This research aims to investigate the effects of infographic-based teaching on EFL students' grammar retention and their attitude toward infographic-based teaching (Al-rajhi & Alreemy, 2021). Two questions that this study hopes to answer are:

1.Does infographic-based teaching improve EFL students' grammar retention?

2.What is the attitude of EFL students towards infographic-based teaching as a strategy for learning English grammar?

By providing answers to these questions, this study will contribute to the ongoing discussion around effective EFL teaching methods, which can help language educators develop new and innovative teaching strategies to meet the diverse needs of their students in the 21st century.

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LITERATURE REVIEW

Infographics-based Teaching

Infographics, incorporating visual elements like maps, charts, and flow diagrams, have evolved to enhance comprehension and engage readers. They serve as powerful tools for creating organized, easily understandable sources of knowledge (Mol, 2011; Krum, 2013; Hsiao et al., 2019; Smiciklas, 2012). In education, infographics can be used to communicate complex information, facilitating students' understanding and retention (Edutopia, n.d.; Hsiao et al., 2019; Zayed, 2017). Key principles for designing infographics for teaching English grammar include simplicity, visual aids, effective color and typography, and considering the target audience. Designers should define the objective, conduct thorough research, sketch design ideas, and select appropriate tools. Proofreading and editing ensure accuracy, language clarity, and design consistency (Nguyen et al., 2021; Lee & Kweon, 2020; Adams, 2018; Hernandez, 2021).

Using Infographics in the Classroom

Infographics have gained popularity in classrooms as a means to engage students and enhance learning. Research suggests that incorporating infographics improves students' learning outcomes, recall of information, and test scores. Aragon, Johnson, and Shaikh (2014) found that students presented with information in infographic format outperformed those in traditional lecture-based classrooms. Similarly, Liu and Lesperance (2013) found that students presented with infographics retained more information and achieved higher test scores compared to those presented with text-based information. Educational resources, such as Edutopia (n.d.) and the National Science Teachers Association (Bax, 2017), provide guidance and examples for educators to effectively use infographics in their lesson plans.

When presenting multiple ideas in the infographic, Cabianca (2008) advises breaking them down into smaller, easily comprehensible components. This approach ensures the infographic effectively conveys the intended meaning.

Grammar

Grammar is the study of a language's sound, shape, and sentence structure to uncover its laws. It involves understanding the elements of language and their relationships to make sense. Grammar is essential for proper word usage in communication and can be learned through practice and communication. EFL teaching methods include Grammar Translation Method, Direct Method, Audio-Lingual Method, Total Physical Response, and Communicative Language Teaching Approach. The communicative approach emphasizes language use and encourages students to interact with the language they are learning. (Turkce, 2009; Mol, 2005; Weaver, 1996)

Teachers should provide opportunities for students to use grammar in context through activities like role-playing, conversations, and writing assignments. Teaching grammar plays a significant role in facilitating effective communication and language learning, enabling learners to communicate accurately, avoid common errors, and express themselves creatively and with sophistication. (Noor, 2022)

Retention

Retention refers to the process of learning and preserving new knowledge in the human brain for later retrieval. Various factors influence memory retention, including the difficulty and meaningfulness of the information, the method of presentation, the frequency of review, and psychological factors such as stress. Research by Kornell and Bjork (2008) suggests that the difficulty of a subject can affect how well it is retained, while Pekrun et al. (2009) highlight the importance of finding a topic engaging for better retention. Mayer (2009) emphasizes the relevance of the method of learning, and Roediger III and Karpicke (2006) emphasize the benefits of frequent memory testing. McEwen and Sapolsky (1995) also note that stress and psychological factors can interfere with learning and retention.

There are three types of memory retention: sensory memory, short-term memory (STM), and long-term memory (LTM). Sensory memory allows stimuli to be stored regardless of attention. STM is limited in capacity and can store information for a few seconds or minutes, while LTM is responsible for storing detailed knowledge for longer periods. Strategies to improve retention include regular practice, breaking down information into smaller chunks, using memory aids such as mnemonics and visual aids, teaching others, engaging multiple senses, personalizing information, and self-testing. These strategies can enhance the ability to remember information or skills over time, leading to better learning outcomes.

In the context of grammar retention, Nazari and Asgharzadeh (2020) suggest using visual aids and infographics to make grammar concepts more memorable and meaningful. Active learning and collaboration with others can also improve engagement and participation in grammar retention. Overall, utilizing effective strategies such as visual aids and infographics can enhance learners' retention of grammar rules and concepts.

Infographics improve retention

Infographics have been found to improve information retention by incorporating visual aids and pictures. According to Bateman et al. (2010), infographics with more illustrations are better at retaining and recalling information in the long term compared to text-only designs. The use of visual elements helps the brain associate information with iconic pictures, leading to better long-term

retention and recall. Additionally, research by Gambrell and Jawitz (1993) showed that incorporating images and illustrations in instructional texts improved comprehension and recall. Therefore, when designing infographics for teaching grammar, it is important to include visual metaphors, symbols, iconography, and decorative framing, as suggested by Lankow et al. (2012).

Student's attitudes toward infographic teaching

Language teaching involves understanding learners' attitudes towards the target language and culture. Positive attitudes motivate learners, while negative attitudes hinder learning. Key concepts include motivation, stereotypes, culture, and self-efficacy. Motivation, culture, and stereotypes impact learners' communication and motivation, while self-efficacy supports engagement and success in language acquisition.

Baker (1992) proposed a three-factor attitude model, including cognitive, affective, and conative components. This model suggests that attitudes are complex and multifaceted, impacting learners' behavior and performance. Brown (2001) characterized attitude as a complex construct involving emotional involvement, emphasizing the importance of affective factors. Learners' emotional responses and attitudes significantly impact their motivation and success.

Dornyei (2005) proposed a model of language learner motivation that includes the ideal self, ought-to self, and learning experience. Attitudes towards the language learning process, including enjoyment and engagement, are encompassed in the learning experience component. These views highlight the complexity of attitudes, which significantly impact learners' motivation and engagement.

Attitudes towards infographic teaching vary based on learners' experiences, learning styles, and perceptions of usefulness and relevance. Some view infographics as visually appealing, engaging, and effective, while others find them simplistic or prefer traditional methods. Research supports positive attitudes towards infographics, as they improve engagement, motivation, and vocabulary acquisition. Overall, attitudes significantly impact language learning, with infographics being an effective and engaging tool.

Related studies

Infographics have been recognized as effective tools for various educational purposes, including teaching and learning. They have the ability to present information in a visual and concise manner, making it easier for learners to understand and retain information. Several studies have investigated the impact of infographics on different aspects of education, particularly in the field of English language teaching.

One study conducted by Lam and Phuong (2021) focused on the effects of using infographics for teaching grammar to English as a Foreign Language (EFL) students. The researchers found that using infographics as a teaching tool was beneficial in enhancing grammar retention among the students. Another study by Manowong (2017) explored students' attitudes towards infographics and their efficacy in teaching reading at a university in Thailand. The findings indicated that infographics were engaging for students and facilitated their comprehension of the reading material. The study recommended further research on using infographics in teaching English at all levels. Similarly, Al Hosni (2016) examined the effects of interactive infographics on learners' understanding and retention in an English Language Foundation Program in Oman. The results revealed that the use of interactive infographics improved students' ability to recall information compared to a CG. Matuate (2015) evaluated the effectiveness of infographic-based resources in primary school English instruction in Indonesia. The study found that students and teachers considered the supplemental materials helpful in learning English, primarily due to their visual appeal and aid in retaining vocabulary. Al-Otaibi (2018) investigated the impact of instructional infographics on the grammar proficiency of first and second-grade students in Riyadh. The study concluded that infographics used for instruction significantly improved students' performance in English grammar tests. Rezaei (2014) conducted a study in Iran to examine the impact of infographics on grammar learning among EFL learners. The findings demonstrated the effectiveness of infographic instruction in improving learners' grammatical knowledge and understanding.

METHODOLOGY

Pedagogical Setting and Participants

The study was conducted at a public university in the Mekong Delta region, focusing on English teaching for first-year students aged 18-19. The university used Objective KET-Student's Book as teaching materials, with 80 first-year students. The study aimed to address students' needs, preferences, and skill levels, ensuring a connection to the syllabus. The English lessons included infographics and extra exercises, selected by the investigator, to cater to the students' needs, preferences, and skill levels. Moreover, the activities were designed to align with the subjects on the syllabus.

The researcher created an infographic to teach the five tenses of verb tenses using theoretical frameworks and Grammargeek resources. The infographic effectively conveyed information, making the learning experience engaging and effective for both the researcher and participants.

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Research design
The study aimed to investigate the effects of infographics on EFL learners' grammar retention using a mixed research approach. It used quantitative and qualitative tools, including quasi-experimental and descriptive designs, to gather data on students' attitudes towards using infographics in grammar lessons. The intervention time was 11 weeks, consisting of 7 meetings.

Grammar tests
Pre-test and post-test designs are essential for comparing participant groups and gauging the degree of change brought about by therapies or procedures. In this study, a grammar pretest and post-test were used to assess the impact of infographics on EFL learners of tenses. Tests in the present study were paper-and-pencil tests with 40 items divided into four parts: multiple choice completion task, error recognition task, and complete sentence task. These tests assess students' understanding of grammar rules and sentence structure, as well as their ability to form questions and statements from the English Practice online website to determine the impact of pictures on learners' retention of grammar. Delayed post-tests are commonly used in retention research to measure the long-term effects of interventions and learning experiences. These tests help researchers determine the durability of retention and the effectiveness of interventions and learning experiences. Delayed post-tests help researchers understand how memory works and develop more effective interventions to improve memory retention.

The test was validated and tested piloting by the researcher's supervisor, an experienced English teacher, and an experienced English teacher. Fifteen different participants were involved in the pilot tests. These participants were of a similar background and level of English proficiency as those in the official study. It was shown that the reliability coefficient of the were acceptable (α= 0.801).

The test's total score was 10, with 2.5 points assigned to each section. The researcher used different scoring techniques for the first three segments and the rest of the test. The scoring criteria were based on the right/wrong scoring method, with each response scored objectively based on a single criterion for correctness. This approach ensures that the test accurately measures students' understanding of grammar rules and sentence structure in a specific language.

Questionaire
The study utilized a questionnaire to assess students' attitudes toward using infographics in English language learning (EFL) classes. The questionnaire, based on Erdem's Attitude Measurement, was used to determine students' feelings about using infographics to help them remember grammar. The questionnaire consisted of 16 items, ranging from informativeness to sharing, retention, role in the learning process, and motivation. The questionnaire was written in both English and Vietnamese for the convenience of the learners. The reliability coefficient was obtained using Cronbach's Alpha 0.93. The primary goal of the questionnaire was to learn about Vietnamese EFL students' evaluations of their efficacy in learning grammar and their preferences for learning activities and instructional materials.

To ensure the quality of the questionnaire results, the researcher placed students in a quiet environment to answer the questionnaire items. The questionnaire was completed in 15 minutes, and the researcher used descriptive statistical analysis to analyze the data. Respondents determined their level of approval of a statement by selecting one of the available options while answering questions on a Likert scale. The study aimed to understand students' attitudes toward using infographics and their preferred activities and content input for grammar lessons.

Procudure
This study aimed to investigate the effectiveness of using infographics compared to traditional textbook-based approaches for teaching English grammar. The study consisted of an EG, which used infographics, and a CG, which used the Communicative approach with a regular textbook. The study spanned 11 weeks and included four phases: pretest, treatment, posttest, and delayed post-test.

During the pretest phase, both groups took a grammar proficiency test to establish their initial levels. The treatment phase focused on different grammar topics, with the groups engaging in specific research activities related to each topic. At meeting 8, a posttest was administered to compare the effectiveness of the two methods. The EG also completed a questionnaire to assess their attitudes towards using infographics for grammar learning. Four week later, meeting 9 involved a delayed test to evaluate long-term retention of the grammar concepts.

The research procedure was rigorous and systematic, with each phase designed to collect data on grammar proficiency and attitudes towards infographics. The study aimed to contribute to the field of language learning by examining the potential benefits of using infographics for teaching grammar. The study's table provides a comprehensive overview of the research activities conducted in each meeting and the corresponding grammar topics covered.

RESULTS
The use of Infographic-based teaching affects EFL university students' grammar retention
The students' performance at the pre-test in two groups
Before the study's intervention, both groups' participants were asked to take the pre-test. The critical purpose of taking the pre-test

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was to examine whether the student's grammar level, specifically, five tenses, performance in the two groups was similar or different. Based on the results of the student's knowledge of five tenses, the researcher would determine whether the students' input levels are qualified for the study.

Table 1. The Descriptive Statistic and independent Sample T-test of the experimental and control group at the pre-test

Group	Test	Min	Max	Mean	SD	SE	Sig (2-tailed)	t	df
EG (n=40)	Pre-test	2.50	8.75	5.25	1.87	0.30	.85	-.19	78
CG (n=40)		3.00	8.50	5.32	1.57	0.25			

Students' grammar level performance in the EG was at the average of 5.25 (Min=2.50, Max=8.75), and the CG was at an average of 5.32 (Min=3.00, Max=8.50) at the pretest of grammar (see Table 4.1) Independent Samples T-test showed that there was no statistical difference between the EG and the CG at the pretest (t (80) = -.19, p = .85). It is concluded that the grammar level of students in the two groups was similar.

The students' performance at the post-test in two groups

The table below presents the descriptive statistics and the results of an independent sample t-test that was conducted to compare the post-test scores of the EG and the CG in this study. The post-test was a grammar test that measured the students' grammar proficiency after learning English grammar using infographics (EG) or regular textbooks (CG). The table shows the minimum, maximum, mean, standard deviation (SD), standard error (SE), significance level (Sig), t-value, and degrees of freedom (df) of the post-test scores for each group.

Table 2. The Descriptive Statistic and independent Sample T-test of the experimental and control groups at the post-test

Group	Test	Min	Max	Mean	SD	SE	Sig (2-tailed)	t	df
EG (n=40)	Post-test	4.75	9.75	7.43	1.36	0.21	.12	2.58	78
CG (n=40)		4.25	9.25	6.65	1.32	0.20			

The study conducted a post-test analysis to determine whether there was a significant difference between two groups, the experimental and the CG, after a five-week intervention aimed at improving the students' grammar performance in five tenses. The finding from the post-test test showed that there was a difference between the two groups after the intervention, with a t-score of 2.53 and p-value of .13. This indicates that the intervention in the EG led to a statistically significant improvement in the students' grammar performance.

Further analysis was carried out using Independent Samples T-test to compare the grammar performance of the two groups in five tenses. The findings showed a significant difference in students' grammar performance between the EG and the CG at the post-test, with a t-score of 2.34 and a p-value of .02. This statistical difference in grammar performance indicates that the intervention in the EG was effective in improving the students' understanding and use of grammatical structures.

Prior to the intervention, the study found that the students' grammar performance in the two groups was the same. However, after the six-week intervention, there was a slight change in the post-test performance, as observed in Table 2 and Figure 1.
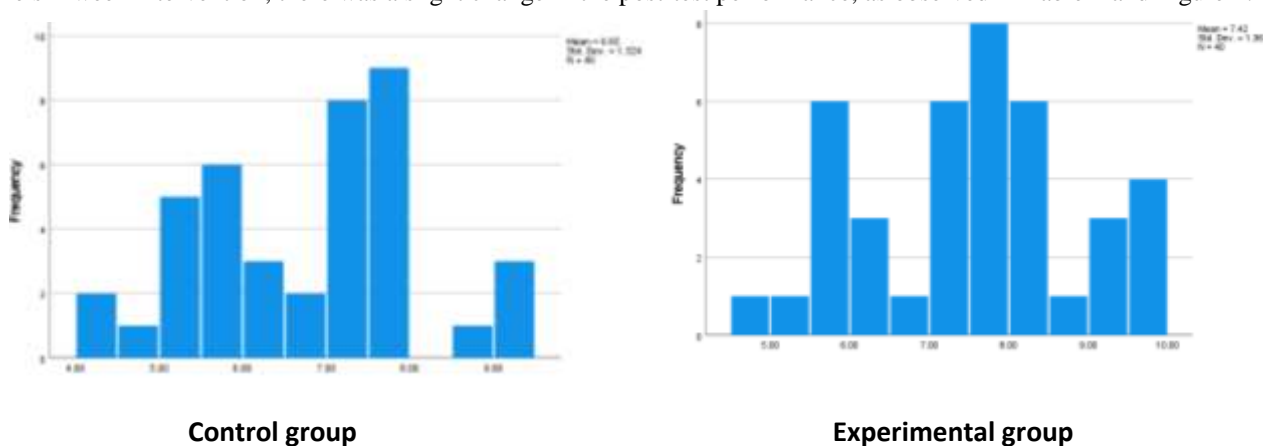

Control group   **Experimental group**

Figure 1. The students' performance at the post-test in two groups

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The students' performance at the delayed post-test in two groups

The table below presents the descriptive statistics and the results of an independent sample t-test that was conducted to compare the delayed post-test scores of the EG and the CG in this study. The delayed post-test was a grammar test that measured the students' grammar proficiency four weeks after learning English grammar using infographics (EG) or regular textbooks (CG). The table shows the minimum, maximum, mean, standard deviation (SD), standard error (SE), significance level (Sig), t-value, and degrees of freedom (df) of the delayed post-test scores for each group.

Table 1. The Descriptive Statistic and Independent Sample T-test of the EG and CG at the delayed post-test

Group	Test	Min	Max	Mean	SD	SE	Sig (2-tailed)	t	df
EG (n=40)	Delayed Post-test	4.25	9.25	7.18	1.26	.20	.13	2.53	78
CG (n=40)		4.50	9.25	6.40	1.45	.23			

A delayed post-test analysis after four weeks to determine whether there was still a difference between the experimental and control groups in terms of their grammar performance. The results of the analysis showed that there was still a difference between the two groups, with a t-score of 2.58 and a p-value of. 12, indicating that the intervention was effective even after four weeks. This finding reinforces the effectiveness of the five-week intervention in improving the students' grammar performance.

Further analysis using Independent Samples T-test was conducted to compare the grammar performance of the experimental and CGs at the post-test of five tenses. The results revealed a statistically significant difference in the students' performance, with a t-score of 2.58 and a p-value of.12. This finding highlights the effectiveness of the intervention in improving the students' understanding and use of grammatical structures in the English language.

The study found that before the intervention, the students' grammar performance in the two groups was the same. However, after the six-week intervention, a slight difference was observed in the post-test performance, as revealed in Table 3 and Figure 2 The difference in post-test performance was maintained even in the delayed post-test, indicating that the improvement in grammar performance in the EG was sustained over time.
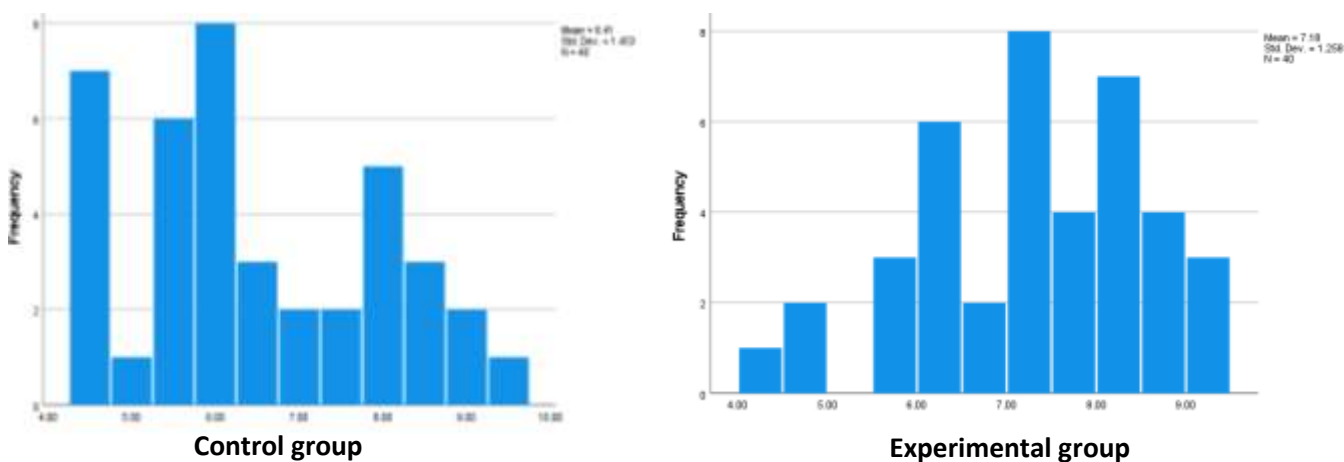

Control group   **Experimental group**

Figure 2. The students' performance at the delayed post-test in two groups

Compairison of the mean score from the pre-test and post-test of the two groups

The researcher utilized the Paired Samples Test to examine whether the mean scores of the two groups differed after obtaining the treatment through infographics. The results of the Paired Samples Test of the pretest and post-test scores of the EG were shown in Table 4.4 as follows:

Table 4. The Descriptive Statistic and Paired Samples Test of the EG and CG at the pre-test and post-test

Group	Test	Mean	SE	SD	Sig(2-tailed)	t	df
GE (n=40)	Pre-test	5.25	.30	1.87	<.001	-16.31	39
	Post-test	7.24	.21	1.36			
CG (n=40)	Pre_test	5.32	1.57	.25	<.001	-8.28	39
	Post_test	6.65	1.32	.21			

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The comparison of the mean score from the pretest and posttest of the EG revealed a significant decrease in the average score from the pretest to the posttest. Specifically, the mean pretest score was 5.25, while the mean posttest score was 1.27, indicating a difference of -3.98 points. This difference was statistically significant, with a two-tailed p-value of 0.00 and a t-value of -16.31 (see Table 4). These results suggest that the experimental intervention impacted the students' English grammar knowledge and skills, significantly improving the pretest and posttest scores.

The comparison of the mean score from the pretest and posttest of the CG revealed a significant increase in the average score from pretest to posttest. Specifically, the mean pretest score was 5.32, while the mean posttest score was 6.65, indicating a difference of 1.33 points. This difference was statistically significant, with a two-tailed p-value of less than 0.001 and a t-value of -8.28. These results suggest that the CG experienced an improvement in their English grammar knowledge and skills over the ten weeks of the study without the use of the experimental intervention.

The analysis of the experimental and CGs revealed a significant difference in the mean score change from the pretest to the posttest. The comparison of the results suggests that both the experimental intervention and traditional grammar instruction effectively improved the students' English grammar knowledge and skills over the 11 weeks of the study. However, the experimental intervention appeared more effective than traditional grammar instruction, resulting in a more significant mean score increase from the pretest to the posttest.

Comparison of the mean score from the post-test and delayed post-test of the two groups

A comparison of the post-test and delayed post-test scores of the experimental and CGs in Table 4.5 revealed some level of forgetting over the 4-week delay in both groups, as indicated by the significant decrease in the mean score from post-test to delayed post-test in both groups.

Table 2. The Descriptive Statistic and Paired Samples Test of the EG and CG at the post-test and delayed post-test

Group	Test	Mean	SE	SD	Sig(2-tailed)	t	df
GE (n=40)	Post-test	7.43	.26	1.36	`.008	2.82	39
	Delayed Post-test	7.18	.20	1.25			
CG (n=40)	Post_test	6.65	.21	1.32	.048	2.05	39
	Delayed Post_test	6.41	.23	1.45			

The experimental intervention significantly improved students' English grammar knowledge and skills after four weeks, with a mean post-test score of 7.43 and a delayed post-test score of 7.18. However, some forgetting occurred after a delay of 4 weeks, but the retention rate remained high. Traditional grammar instruction also improved students' English grammar knowledge and skills, but some forgetting occurred after a delay of 4 weeks. Periodic reviews and reinforcement may help counteract any over-time forgetting.

EFL students' attitudes toward the use of infographics used in their grammar lessons

The figure below shows the results of a questionnaire that was administered to 40 students who learned English grammar using infographics. The questionnaire consisted of 16 statements that measured the students' perceptions of the usefulness, effectiveness, and motivation of using infographics for grammar learning. The students rated each statement on a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. The table presents the minimum, maximum, mean, and standard deviation (SD) of the students' responses for each statement.
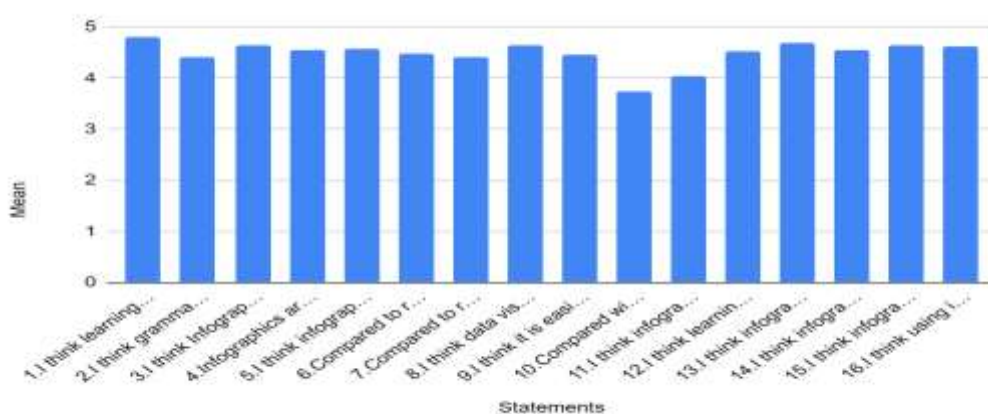

Figure 3. The results of questionaire

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According to Figure 3 the study on utilizing infographics as a teaching method for the English grammar is overwhelmingly positive, with respondents favoring using infographics to learn grammar. Respondents were given 16 statements to rate on a scale of 1 to 5, with 1 indicating significant disagreement and 5 indicating strong agreement.

With a mean grade of 4.80, respondents agreed that using infographics is beneficial while learning English grammar. It implies that respondents strongly agree with this statement, with infographics viewed as an excellent tool for increasing their knowledge and memory of English grammar, implying that infographics can increase English language competency and learning outcomes.

With averages of 4.42 for statement 2 and 4.65 for statement 3, respondents generally agree that infographics can be used to improve their comprehension of English grammar. Statements 8 and 9 likewise had high means, indicating that respondents felt that data visualization in infographics makes it simpler to recall grammar and that it is easier to learn grammar concepts through infographics than through traditional textbooks. These findings imply that infographics can assist students in learning grammar more readily, which may lead to more successful teaching approaches.

Regarding shareability, respondents agreed that infographics are simple to share in printed (4.47) and digital (4.40) forms, with means for assertions 4 and 5. Infographics can be a powerful collaborative learning tool, allowing for knowledge sharing and boosting peer-to-peer learning and collaboration.

Respondents also considered infographics motivating, with averages of 4.70 and 4.55 for assertions 13 and 14, respectively, indicating that infographics can motivate students to learn grammar while also increasing engagement and boosting active learning.

Overall, the survey findings show that infographics can be an effective and valuable teaching tool for English grammar. These findings imply that teachers could use infographics to boost student engagement, comprehension, and memory of English grammar. Finally, infographics have the potential to revolutionize English language teaching practices in classrooms all across the world.

DISSCUSION

Infographic-based Teaching affect EFL Students' grammar retention

The study found that using infographics in teaching English grammar significantly positively affected students' retention of grammar and their attitudes towards the subject. Specifically, the EG, which received infographics instruction, outperformed the CG, which received instruction using traditional methods in both grammar retention and attitudes toward the subject.

These findings are consistent with other studies investigating infographics' effectiveness in language learning. For example, Yildirim (2016) found that infographics had a positive effect on EFL learners' achievement and attitudes toward the lesson, while Alqudah, Bidin, and MdHussin (2019) found that using infographics in teaching English enhanced learners' autonomy and engagement.

However, it should be noted that while many studies have shown the benefits of infographics in language learning, not all studies have found these similar results. For example, a study by Alrwele (2017) found that infographics did not significantly impact EFL learners' writing skills. These discrepancies may be due to differences in the study designs, participant characteristics, or the specific grammar rules or language skills being taught.

A study by Chen and Kuo (2013) found that infographics and other multimedia significantly improved elementary students' grammar. Similarly, Sari (2015) found that infographics improved Indonesian EFL learners' grammar knowledge and motivation. Puspasari and Himawati (2020) found infographics more effective than traditional methods for grammar gains for high school students. Infographics benefit students in several ways. They can: - Improve motivation and engagement by making complex rules more visual and interesting - Enhance comprehension through images, diagrams, and simplified explanations - Increase interactivity and involvement in the learning process - Promote deeper processing and better knowledge retention. However, more research is needed. Studies should: - Examine different grammar topics and learner populations - Compare infographics with other multimedia, like augmented reality - Investigate long-term effectiveness and retention over weeks or months. Kim and Kwon (2018) found that while both infographics and augmented reality improved Korean EFL learners' grammar, infographics led to better retention after four weeks. Siskin and Littlejohn (2019) found that infographics in a blended learning environment also improved speaking skills and long-term retention for their students. Aziz, Abu Seif, and Mahmoud (2017) found that infographics significantly improved Arabic EFL learners' grammar knowledge in the long run.

Much research proves that infographics can effectively teach and retain grammar knowledge. They engage students visually, cognitively, and emotionally, helping them understand and remember fundamental grammar rules. However, additional comparative studies involving different contexts and learner populations would further strengthen this conclusion.

Overall, this study's results suggest that using infographics in language learning can be an effective tool for enhancing learners' retention of grammar and improving their attitudes toward the subject. However, further research is needed to explore the generalizability of these findings across different learners, contexts, and language skills.

EFL Students' Attitudes Toward Infographics Teaching

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CONCLUSION

This study found that using infographics in English grammar instruction can significantly improve students' attitudes and recollection of grammar. This aligns with previous studies on the efficiency of infographics for language acquisition. Factors such as study design, participant characteristics, and precise grammatical rules or language skills being taught may affect the effectiveness of infographics. Infographics enhance comprehension through images and simplified explanations, increase interactivity, and promote deeper processing and better knowledge retention. However, further research is needed to examine the long-term effectiveness and retention of infographics across different learner demographics, themes, and locations. The findings have significant implications for language teachers and educators seeking creative and efficient teaching methods to improve students' attitudes and learning outcomes.

LIMITATION

The study has limitations, including a limited sample size of 80 Vietnamese college students at A2 level, a focus on only five tenses, and a dual role as a teacher and researcher. Additionally, the study's ten-week duration may require more time to examine the long-term impact of experimental therapies. Additionally, the study is conducted on undergraduate students, who may have different English language learning demands than other populations. The study only examined infographics for teaching English grammar, which may only partially account for various instructional strategies.

FUTHER RESEARCH

Further research is needed to explore the long-term effectiveness and retention of using infographics in English grammar instruction across different learner demographics, themes, and locations. It would be valuable to investigate the impact of infographics on other aspects of language learning, beyond grammar, and in different educational settings. Addressing the limitations of the current study, future research could involve a larger and more diverse sample size, longitudinal studies with a longer duration, and examining the effectiveness of infographics for different language proficiency levels.

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