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Use of Infographics in English Language Teaching for Grade 3

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Abstract

This study aimed to assess the effectiveness of infographics in improving the English proficiency of Grade 3 pupils at Malinao Elementary School in Tubajon District, Dinagat Islands. A quasi-experimental method was used, involving 56 pupils—28 in the experimental group taught with digitized infographics and 28 in the control group taught using traditional methods. Pre-tests and post-tests, along with digitized infographics, were the main instruments, and data were analyzed using the mean, independent t-test, and Wilcoxon Signed-Rank Test. Findings revealed that the control group's scores remained in the "Below Expectation" range, showing minimal improvement after traditional instruction. In contrast, the experimental group demonstrated significant progress, with post-test scores reaching the "High" range. Statistical analysis confirmed a significant difference in gain scores between the groups, indicating that the improvement in the experimental group was not due to chance. The study concluded that using infographics had a measurable and positive impact on students' English proficiency. The materials used were designed based on the Department of Education's Most Essential Learning Competencies (MELCs). Traditional teaching methods were found to be less effective, while infographics served as an engaging and beneficial instructional tool. The results support the integration of digital tools in early-grade English instruction to enhance language skills and improve academic outcomes.

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Introduction

In the context of the digital age, technology plays a transformative role in education. One critical aspect is the need for English language proficiency, particularly in Grade 3, a pivotal stage for language development. While educators strive to enhance language skills, incorporating modern and engaging digital infographics into Grade 3 English language learning becomes imperative.

Visually appealing and interactive technologies are essential for educators seeking to create engaging learning environments. The significance of English language skills in our global environment further underscores the importance of effective language instruction at the Grade 3 level. Infographics offer a promising avenue for achieving this goal, promoting media literacy and higher-order cognitive skills, as Noonoo (2023)^[8] highlighted.

Infographics aid in simplifying complex information and improving students' understanding, retention, and comprehension of English grammar (Nhan & Yen, 2021)^[7]. However, limitations, as pointed out by Ugwu (2023)^[11], such as potential hindrances for visually impaired students, underscore the necessity for a comprehensive understanding of the role and challenges of infographics in English language instruction.

Despite the recognized potential of infographics in language education, there is a notable gap in understanding their practical application and impact, especially in Grade 3 classrooms. While Noonoo (2023) ^[8] emphasizes the cognitive benefits, there is a need to explore how digital infographics specifically contribute to English language acquisition in young learners.

This research investigates the effectiveness of digitalized infographics in Grade 3 English language instruction, by examining their effects on language acquisition and learning outcomes. It aims to provide empirical evidence that addresses the current gap in the literature and informs educators, curriculum authors, and policymakers about the efficacy of integrating digital infographics into the Grade 3 English language curriculum.

Problem Statement

This study aimed to determine the effectiveness of infographics in improving the English proficiency level of the Grade 3 students of Malinao Elementary School in Tubajon District, Tubajon, Province of Dinagat Islands.

Specifically, it sought answers to the following questions:

- What is the English language competency level for pre-test and post-test students in both control and experimental groups?
- Is there a significant mean gain in the English competency level of the students in the control and experimental groups before and after using the infographics?
- Is there a significant difference in the English competency level of the students in the control and experimental groups before and after using the infographics?

Methods

Research Design

This study employed a quasi-experimental approach, enabling the researcher to evaluate the effect of using digital infographics on English language competency. It was done by comparing the changes in test results between the experimental and control groups.

Research Environment

The study was conducted at Malinao Elementary School in Tubajon District, Tubajon, Province of Dinagat Islands.

Participants

This study involved Grade 3 pupils from two separate groups: the experimental group (28 participants), where infographics were integrated into English language instruction, and the control group (28 participants), which received traditional teaching methods without using infographics. The selection process utilized complete enumeration. Comparing these two groups yields valuable insights regarding the possible influence of the intervention. The demographic parameters of the participants in both groups were meticulously considered to provide a well-balanced and representative sample. The two groups were similar regarding gender distribution, socioeconomic background, and previous English language skills. Before commencing the study, both groups received a pre-test to evaluate their initial level of English language competency.

Research Instrument

This study employed a set of research instruments specifically designed to measure the effectiveness of using

digitized infographics in enhancing the English proficiency levels of Grade 3 pupils. The instruments were aligned with the Most Essential Learning Competencies (MELCs) from the Grade 4 MATATAG Curriculum issued by the Department of Education, but were strategically adapted to suit the developmental level of Grade 3 learners. These tools assessed learners' baseline proficiency, monitored progress during the intervention, and evaluated learning outcomes after implementation.

- **Pre-Test and Post-test:** To establish a baseline and determine the impact of the intervention, a pre-test and post-test were administered to the control and experimental groups.
- **Infographics:** The core instructional tool for the intervention consisted of digitized infographics designed to integrate visual, textual, and interactive elements to support effective English language learning.

Ethics and Data Gathering Procedure

This study, conducted during the Fourth Quarter of School Year 2024–2025, followed three phases: Pre-Implementation, Implementation, and Post-Implementation. In the Pre-Implementation phase, the researcher obtained approval from the relevant school authorities and developed digitized infographic materials based on the Grade 4 English curriculum under the MATATAG Curriculum, which experts validated. A pre-test was administered to determine the baseline proficiency of Grade 3 pupils. In the Implementation phase, the materials were used instead of traditional instructional tools for four weeks, with students completing weekly formative assessments. The materials were scaffolded to suit Grade 3 learners while aligned with Grade 4 competencies. In the Post-Implementation phase, test results were analyzed for improvements in student proficiency, and additional infographic materials were developed for future use and validated by experts.

Data Analysis

The study used several statistical tools to analyze the data: the mean to compare average English proficiency and writing competency scores before and after the intervention in both groups; the Wilcoxon Signed-Rank Test, a non-parametric test to compare pre-test and post-test scores within the same group when data does not follow a normal distribution; and the Independent t-Test to compare the means of the control and experimental groups, assessing pre-test equivalence and post-test improvements in the experimental group.

Results and Discussion

The following presents and discusses the study's results on using digitized infographics to improve the English language proficiency of Grade 3 students at Malinao Elementary School in Tubajon District, Dinagat Islands.

The English language proficiency level of the Subjects before and After Instruction in the Control and Experimental Groups

This section explores the English language proficiency levels of the subjects before and after instruction in both the Control and Experimental groups. The Control group was taught using traditional methods, while the Experimental group received instruction through digitized infographics, an innovative approach designed to enhance student engagement and understanding. The primary aim of this analysis is to evaluate and compare the pre-test and post-test results of the two groups to determine whether the

instructional methods significantly impacted students' language proficiency.

Control Group

For the Control Group, the pre-test mean score is 6.05, which falls under the "Below Expectation" category (between 6-7), indicating that the students' English language proficiency is still below average and improvement is needed.

Table 1: English language proficiency level before and After Instruction in the Control Group

Group	Test	Mean	Qualitative Description	Interpretation
Control Group	Pre-Test	6.05	Below Expectation	Improvement needed, but closer to average. (closer to the lower end of the scale)
	Post-test	6.21	Below Expectation	Improvement needed, but closer to average. (slightly improved, still far from maximum)

Score Range	Description	Interpretation
10	Very High	Excellent performance, close to the maximum score.
8 - 9	High	Above average, good performance.
6 - 7	Below Expectation	Improvement needed, but closer to average.
4 - 5	Low	Below expectation, needs improvement.
1 - 3	Very Low	Significant improvement needed.

The post-test mean score of 6.21 slightly improved but remains in the "Below Expectation" range, indicating that while there was some progress, it is still far from the highest possible score.

The Control Group's scores are within the "Below Expectation" range, which suggests that their proficiency level is not meeting expectations, and there is significant room for improvement in their English language skills. Although the post-test score improved slightly, the group's overall performance remains near the lower end of the scale, emphasizing the need for further instructional support or different teaching methods to foster more substantial growth. The results imply that traditional teaching methods may not be sufficient to push students toward higher proficiency levels, especially for the Control Group. Although the slight improvement from Pre-test to Post-test is encouraging, there may be a need for more effective instructional strategies. This finding highlights the potential benefit of using innovative teaching methods, such as interactive tools, technology integration, or personalized learning, to better support students and help them achieve a higher level of proficiency in English language education, as proposed by Zhang & Dong (2024) [14]. The results also indicate that a more

engaging or modern approach may be required to significantly improve students' language skills, as explained by Vaishnav (2024) [12]. The integration of information and communication technologies into English language instruction has been seen as a viable means of providing students with more opportunities to practice English and engage in authentic scenarios, according to Hong *et al.* (2020) [4].

Experimental Group

The table presents the English language proficiency levels of the experimental group before and after the instruction. The mean scores are used to interpret the proficiency levels, and a score range is used to help describe the performance. For the Experimental Group, the pre-test mean score is 7.69, which is categorized as "Below Expectation" (between 6-7). This suggests that the students had a moderate level of proficiency before the intervention, positioned around the middle of the scale. The post-test mean score of 9.08 is categorized as "High", close to the maximum score of 10, indicating a substantial improvement in their proficiency after receiving the intervention.

Table 2: English language proficiency level before and After Instruction in the Experimental Group

Group	Test	Mean	Description	Interpretation
Experimental Group	Pre-Test	7.69	Below Expectation	Improvement needed, but closer to average. (closer to the middle of the scale)
	Post-test	9.08	High	Above average, good performance. (close to the maximum score of 10)

Score Range	Description	Interpretation
10	Very High	Excellent performance, close to the maximum score.
8 - 9	High	Above average, good performance.
6 - 7	Below Expectation	Improvement needed, but closer to average.
4 - 5	Low	Below expectation, needs improvement.
1 - 3	Very Low	Significant improvement needed.

The Difference in scores from the Pre-test to the Post-test suggests that the intervention (likely digitized infographics or another innovative teaching method) significantly impacted the students' English language proficiency. The post-test score places the Experimental Group in the "High" range, demonstrating improvement and a high level of proficiency after the instruction.

The significant improvement seen in the Experimental Group suggests that innovative teaching strategies—such as digitized infographics—can profoundly affect students' language proficiency. Starting with a pre-test score of 7.69, which was only "Below Expectation", the students'

performance after the intervention rose to 9.08, which falls in the "High" category, close to the maximum score. This highlights the effectiveness of engaging and interactive teaching methods in promoting higher proficiency levels among students, as highlighted by Shana *et al.* (2024) [9]. The improvement observed underscores the potential benefits of incorporating technology and modern educational tools into the classroom, particularly for English language education. This result can serve as evidence for educational policymakers and practitioners to further invest in interactive and technology-enhanced learning environments, as Rintaningrum (2023) suggests. This finding also emphasizes

the importance of tailored and interactive learning strategies in improving educational outcomes. The success of the Experimental Group suggests that more traditional methods may not be as effective for engaging students and facilitating significant improvements, pointing to the need for continued innovation in teaching practices to meet the needs of today's learners better, as observed by Tong *et al.* (2022) ^[10].

Significant Difference in the English Language

Table 3: Significant Difference in the English language proficiency level before and After Instruction in the Control Group

Paired Test	Test	Mean Difference	Statistic (W)	p-value	Decision on H ₀	Interpretation
Wilcoxon W	Pre-test	-0.109	111	0.060	Not Rejected	Not Significant
	Post-test					

The Control group used traditional teaching methods to learn the material. The purpose of this test is to determine if there is a significant difference in the English language proficiency of the students before and after instruction. The Control Group, which used traditional teaching methods, showed no significant improvement in English language proficiency based on the Pre-test and Post-test results. The slight decrease in scores suggests that the traditional methods may not have effectively improved students' language skills. This could be due to the lack of engagement or the interactivity typically provided by more modern teaching techniques. The results imply that traditional instruction, while helpful in some contexts, may not lead to substantial language proficiency gains, notably if it lacks engaging or interactive elements that could better capture students' attention and enhance understanding as proposed by (Yunhua & Budiman, 2024). Given the lack of significant improvement, it can be inferred that conventional teaching methods may need to be complemented or replaced with more interactive and innovative approaches to improve language proficiency in students. This finding highlights the importance of innovative teaching tools—such as digitized infographics—which can better engage students and facilitate more effective learning as cited in the work of Cao *et al.* (2023).

Table 4: Significant Difference in the English language proficiency level before and After Instruction in the Experimental Group

Paired Test	Test	Mean Difference	Statistic (t)	p-value	Decision on H ₀	Interpretation
Student's	Pre-test	-1.40	-37.3	<.001	Rejected	Significant
	Post-test					

The mean Difference of -1.40 suggests that, on average, the students in the Experimental Group scored lower on the Post-test than the Pre-test. While this might seem counterintuitive, it is crucial to understand that the t-statistic value of -37.3 indicates a strong relationship between the two sets of data, and the p-value of less than 0.001 shows that the result is statistically significant, rejecting the null hypothesis. The negative mean Difference combined with a very significant t-value suggests that despite a decrease in scores, the intervention was impactful in a different context, and other factors (such as test conditions or difficulty) may be worth exploring. The results in the Experimental Group highlight that digitized infographics or other modern teaching methods can lead to statistically significant changes in student performance. However, the negative mean Difference of -1.40 raises important questions. The decrease in scores, despite the

Proficiency Level of the Subjects in the Control Group and Experimental Group before and after instruction
This section investigates the significant Difference in the English language proficiency levels of the subjects in the Control and Experimental groups, both before and after the instructional period. The following table presents the results of the Wilcoxon Signed-Rank Test, which was used to compare the Pre-test and Post-test scores for the Control Group.

In contrast to the Control Group, the Experimental Group (which used digitized infographics) showed significant improvement in their Post-test scores, as detailed in previous results. This suggests that interactive learning tools have the potential to significantly enhance student engagement and language learning outcomes, leading to more substantial improvements in English proficiency, according to Alazemi (2024) ^[11]. The Control Group's results suggest that traditional teaching methods alone may not significantly improve English language proficiency. The lack of significant Difference between the Pre-test and Post-test scores indicates that the group's performance remained relatively stable, and further efforts might be needed to enhance the effectiveness of their learning experience. This supports the idea that more modern, interactive teaching methods could lead to better educational outcomes, according to Kumar *et al.* (2020) ^[5]. Table 5 presents the results of the Student's t-test for comparing the Pre-test and Post-test scores in the Experimental Group, which used digitized infographics or another innovative teaching method. The Student's t-test aims to determine whether the Difference between pre-test and post-test scores is statistically significant in the Experimental Group after the intervention.

intervention, may indicate that the instructional materials or assessment methods may not have been perfectly aligned with the students' current knowledge or the expected learning outcomes. Further investigation into the nature of the instruction and the difficulty of the tests is essential. The statistically significant p-value suggests that the instructional method impacted the students while causing a decrease in the scores. It emphasizes the need to explore the specific elements of the digitized infographics or other teaching tools. Interactive and engaging learning strategies, such as digitized infographics, could improve learning outcomes when implemented effectively, provided that the materials align with students' learning needs and comprehension levels. This result suggests that while the experimental intervention may have improved some aspects of English language proficiency, it may also require refinement to meet the needs

of the students better. Instructional materials should be tailored to be more accessible and directly aligned with the students' proficiency levels to optimize the effectiveness of such interventions in language learning. This finding has broader implications for curriculum design, emphasizing the importance of adaptable teaching tools that can support diverse learning styles and proficiency levels in the classroom, according to Qiao (2024). The research implies that innovative teaching tools, such as interactive e-books and multimedia resources, should be carefully designed to ensure they are user-friendly and relevant to the specific needs of learners, as suggested by Hsieh *et al.* (2015). While the Experimental Group showed a statistically significant change in their language proficiency, the negative mean Difference suggests that the intervention may need to be adjusted to ensure it aligns more effectively with the students' learning needs (Malabayabas *et al.*, 2024)^[6]. The significant p-value reinforces that the teaching method was impactful. However, its effectiveness could be further enhanced by considering other factors like content difficulty, student engagement, and test alignment per Zhang *et al.*

(2024)^[13].

Difference in the Mean Gain Scores between the Control and Experimental Group

This section explores the Difference in the mean gain scores between the Control and Experimental groups, which were assessed for changes in English language proficiency before and after instruction. The Control group received traditional teaching methods, while the Experimental group was taught using digitized infographics, a modern and interactive teaching approach designed to enhance student engagement and learning. The gain score represents the Difference between students' post-test and pre-test scores, reflecting the improvement in their proficiency levels after the instructional period. On the other hand, Table 6 presents the results of the Mann-Whitney U Test, which was used to determine whether there is a statistically significant difference in the gain scores between the control group, which did not receive the intervention, and the experimental group, which was exposed to digitized infographics.

Table 5: Significant Difference in the Gain Scores between the Control and Experimental Group

Group Comparison	Mean	SD	t	p-value	Decision on Ho	Interpretation
Control	6.21	0.957	12.0	< .001	Rejected	Significant
Experimental	9.08	0.146				

The findings reveal that the mean gain score of the experimental group (M = 9.08, SD = 0.146) was notably higher than that of the control group (M = 6.21, SD = 0.957). The U-value of 12.0 and p-value of less than .001 indicate a statistically significant difference in favor of the experimental group. As the p-value is below the 0.05 significance level, the null hypothesis (Ho)—which posits that there is no significant difference between the groups—is rejected. This suggests that the use of digitized infographics had a positive and significant effect on improving the English proficiency of Grade 3 pupils, validating the effectiveness of the intervention. These findings imply that the intervention used in the Experimental group significantly improved their English language proficiency. The data shows that the Experimental group improved significantly more than the Control group, highlighting the potential effectiveness of modern instructional methods, such as digitized infographics or other engaging visual aids, as Alazemi (2024)^[1] suggested. The minimal improvement in the Control group, which did not receive the intervention, suggests that traditional teaching methods alone may not yield substantial progress in language proficiency, particularly in measurable gains. The significant improvement in the Experimental group underscores the potential of innovative, tech-based educational tools in fostering better learning outcomes, particularly in enhancing students' comprehension and engagement. In a general sense, the results suggest that incorporating modern, interactive learning tools into the classroom can boost language proficiency, making a strong case for the broader adoption of such methods as highlighted in the study of Anane (2024). This finding could have important implications for how English language education is approached, especially in settings where improving language skills is a priority, according to Yan *et al.* (2024)^[13].

Conclusion

Based on the findings of this study, it can be concluded that traditional teaching methods are less effective compared to the use of infographics, which resulted in significant improvements in student performance. Integrating infographics led to measurable gains in students' English proficiency, demonstrating that this approach is an effective tool for enhancing learning outcomes. Moreover, the specially designed infographics for Grade 3 pupils were beneficial in improving their language skills.

Recommendation

Based on the findings and conclusions of this study, several recommendations are made for enhancing English language proficiency. School administrators should consider integrating digitized infographics and other interactive tools into the curriculum to support innovative teaching methods that boost student engagement and learning outcomes. Teachers are encouraged to explore and adopt these tools in their lessons, particularly in language instruction, to enhance student involvement and academic improvement. Parents should promote using interactive learning materials at home, such as educational apps or games incorporating visual aids, to support their children's learning. Stakeholders, including local government and the private sector, should invest in technology and digital resources, providing necessary school devices and infrastructure. Finally, future researchers should explore the long-term effects of digitized infographics and other interactive tools on students' academic performance and knowledge retention.

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