

Effect of Graphics and Pictures on Social Studies Students' Academic Performance: A Comparative Study

Emudianughe Rachael Emuobome *, Ogbianugene Peter Dania, Ogheneakoke. E. Clifford

Department of Social Science Education, Delta State University, Abraka, Nigeria.

**Corresponding Author Email: stellaemudianughe7@gmail.com*

Abstract

The purpose of this study was to determine the comparative effect of using graphics and pictures as instructional resources on the academic performance of Upper Basic Social Studies students in Delta State. Three research questions and three hypotheses were formulated and tested using a quasi-experimental factorial research design. A sample of 453 upper basic 8 students of Social Studies from six mixed schools across Delta State were selected using multistage and random sampling techniques. These students were chosen from a population of 66,912 students across 453 public upper-basic schools in Delta State. The instrument used for data collection was an academic performance test called the "Social Studies Students Performance Test" (SSSPT), which demonstrated good reliability. Descriptive statistics, including mean and standard deviation, were used to answer research questions, while Analysis of Covariance (ANCOVA) was employed for hypotheses testing at a significance level of 0.05. The study found a significant positive effect of graphics instructional resources on the academic performance of Social Studies students. However, pictures had no significant effect on students' academic performance. Comparative effect was significant. Based on these findings, the study recommended that Social Studies teachers actively incorporate graphics in their instructions in Upper Basic schools. The study contributed to knowledge by establishing that graphics contribute to academic performance.

Keywords: Graphics, Pictures, Academic Performance, Comparative Effect, Effect,

Introduction

Most recently, there seems to be an increasing concern among Social Studies educators and researchers regarding the subpar academic performance of upper-basic Social Studies students. The gravity of this concern has prompted stakeholders within the education sphere to collaborate and probe the underlying causes of this predicament, as well as potential remedies. In the past, poor academic performance was often attributed to the lack of financial support from the government for educational institutions in Nigeria. While recent investments from both the government and private sector aimed to bolster learning facilities and human resources, the anticipated improvement in academic performance has not materialized (Atubi, 2021; Owan et al., 2018). This prompts a deeper exploration into other factors, such as teacher quality, learning environments, individual student challenges, instructional supervision, and the absence of adequate instructional resources, which might be contributing to the unsatisfactory academic performance of Social Studies students.

Hattie (2009) delineates academic performance as the successful accomplishment of educational tasks, encompassing assignments, tests, examinations, and overall achievement in coursework. It pertains to the achievement of short-term educational goals and holds a pivotal place in educational research. Schools exist for the learners, making their academic performance a key barometer for assessing the effectiveness of the entire education system. However, the underwhelming academic performance of students across various subjects, including Social Studies, both within schools and external examinations, is disheartening.

According to Emudianughe & Akporuarho (2022), in the realm of modern education, the utilization of visual aids, encompassing graphics and pictures, has gained substantial traction due to its proven enhancement of students' learning experiences and academic accomplishments. This surge in popularity notwithstanding, a notable void remains in comprehending the precise influence of these visual aids on the academic performance of Social Studies students at upper-basic schools in Delta State. While established research in educational psychology and cognitive science underscores the potential of visual aids to foster superior comprehension, engagement, and memory retention, a conspicuous gap prevails in their comprehensive impact on academic performance.

The integration of visual aids, including graphics and pictures, has gained prominence as one such strategy. Maycock and Keith (2018) notes that education has transitioned from traditional lecture-style methods to interactive and engaging approaches that cater to diverse learning styles. Incorporating visual aids provides an opportunity to present complex information visually, facilitating a deeper understanding of concepts. These holds promise for Social Studies, which covers a wide range of disciplines and encourages critical analysis of societal issues.

Delta State, like many regions, grapples with distinctive challenges in its education system. While efforts have been made to enhance education quality, the need to explore innovative teaching methods that could elevate academic performance and student engagement remains. The upper basic school level is a pivotal stage in a student's educational journey, where foundational knowledge is solidified, and preparation for higher education commences. Consequently, investigating the impact of visual aids on academic performance becomes especially relevant in this context.

Graphics serve as a potent tool for enhancing students' learning experiences and outcomes. They break down intricate concepts into visual components, facilitating a more profound understanding of historical events, cultural dynamics, and geographical features. This, in turn, enhances students' capacity to discern patterns, connections, and trends, contributing to a deeper grasp of Social Studies concepts. The brain processes visual information swiftly and effectively, making graphics a powerful tool for bolstering memory recall during assessments and overall academic performance. Moreover, analyzing graphics nurtures critical thinking skills necessary for comprehending historical contexts and socio-political dynamics. Graphics contextualize Social Studies content within real-world contexts, rendering it more relatable and promoting a comprehensive understanding of the subject matter (Alfayad & Arif, 2017).

Pictures on the other hand offer students a tangible glimpse into historical moments, enabling them to witness events, people, and places from the past. This immersive experience through images creates a vivid context that enhances students' comprehension of the subject matter. Engagement with visual details equips students to better understand the intricacies of historical events, resulting in improved academic performance. Pictures can also evoke emotions and foster empathy by depicting human experiences in real settings. This connection with the stories and struggles of individuals from different eras and cultures fosters a deeper engagement with the past. This emotional connection enhances student investment in the subject and positively influences academic achievement. Therefore, the objectives of this study are to determine the effect of graphics, pictures and their comparative effect on the academic performance of Upper Basic Social Studies students

Research Questions

The following research questions guided the study:

1. What is the effect of graphics on the academic performance of Upper Basic Social Studies students compared to the control group?
2. What is the effect of pictures on the academic performance of Upper Basic Social Studies students compared to the control group?
3. What is the comparative effect of graphics and pictures on the academic performance of Upper Basic Social Studies students

Hypotheses

1. Graphics do not have a significant effect on the academic performance of Upper Basic Social Studies students when compared to the control group.
2. Pictures do not have a significant effect on the academic performance of Upper Basic Social Studies students when compared to the control group.

3. Graphics and pictures do not have a significant comparative effect on the academic performance of Upper Basic Social Studies students

Review of Literature

Graphics have become a captivating focus in many areas, significantly influencing how we communicate, educate, and share information. They come in various forms, including visual representations, charts, diagrams, and images, and serve as powerful tools for conveying complex ideas and enhancing understanding (Smith, 2022; Fu et al. 2020; Johnson et al. 2019). For example, Johnson and Smith (2018) conducted a comprehensive study on the role of graphics in information visualization. Their research highlighted how well-designed graphics can simplify intricate data, making it easier for viewers to understand and interpret. Rather than being just decorative elements, these graphics act as essential vehicles for effective communication. In education, the impact of graphics is particularly noteworthy. Halilu (2001) and Brown et al. (2020) explored how visual aids can transform teaching and learning outcomes. Their findings revealed that graphics not only increase student engagement but also enhance comprehension. By stimulating cognitive processes, these visual tools help students make connections between different concepts, which improves their ability to remember important information. As we enter the digital age, the development of graphics is evolving further, especially with the rise of interactive visualizations.

Martinez et al. (2019) explored the integration of interactive graphics in educational settings. Their research demonstrated the potential of these interactive elements to promote active learning. By allowing students to engage directly with data, manipulate variables, and explore different scenarios, interactive graphics encourage deeper understanding and insightful discoveries. However, to fully harness the power of graphics, it is essential to consider their design, relevance, and the audience they are intended for (Hassan, 2021; Faruk, 2015). Williams and Johnson (2021) emphasized the importance of aligning graphics with educational goals. By designing graphics that are tailored to the cognitive abilities of learners and ensuring they are clear and concise, educators can significantly enhance their effectiveness and facilitate a deeper understanding of the material.

Similarly, pictures have gone beyond their traditional roles and have become powerful tools in communication, education, and sharing information. These visuals can express complex ideas in ways that words sometimes cannot, making them fascinating and engaging for viewers. Odu (2011), Johnson and Martinez (2017) and Aliyu (2017) explored the unique power of pictures, describing them as a universal language that people from different cultures can understand. Their research shows how pictures can evoke feelings and create connections, helping people relate to the messages being shared. In the field of education, Smith et al. (2019) focused on the amazing benefits of using pictures in teaching. Their study revealed that pictures can significantly enhance students' understanding and make learning more engaging. When students see pictures alongside text, their brains can process information more effectively, leading to a more complete learning experience.

As we move into the digital age, the way we share pictures is changing rapidly, especially through social media. Brown and Garcia (2020) examined how pictures can go beyond just being images on a screen. They act like lights in the dark, not only helping to convey information but also fostering connections between people across the internet. However, using pictures thoughtfully is crucial for effective communication. Thompson and Williams (2018) emphasized the importance of choosing the right pictures that align with the message and resonate with the audience. Just like characters in a story, pictures should be carefully selected and placed to grab attention and enhance understanding. When done well, pictures can leave a lasting impression and help convey ideas more clearly.

Research Methods

This study employed a quasi-experimental research design, which involved the implementation of pre-test and post-test assessments on both experimental and control groups within non-randomized (intact) classes. The study's population encompassed all Upper Basic 8 Social Studies students in Delta State, totaling 66,912 students during the 2023/2024 academic session from 453 schools (Ministry of Basic Education in Asaba, 2024). Utilizing multi-stage and random sampling approach, a sample size comprising 335 Upper Basic 8 Social Studies students were selected constituting 0. 5% of the population under consideration. The primary tool employed for this research was the Social Studies Performance Test (SSPT), a comprehensive assessment designed to measure participants' academic Consisting of 50 multiple-choice questions, the SSPT was meticulously selected from three distinct topics meticulously chosen from the Social Studies Upper Basic syllabus. The reliability of the SSPT was established through the utilization of the test-retest method, using the Pearson Product Moment Correlation Coefficient (PPMC) statistic. The analysis resulted in a coefficient value of 0.69. Method of data collection, a pre-test was given and after six weeks of intensive teaching with graphics and pictures for the two experimental groups and one control group that was not exposed to

either graphics or pictures. After treatment, a post-test was administered, data was collected and research questions were analyzed with mean, while ANCOVA was used to test all three hypotheses.

Results

The scores obtained from both pre-test and post-test were collected, analyzed and presented in the tables below.

Research Question 1: What is the effect of graphics on the academic performance of Upper Basic Social Studies students compared to the control group?

Table 1. Mean and Standard Deviation showing the Pre-test and post-test Scores of Students taught with graphics when compared to a control group.

Groups	N	Pretest		Posttest		Mean gain
		Mean	SD	Mean	SD	
Graphics	115	35.58	9.78	72.82	16.26	37.24
Control Group	110	29.66	9.29	29.66	9.28	0
Total	225					

Table 1 shows the test for the impact of using graphics on the academic performance of Upper Basic Social Studies students, as compared to a control group that did not receive graphic-based instruction. After teaching with graphics, the experimental group experienced a dramatic performance improvement. Their post-test mean score rose to 72.82, with a standard deviation of 16.26, showing that the use of graphics significantly enhanced students' understanding and retention of the subject. The higher standard deviation in the post-test scores also suggests that, although the overall group improved, there was a wider range of individual outcomes, with some students benefiting more than others from the graphics-based instruction.

In stark contrast, the control group, which did not receive any form of graphic-enhanced teaching, showed no improvement. Their post-test mean score remained identical to their pre-test score at 29.66, with almost no change in the standard deviation. This lack of progress suggests that traditional teaching methods, without the aid of graphics, failed to foster any significant learning gains in these students. The mean gain—a measure of the difference between pre-test and post-test scores—further illustrates the effect of the instructional methods. The graphics group exhibited a substantial mean gain of 37.24 points, signifying a major improvement in their academic performance. Conversely, the control group demonstrated no gain, remaining at zero.

Research Question 2: What is the effect of pictures on the academic performance of Upper Basic Social Studies students when compared to a control group?

Table 2. Mean and Standard Deviation showing the Pre-test and post-test Scores of Students taught with pictures when compared to a control group.

Groups	N	Pretest		Posttest		Mean gain
		Mean	SD	Mean	SD	
Pictures	110	35.07	11.50	64.55	16.29	29.48
Control Group	110	29.66	9.29	29.66	9.28	0
Total	220					

In Table 2, the test results for the mean effect of pictures on the academic performance of Social Studies students when compared to a control group are presented. After teaching with pictures, the group taught with pictures showed a substantial improvement in their academic performance. Their mean post-test score increased significantly to 64.55, with a standard deviation of 16.29. This increase highlights the effectiveness of using pictures in enhancing students' understanding of Social Studies concepts. The rise in the standard deviation also suggests that while the overall group improved, individual students varied in how much they benefited from the intervention.

In contrast, the control group saw no change in their academic performance. Their post-test mean score remained identical to their pre-test score at 29.66, with a nearly unchanged standard deviation of 9.28. This lack of improvement indicates that the traditional teaching methods, without the inclusion of pictures, did not lead to any measurable gains in student performance. The mean gain, which represents the difference between pre-test and post-test scores, further emphasizes the impact of pictures. The group taught with pictures had a mean gain of 29.48 points, demonstrating a

significant enhancement in academic outcomes. Meanwhile, the control group showed no gain, confirming that students in this group did not experience any academic progress.

Research Question 3: What are the comparative effects of graphics and pictures on the academic performance of Upper Basic Social Studies students?

Table 3. Mean and Standard Deviation showing the Pre-test and post-test Scores of Students taught with graphics and pictures.

Group	Pretest			Post-test		Mean gain
	N	Mean	SD	Mean	SD	
Graphics	115	35.58	9.767	72.82	16.261	37.24
Pictures	110	35.77	11.505	64.55	16.285	34.48
Total	215					

Table 3 shows the test for the comparative mean effect of graphics and pictures on the academic performance of Social Studies students. Students taught with graphics had a posttest mean score of 72.82 against 35.58 of a pre-test mean score. A mean gain score effect of 37.24 was recorded. Students taught with pictures had a posttest mean score of 64.55 as against 35.77 a pre-test mean score. A mean gain score effect of 34.48 was recorded. This implies that teaching students Social Studies with graphics had a higher effect on their academic performance compared to those taught with pictures.

Hypotheses 1: Graphics do not have any significant effect on the academic performance of Upper Basic Social Studies students when compared to the control group.

Table 4. ANCOVA Summary on the Effect of Graphics on Upper Basic Social Studies Students' Academic Performance.

ANCOVA summary table						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Decision
Treatment	3459.269	22	157.239	1.992	.014	Hypothesis rejected
Control	856.615	15	57.108	.724	.753	
Error	6076.630	77	78.917			
Total	156480.000	115				

Table 4 shows the test for hypothesis 1, that there is no significant effect of graphics as instructional Resources on the academic performance of upper Basic Social Studies Students when compared with a control group. The results showed that the treatment variable (graphics) had a statistically significant impact on students' performance, as indicated by a p-value of .014 ($F = 1.992$). This suggests that the use of graphics contributed to a meaningful difference in academic outcomes between the two groups, leading to the rejection of the null hypothesis, which proposed that graphics do not affect academic performance.

Hypotheses 2: There is no significant effect of pictures on the academic performance of Upper Basic Social Studies students

Table 5. ANCOVA Summary on the Effect Pic on Upper Basic Social Studies Students' Academic Performance.

ANCOVA summary table						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Decision
Treatment	3365.585	19	177.136	1.435	.137	Hypothesis accepted
Control	1571.643	15	104.776	.849	.622	
Error	9259.345	75	123.458			
Total	149738.000	110				

Table 5 shows the test for the hypothesis that stated that there is no significant effect of pictures as instructional resources on the academic performance of Upper Basic Social Studies students when compared to a control group. The results indicate that the treatment variable, representing the use of pictures, did not have a statistically significant effect on academic performance. This is evidenced by a p-value of .137 ($F = 1.435$), which is greater than the conventional threshold of 0.05. As a result, the null hypothesis—stating that "There is no significant effect of pictures

on academic performance"—is accepted, meaning that the use of pictures did not lead to a significant difference in student performance. Additionally, the control group also did not have a significant effect on academic performance, as indicated by a p-value of .622 ($F = .849$). Therefore, the hypothesis that pictures do not significantly affect academic performance is supported by the data

Hypotheses 3: There is no significant comparative effect of graphics and pictures on the academic performance of Upper Basic Social Studies students

Table 6. ANCOVA Summary on the comparative effect graphics and pictures on Upper Basic Social Studies Students' Academic Performance.

ANCOVA summary table						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Decision
Graphics and Pictures	3084.827	2	140.219	1.781	.037	Hypothesis rejected
Error	5354.249	107	78.739			
Total	150780.000	110				

Table 6 shows the test for hypothesis 3, that there is no significant effect of graphics and pictures as instructional Resources on the academic performance of upper Basic Social Studies Students. The results revealed that the use of graphics and pictures had a statistically significant impact on student performance, as indicated by an F-value of 1.781 and a p-value of .037. Since this p-value is below the 0.05 level of significance, the null hypothesis is rejected, meaning that graphics and pictures have a significant positive effect on students' academic performance. These findings suggest that there is a notable difference in the effect of graphics and pictures, with at least one of these techniques having a more substantial effect on the academic performance of students.

Discussion of Findings

The findings of the study are discussed in this section.

The results of hypothesis one demonstrated that there is a significant effect of graphics on the academic achievement of Social Studies students of upper basic schools in Delta State. This improvement in post-test mean can be linked to the treatment of visuals supplied to the students. This conclusion is an indicator that graphics are useful in increasing the academic performance of upper-basic social studies students. This is evidence that graphics are great instructional resources because images help students gain knowledge about physical features, consequently, they are visual resources that are good for educational reasons. They excite the interest of students and help them to build a feeling of nature and an awareness of their world and habitats which is the primary theme of Social Studies. This finding is consistent with that of [Smith \(2022\)](#); which demonstrated the good effect of visuals for teaching social studies. The finding is also by [Johnson et al. \(2019\)](#) the study indicated that the graphics can be of good assistance to children as young as six years old. Findings underlined the fact that these students were able to employ graphics efficiently which boosted their performance. Likewise, [Fu et al., \(2020\)](#) and [Smith and Doe \(2017\)](#) all testified to the usefulness of employing graphics to improve the academic performance of students and by extension good for enhancing the academic performance of Upper Basic Social Studies students in Delta State.

The second finding of the study reported no significant effect of pictures on the academic performance of upper basic Social Studies students in Delta State. The study reveals that the quality and relevancy of the pictures used in the study could have altered their impact on student learning. As the quality and relevancy of pictures, as well as the method by which they are integrated into the instructional process, can also influence their effectiveness. Individual characteristics among students, such as cognitive ability, attentional focus, and motivation, may have altered the impact of visuals on academic performance. Contextual factors specific to the Delta State school environment, such as teaching practices, classroom culture, and resource availability, may have influenced the reported outcome. Consequently, this finding is in contrast to all the studies reviewed on pictures and academic performance such as [Brown and Garcia \(2017\)](#), [Martin et al., \(2019\)](#) submitted that pictures can be used to promote a strong foundation in academic performance of students Social Studies by using it to study cultural and physical environments.

The third finding revealed a significant comparative effect of graphics and pictures on the academic performance of Upper Basic Social Studies students. This is due to the multimodal nature of graphics and pictures, which engage not just the visual sense but also auditory and touch awareness, leading to deeper cognitive processing and improved retention of information. Graphics and pictures help clarify complex concepts and make abstract ideas more real, offering additional cognitive scaffolding for students' knowledge and mastery of the subject matter. They are also more dynamic and interactive than text alone, catching students' attention and stimulating active engagement in the

learning process. This enhanced engagement can lead to better drive and endurance, contributing to academic success. In the context of Social Studies, graphics and pictures provide vital context and perspective, helping students comprehend abstract topics, understand spatial linkages, and appreciate cultural variety, increasing their learning experience and enhancing their academic success. Overall, the study underlines the necessity of adding multimedia components into educational practices, generating more dynamic and immersive learning environments, and empowering students to reach higher levels of academic performance. This finding is in line with Odu (2011), Halilu (2001), Aliyu (2017), Hassan, (2021), and Faruk, (2015), who find out that graphics and pictures have a significant on the academic performance of students.

Conclusion

Upon the findings of the study, a conclusion can be drawn that graphics help increase the academic performance of Social Studies students in Upper Basic schools across Delta State and pictures do not improve academic performance. In comparison, graphics were shown to be more effective than pictures. As information on graphics is more explicit than those on pictures.

References

- Alfayad, Z., Arif, L. S. (2017). Employee Voice and Job Satisfaction: An Application of Herzberg Two-factor Theory. *International Review of Management and Marketing* 7, 150–156. [\[Google Scholar\]](#) [\[Publisher\]](#)
- Aliyu, A. B., (2017), Effects of pictures on academic performance of junior secondary school students in basic technology in Kaduna state, Nigeria. [\[Google Scholar\]](#) [\[Publisher\]](#)
- Atubi, F. O., (2021). Effect of Instructional Resources on Academic Performance of Upper Basic Social Studies in Delta State. A Ph. D. Thesis submitted to the Department of Social Studies Education, Delta State University, Abraka, Nigeria. [\[Google Scholar\]](#) [\[Publisher\]](#)
- Brown, E. S., Martinez, M., & Clark, J. (2020). Enhancing education with visual graphics: A review of research and pedagogical strategies. *Educational Psychology Review*, 32(1), 165-182. [\[Publisher\]](#)
- Brown, L. S., & Garcia, R. D. (2017). Picturing the past: Using visuals to enhance historical empathy in social studies. *Social Studies Research and Practice*, 12(2), 87-102. [\[Publisher\]](#)
- Brown, L. S., Garcia, R. J., & Patel, N. K. (2020). Visual Pathways to Academic Excellence: Exploring the Pedagogical Implications of Graphics in Education. *Journal of Educational Psychology*, 112(4), 589-606. [\[Publisher\]](#)
- Emudianughe, R, E & Akporhwarho, S, O, (2022). The Use of Graphics and Social Studies Students' Performance in Upper Basic Schools in Delta Central Senatorial District. *Journal of Research in Education and Society*, Volume 13, Number 3, December 2022 ISSN (p): 2141-6753 ISSN(e): 2795-3033. [\[Google Scholar\]](#) [\[Publisher\]](#)
- Faruk I, (2015), Impact of Graphics on Academic Performance of Junior Secondary School Students in Social Studies in Jigawa State, Nigeria. [\[Google Scholar\]](#) [\[Publisher\]](#)
- Fu, Y., Ee, J., & Looi, C. K. (2020). Enhancing learning in social studies through effective use of visual representations. *Computers & Education*, 146, 103768. [\[Publisher\]](#)
- Halilu, I. (2001). Effect of Visual Instructional Materials on the Achievement of Primary School Students in Social Studies: A Study of Primary Schools in Jalingo Area, Taraba State. *Journal of Primary Education Studies*, 7(2), 45-58. [\[Publisher\]](#)
- Hassan M, G, (2021), Effect of Graphic-Advance-Organizers on Interest and Performance Among Upper Basic Science Students in Potiskum Education Zone, Yobe State, Nigeria. [\[Publisher\]](#)
- Hattie, J. (2009). Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. Routledge. [\[Google Scholar\]](#) [\[Publisher\]](#) <https://doi.org/10.4324/9780203887332>
- Johnson, L. & Martinez, A. (2017). The Power of Pictures: Visual Communication and Its Impact on Society. *Journal of Visual Studies*, 34(5), 397-410. [\[Publisher\]](#)
- Johnson, L. K., & Smith, R. D. (2018). The role of graphics in information visualization. *Journal of Visual Communication and Image Representation*, 51, 158-175. [\[Publisher\]](#)
- Johnson, M. D., Garcia, A. M., & Thompson, R. M. (2019). Visual representations in social studies: *Enhancing understanding of cultural diversity*. The Social Studies, 110(3), 124-131. [\[Publisher\]](#)
- Martin, J. T., Ramirez, A. A., & Patel, N. K. (2019). Enhancing historical understanding through pictures in social studies. *Journal of Social Studies Education Research*, 10(1), 46-59. [\[Publisher\]](#)

- Martinez, A. C., Williams, J. D., & Jackson, R. M. (2019). Interactive graphics in education: A review of applications and research. *Computers & Education*, 139, 121-135. [\[Publisher\]](#)
- Maycock, Keith, (2018) Chalk and talk versus flipped learning: A case study. VL - 35 DO - 10. 1111/jcal. 12317, *Journal of Computer-Assisted Learning*. [\[Google Scholar\]](#) [\[Publisher\]](#) <https://doi.org/10.1111/jcal.12317>
- Odu, F. (2011). Impact of Pictures in Teaching and Learning Biology: A Study among Students in Senior Secondary Schools in Enugu North Local Government Area. *Journal of Science Education and Research*, 9(4), 78-91. [\[Publisher\]](#)
- Owan, V. J., Nwannunu, B. I. & Madukwe, E. C. (2018). Problems of school management and students' academic performance in secondary schools in Calabar education zone, Cross River State, Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS)*, 2(10), 120-127. [\[Google Scholar\]](#) [\[Publisher\]](#)
- Smith, E., Doe, J., & Brown, M. (2019). Enhancing Education through Visuals: The Role of Pictures in Pedagogy. *Educational Psychology Review*, 31(2), 289-305. [\[Publisher\]](#)
- Smith, J. A. (2022). Influence of graphics on Social Studies Education. *Educational Insights*, 8(2), 45-60. [\[Publisher\]](#)
- Thompson, A., & Williams, R. (2021). Enhancing Learning with Effective Visuals. *Educational Design and Technology Journal*, 24(3), 312-329. [\[Publisher\]](#)
- Williams, J. D., & Johnson, L. K. (2021). Designing compelling graphics for education: Strategies and considerations. *Educational Technology Research and Development*, 69(1), 285-305. [\[Publisher\]](#)