



FOSTERING COGNITIVE ENGAGEMENT OF SOCIAL STUDIES STUDENTS WITH PICTURES IN DELTA STATE, NIGERIA

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Abstract

The study focused on the effect of pictures as instructional resources on the cognitive performance of upper basic social studies students in Delta State, Nigeria. It aimed to assess academic performance using measures such as grades, test scores, and comprehension levels specifically related to social studies as a subject. Applying a quasi-experimental pre-test and post-test research design, the population consisted of 23,785 upper basic 3 students in Delta State Nigeria. A sample size of 110 students was chosen as the sample through a stratified sampling technique, across three different upper basic schools in the state. A carefully constructed test, compiled from past questions on the topics "Human trafficking, kidnapping and culture) from the Basic Certificate Examination (BCE) was the instrument used to collect data in this study. The instrument was duly validated by two specialists of social studies education, whose suggestions and contributions were used to produce a final copy of the instrument. The instrument was administered twice to the students, first as a pre-test and secondly as a post-test after the treatment package "pictures" have been applied in the study. After the treatment, data collected from both tests were then compiled and analyzed with bar charts and Analysis of Covariance (ANCOVA) adhering to a significance level of 0.05. Findings from the research question and hypothesis testing indicates that there is significant interaction effect of using pictures to enhance the cognitive engagement of upper basic social studies students. Thus it recommended its usage for social studies.

Keywords: Pictures, social studies, cognitive engagement, students and Delta state

1. Introduction

Education stands as a pivotal driving force behind societal transformation and national development. It serves as a vital social process that equips individuals with essential knowledge, skills, and attitudes to navigate an ever-evolving world. Despite the strides in communication technology, social studies education at the upper basic school level has remained largely confined by time and place, often adopting a teacher-centered approach. An effective way to shift the paradigm from teacher-driven instruction to a more facilitative model that involves altering the instructional medium is utilization of pictures for social studies education.

The resolute contribution of pictures reverberates with an insistence on the transformative potential that they wield in this educational landscape. Through their seminal contributions, they artfully accentuate how the strategic infusion of visuals transcends the mere surface representation of historical content (Atubi, 2022). Indeed, these visual aids possess a profound capability to breathe life into historical narratives, meticulously weaving intricate contextual threads that draw students into a palpable connection with the past. In crafting this experiential bridge, they ingeniously evoke empathy within students, enabling them to traverse the temporal corridors of human experiences across epochs. The insight championed by Brown and Garcia (2017) resoundingly underscores that, when wielded effectively, pictures metamorphose into portals that transport learners into a nuanced tapestry of historical narratives, resonating with the vibrant hues of past societies and their narratives.

Expanding upon the bedrock of this foundational insight, the scholarly endeavors of Martin *et al.* (2019) embarked on a voyage of meticulous inquiry, intent on unveiling the profound pedagogical reverberations ignited by the seamless interweaving of pictures into the tapestry of social studies instruction. The scholarly odyssey bore testament to the meticulousness that underscores educational research, yielding an exquisite bouquet of outcomes that unequivocally underscored the transformative potential residing within the realm of visual integration. In methodical precision, Martin and colleagues orchestrated a comprehensive investigation that

unfurled an assemblage of compelling findings, akin to the radiant hues of a painter's masterpiece. Their scholarly endeavor underscored that the strategic incorporation of pictures served as an electrifying catalyst. It kindled the flames of students' cognitive engagement, propelling them to traverse the spectrum from passive recipients to active participants in the learning process. Moreover, the profound impact extended beyond mere engagement, for the empirical evidence laid bare the potent enhancement of students' capacity to apprehend the intricacies of historical contexts.

Intriguingly, this research illuminated how these seemingly static visual entities metamorphosed into dynamic agents of discourse. Pictures can be unmasked as catalytic sparks, igniting a veritable conflagration of discussions, and kindling the fire of questions. Within this crucible of intellectual exchange, a vibrant learning ecosystem emerged, one that nurtured students' intellectual growth through multifaceted exploration. By encouraging diverse perspectives and interpretations of historical events, the learning milieu evolved into a crucible of critical inquiry. The significance of this cannot be understated, it underscored that the strategic introduction of pictures acted as an alchemical catalyst, transmuting static imagery into a crucible of intellectual dynamism.



Figure 1: Pictures Showing Human Trafficking of Children

Source: The Guardian Nigeria News



Figure 2: Picture of Kidnapped Nigerian School Girls by Boko-Haram



Figure 3: Pictures of New Yam Festival in Eastern Nigeria.

This research emphasized that the use of imagery pictures like those shown in figures 1, figure 2 and figure 3, can foster cognitive engagement, allowing students to delve into the concepts of human trafficking, kidnappings and cultural milieu in the Nigerian society. Pictures can become a bridge for students to connect with cultures,

enabling a richer understanding of how cultural differences shape global societies. However, the integration of these visuals in social studies requires a deliberate and thoughtful strategy. Harrison and Brooks (2018) pointed out that teachers must guide students in interpreting these images critically. By doing so, students become active participants, not just passive observers, in analysing and reflecting on the diverse perspectives that visuals offer. For curriculum developers, the findings will provide valuable insights into the effectiveness of using graphics and pictures as instructional resources. By understanding the pictures which significantly enhance academic performance, they can design more engaging and effective curricula that incorporate these tools, particularly in social studies for upper-basic students. Therefore, the study explore how educators can integrate visual aids into their instructional methods to enhance students' engagement with social studies classes. The study is delimited to upper basic social studies students in Delta State. One research question and one hypothesis were explored in the study:

Research Question: What is the effect of pictures on social studies students' cognitive engagement?

Hypothesis: There is no significance effect of pictures on social studies students' cognitive engagement.

Review of Literature

Pictures and Cognitive Engagement

The utilization of pictures as a pedagogical tool has gained considerable attention within the realm of education, transcending traditional teaching methodologies and fostering enhanced academic performance (Johnson & Martinez, 2017). Pictures, as visual representations of concepts, events, and ideas, hold a unique power to engage learners and facilitate a deeper understanding of complex subject matters such as social studies. This literature review aims to explore the correlation between the incorporation of pictures and improved students' academic engagement in social studies, highlighting key findings from relevant studies in the field.

Visual aids, a category encompassing pictures, charts, and diagrams, assume a pivotal role in capturing learners' attention and igniting cognitive engagement. A seminal study conducted by Ghulam *et al.* (2015) underscores the profound impact of well-crafted visual aids on students' academic experience. Their research reveals that students immersed in the realm of thoughtfully designed pictures manifest heightened levels of interest, engagement, and information retention, surpassing their counterparts subjected to conventional instructional techniques. The efficacy of visual aids extends beyond mere aesthetics; they function as cognitive anchors, facilitating the comprehension of intricate historical narratives and geographical intricacies, thus enriching the educational journey (Ghulam *et al.*, 2015).

Pictures wield a potent influence in the educational realm by transforming intricate ideas into accessible visual depictions. Extensive research in this domain, as exemplified by the study undertaken by Guo, *et al.* (2020), delves into the impact of integrating pictures into social studies pedagogy. Through their investigation, they unveiled the profound effects of visual aids on students' learning experiences. Their findings underscored that student exposed to visual representations of historical events and societal structures exhibited notable improvements in comprehension and a heightened ability to grapple with abstract concepts. Furthermore, the utilization of pictures stimulated critical thinking capabilities, fostering the aptitude to establish intricate connections between disparate elements within the domain of Social Studies (Guo, *et al.*, 2020). This study contributes to a well-rounded body of literature that underscores the educational potency of pictures in enhancing academic performance within the context of social studies.

The integration of pictures in educational settings caters to the multifaceted nature of learning styles, accommodating students with varying preferences and cognitive approaches. This aspect is well-established within the body of literature, as evidenced by the research conducted by Padial-Ruz *et al.*, (2019) the study thoughtfully explored the impact of visual stimuli on a spectrum of learning styles, transcending the boundaries of mere visual engagement. The findings illuminated that the incorporation of pictures not only resonated with visual learners but also extended its benefits to auditory and kinesthetic learners. Importantly, the research revealed that students exposed to pictures in the context of social studies exhibited enhanced memory retention. This increased capacity for memory recall subsequently translated into improved performance on assessments and evaluations.

The utilization of pictures extends beyond their visual impact, delving into the realm of emotional resonance and cultural empathy within the educational landscape. This notion is substantiated by the meticulous research conducted by Brown and Williams (2020), which explored the profound influence of culturally relevant pictures on students' academic performance in the realm of social studies. The indicates that pictures serve as more than just visual aids; they become conduits for evoking emotional responses and fostering empathy toward historical and cultural narratives. The findings eloquently illustrate that when students are exposed to pictures that depict scenarios resonating with their cultural background, a powerful connection is established. This connection goes

beyond surface-level engagement, allowing students to immerse themselves in the historical contexts being presented. As a result, an emotional investment is cultivated, leading to heightened interest, enhanced comprehension, and, crucially, elevated academic achievement.

Furthermore, the integration of pictures into education aligns well with the principles of constructivist learning theories. Constructivism posits that learners actively construct knowledge by connecting new information with their existing mental frameworks. Pictures, as visual representations, provide tangible and relatable entry points for learners to build connections between abstract concepts and their real-world experiences. This notion is supported by Vygotsky's Zone of Proximal Development (ZPD), where pictures act as scaffolds that support students in reaching higher levels of understanding and competence (Vygotsky, 1978).

The effectiveness of pictures is not limited to only social studies but extends across disciplines. In the field of mathematics, a study by Li *et al.* (2017) explored the impact of visual representations, including pictures and diagrams, on students' mathematical problem-solving skills. The research highlighted that visual aids enhanced students' ability to visualize mathematical relationships and solve complex problems. The incorporation of pictures supported students in grasping abstract mathematical concepts and contributed to improved academic performance in mathematics (Li *et al.*, 2017). It's important to acknowledge that while pictures can have substantial benefits, their effectiveness is influenced by factors such as the design of visuals, their alignment with learning objectives, and the learners' cognitive capacities. Studies by Johnson and Smith (2018) and Thompson and Williams (2021) emphasized the significance of purposeful design and careful integration of visuals to maximize their impact on learning outcomes. These works underscore the importance of selecting appropriate visuals and integrating them seamlessly into instructional strategies (Johnson *et al.*, 2019; Thompson & Williams, 2018).

A comprehensive review of related literature highlighted the influential role of pictures in enhancing the cognitive engagement across diverse subjects. The studies discussed reveal that well-designed visuals engage learners' cognitive processes, facilitate comprehension, and foster emotional connections with the content. The principles of constructivist learning, and cognitive psychology support the notion that pictures serve as effective tools for promoting deeper understanding. Whether in the context of history, social studies, mathematics, or other subjects, the integration of pictures is a strategy that educators can leverage to cultivate meaningful learning experiences and improve social studies students' cognitive engagement.

Empirical Studies on Pictures and Cognitive Engagement

Odu (2011) conducted a comprehensive investigation on the impact of pictures in teaching and learning biology among senior secondary school students in Enugu North Local Government Area. Employing a survey research design, the study encompassed a population of 2700 senior secondary school students, with a sample size of 262. Data analysis involved the utilization of mean and percentage calculations. The findings underscored the insufficient availability of guiding and directing learning experiences through pictures. However, the study revealed that available visual materials were frequently utilized. Notably, students exhibited a high level of interest in biology lessons facilitated by pictures. As a result, Odu recommended that educators consistently incorporate pictures as instructional aides to enhance students' learning experiences.

Ghulam *et al.* (2015) carried out a study that delves into teachers' perspectives regarding the utilization of visual aids, including pictures, animation videos, projectors, and films, as a motivational tool to enhance students' engagement with literary texts. The objective of this research is to investigate the effectiveness of visual aids in capturing students' attention during the process of reading literary materials. To achieve this aim, a structured closed-ended questionnaire was employed to gather pertinent data. The study focused on the educational institutions situated in District Dera Ghazi Khan, encompassing both public and private schools, and involving both teaching staff and students. The research methodology relied on primary data collection methods, leveraging the administration of the closed-ended questionnaire to solicit participants' opinions. Subsequently, the acquired data underwent rigorous analysis using the Statistical Package for the Social Sciences (SPSS) software. The findings were visually depicted through a comprehensive presentation of pie charts, line graphs, and bar graphs to offer a clear representation of the results.

Upon thorough analysis, the data indicated a prevailing trend of positive perceptions among the majority of teachers and students regarding the efficacy of visual aids. This suggests that the use of visual aids is viewed favorably as a motivational tool for enhancing students' attention and engagement when interacting with literary texts. The study's findings thus contribute valuable insights into the potential benefits of incorporating visual aids in the realm of literary education, shedding light on their role in fostering a more immersive and engaging learning experience. Aliyu (2017) conducted a comprehensive investigation into the impact of integrating pictures to boost the academic performance of junior secondary school students in basic technology in Kaduna State, Nigeria. The

core objective of the study was to discern the potential effects of incorporating visual aids like pictures and real-life objects on the academic achievement of students in the context of basic technology education. The scope of the study was confined to junior secondary school three (III) students within the public secondary schools located in the educational zones of Zonkwa and Kachia within Kaduna State. Employing a pre-test, post-test, and control group design, the study sampled a total of 300 students from a larger population of 1235. The assessment tool for measuring academic performance in basic technology was a performance test designed and developed by the researcher, which underwent validation by a panel of two experts. The research questions were addressed using measures of central tendency, such as mean and standard deviation. Hypotheses were subjected to statistical analysis utilizing t-test statistics at a significance level of $P = 0.05$. The findings of the study unveiled that students who were exposed to the instructional approach utilizing pictures, exhibited higher mean academic performance compared to their counterparts who were taught through conventional methods (lecture method). Moreover, the results also indicated that there existed no significant distinction in the academic performance of students exposed to pictures and materials across both rural and urban areas. However, a significant difference was observed in the mean academic performance of male and female students.

Upon careful examination of the empirical studies and considering the current state of knowledge, a significant void emerged. Surprisingly, no research had been undertaken to specifically address the nexus between pictures, and cognitive engagement of upper basic social studies students especially within the geographical location of Delta State. This noteworthy gap, coupled with the paucity of studies investigating the role of pictures in cognitive engagement in this domain, catalyzed this present study.

2. Method

The study focused on the effects of pictures as instructional resources on the cognitive performance of upper basic social studies students in Delta State, Nigeria. The objective was to assess academic performance using measures such as grades, test scores, and comprehension levels specifically related to social studies as a subject. Applying a quasi-experimental pre-test and post-test research design, the population consisted of 23,785 upper basic 3 students in Delta State Nigeria. A sample size of 110 students was chosen as the sample through a stratified sampling technique, across three different upper basic schools in the state. A carefully constructed test, compiled from past questions on the topics "Human trafficking, kidnapping and culture) from the Basic Certificate Examination (BCE) was the instrument used to collect data in this study. The instrument was duly validated by two specialist of social studies education, whose suggestions and contributions were used to produce a final copy of the instrument. The instrument was administered twice to the students, first as a pre-test and secondly as a post-test after the treatment package "pictures" have been applied in the study. After the treatment, data collected from both tests were then compiled and analyzed with bar charts and Analysis of Covariance (ANCOVA) adhering to a significance level of 0.05.

3. Findings

Research Question: What is the effect of pictures on social studies students' cognitive engagement?

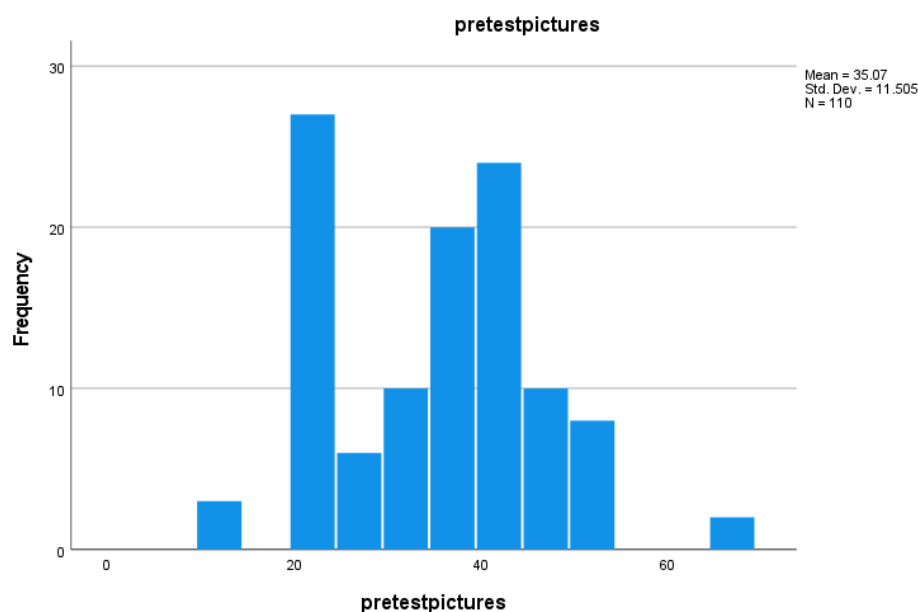


Figure 4: A bar Chart Showing the Pre-test Mean Score of Students

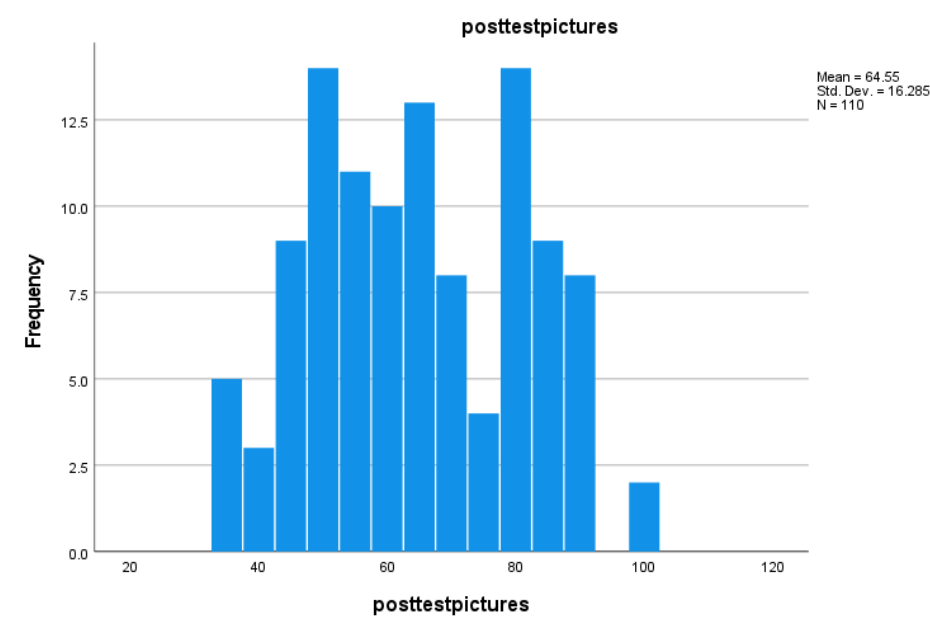


Figure 5: A bar Chart Showing the Post-test Mean Score of Students

The results as shown in figures 4 and 5, it can be observed that the pre-test mean scores of the participants was 35.07, with a standard deviation of 11.05. On the other hand, the post-test mean score was 64.55. Looking at the mean gained after the application of pictures for teaching the subjects in the study, one can deduce that pictures have an evidential effect on cognitive engagement of the students.

Hypothesis: There is no significance effect of pictures on social studies students’ cognitive engagement.

Table 1: ANCOVA Summary Showing the effect of Pictures on Cognitive Engagement

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Pictures and Cognitive Engagement	4847.430 ^a	40	121.186	1.514	.002	Hypotheses rejected
Error	28510.934	107	266.457			
Total	487309.000	110				

Table 1 explains the significant effect of pictures on cognitive engagement of upper basic social studies students in Delta State. The table reveals significant effect/interaction between the variables. The F (40,107) = .1.514, p = .065 at p < 0.002. Since the obtained p-value (0.002) is lower than 0.05 level of significance, therefore the null hypothesis is rejected. Therefore, there is significant effect of pictures on the cognitive engagement of the students.

Discussion

Findings from the research question and hypothesis testing indicates that there is significant interaction effect of using pictures to enhance the cognitive engagement of upper basic social studies students. This finding could be as a result of students' prior exposure to pictures which ultimately benefitted them. The integration of pictures into the instructional process, through clear explanations and active learning, through discussions or critical thinking exercises, could also have impacted their effectiveness. The age group of students, typically adolescents, may also have influenced this outcome. Middle school learners may benefit more from concrete examples and direct teaching with pictures, rather than purely abstract teaching. The result of a significant effect could be attributed to a combination of instructional design and students' learning preferences with pictures. The findings are similar to those of other authors (Ghulam, et al., 2015; Johnson & Martinez, 2017; Padial-Ruz et al., 2019 and, Thompson & Williams 2020). These studies all recorded favorable effect of pictures at different location, subjects and students. However, these results were not obtained in the present location of this particular study.

Implications

In light of the outcome from this research, it was recommended that social studies teachers, especially those in upper basic or junior high schools should encourage and promote the integration of pictures as visual materials in the teaching of social studies. Furthermore, both federal and state ministries of education are advised to allocate resources and support for social studies teachers to access necessary picture resources. Additionally, social studies educators are encouraged to partake in professional development opportunities like conferences, seminars, workshops, and advanced studies, which can broaden their understanding on the implementation of picture utilization in teaching the subject.

Conclusions

In conclusion, this study have opened up avenues for the need to implement the usage of pictures as visual aids in social studies education, as there was significant effect of them on the cognitive engagement of students' taught with them. This gave credence to further exploration into the role of different visual aids on academic performance of students. The study offers a foundation for more in-depth investigations into how pictures can affect learning in social studies.

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