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Pictorial integrated technology strategy on academic performance in social studies among lower basic school pupils in Katsina State, Nigeria

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Abstract

Early childhood education incorporates Social Studies as a vital subject, instilling pupils' with fundamental cultural and moral principles essential for holistic development. Despite its pivotal role in moulding young minds, the quality of Social Studies instruction often falls short, resulting in underwhelming academic outcomes. The research examined the impact of Pictorial Integrated Technology (PIT) on academic performance in Social Studies among lower basic school pupils in Katsina State, Nigeria. The study employed Quasi experimental design mixed- methods approach, with a sample of 191 basic two pupils. The research utilised both descriptive and inferential statistics. The results showed that the Pictorial integrated technology technique had a more profound influence on pupils' Social Studies academic performance, outperforming conventional method (lecture). However, no significant gender- based differences were found in the impact of these techniques on academic performance. The study concluded by stating the need for early childhood educators to re- evaluate the utilisation of PIT to enhance social studies instruction and pupils' academic performance. It was recommended that incorporating PIT strategy into social studies instruction can foster exploration skills, collaboration, and academic performance among lower basic school pupils. This research enrich the existing literature on how PIT strategy influence lower basic pupils' social studies academic performance by providing insights into effective instructional strategy for teaching social studies in early childhood education classrooms, ultimately informing evidence- based practices to improve

Keywords: *Academic Performance, Lower Basic School, Pictorial Integrated Technology; Social Studies academic outcomes.*

Background to the Study

Early childhood education setting serves as a vital catalyst for growth, instilling fundamental principles, moral awareness, and essential life skills, including language proficiency and cognitive abilities, all of which collectively foster a strong foundation for a successful transition into adulthood and beyond. Early Childhood Education is a starting point for a child's development and a key foundation of a sustainable educational system. It is a crucial period of brain development of a child and the root formation of individual potential (Aguh & Olutola, 2023).

Early childhood education is founded on the principle of learning through the 'play method'. Through playful exploration and social interaction, children develop essential skills that form the foundation of social studies instruction, fostering a sense of community and guiding their relationships with peers from diverse backgrounds. In accordance with the National Policy on Education FRN (2013), the purpose of early childhood education is to develop essential life skills, including social competence, moral

character, and collaborative spirit, through experiential learning and environmental discovery, thereby establishing a foundation for a harmonious and inclusive educational setting. These values and skills could be impacted in children through the teaching of Social Studies.

In lower basic schools in Katsina State, Social Studies instruction is a required subject that fosters essential skills like social interaction, moral development and good citizenship qualities. Thus, the researcher views Social Studies as an exploration instruction among basic two pupils' intact classes. The downward spiral in social studies instruction has been observed among lower basic pupils in Katsina State, Nigeria, is a pressing concern, despite the subject's critical role in shaping young minds, emphasising the imperative for evidence-based instructional strategies to improve pupils' academic outcomes. According to Halimat, Adeyemo, and Glady (2021), the persistent poor social studies academic performance in Katsina State can be attributed primarily to the utilisation of ineffective instructional strategies. This concerning trend necessitates a thorough investigation of the underlying issues driving of poor academic performance in Katsina State, in order to inform effective treatments.

The conventional methods used in lower basic schools have been criticized for contributing to pupils' poor performance in Social Studies and Basic Education Certificate Examinations due to lack of engaging instructional strategies (Filgona, Sababa & Iyasco, 2016). This is because the early childhood educators employ the usage of a conventional method which makes pupils to become listener learners (passive) with little or no contribution of the pupils' ideas, thereby making teaching an abstract concept where pupils lack knowledge of what is taught in the classroom but based on assumption. The continued dominance of conventional methods can be attributed, in part, to the absence of explicit guidelines within the lower basic school curriculum for harnessing instructional approaches to enhance social studies instruction.

The persistence of low academic performance in social studies remains a concern, To address the issue of ineffective instructional strategies and decline in social studies academic performance, this study investigated the efficacy of pictorial integrated technology as an instructional treatment in enhancing basic two pupils' academic performance in Social Studies by utilising the 2022/2023 academic session's third term scheme of work. An instructional module of pictures with integrated technology was designed by researcher to aid effective classroom instructions and implementation of PIT on basic two intact class group one for a period of four weeks .Pictorial Integrated Technology could be employed as a strategy to address the issues of ineffective strategies and decline in pupils' Social Studies academic performance as attested by Oyedokun and Mary (2023) that usage of pictorial integrated technology instruction enhances pupils' academic foundation for greater future achievement. The aforementioned insights prompted an investigation into the efficacy of pictorial integrated technology in enhancing social studies academic performance among basic two pupils in the Dutsin-Ma zone Inspectorate, Katsina State.

The term Pictorial Integrated Technology refers as the display of Social Studies instructional pictures using digital technology which serves as a treatment to enhance basic two pupils' interest and academic performance in experimental group one intact class. Ikechukwu and Cyprian (2019) defined pictorial integrated technology as a teaching tool that displays instructional images on screen using a projector, filmstrip, computer among other tools. Wright (2019) described pictorial integrated technology as an explanatory instructional channel for efficient pedagogy in the classroom. Emudianughe and Akporhuarho (2022) opined that pictorial integrated technology is used by teachers to reduce unnecessary distraction during instruction. The researchers found that incorporating pictorial integrated technology into social studies instruction promotes active participation among primary two pupils.

To facilitate this investigation, the researcher selected intact basic two classes from the 2022/2023 academic session as the study's sample population because pupils in this age range (7- 11 years) are better equipped to comprehend visual aids like pictures, signs and symbols when integrated into classroom instruction as stipulated in Jean Piaget cognitive learning theory.

Contrary to the dominant focus on upper basic students in existing literature, the study deliberately targeted basic two pupils, yielding a fresh and distinctive perspective on the factors influencing academic performance in Social Studies at the foundational primary level.

On the other hand, Gender as a moderator variable is the grouping of basic two pupils' intact classes according to the schools dress code. Gender is a relevant aspect of this study because it would aid the researcher to evaluate lower basic school pupils' social studies academic performance based on gender using the data gathered from the administration of the instruments.

Furthermore, school location as one of the moderator variables. School location means a particular area where a school is located. It can be a rural area or an urban area (Olutola, 2016). School location is regarded a home where basic two pupils' intact classes receive their instructions in Dutsin-ma zone inspectorate in Katsina State. Dutsin-ma zone inspectorate was chosen as the study location owing to its stable electricity supply, facilitating seamless integration of pictorial technology for basic two pupils, and its relatively peaceful environment, minimising potential disruptions from security concerns. Studies have consistently shown that school location plays a crucial role in determining pupils' academic performance (Babawale, 2019). Furthermore, research has revealed significant differences in academic performance based on school location, with gender also being a factor (Ellah & ITA, 2017).

Purpose of the Study

This research aimed to determine the impact of Pictorial Integrated Technology (PIT) on academic performance in Social Studies among lower basic two school pupils in Katsina State, Nigeria. The specific research objectives were to:

1. examine the differential main effect on the utilisation of PIT and CM among basic two pupils' Social Studies academic performance in Katsina State.
2. ascertain the interactive effect of gender (male and female) on the two instructional strategies (PIT and CM) utilised in teaching Social Studies in basic two classrooms, Katsina State.
3. determine the effect of rural-urban verses rural school location on Social Studies academic performance among basic two pupils when instructed using PIT and CM in Katsina State.

Research Questions

This investigation was informed by the following research questions, which served as a framework for exploring the research topic and collecting relevant data:

1. Which primary two Social Studies group achieved the highest academic performance: PIT and CM?
2. Which gender category (male or female) shows a more significant interaction with the instructional strategies (PIT and CM) in basic two Social Studies classrooms?
3. Which school location category (rural–urban or rural) had the highest mean academic performance in each of the treatment groups (PIT and CM) among basic two Social Studies pupils?

Methodology

This study employed a pre-test and post-test quasi-experimental design, assigning non-randomized intact classes to treatment and control groups. This design is suitable for examining the relationship between independent variables (PIT and CM) and the

dependent variable (academic performance in social studies). The research population consisted of thirteen thousand seven hundred seventy-seven (13,777) primary two pupils in the Dutsin-Ma zone inspectorate, Katsina State, with a gender distribution of seven thousand nine hundred one (7,901) males and five thousand eight hundred seventy–six (5,876) females.

The study sampled one hundred ninety-one (191) basic two pupils from two (2) intact classes in lower basic schools within the Dutsin-Ma zone inspectorate, Katsina State, using a multi-stage sampling procedure. The researchers developed a customized assessment tool, the Social Studies Performance Test (SSPT). The SSPT included twenty-five multiple-choice questions in two versions (SSPT 1 and SSPT 2). Each question had four response options (A–D), with one correct answer and three distractors, each worth four marks. The main purpose of the SSPT was to measure the effectiveness of PIT on the academic performance of basic two pupils in social studies. The test also collected demographic information, such as gender and location, from the respondents. This assessment aimed to evaluate the impact of pictorial integrated technology (PIT) on pupils' academic performance.

The researchers created one customized instructional modules for basic two pupils, aligning with the Katsina scheme of work for third term. This module format: Pictures with integrated technology. The researchers utilised the technology integrated pictures to instruct Group One while the control group received instruction through conventional lecture-based method. The researcher dedicated weekly 30-minute sessions to covering the content. The specially designed module was implemented in intact basic two classes within the Dutsin-Ma zone inspectorate to examine the efficacy of pictorial integrated technology on academic performance in Social Studies among basic two pupils. To ensure effective distribution of multiple-choice questions, the researcher developed a test blueprint for Social Studies Performance Test (SSPT). Using this blueprint, twenty five multiple-choice questions were crafted to assess the content areas covered in the study.

The fieldwork data underwent descriptive statistical analysis, employing metrics like mean and standard deviation, to explore the research questions.

Control of Extraneous Variables

Several procedures were utilised and implemented to control and monitor the extraneous variables that might affect the treatments and results:

a) **Treatment bias:** To prevent disruptions to the academic calendar and other school events. The study utilised intact classes for both treatment and control groups, thereby reducing potential distraction and maintaining a level of anonymity around the research.

b) **Research subjects' interaction:** To minimise potential interactions and ensure test administration integrity, schools were selected for the treatment and control groups based on similar characteristics and geographical proximity, with sufficient distance maintained to prevent cross-group influences.

c) Pre-Test Scores as a Predictor of Post-test Performance

To mitigate potential biases, the post-test was modified to minimise the impact of pre-test scores, and four- week treatment duration was considered adequate to offset pre-test and post- test effects, providing a more reliable measure of the treatments efficacy.

d) Teacher Variable:

To mitigate the impact of teacher-related variables, the researcher was introduced by school administrators as a newly social studies teacher to both the treatment and control groups. This introduction aimed to neutralise potential teacher-induced influences on academic performance of primary two pupils. By delivering instruction to both groups, the researcher ensured consistent teaching approaches, thereby minimising any biases associated with teacher differences.

Ethical consideration

The study prioritized the ethical considerations and moral principles of all individuals and groups involved, ensuring that confidentiality was upheld and all data was collected and analysed with the utmost respect for participants' privacy and values.

Results

Table 1
The demographic profile of the pupils are displayed

S/N	Variables	Frequency	Percentage
1	**Gender**		
	Male	115	60%
	Female	76	40%
	Total	191	100%
2	**Location**		
	Rural-	107	56%
	urban	84	44%
	Rural	191	100%
	Total		

Table 1 presents the gender and location distribution of basic two pupils with 115 male (60%) and 76 female (40%), indicating a higher proportion of male pupils. Furthermore, the table shows that 56% (107) of the pupils received social studies instruction in an urban- rural setting, while 44% (84) received instruction in a rural setting within the Dutsin- MA zone.

Answering Research Questions

Research Question One: Which primary two Social Studies group achieved the highest academic performance: PIT and CM?

Table 2
Main differential effect on the utilisation of PIT and CM among basic two pupils' Social Studies academic performance

Group Strategies	N	Pre-test		Post-test		Mean effect
		Mean	SD	Mean	SD	
Pictorial Integrated Technology	107	48.85	13.45	68.04	14.67	19.19
Conventional Method	84	48.97	13.41	49.33	14.16	0.36

Source: Field Survey 2023

Table 2 indicates the initial mean scores for primary two pupils' in Pictorial Integrated Technology (PIT), and conventional method (lecture) were comparable, with values of 48.85, and 48.97, respectively, and standard deviations of 13.45, and 13.41, indicating minimal variation among the groups. This suggests that basic two pupils in all two groups had relatively comparable academic abilities in social studies instruction before the introduction of PIT, and CM However, the post-test scores showed significant differences with PIT basic two pupils group 68.04 (SD =14.67), and CM basic two group scoring 49.33 (SD = 14.16). The main effect on academic performance was more pronounced for PIT (19.19) compared to CM (0.36), indicating that PIT had a more substantial impact on pupils' social studies academic performance than CM. Furthermore, PIT outperformed CM group.

Research Question Two: Which gender category (male or female) shows a more significant interaction with the instructional strategies (PIT, and CM) in basic two Social Studies classrooms?

Table 3
Interactive effect of gender (male and female) on the two instructional strategies utilised in teaching Social Studies in basic two classrooms

Strategies	Gender	Mean	Std.	N
Pictorial Integrated Technology	MALE	71.3651	14.53283	63
	FEMALE	63.2727	13.64732	44
	Pooled mean	**68.0374**	**14.66605**	**107**
Conventional Method	MALE	52.3846	14.71847	52
	FEMALE	44.3750	11.82057	32
	Pooled mean	**49.3333**	**14.16370**	**84**
Gender and Strategies Interaction effect	MALE	63.2208	16.95255	115
	FEMALE	54.3390	15.11507	76
	Pooled mean	**59.3676**	**16.74326**	**191**

Source: Field Survey 2023.

Table 3 reveals that male basic two pupils who received instruction via PIT achieved higher mean scores (71.37) compared to CM (52.38). Similarly, female pupils taught with PIT had higher mean scores (63.27) while those taught with CM had the lowest mean score (44.38). The data shows that both male and female pupils benefited from the interaction of instructional strategies and

gender, with pooled mean scores 63.22 for male and 54.34 for female. Notably, male pupils outperformed female pupils across all groups, possibly due to higher attendance rates among male pupils.

Research Question Three: Which school location category (rural – urban or rural) had the highest mean academic performance in each of the treatment groups (PIT and CM) among primary two Social Studies pupils?

Table 4
Mean effect of rural- urban verse rural school location on Social Studies academic performance among basic two pupils' when instructed using PIT and CM in Katsina State

School Locations	N	Pre-test		Post-test		Mean effect
		Mean	SD	Mean	SD	
Dutsin-MA	107	48.85	13.45	68.04	14.67	19.19
Karofi	84	48.97	13.41	49.33	14.16	0.36

Source: Field Survey 2023

Table 4 indicates the initial mean scores of basic two pupils' social studies academic performance in Dutsin-MA, and Karofi area were 48.85, and 48.97, respectively, with standard deviation of 13.45, and 13.41. This suggests that the pupils in the two school locations had comparable Social Studies learning abilities prior to the introduction of PIT, and CM. However, the post-test scores showed pupils insignificant variations, with mean scores of 68.04, and 49.33 and Dustin-Ma, and Karofi area were 68.04, and 49.33 and standard deviation of 14.67 and 14.16, respectively. The mean score differences between pre- test and post- test were notably distinct, with Dutsin- Ma showing a significant increase of 19.19; and Karofi area exhibiting a minimal change of 0.36, indicating that the school locations in Dutsin-Ma had a more pronounced impact on pupils' Social Studies performance compared to Karofi area .

Discussion of Findings

The findings of the study were discussed based on the major findings of the study.

The research revealed that the combination of Pictorial Integrated Technology (PIT) strategy had a more profound impact on social studies academic performance of male and female basic two pupils compared to conventional method. These findings support Hafees et al (2022) research, which demonstrated the effectiveness of PIT in enhancing academic performance. This study supports the notion that Pictorial integrated technology instructional approach fosters comprehensive pupils' development.

Similarly, this research revealed a significant influence of school location on the social studies academic performance of basic two pupils. The findings align with previous research by Ellah and ITA (2017), which identified a notable disparity in academic achievement among pupils from different school locations. Additionally, the results support Babawale (2019)'s claim that school location has a marked effect on pupils' academic performance. The findings from the (Olutola, 2016) study, which demonstrated significant differences in students' performance on the WASSCE multiple-choice biology test based on school location, also corroborate this study's results.

Conclusion

This research examined the impact of pictorial integrated technology strategy and academic performance in Social Studies among lower primary school pupils in Katsina State, Nigeria. The findings highlight the need for early childhood educators in Katsina State to re-evaluate their instructional strategies, as the current utilization of integrated technology and innovative instructional strategies is suboptimal. In line with contemporary trends in early childhood education, the strategic integration of PIT in social studies instruction can enhance pupils' academic performance.

Recommendations

Recommendations arising from the research are as follows:

1. Early childhood educators can optimise Social Studies instruction in lower primary schools by incorporating pictorial integrated technology strategy, thereby fostering an improved retention, teamwork, exploration skills, healthy

competition , comprehension and increase in pupils' academic performance.

2. Early childhood educators should strive to acquire competency skills in technological and innovative pedagogy; this can help educators to create engaging pupils' centred learning environments that promote diverse learning abilities and stay abreast with global best practices.
3. It is recommended that Early Childhood Educators, Early Childhood Association of Nigeria and other stakeholders should harness the benefits of pictorial integrated technology strategy in order to enhance pupils' comprehension, collaboration, and social abilities.
4. To tackle the challenges of ineffective instructional strategies and poor performance in social studies at the Basic Education Certificate Examinations (BECE), early childhood educators are advised to adopt pictorial modules as a teaching tool. This can potentially boost pupils' academic performance in social studies, leading to improved outcomes in national examinations assessment.

REFERENCES

Aguh, J. C. and Olutola, A. T. (2023). Examining the Challenges of Early Childhood Education in Nigeria. *Indonesian Journal of Educational Research and Technology*, 3(2), 91-96.

Babawale, K. O. (2019). School location as a correlate of students' academic performance among senior secondary schools in Isokan Local Government Areas of Osun State. *International Journal of Academic Multidisciplinary Research (IJAMR)*, 3(11), 5 – 8. ISSN: 2643 – 9670.

Bousalis, R, (2022). Correlating the perceptions of preservice elementary teachers and Social Studies in elementary curriculum. *Journal of Education*, 202(4), 385 – 396.

Ellah, K.E. & Ita, P. M. (2017). Correlational relationship between school location and students' academic performance in English Language in Nigerian secondary schools. *International Journal of Scientific and Research*, 7(9), 381 – 384.

Emudianughe, R. E. & Akporhuarho, 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*, 13(3), ISSN (p): 2141 – 6753 ISSN (e): 2795 – 3033.

Federal Republic of Nigeria (2013). *National policy on education* (6th edition). Abuja: NERDC press

Filgona, J., Sababa, L. K., & Iyasco, D. M. (2016). Effect of brainstorming learning strategy on junior secondary school students' academic achievement in social studies in Yola educational zone, Adamawa State, Nigeria. *International Journal of Progressive Sciences and Technologies (IJPSAT)*, 3(2), 108 – 115.

Halimat, U.S., Adeyemo. D.A. & Glady, O. O. (2021). Effects of formative assessment strategy on upper basic students' attitude and achievement in social studies in Katsina metropolis, Nigeria. Journal of African Social Studies (JASS), 2(1). https://jass.org.ng>effect-f...PDF

Hafees, T. S., Olumuyiwa, A. A. & Oluwafunbi, A. R. (2022). Effect of animated film on pupils' academic performance in Social Studies. *International Journal of Academic Pedagogical Research*, 6(7), 77 – 83. ISSN: 2643 – 9123.

Ikechukwu, N. & Cyprian, A. A. (2019). Pictorial communication in digital Era: Challenges and prospects. *Journal of Mass Communication &Journalism,* 9(403). ISSN: 2165 – 7912

Olutola, A.T. (2016). School Location and Gender as Predictors of Students' Performance in WASSCE Multiple Choice Test in Biology. *Liceo Journal of Higher Education Research, 12 (1), 1-16.*

Oyedokun, S. A. & Mary, E. N. (2023). Using pictorial teaching strategy in resolving reading comprehension challenges among primary school pupils in Ikere Local Government of Ekiti State. *British Journal of Multidisciplinary and Advanced Studies: Education, Learning, Training & Development,* 4(5), 48 – 59.

Wright, R. O. (2019). On the methodological basis of introspective method in C. Faerch and G. Kasper (Eds.). Introspection in second language research. Clevedon, Avon England Multilingual Matters,