



Cross-Age Peer Tutoring and Demonstration Strategies as Interventions for Enhancing Social Studies Performance in Basic 3 Pupils with ADHD in Port Harcourt Metropolis

*¹Jasper-Abowei, F.E., & ²Mandah, S.N.N.

¹Department of Social Science Education, Niger Delta University, Bayelsa State, Nigeria

²Department of Educational Technology, Ignatius Ajuru University of Education, Port Harcourt, Nigeria

*Corresponding author email: florencejasper23gmail.com

Abstract

The paper examined cross-age peer tutoring and the demonstration method on the academic performance of Basic 3 pupils with Attention Deficit Hyperactivity Disorder (ADHD) in Social Studies within Port Harcourt Metropolis, Rivers State. The study was structured around a defined objective, research question, and hypothesis. A quasi-experimental design was adopted, targeting a population of 1,157 Basic 3 pupils with ADHD drawn from 55 primary schools. From this population, a sample size of 105 pupils was selected for the study. Data collection was conducted using the Social Studies Performance Test (SSPT), which underwent validation by the research supervisor and two subject-matter experts from the Department of Curriculum and Instructional Technology, Faculty of Education, Ignatius Ajuru University of Education. The instrument's reliability was established through a test-retest approach, yielding a Pearson Product Moment Correlation coefficient of 0.750. Data analysis involved descriptive statistics such as mean and standard deviation to address the research questions, while the hypothesis was tested using Analysis of Covariance (ANCOVA) at a 0.05 significance level. The findings revealed that ADHD pupils taught through cross-age peer tutoring exhibited significantly higher academic performance compared to their counterparts taught using the demonstration method. In light on these findings, it is recommended that educators and school administrators prioritize the implementation of cross-age peer tutoring as a teaching strategy. This approach encourages collaboration, improves peer relationships, and effectively enhances the academic performance of Basic 3 pupils with ADHD, particularly in Social Studies and other related subjects.

Keywords: Class-Age Peer Tutoring, Demonstration Method, Academic Performance, Basic 3, ADHD.

Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is a well-known neurodevelopmental condition that significantly impacts an individual's ability to regulate attention, control impulses, and manage hyperactive behaviours. The prevalence of ADHD is especially concerning in educational settings, where students are required to demonstrate sustained focus, follow instructions, and engage in complex cognitive tasks. ADHD is often diagnosed in early childhood, and its manifestations can persist into adulthood. However, its effects are most noticeable during primary education, a critical period for laying the academic foundations. For pupils in Primary schools, ADHD presents challenges that hinder their academic performance, particularly in subjects requiring higher levels of focus, such as social studies. In fact, ADHD students are at a greater risk of academic underachievement due to their difficulties in maintaining attention, remembering instructions, and completing tasks (Kearns et al., 2022). American Psychiatric Association (APA, 2020), sees ADHD as characterized by recurring patterns of hyperactivity, impulsivity, and apathy that impede growth or functioning. The National Institute of Mental Health (NIMH, 2021) further describes ADHD as a disorder involving issues with regulating attention, controlling impulses, and maintaining behaviour across various settings. Moreover, Barkley (2021) emphasizes that ADHD involves deficits in executive functions, which

include working memory, cognitive flexibility, and self-regulation functions central to effective learning and academic performance.

For pupils in basic education aged between eight and nine years, the impact of ADHD can be severe in academic settings. Basic education is a formative period in a child's education, where foundational skills in literacy, numeracy, and subject-specific knowledge are developed. The challenges of ADHD can impair these critical learning processes. ADHD pupils often struggle to follow the instructions given by the teacher, lose focus during lessons, and find it difficult to complete assignments. These difficulties are particularly evident in subjects like social studies, which require active engagement with content, attention to detail, and the ability to retain and apply learned information. Academic performance in social studies, for instance, relies heavily on conceptual understanding and recall of facts, skills which ADHD pupils often find challenging. According to Pina et al. (2021), pupils with ADHD typically exhibit reduced retention of academic content due to their inability to sustain attention over extended periods, leading to poor academic performance. Consequently, addressing the educational needs of ADHD pupils in a way that is tailored to their specific learning styles is critical for improving their academic outcomes and ensuring their success in school.

Given the challenges posed by ADHD in traditional instructional settings, innovative teaching methods that are flexible and adaptive to individual learning needs have become a focal point in educational research. One such method is **cross-age peer tutoring**, which has been identified as an effective strategy to support the learning of students with ADHD. Cross-age peer tutoring involves pairing younger pupils with older peers who provide assistance in academic tasks. The older student, or tutor, guides the younger pupil, offering explanations, feedback, and emotional support in a structured learning environment. As emphasized by Topping (2021), cross-age peer tutoring provides a personalised, less formal learning experience compared to traditional classroom instruction, which can sometimes overwhelm students with ADHD. The research by Topping and Ehly (2020) supports the idea that cross-age peer tutoring can improve academic outcomes by increasing motivation and providing additional learning support in a less intimidating environment. The peer tutor acts as a model, offering clear explanations and step-by-step guidance, which can enhance the understanding of the subject matter for ADHD students who might otherwise struggle with teacher-led instruction alone.

Roscoe and Chi (2021) explain that cross-age peer tutoring is a pedagogical approach where older pupils strengthen their knowledge by teaching younger peers. Meanwhile, the younger students gain from receiving alternative explanations and engaging in peer interactions, which can improve their comprehension and retention of the material. Liu and Goh (2022) present cross-age peer tutoring as a developmental model where cognitive and emotional support is provided through interactions between different age groups, with the younger students benefiting from more structured, supported learning, and the older students developing greater leadership and communication skills. In addition to cross-age peer tutoring, the demonstration method is another instructional strategy that holds promise for improving the academic performance of ADHD pupils. This method involves the teacher explicitly illustrating a task, concept, or behaviour, allowing pupils to observe and replicate the actions. The demonstration method is particularly beneficial for ADHD students, as it uses visual cues and tangible examples that can make abstract concepts more concrete and easier to understand. According to Müller et al. (2021), the demonstration method supports active learning by engaging multiple senses, which helps reinforce learning and facilitates memory retention. For ADHD pupils, whose struggles with attention often hinder their ability to process and retain information from lectures or written materials, observing a task in action can make the learning process more accessible. Teachers can use this method to model problem-solving techniques, provide visual explanations of complex topics, and demonstrate how to approach tasks in a structured way, which can be particularly beneficial in a subject like social studies that requires logical reasoning and understanding of historical or social concepts. Tashakkori and Teddlie (2020) further argue that this method offers ADHD pupils clear, step-by-step instructions, which can improve their engagement and participation in lessons.

When these two methods cross-age peer tutoring and the demonstration method are applied they provide a comprehensive approach to supporting the academic performance of ADHD pupils. Cross-age peer tutoring can serve as a form of social learning, where ADHD pupils receive guidance from older, more experienced peers who can offer explanations in a manner that is easier for them to process. Meanwhile, the demonstration method allows ADHD students to see tasks in action, making abstract concepts in social studies more concrete. By integrating these strategies,

teachers ‘ encourages a supportive and inclusive classroom environment that caters to the distinct needs of ADHD students, equipping them with both social and cognitive resources to thrive (Gallucci et al 2019). Moreover, this combination of strategies promotes a more interactive classroom atmosphere, where students are actively engaged and encouraged to take responsibility for their own learning. The integration of cross-age peer tutoring and the demonstration method offers a promising avenue for improving the academic performance of ADHD pupils, particularly in subjects such as social studies where both engagement and comprehension are essential.

Statement of the Problem

Attention-Deficit/Hyperactivity Disorder (ADHD) constitute a major concern to the academic performance of students, particularly in subjects like Social Studies, which require sustained focus and engagement. Basic 3 pupils with ADHD often struggle with maintaining attention, following instructions, and engaging effectively in traditional classroom settings. As a result, these students frequently underperform academically compared to their peers. Traditional instructional methods are often ineffective in addressing the unique learning needs of ADHD pupils. Recent studies suggest that alternative strategies such as cross-age peer tutoring and the demonstration method may offer potential solutions. Although both methods have shown promise in improving academic outcomes for ADHD students, there is limited research comparing their effectiveness in the context of Basic 3 ADHD pupils in Social Studies. This study aims to explore the relative influence of these methods on the academic performance of ADHD pupils in Port Harcourt Metropolis, Rivers State, to identify the most effective approach for improving their learning outcomes.

Aim and Objective of the Study

The study sought to investigate cross-age peer tutoring and demonstration method on the academic performance of Basic 3 ADHD pupils in social studies in Port Harcourt Metropolis, Rivers State. The objective is to:

1. examine the mean difference in the academic performance of Basic 3 Attention Deficit Hyperactivity Disorder pupils taught Social studies using cross-age peer tutoring (CAPT) and those taught Social Studies with demonstration method in Port Harcourt Metropolis, Rivers State.

Research Question

The following research question guided the study

1. examine the mean difference in the academic performance of Basic 3 Attention Deficit Hyperactivity Disorder pupils taught Social studies using cross-age peer tutoring (CAPT) and those taught Social Studies with demonstration method in Port Harcourt Metropolis, Rivers State.

Hypothesis

The null hypothesis below was tested at 0.05 alpha.

1. There is no significant difference in the academic performance of Basic 3 Attention Deficit Hyperactivity Disorder pupils taught Social studies using cross-age peer tutoring (CAPT) and those taught Social Studies using demonstration method in Port Harcourt Metropolis, Rivers State.

Materials and methods

This study utilised a quasi-experimental design with a pre-test and post-test format to compare the effects of cross-age peer tutoring and the demonstration method on the academic performance of Basic 3 ADHD pupils. The study involved two groups: an experimental group taught using cross-age peer tutoring and a control group taught through the demonstration method. The population of the study is made up of 1,157 Basic 3 ADHD pupils drawn from 55 primary schools in Port Harcourt Metropolis, Rivers State. Purposive sampling technique was applied to select three schools from the 55 primary schools. These schools were further assigned to serve as the experimental and control groups. Simple random sampling was used to allocate pupils from intact classes into their respective groups. The final sample size included 105 ADHD pupils (43 males and 62 females). School 1 had 35 pupils (15 males and 20 females), School 2 had 31 pupils (11 males and 20 females), and School 3, which served as the control group, contributed 39 pupils (17 males and 22 females).

The primary data collection tool was the "Social Studies Performance Test" (SSPT), which was divided into two sections. Section A gathered biographical data such as the pupil's name, age, gender, date of birth, grade, class type,

and class size, as provided by the parent. Section B contained 20 multiple-choice questions (options A–D) derived from Social Studies topics taught during the intervention. Each question had one correct answer and three distractors, ensuring high-quality standards. The instrument underwent thorough validation to ensure its accuracy and relevance. Both content and face validity were established through reviews by the research supervisor and two experts from the Department of Curriculum and Instructional Technology, Faculty of Education, Ignatius Ajuru University of Education. Additionally, Social Studies specialists at the primary school level validated the questions to ensure alignment with the curriculum. The reliability of the SSPT was assessed using the test-retest method. Twenty ADHD pupils who were not part of the study sample were administered the SSPT twice over a two-week interval. The Pearson product-moment correlation was used to compute the relationship between the initial and retest scores, resulting in a reliability coefficient of 0.750, confirming the instrument’s consistency. Descriptive statistics, including mean and standard deviation, were utilised to address the research question. Hypothesis was tested using Analysis of Covariance (ANCOVA) at a 0.05 level of significance.

Results

The results section of the study focused on evaluating the comparative impact of cross-age peer tutoring and the demonstration method on the academic performance of Basic 3 ADHD pupils in Social Studies.

Research Question 1: What is the mean difference in the academic performance of Basic 3 Attention Deficit Hyperactivity Disorder pupils taught Social studies using cross-age peer tutoring (CAPT) and those taught with demonstration method in Port Harcourt Metropolis, Rivers State?

Table 1: Mean and standard deviation of basic 3 attention deficit hyperactivity disorder pupils taught social studies using cross-age peer tutoring (CAPT) and those taught and those taught social studies with demonstration method

Group	N	Pre-test		Post-test		Mean gain
		Mean	Std	Mean	Std	
CAPT(Exp Group)	31	11.01	3.85	48.16	5.79	37.15
DM	39	11.15	3.88	29.40	5.42	18.25

Table 1 reveals that the mean scores at the pre-test stage of pupils taught with CAPT were 11.01 and a standard deviation of 3.85, while pupils taught Social studies with the demonstration method (control group) had a mean score of 11.15 with a standard deviation of 3.88. At the post-test stage, students taught Social studies with CAPT had a mean score (48.16) and standard deviation of 5.79, while the demonstration method (control group) had a mean score of 29.40 and a corresponding standard deviation, 5.42. This indicates a mean gain of (37.15 and 18.25) for students taught Social studies with CAPT and the demonstration method, respectively. It therefore shows that students taught Social studies with CAPT (experimental group) performed better than the demonstration method (control group) at the posttest stage because of the intervention in the form of a peer tutoring strategy in Port Harcourt Metropolis, Rivers State.

Hypothesis 1: There is no significant difference in the academic performance of Basic 3 Attention Deficit Hyperactivity Disorder pupils taught Social studies using cross-age peer tutoring (CAPT) and those taught Social Studies using the demonstration method in Port Harcourt Metropolis, Rivers State.

Table 2: ANCOVA results of the performance of basic 3 attention deficit hyperactivity disorder pupils taught social studies using cross-age peer tutoring (CAPT)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	16778.289	2	8389.144	268.840	.000	.724
Intercept	32550.402	1	32550.402	1043.116	.000	.836
Pretest	.152	1	.152	.005	.944	.000
Group	16770.848	1	16770.848	537.442	.000	.724
Error	6397.019	67	31.205			
Total	332408.000	70				

Table 2 of the ANCOVA results shows an F-value of 537.442 and a p-value of 0.000, which is less than the significance level of 0.05 with 1 and 70 degrees of freedom. As a result, the null hypothesis is rejected, confirming that the p-value is less than 0.05. This suggests a significant difference in the mean performance of Basic 3 pupils with Attention Deficit Hyperactivity Disorder taught Social Studies using cross-age peer tutoring (CAPT) compared to those taught with the demonstration method in Port Harcourt Metropolis, Rivers State.

Discussion

Research question one examined the mean difference in the academic performance of Basic 3 pupils with Attention Deficit Hyperactivity Disorder (ADHD) taught Social Studies using cross-age peer tutoring (CAPT) and those taught Social Studies using the demonstration method in Port Harcourt Metropolis, Rivers State. The results presented in Table 1 indicate that, at the pre-test stage, pupils taught Social Studies using CAPT performed better than those taught with the demonstration method. Similarly, at the post-test stage, students who received CAPT instruction outperformed those exposed to the demonstration method. This suggests that students taught with CAPT (experimental group) performed better than those taught with the demonstration method (control group) at the post-test stage due to the intervention involving peer tutoring in Port Harcourt Metropolis, Rivers State.

In hypothesis one, as shown in Table 2, the ANCOVA results reveal an F-value of 537.442 and a p-value of 0.000, which is less than the chosen significance level of 0.05 with 1 and 70 degrees of freedom. Consequently, the null hypothesis is rejected, indicating that the p-value is below the 0.05 significance level. This result signifies a significant difference in the mean performance of Basic 3 pupils with ADHD taught Social Studies using cross-age peer tutoring (CAPT) compared to those taught with the demonstration method in Port Harcourt Metropolis, Rivers State. These findings align with Lieberman et al. (2017), who emphasized the value of the cross-age peer tutoring approach. They noted that students benefit from effective individual instruction and feedback from their tutors, while the tutors themselves gain valuable teaching experience. In CAPT, tutors help to reinforce appropriate behavior, ask questions, and promote better study habits, all of which contribute to enhanced performance.

Conclusion

The findings of this study highlight the effectiveness of Basic 3 Attention Deficit Hyperactivity Disorder pupils who were exposed to Social studies with cross-age peer tutoring did significantly better than those who were exposed to demonstration method. Male students taught Social studies with class-wide peer tutoring strategy performed better than female students who were exposed to the same strategy. Pupils exposed to cross-age peer tutoring significantly outperformed their peers who were taught using the demonstration method. The findings support the adoption of cross-age peer tutoring as a more effective method than the demonstration method in enhancing the learning outcomes of ADHD pupils in Social Studies.

Recommendations

The findings of the study serve as the foundation for the following recommendations:

1. Teachers and school administrators should prioritize the use of cross-age peer tutoring as an instructional strategy, particularly for Basic 3 pupils with Attention Deficit Hyperactivity Disorder (ADHD). This method fosters collaboration, enhances peer interaction, and significantly improves academic performance in Social Studies.

2. While cross-age peer tutoring proved to be more effective, the demonstration method can still be used as a complementary approach. Combining both strategies may create a balanced instructional environment that caters to various learning needs.
3. Schools should provide adequate resources, such as instructional materials and peer tutoring guides, to ensure the effective implementation of cross-age peer tutoring. Additionally, teachers should receive administrative and parental support to create a conducive learning environment for ADHD pupils.

References

- American Psychiatric Association (APA). (2020). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington, DC: APA Publishing.
- Barkley, R. A. (2021). *Executive functions and self-regulation: Implications for Understanding and managing adhd*. new york: guilford press.
- Kearns, C. E., Rogers, S., & Finn, K. (2022). The impact of ADHD on academic performance: challenges and interventions. *Journal of Educational Psychology, 114*(3), 456–470.
- Lieberman, D. A., Johnson, C. L., & Lee, M. K. (2017). The value of cross-age peer tutoring: Enhancing student learning and tutor development. *Journal of Educational Psychology, 45*(2), 130-145.
- Liu, X., & Goh, C. (2022). Cross-age peer tutoring: A developmental model for cognitive and emotional support. *Educational Research and Development Journal, 34*(2), 112-128.
- Müller, T., Smith, A., & Zhao, L. (2021). The role of demonstration methods in enhancing learning outcomes for students with learning disabilities. *Journal of Special Education Research, 29*(1), 67-85.
- National Institute of Mental Health (NIMH). (2021). Attention-Deficit/Hyperactivity Disorder (ADHD): Overview and Management.
- Pina, R., Chavez, D., & Santos, E. (2021). Attention retention challenges in ADHD students: Impacts on academic performance. *Journal of Child Psychology and Education, 45*(3), 245-261.
- Roscoe, R., & Chi, M. (2021). The benefits of peer tutoring: A dual perspective for cognitive and educational gains. *Learning and Instruction, 71*, 101-115.
- Tashakkori, A., & Teddlie, C. (2020). Enhancing engagement in ADHD students through demonstration-based learning. *Teaching Strategies Quarterly, 19*(4), 34-49.
- Topping, K. J. (2021). Cross-age peer tutoring: A review of educational outcomes for tutors and tutees. *International Journal of Peer Learning, 12*(2), 97-120.
- Topping, K. J., & Ehly, S. (2020). Peer-assisted learning strategies: Enhancing academic performance in inclusive classrooms. *Educational Psychology Review, 32*(3), 567-589