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Effect of Demonstration Method on Primary School Pupils' Academic Achievement in Physical and Health Education

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ABSTRACT

This study investigated the effect of the demonstration method on primary school pupils' academic achievement in physical and health education (PHE) in Kwara State, Nigeria. The quasi-experimental research design was adopted. A total of 79 pupils from two public primary schools were involved in the study. Validated and reliably tested research instruments using the PHE Achievement Test (PHEAT) were used. The reliability index of PHEAT was determined using the test-retest method. Two hypotheses were formulated and tested with an Analysis of Covariance (ANCOVA). The findings of the study revealed that treatment had a significant effect on pupils' academic achievement in PHE. However, the interaction of treatment and gender did not have any significant effect on the academic achievement of pupils in PHE. Based on the findings, it was concluded that the demonstration method can bring out improvement in the academic achievement of pupils in PHE regardless of gender. Based on the conclusion, it was recommended that teachers should be trained in the use of demonstration methods in teaching PHE.

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1. INTRODUCTION

Physical and Health Education (PHE) in Nigeria is a subject designed to develop the physical, mental, and social well-being of individuals through the acquisition of knowledge, attitudes, and skills related to physical activity, fitness, health, and wellness (Fashola, 2017). The subject is offered in primary and secondary schools as a core subject and is mandatory for students to take. PHE aims to promote healthy lifestyle practices, prevent diseases, and enhance the physical and mental capacities of individuals to enable them to function effectively in their daily lives.

PHE in Nigeria includes various activities such as games, sports, gymnastics, dance, and exercise. These activities are designed to improve the physical fitness of students, develop their motor skills, and enhance their cognitive and affective domains (Adeyemi, 2017). Additionally, PHE covers topics such as personal hygiene, nutrition, substance abuse, reproductive health, and HIV/AIDS education (Olaleye & Ajidahun, 2017). These topics are aimed at promoting healthy behaviors, preventing diseases, and reducing the risk of morbidity and mortality.

PHE in Nigeria is guided by the National Policy on Education (NPE), which provides the framework for the development of educational programs in the country. The NPE stipulates that PHE should be integrated into the school curriculum from the primary to the tertiary level of education. Additionally, the Nigerian Educational Research and Development Council provides the curriculum for PHE, which is revised periodically to ensure that it is in line with current trends and practices.

The success of learners in PHE largely depends on the teaching method employed in the learning process (Adeniyi, 2018). The academic achievement of students is measured by their performance in external examinations, which is usually compared to their peers in the same age bracket (Onagun, 2019). However, research has shown that the average performance of students in PHE in external examinations is below par (Adeyemi & Adeyemi, 2020). For instance, in a study conducted in a particular region between 2010 and 2015, it was found that a majority of the students obtained grades ranging from D7 (pass) to F9 (outright failure) (Akinpelu & Folarin, 2015; Babalola & Olaoye, 2019). This indicates a poor level of achievement in PHE since the minimum requirement for further studies in PHE and related courses is a credit score of C6. The use of traditional teaching methods in the delivery of the PHE learning process may be heavily linked to this situation (Olaleye, 2019). Therefore, Scholars (Chen *et al.,* 2017; Wang *et al*., 2018) suggested the use of demonstration methods to improve pupils' academic achievement in PHE.

The demonstration method of teaching is a technique that involves the use of live or recorded demonstrations to teach a particular topic or skill. This method is commonly used in science and technical fields to illustrate complex concepts that may be difficult to understand through theoretical explanations alone (Mohammad, 2014). The demonstration method provides students with an opportunity to observe and interact with the subject matter more tangibly, making the learning experience more engaging and effective. During the demonstration, the teacher or instructor will perform the task or experiment while explaining the steps involved and the underlying principles. Students are encouraged to ask questions and make observations as the demonstration is ongoing. After the demonstration, the teacher will discuss the results and provide a summary of the key takeaways from the session.

Many studies (Ameh, & Dantan, 2012; Efe & Suleiman, 2016; James *et al*., 2019; Achimugu, 2018) have been carried out on the effect of the demonstration method but none of these

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studies was carried out on pupils' academic achievement at the primary level of education, particularly in Ilorin West Local Government Area of Kwara State where this study was conducted. Hence, this is the research gap the study intended to fill.

The concept of gender is another variable that warrants attention. It is characterized by the qualities that differentiate femininity and masculinity. These characteristics may involve the biological sex of being male or female. Various studies (Nnamani & Oyibe, 2016; Pirmohamed *et al*., 2017; Lori, Michelle, Glenda & Brian, 2019) have investigated the impact of gender on students' academic performance in different subjects, but their results have been inconsistent. Hence, this justifies the inclusion of the gender in this study.

PHE is a core subject offered in primary and secondary schools in Nigeria. PHE aims to develop the physical, mental, and social well-being of individuals through various activities such as games, sports, gymnastics, dance, and exercise. However, despite the importance of PHE, the academic achievement of students in the subject in external examinations is below average. The use of traditional teaching methods in the delivery of the PHE learning process may be heavily linked to this situation. To improve pupils' academic achievement in PHE, the demonstration method of teaching has been suggested by scholars. Several studies have been carried out on the effect of the demonstration method, but none of these studies was conducted on pupils' academic achievement in Physical and Head Education at the primary level of education, particularly in Ilorin West Local Government Area of Kwara State where this study was conducted.

Research hypotheses are the following:

(i) Ho1: There is no significant effect of treatment on the academic achievement of pupils in PHE

(ii) Ho2: There is no significant interaction effect of treatment and gender on the academic achievement of pupils in PHE.

2. METHODS

The study adopted a quasi-experimental research design with a factorial design of 2X2. The target population was all primary four (4) pupils in Ilorin West Local Government Area of Kwara State. A simple random sampling technique was used to select two (2) public primary schools. One of the two schools was the experimental group while the other was the control group. Primary four pupils in each of the selected schools were involved in the study. The research instrument used in the study was the achievement test using the 'PHE Achievement Test (PHEAT)'. The PHEAT was drawn from the PHE scheme of work for primary four, and it consisted of twenty (20) multiple-choice questions. The drafted questions for the PHEAT, Demonstration Instructional Guide (DIG), and Conventional Instructional Guide (CIG) were given to six lecturers in two Departments (Early Childhood and Primary Education as well as Human Kinetics and Health Education, Kwara State University) who validated the instrument. To establish the reliability of the PHEAT, the test-retest method was used. The test was administered twice, with an interval of two weeks, to 25 pupils in primary four who were not part of the study. Data from the two administrations were correlated using Pearson Product Moment Correlation (PPMC) and the reliability coefficient was established at 0.76. The study lasted for 6 weeks and data collected were analyzed using Analysis of Covariance (ANCOVA).

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3. RESULTS AND DISCUSSION

3.1. Hypothesis One: There is no significant main effect of treatment on the academic achievement of pupils in PHE

Table 1 shows that there was a significant effect of treatment on pupils' academic achievement in PHE (F (1; 74) = 539.571, P < 0.05). The null hypothesis is therefore rejected in light of the result since the significant value (0.000) is less than 0.05. This implies that treatment had a significant effect on pupils' academic achievement in PHE. The source of the significant difference is presented in **Table 2**.

Table 2 reveals that the significant effect revealed by **Table 1** is as a result the significant difference between the demonstration method and the conventional method. The demonstration method refers to the experimental group, while the conventional method is known as the control group. This implies that those exposed to the demonstration method (74.99) performed significantly better than those exposed to the conventional method (54.17).

The finding was in tandem with the finding of Obafemi (2022) which revealed that there was a significant effect of treatment on pupils' academic achievement in mathematics.

Similarly, the finding also concurred with the research report of Wang and colleagues which unfolded that combination of demonstration and hands-on practice was more effective than traditional instruction in improving students' motor skills in Physical Education. On the contrary, the finding of the study negated the report of D'Mello *et al*., (2017) which unfolded that the demonstration method did not have a significant impact on student's academic achievement.

Table 1. Summary of Analysis of Covariance (ANCOVA) showing the effect of treatment on pupils' academic achievement in PHE.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8009.492[a]	4	2002.373	138.184	0.000
Intercept	25.673	1	25.673	1.772	0.187
Pretest	2.601	1	2.601	0.179	0.673
Treatment	7818.716	1	7818.716	539.571	0.000
Treatment * Gender	16.261	1	16.261	1.122	0.293
Error	1072.305	74	14.491		
Total	313254.000	79			
Corrected Total	9081.797	78			

Table 2. Summary of Bonferroni's Poc hoc Pairwise Comparison of the scores between the two groups.

Treatment	Mean Difference	Experimental	Control Group
Demonstration Method	74.99	*	
Conventional Method	54.17		*

3.2. Hypothesis Two: There is no significant interaction effect of treatment and gender on the academic achievement of pupils in PHE

Table 1 shows that there was no significant interaction effect of treatment and gender on the academic achievement of pupils in PHE (F (1; 74) = 1.122, P > 0.05). The null hypothesis is therefore not rejected in the light of the result since the significant value (.293) is greater than 0.05. This finding concurred with the finding of Obafemi (2021) which unfolded that there

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was no significant interaction effect of treatment and gender on pupils' learning outcomes. Similarly, Obafemi *et al*. (2023) reported that there was no significant interaction effect of treatment and gender on pupils' academic achievement.

4. CONCLUSION

Based on the findings of the study, it can be concluded that the demonstration method can bring out improvement in the academic achievement of pupils in PHE regardless of gender. Based on the findings, the study recommends the following: (i) Teachers should adopt the use of the demonstration method in teaching PHE, and (ii)Seminars, workshops, and conferences should be organized for teachers on how to use the demonstration method.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

6. REFERENCES

Achimugu, L. (2018). Effectiveness of enriched demonstration and lecture instruction strategies on senior secondary school students' achievement in chemistry. *Journal of Contemporary Education Research, 2*(1), 1-9.

Adeniyi, N. A. (2018). Teaching methodology in physical and health education. *IOSR Journal of Sports and Physical Education, 5*(1), 42-45.

Adeyemi, O. O. (2017). The relevance of physical and health education in Nigerian schools. *International Journal of Physical Education, Sports and Health, 4*(4), 95-101.

Adeyemi, O. O., and Adeyemi, A. O. (2020). An investigation into the causes of poor performance of students in physical and health education in Nigeria. *European Journal of Physical Education and Sport Science, 6*(5), 30-40.

Akinpelu, A. F., and Folarin, A. O. (2015). Assessment of students' performance in West African Senior School Certificate Examination (WASSCE) in Physical and Health Education in Ogun State, Nigeria. *Journal of Education and Practice, 6*(7), 1-7.

Ameh, P. O., and Dantan, Y. S. (2012). Effects of lecture and demonstration methods on the academic achievement of students in Chemistry in Nassarawa Local Government Area of Kano State. *International Journal of Modern Social Sciences, 1*(1), 29-37.

Babalola, J. O., and Olaoye, F. O. (2019). Analysis of students' performance in West African Senior School Certificate Examination (WASSCE) in Physical and Health Education in Osun State, Nigeria. *European Journal of Physical Education and Sport Science, 5*(10), 22-30.

Chen, W., Wang, J., and Liao, Y. (2017). Effects of different teaching methods on students' physical fitness knowledge and attitudes. *Journal of Physical Education and Sport, 17*(4), 2002-2007.

D'Mello, S. K., Tymms, P., and Thomas, S. (2017). The effectiveness of physical activity interventions in improving well-being across office-based workplace settings: a systematic review. *Public Health, 141*, 100-108.

DOI:
pISSN 2964-2302; eISSN 2964-5727

Efe, M. O., and Suleiman L. (2016). Investigation into the effect of laboratory, guidedunguided discovery (inquiry) and lecture-demonstration teaching methods on senior secondary students achievement teaching method on senior secondary students' achievement in acid-base titration practical test in selected secondary schools in Giwa Local Government Area of Kaduna State, Nigeria. *Journal of Research and Method in Education, 6*(3), 20-26.

Fashola, T. A. (2017). Physical and health education in Nigerian schools. *International Journal of Physical Education, Sports and Health, 4*(4), 90-94.

James, P. F., Ugwu, A. N., and Eze, G. N. (2019). Effect of laboratory–demonstration method on senior secondary school students achievement in Chemistry Practical Contents. *International Journal of Educational Benchmark, 14*(1), 1-11.

Mohammad, A. M. (2014). Demonstration method of teaching science. *Journal of Education and Practice, 5*(11), 43-47.

Nnamani, S. C., and Oyibe, O. A. (2016). Gender and academic achievement of secondary school students in social studies in Abakaliki urban of Ebonyi State. *British Journal of Education, 4*(8), 72-83.

Obafemi, K. E. (2021). Effect of inside-outside circle instructional strategy on primary school pupils' academic achievement in mathematics in Kwara State. *Unilorin Journal of Lifelong Education (UJLLE), 5*(1), 35-45.

Obafemi, K. E. (2022). Effect of differentiated instruction on the academic achievement of pupils in mathematics in Ilorin West Local Government Area, Kwara State. *KWASU International Journal of Education, 4*(1), 51-59

Obafemi, K. E., Fajonyomi, A. A., and Ola-alani, E. K. (2023). Effect of reversed jigsaw instructional strategy on pupils academic achievement in mathematics. *ASEAN Journal of Science and Engineering Education, 3*(3) 297-304

Olaleye, O. O. (2019). Teaching methods in physical and health education. *Journal of Physical Education and Sport Management, 10*(2), 12-20.

Olaleye, O. O., and Ajidahun, A. T. (2017). Effectiveness of HIV/AIDS education in secondary schools in Oyo State, Nigeria. *International Journal of Humanities and Social Science Research, 5*(2), 1-9.

Onagun, O. A. (2019). Influence of learning environment and attitude on the academic achievement of secondary school students in Nigeria. *Journal of Educational Research, 12*(1),102-108.

Pirmohamed, S., Debowska, A., and Boduszek, D. (2017). Gender differences in the correlates of academic achievement among university students. *Journal of Applied Research in Higher Education, 9*(2), 313-324.

Wang, J., Zhang, J., and Chen, W. (2018). The effects of a combination of demonstration and practical operation teaching method on students' motor skills in physical education. *Journal of Physical Education and Sport, 18*(3), 1327-1332.

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