

# Effect of Scaffolding Method on Pupils' Academic Performance in Ilorin South Local Government Area of Kwara State

Yahaya OLAREWAJU

Department of Early Childhood and Primary Education, Kwara State University, Malete

Correspondence: childrenmustgrow@gmail.com

+2348032449774

**Abstract:** *The study examined effect of scaffolding method on pupils' academic performance. The research design that was adopted for this study is the pre-test, post-test, control group quasi-experimental design. Population comprised all private and public primary school's teachers. Sample size was 4 primary four classes. The multistage sampling techniques was used. The instruments; Basic Science and Technology Performance Test (BSTPT) with two instructional package. Face and content validity was determined by expert while the reliability coefficient was ( $r=.7.9$ ). Inferential statistics use for testing the hypotheses. The findings shown that there was no significant main effect of treatment on pupils' academic performance. Scaffolding method can bring about improvement in the academic performance. Since most teachers may not be conversant with the use of scaffolding method as a teaching method, seminars, workshops and conferences.*

**Keywords:** *scaffolding method and academic performance*

## Introduction

Students' poor achievement in basic science at various levels of education has been an issue of concern over the years to stakeholders. For instance, some of the reasons attributed to poor performance in basic science, a subject by scholars include lack of frequent practice, poor mathematical background, inadequate and poor method (Omoniyi, 2016). Hence, scholars are making a paradigm shift from what is generally believed to be a conventional method to an entirely different approach that is activity – based and interactive.

Scaffolding is a communication process where presentation and demonstration by the teacher is contextualized for the learner. The performance of the study is coached, articulate and elucidated by the learner as support is gradually being removed. Scaffolding is described as a temporary support made available for students' learning until the students can perform independently of that support (Verhagen & Collis 1996). Scaffolding can be seen as a temporary framework that supports a building under construction. When the structure is strong enough to stand on its own, the scaffolds are removed. Ertmer and Cennamo (1995) stated that scaffolds in building cannot completely explain the principle of retreat of support in learning. He emphasized that when learning; the support does not reach the ground because some entry knowledge is expected, that the support to learning cannot be precise to the right level as can be done with a building and retreating of support only occurs in the last stage of building, while learning retreat of support occurs gradually during learning process. Lipscom, Swanson and West (2004) opine that scaffolding is a natural approach to ensure the learning of the student. The teacher therefore offers assistance with only those skills that are beyond the students' capability.

According to Omoniyi & Torru (2018) several teaching methods can be used to teach basic science in which scaffolding represents one of them. Instructional scaffolding is the support given to a student by an instructor throughout the learning process.

Awodun (2019) cited Robinson & Daniel in their study on the effect of instructional scaffolding on academic performance of students doing basic science in pupils schools in kwara State found out that there is no significant difference between the mean academic performance of male and female students exposed to scaffolding method of teaching. Secondly, they also found out that there is significant difference between the mean performance of students taught financial accounting using scaffolding method of teaching and those taught with traditional methods of teaching. Moreover, Mohammed (2013) cited in Awodun (2019) that significant difference exist between the mean performance score on peace education between students' taught using scaffolding strategy and those taught using conventional teaching approach in College of Education.

Mari (2001), found out that learning outcomes through scientific means are more effective in promoting the acquisition of the skills in females than in their male counterparts. Also Mari (2001), revealed the existence of superiority in performance of female students over their male counterparts in learning outcomes. Quaiser-poul and Lehman (2002) opined that male pupils performed significantly better than their female counterparts in science. Erinsho (2005) stated that science is a male enterprise. Since it has not been found that gender factor has positive, negative, or no contribution to academic performance, it is therefore necessary in this study to find out if gender has any main effect in the academic performance of pupils in Basic science and technology.

William (2002) reveals that pupil's performance in secondary school also has revealed that all things being equal, pupils attending private or other independent school had higher levels of performance than pupils from public schools irrespective of handicapping condition of the learners. Studies on scaffolding instruction have been conducted but deserved research attention has not been given to the examination of the effectiveness of scaffolding method on the academic performance of pupils in basic science and technology particularly in at the primary school level. Also, this kind of study has not been conducted in the Moro Local Area of Kwara State. This research is a product of this problem.

### Statement of the problem

The low performance of pupils in basic science and technology particularly in the recent years has not been encouraging. This poor performance of pupils has been partly attributed to the pedagogical methods adopted by teachers. Claims have been made that the methods used by teachers do not allow for pupils' active participation, and one of the methods which promote active participation of pupils in the classroom is scaffolding instructional method of teaching. Studies on scaffolding instruction have been conducted but deserved research attention has not been given to the effect of scaffolding method on the academic performance of pupils particularly in at the primary school level. Also, this kind of study has not been conducted in the Moro Local Area of Kwara State. This research is a product of this problem.

### Research Hypotheses

The following research hypotheses are formulated;

**H<sub>01</sub>:** There will be no significant main effect of treatment on pupils' academic performance

**H<sub>02</sub>:** There will be no significant main effect of gender on pupils' academic performance

**H<sub>03</sub>:** There will be no significant main effect of school type on pupils' academic performance

**H<sub>04</sub>:** There will be no significant interaction effect of treatment and gender on pupils' academic performance.

**H<sub>05</sub>:** There will be no significant interaction effect of treatment and school type on pupils' academic performance

**H<sub>06</sub>:** There will be no significant interaction effect of gender and school type on pupils' academic performance

**H<sub>07</sub>:** There will be no significant main effect of the interaction effect of treatment, gender, and school type on pupils' academic performance

### Methodology

The research design that was adopted was the pre-test, post-test, control group quasi-experimental design. The design is suitable for establishing a possible cause and effect relationship. A factorial design of 2X2X2 was adopted to test the hypotheses. The population of this study comprised all private and public primary school's teachers. Sample size was 4 primary four classes. The multistage sampling techniques was used. The purposive sampling was also used to select 4 mixed primary schools because of the certain and relevant characteristics they possessed that relevant to the conduct of this study. The instrument for data collection for this study was Basic Science and Technology Performance Test (BSTPT) with two instructional package. The lecturers in Early Childhood and Primary Education ascertained the face and content validity of the instrument while the reliability of the instrument was determined by using test re-test method and reliability coefficient was ( $r=.7.9$ ). Thereafter inferential statistics (ANCOVA) was used to test the hypotheses.

### Results

**Research Hypothesis One:** There is no significant main effect of Scaffolding method on academic performance of pupils

Table One: Showing the summary of Analysis of Co-variance(ANCOVA) on significant main effect of Scaffolding method on academic performance of pupils in basic science and technology

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	17853.458 <sup>a</sup>	8	2231.682	8.735	.000
Intercept	10389.158	1	10389.158	40.665	.000
Pretest	227.152	1	227.152	.889	.349
Scaffolding	6861.832	1	6861.832	26.859	.000
Gender	299.391	1	299.391	1.172	.282
School-type	318.163	1	318.163	1.245	.268
Scaffolding * Gender	50.513	1	50.513	.198	.658
Scaffolding * School-type	118.889	1	118.889	.465	.497
Gender * School-type	708.695	1	708.695	2.774	.100
Scaffolding * Gender * School-type	89.291	1	89.291	.350	.556
Error	20182.905	79	255.480		
Total	342950.000	88			

Table 1, ( $F_{(1; 79)} = 26.859$ ,  $P < 0.05$ ). The hypothesis is therefore rejected in the light of the result since the significant value (.000) is less than 0.05. This implies that scaffolding method had significant effect on academic performance of pupils

**Table Two: Summary of Bonferroni's Post Hoc pairwise Comparison of the scores within the two Groups**

Treatment	Mean Score	Experimental1	Control Group
Scaffolding Method	72.072	*	
Conventional Method	44.305		*

Table 2 reveals the significant main effect exposed by table 2 is as a result of the significant difference among: Scaffolding method and traditional method. Scaffolding method refers to experimental group and traditional method known as control group. This implies that those taught or exposed to Scaffolding method performed significantly better than those taught with traditional method.

**Research Hypothesis Two:** There is no significant main effect of gender on academic performance of pupils

**Research Hypothesis Three:** There is no significant main effect of school-type on academic performance of pupils

**Research Hypothesis Four:** There is no significant interaction effect of scaffolding and gender on academic performance of pupils

**Research Hypothesis Five:** There is no significant interaction effect of scaffolding and school-type on academic performance of pupils

**Research Hypothesis Six:** There is no significant interaction effect of gender and school-type on academic performance of pupils

**Research Hypothesis Seven:** There is no significant interaction effect of scaffolding method, gender and school-type on academic performance of pupils

### Discussion of the Findings

The findings of the study revealed that there was significant main effect of brainstorming method on pupils' academic performance in Basic Science and Technology. This implies that pupils taught using scaffolding method performed significantly higher than their counterparts. This results is in support with the earlier study by Raymond (2000). Raymond investigated the use of scaffolding method on pupils' academic performance and found out that pupils who were prepared using scaffolding method perform significantly than other pupils' thought with conventional method. This study is in tandem with the findings of Mohammed (2016) Scaffolding Technique is effective and improves students' academic performance

### Conclusion

It is evident that scaffolding method has effect on the academic performance of pupils. Scaffolding method can bring about improvement in the academic performance of pupils in basic science and Technology regardless of gender and the type of school they attend.

### Recommendations

Based on the findings following recommendations were made in this research: Since scaffolding method is a teaching techniques that takes care of individual active participation, in the classroom and provides every learner the opportunity to acquire knowledge, it is highly recommended that Nigerian Teachers in general and Basic Science and Technologies' teachers in Particular should adopt it in their classroom interaction. Since most teachers may not be conversant with the use of scaffolding method as a teaching method, seminars, workshops and conferences should be organized for teachers to get acquainted with the use of the method.

### REFERENCES

- Abdu – Raheem, B.O. (2012). The Influence of Gender on Secondary School Students' Academic Performance in South-West, Nigeria. *Journal of Social Science*, 31 (1) 93 – 98.
- Adams, D. (1990) Connecting Video Segments to Collaborative Learning Activities.

- Adebanjo AA (2007). Effect of Instructional Media on the Learning of Computer in JSS. *Afr. J. Educ. Res.*1(2):71 -75.
- Adedapo, Y.A, Salawu, I.O. and Afolabi, A.O. (2001). Effects of Video and AudioTaped Instruction on Cognitive Learning Outcomes in Economics: *Ilorin Journal of Education* 1(1)1-8
- Adigwe, J.C. (1999). Gender in Classroom Interaction in Science Learning. *International Journal. of Women studies*1 (2)7-14.
- Adelusi OT, 2006. Effects of Instructional Materials on Students performance in Junior Secondary School Mathematics in Ibadan West Local Government. An unpublished B.Sc.Ed project, University of Ado – Ekiti
- Adeosun VO (2001).The Relative Efficacy of Pictures and Realia in the Teaching of Verbs in Junior Secondary Schools. UNAD. *J. Edu*,2(1):50-56
- Adetunberu OO, 2005. Investigation into the factors affecting the performances of pupils in Mathematics in Junior Secondary Schools in Ekiti State. A case study of selected secondary schools within the state. Unpublished B.Sc. Project, Faculty of Education, University of Ado-Ekiti.
- Afolabi SS, Adeleke JO (2010). Assessment of resources and instructional materials status in the teaching of Mathematics in South Western Nigeria. *E- J.Sci. Res.* 43(3): 406-410.
- Agina – Obu, T.N. (2005). *The Relevance of Instructional Materials in Teaching and Learning* in Nsuka University
- Agommuoh, P.C and Nzewi, U.M. (2003). Effects of Video taped Instruction on Secondary School Students Achievement in Physics. *Journal of the Science Teachers Association of Nigeria*38 (1) (2) 88-93
- Akpoghol, T. (2001). *Poor Performance in Science Subject amongst Secondary School Students in Makurdi: Causes and Possible Solutions*. Unpublished P.G.D.E. Project, Benue State University, Makurdi.
- Alaku, P.O. (1998). Instructional Strategies and Audio-Visual Aids for Teachers’ Effectiveness. *Bichi Journal of Education* 2(1)114-117.
- NCLBA (2001), United states congress Pub. L. N. 107-110, 115 Stat. 1425, 20 U.S.C.A
- Mohammed, a.(2016) effects of scaffolding technique on academic performance of students in peace education in colleges of education in Nasarawa state, Nigeria, department of arts and social science education faculty of education, Ahmadu bello university, (abu) Zaria.
- Nzomo J., Kariuki, M. W. & Guantai, L. (2001). The quality of education: Some policy suggestions based on a survey of schools. UNESCO-IIIEP
- Okon, C., & Archibong, U. (2014). Teachers’ attitudes to social studies and students’ performance in junior secondary three certificate examination. *Asian Journal of Social Science and Humanities*, 3 (3), 44 – 48.
- Okpongete, E. A. (1992). Toward creative science teaching and learning in West African Schools. Catholic Mission Press, Cape coast, Ghana. Pp. 1.
- O’Meara, J. (2010). Beyond differentiated instruction. Thousand Oaks, CA: Corwin.
- O’Shea, M. (2005). From standards to success. Alexandria, VA: Association for Oaks, CA: Corwin Press.
- Osuafor, M., & Okigbo, C. (2010). Analysis of the performance of pupils taught primary science and mathematics by specialist and non-specialist teachers. *Journal of Childhood and Primary Education*, 7(2), 20-27.
- Oversby, J., McGregor, D., & Woodhouse, F. (2013). Science education research and teacher professional development. *Education in Science*, 251: 26-27.
- Reeves, D. (2008). Making standards work: How to implement standards-based
- Rafiu, A. O. (2018). Effect of constructive and social play on the academic performance of pupils in numeracy in Kwara State, Nigeria. M.Ed Thesis submitted to the Department of Early Childhood and Primary, Kwara State University Springer, M. (2003). Differentiation through learning styles and memory. Thousand Supervision and Curriculum Development.
- Sweeney, I.M. (2003). Women’s intellect: *The potential of women*. New York: McGraw Hill.
- Tomlinson, C. A., (1999). The differentiated classroom. Alexandria, VA: Association for Supervision and Curriculum Development
- Tomlinson, C., & Imbeau, M. (2010). Leading and managing a differentiated classroom. Alexandria, VA: Association for Supervision and Curriculum Development.
- Tomlinson, C. (2001). How to differentiate instruction in mixed-ability classrooms. Alexandria, VA: Association for Supervision & Curriculum Development.
- Uwaifo, V.O. (2009). Integration of Basic Science and technology as a pre-vocational subject: Niger. *J. Educ. Res.* 4:1 Institute of Education, Ambrose Ali University Ekpoma.