



Influence of Home Background and Classroom Interaction on Students' Achievement in Basic Science in Upper Basic Schools in Kano State

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ABSTRACT

The purpose of the study was to examine Influence of Home Background and Classroom Interaction on Students' Achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria. A simple survey design was adopted for the study. Stratified random sampling technique was used to select 250 JSS II students. Two instruments namely; Home Background Questionnaire for Students (HOBAS) and Classroom Interaction Questionnaire (CIQ). The result indicated that there is significant influence of the students' home background and achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria ($F=1.491$, $p < .05$), the result indicated that there is no significant influence on students' classroom interaction and achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria. ($F=1.260$, $p > .05$). In conclusion, the result of the study clearly showed that there is significant influence of the students' home background on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria and also there is no significant influence of the students' classroom interaction and achievement in Basic Science. The result was recommended that: teachers should encourage more interaction in the classroom and allow more extraordinary events to happen in the classroom; Peer discussions should be incorporated into classroom interactions so as to raise the productivity of interaction and cooperation amongst them. Parents should endeavor to look after their children and provide them with the necessities for good education.

INTRODUCTION

Basic Science is used as a necessity for Science and Technological development in Nigeria, Basic Science as a subject, is offered by students at the Upper Basic School level. Basic Science consists of

ARTICLE INFO

Article History

Received: October, 2019

Received in revised form: Dec., 2019

Accepted: January, 2019

Published online: March, 2020

KEYWORDS

Home Background, Classroom Interaction, Basic Science, Students' achievement

subjects from the core sciences of Physics, Chemistry, Biology and Agricultural Science (UNESCO, 2010). The developed nations have reached their current feat because they have development their science education and utilized it to achieve their current



growth sprouts (Gonzale, Brambila, Reyes-Gonzalex, and Perez-Angon, 2016).

The teaching and learning of Basic Science therefore, requires expanding its activities outside the classroom and geared towards using the acquired knowledge for creating wealth (Igbokwe, 2015). Basic Science has to play a leading role in transforming the present Nigerian society into an emerging knowledge society which implies the need to build learning communities all over the country and in particular among the younger generation in their Junior Secondary School levels (Igbokwe, 2015).

According to the Science Teachers Association of Nigeria (1970) Nigeria Integrated Science, now Basic Science should enable students to be able to:

1. Observe carefully and thoroughly
2. Report completely and accurately
3. Organize information acquired
4. Generalize on the basis of acquired information
5. Predict as a result of the generalization
6. Design experiments (including controls, where necessary to check the prediction).
7. Use models to explain phenomena, where appropriate and
8. Continue the process of inquiry when new data do not conform to predictions.

To achieve these objectives, it is suggested that the teaching and learning of Basic Science should involve the use of innovative methods in teaching; methods like discovery, problem-solving, open ended field trip and laboratory method among others.

Every year, primary schools produce graduates who cannot meet up with current Basic Science trends in Junior Secondary Schools classrooms, especially in the rural setting. This has serious social repercussions which need to be identified so that solutions could be sought for them (Nwafor, 2015).

Home background is the source of early stimulation and experience in children. The home influences the child at a time when his mind is most receptive and it provides the first impression which may last through the whole life of the child. Also shape his attitude towards learning. The child often sees the parents, siblings and things in his/her immediate environment to be most significant and they are capable of promoting or diminishing him/her in self-worth and academic performance (Amadi and Ani, 2017).

Most researchers (Osuafor and Okonkwo, 2013) have confirmed the effect of home background on the academic development of secondary school students and also linked it to certain factors like parents becoming isolated from their children and finding it difficult to keep watch on what need to be done to help them succeed in school.

Oginni (2018) opined that what the child learns at home, how he/she is motivated by his/her family towards education goes a long way to influence the child's success or failure in school. Amadi and Ani (2017) States that the home and the school are the sides, the home is usually the more important of these two factors because it is the child's first school.

Classroom interaction is an important part of teaching process. Interaction has been defined as a process whereby two or more people engage in reciprocal actions (Cao, Esponda-Arguero and Rojas, 2011). The classroom climate is build up by the pattern of interactions between students and teachers where knowledge transfer prevails through asking questions, responding and reacting. The most imperative factors therefore, in a classroom interaction are the exchanges initiated by students and teachers (Zhao, 2016).



Types of Classroom Interaction

Heikonen (2017) added that classroom interaction types include situations where:

- i. teachers control the interaction but not the topic;
- ii. teachers have no control over the topic and the interaction;
- iii. teachers control the topic but not the interaction; and
- iv. teachers control over the topic and the interaction.

Classroom interaction therefore stimulates involvement in the classroom. It also fuels students' motivation and help them to see the relevance of teachers and topics by increasing their participation especially, when all of them are involved. This form of classroom interaction also teaches the students to respond and respect their superiors because they are given a chance to air their opinions in the classroom (Heikonen, 2017).

Role playing, conversation, reading around, questions and answers form other classroom interaction processes. By role playing, the students are given role to act on Basic Science with others, which allows them to demonstrate creativity, knowledge as well as helping them to face situations outside the classroom (Nwalin, 2011). In conversation, the whole class is involved in small groups in the class (Gorjian and Habibi, 2015). In question and answer form, a teacher or student poses a question to assess the learner.

Objectives of the Study

The main objective of the study was to examine Influence of Home Background and Classroom Interaction on Basic Science Students' Achievement in Upper Basic Schools in Kano State, Nigeria. Specifically, the following specific objectives guided the study.

1. To determine the influence of the students' home background on

achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria.

2. To determine the influence on the classroom interaction on students' achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria.

RESEARCH HYPOTHESIS

The following null hypotheses were tested at 0.05 level of significance.

H₀₁: There is no significant influence of the students' home background on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria.

H₀₂: There is no significant influence of the classroom interaction on students' achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria.

METHODOLOGY

A simple survey design was adopted for the study. Stratified random sampling technique was used to select 250 JSS II students drawn from five public upper basic schools in Bichi Educational Zone, Kano State, Nigeria.

INSTRUMENTATION

Two instruments namely; Home Background Questionnaire for Students (HOBAS) and Classroom Interaction Questionnaire (CIQ) were used for data collection adapted from Iwanger (2018). The questionnaires (HOBAS and CIQ) were rated on a 4-point scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Agree (1). The instruments have the initial reliability index of $r = 0.79$ and 0.82 , the reliability index of the instrument is 0.75 and 0.78 respectively were determined using Cronbach Alpha formula. The data collected were analyzed ANOVA.

RESULTS OF THE STUDY

H₀₁: There is no significant influence of the students' home background on achievement



in Basic Science in Upper Basic Schools in Kano State, Nigeria.

Table 1: The hypothesis was tested using ANOVA since it is a measure of the influence between the variables.

	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	583.959	51	11.450	1.491	.028	Significant
Within Groups	1520.777	198	7.681			
Total	2104.736	249				

From table 1 the result indicated that there is significant influence of the students' home background on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria ($F=1.491$, $p < .05$), and the null that say there is no significant influence of the students' home background

on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria. was rejected.

H₀₂: There is no significant influence of the classroom interaction on students' achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria.

Table 2: The hypothesis was tested using ANOVA since it is a measure of the influence between the variables.

	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	686.236	51	13.456	1.260	.134	Not Significant
Within Groups	2113.928	198	10.676			
Total	2800.164	249				

From table 2, the result indicated that there is no significant influence on students' classroom interaction on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria ($F=1.260$, $p > .05$), and the null that say there is no significant influence of the students' home background on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria was accepted.

DISCUSSIONS

The study found out that a significant there is significant influence of the students' home background on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria. This finding is in agreement with the findings of (Osuafor and Okonkwo, 2013; Amadi and Ani, 2017; Oginni, 2018). The findings of this study revealed that students' classroom interaction have no influence on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria, this finding in



not in agreement with Heikonen (2017) the roles of the teacher in classroom interaction are significant in harnessing the interest, competence and critical thinking of the students being taught, Basic Science inclusive. Similarly, the interaction between teachers and students is an integral part of the teaching and learning process, especially when it produces positive outcomes.

CONCLUSION

The result of the study clearly showed that there is significant influence of the students' home background on achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria and also there is no significant influence of the students' classroom interaction and achievement in Basic Science in Upper Basic Schools in Kano State, Nigeria.

RECOMMENDATIONS

The result was recommended that:

1. Teachers should encourage more interaction in the classroom and allow more extraordinary events to happen in Basic Science classroom;
2. Basic Science should be widely taught in schools in order to support its position as the basic for technological and scientific development of any nation;
3. Peer discussions should be incorporated into Basic Science classroom interactions so as to raise the productivity of interaction and cooperation amongst them.
4. Parents should endeavor to look after their children and provide them with the necessities for good education.

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