Impact of Teacher Quality and Learning Facilities on the Academic Achievement of Basic Science Students

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Abstract

This survey on the impact of teacher quality and learning facilities on the academic achievement of basic science students sought to examine the impact of teacher quality and the availability of learning facilities on the academic achievement of basic science students. Two hypotheses were formulated to guide the study, with the population comprising all teachers and students of basic science in the Khana local government area of Rivers State. A simple random sampling technique was used in selecting ten (10) teachers and two hundred (200) students from five (5) public secondary schools in Khana local government area of the state. Three instruments were used for data collection; a set of questionnaires, one for the teachers and the other for the students, and the students' end-of-term results. The collected data were analyzed using ANOVA, The findings showed a significant relationship between the variables and basic science students' academic achievement. It was recommended, among others, that students should be given equal opportunity and the same level of encouragement, irrespective of gender.

Keywords: Teacher Quality, Learning Facility, academic achievement, Basic Science, Students

Introduction

In Nigerian schools today, teacher quality is a priority area in the education policy. Science plays an important role in the scientific and technological development of a nation. Ali, Norhidayah, Dasoff, Kamaruzaman, Syuksiah, Mokhtar, Najar and 2 Salamt, (2019), explained that student's performance

(academic achievement) plays an important role in producing the best quality graduates who will become great leaders and manpower for the country. Alimi and Balogun (2020) stated that success of any teaching and learning process which invariably influences students' academic performance depends on how effective and efficient the teachers are. Students are very important in any educational institution. The performance of secondary school students should be a cause of concern not only to the parents but also to the government and higher institution authorities since the students' performance qualifies them to be admitted into higher institutions or not. This in turn plays an important role in producing qualified graduates who will eventually become great leaders and the needed manpower for a country's social and economic development (Ali et al., 2009). In a quest for better academic achievement for students, researchers have continued to improve studies of variables that affect the performance of students. Gender, which is the property that differentiates organisms based on their reproductive 'roles' as male or female, may be considered a factor in the stereotypical belief that males perform better than females (Abubakar & Uboh, 2010). Academic achievement is important since it determines the extent to which a student has learned in an academic program. This is the reason why educational institutions the world over see it as an important duty to improve students' performance. Among the factors that affect the students' academic achievement is the gender and qualities of the teachers who are teaching them. In addition, the availability of teaching and learning materials has an unmistakable influence on the students' academic achievement.

The importance of qualified teachers cannot be overemphasized. Alos et al. (2015) laid great emphasis on the value of having qualified teachers who teach in their different fields. They added that the success of a program depends on the ability of the teachers. Olufemi et al. (2018) considered several factors affecting students' academic performance; they identified that teacher and school factors have a serious influence on the students 'academic achievement and therefore recommended that school facilities be adequately provided. Abubakar and Uboh (2010) found a positive correlation between gender and academic achievement of students in their work on age and gender as predictors of academic achievement of students. While Godpower-Echie and Ihenko (2017), found that gender had a significant influence on the interest of

students in Integrated Science, but did not have any significant influence on the students' achievement. There is no longer a distinguishing difference in the cognitive, psychomotor and affective skills achievement of students concerning gender. This is so because girls are being encouraged and sensitized into developing positive attitudes towards learning science. In as much as this is the case, researchers still, have found significant differences in the achievement of students concerning gender (Kolawole, 2007).

Casian et al. (2021) in their work to find out the impact of teachers' qualifications on students' academic performance in public secondary schools in Rwanda found that there is a statistically significant relationship between teachers' qualifications and students' academic performance with p-value = 0.000 less than 0.001 and the r value of 0.564. They found out that teacher qualification had an impact of 36.5% on the student's academic performance, with 63.5% being attributed to other variables.

Ebenezer et al. (2015) in their work on the relationship between the quality of teachers and pupils' academic achievement, found no significant positive relationship between the quality of teachers and the academic achievement of the students with an r-value of 0.451. Even if the teachers in the metropolis had high qualifications, this did not relate positively to the pupil's academic achievement. They found the mean achievement of the students to be below the mean effectiveness rating of the teachers. They concluded that the mean performance of the students may not be a good reflection of the quality of teachers in the school but may be attributed to other variables like the quality of students and the learning environment in the public schools.

Statement of the Problem

The level of achievement of students in internal and external examinations has continued to be a cause for concern for the public, teachers, students, parents and researchers. Several factors have been identified as contributing to the achievement of students, among which are teacher qualification, gender and availability of learning facilities. This study therefore looked at gender differences in academic achievement of basic science students, a function of teacher qualification and the availability of learning facilities.

Hypotheses

1. There is no significant relationship between the availability of learning facilities and students' academic achievement in basic science.
2. There is no significant relationship between teacher quality and students' academic achievement in basic science.

Methodology

The work adopted the survey research design

The population consisted of all teachers and students in pupils' secondary schools in the Khana local government area of Rivers State. Simple random sampling was used in selecting five (5) secondary schools, a total of 200 students of basic science in JSS classes and ten (10) teachers.

Two sets of questionnaires were used, one for the teachers who sought responses about their qualifications, experience and degree. The other was for the students, this sought for students' responses on the availability of learning facilities, like the library, laboratory, and adequate classrooms. This set of questionnaires was distributed to the teachers and students; they were given time to respond and the questionnaire was collected. The students' end-of- term result was collected with permission from the principal. These three instruments were collected and used for analysis. Collected data were analyzed using

ANOVA

Results

HO1: There is no significant relationship between availability of school facilities and student academic achievement in basic science

Table 1: Regression ANOVA Showing Relationship between Availability of School Facilities and Students' Academic Achievement in Basic Science

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**.855[a]**	**.732**	**.730**	**.54989**

. Predictors: (Constant), School Facilities

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	163.2091	163.209	539.748		
	Residual	59.871	198	.302		.000[b]
	Total	223.081199				

a. Dependent variable: Academic Performance

b. Predictors: (Constant), school facility

Results in Table 1 show that a positive relationship existed between the availability of learning facilities on students' academic achievement in basic science (r = .855). The relationship was significant (P < .05). The coefficient of determination that is R^2 was .732, meaning that the availability of school facilities accounted for 73.2% of the variation in students' academic performance.

H02: There is no significant relationship between teacher quality and students' academic achievement in basic science

Table 2: Regression ANOVA Showing the Relationship between Teacher Quality and Students' Academic Achievement in Basic Science

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.670"	.448	.446	.78969

a. Predictors: (Constant), Teacher Quality

ANOVA"

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.375	1	105.375	168.975	,000[b]
	Residual	129.711	208	.624		

Total	**235.086**	**209**

a. Dependent Variable: Academic Performance
b. Predictors: (Constant), Teacher Quality

Results in Table 2 show that a positive relationship existed between teacher quality and students' academic achievement in basic science (r = .670). The relationship was significant (P < .05). The coefficient of determination that is R^2 was .448, meaning that teacher quality accounted for 44.8% of the variation in students' academic performance.

Discussion

The findings of the study in Table 1 above showed the relationship between the availability of learning facilities and student achievement to be 0.855, showing a very high relationship in the achievement of the students with respect to the availability of learning facilities. This result agrees with Okongo et al. (2015) whose results showed that the availability of teaching and learning materials in the pre-school stage in Nyamira North affected the implementation of inclusive education thereby motivating and improving the learner's academic achievement. It also agrees with Tety (2016) who saw a very high positive relationship between teaching/learning material availability and students' academic achievement.

The findings in Table 2 showed a significant relationship between teachers' quality and students' academic achievement, with an r-value of 0.670. This result disagrees with the work of Casian et al. (2021) who found no statistically significant relationship between teachers' quality and students' academic achievement. This is in support of Heinesen, (2010) who maintained that teachers' ability and competence prove significant in improving students' performance and that instructors' teaching style enhances understanding of concepts taught.

Recommendations

1. All hands should be on deck in the matter of providing necessary learning facilities for the students' good.

2. The teachers should improve on their qualifications, and teaching experiences for better student academic achievement.
3. All learners should be given equal opportunity and same level of encouragement and motivation, irrespective of gender.

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