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Full Length Research Paper

Effect of Institutional Roles on Students' Academic Performance in Agricultural Science in Secondary Schools in Emohua LGA. Rivers State, Nigeria

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The study was conducted to assess the effect of institutional roles on students' academic performance in secondary schools in Emohua LGA, Rivers State. The study adopted a diagnostic research design. A total sample of 350 respondents comprising of 50 agricultural science teachers and 300 secondary students were selected through random sampling. Data for this study were collected with use of questionnaire structured to successfully obtain the required data. Data were analyzed using descriptive statistics, chi-square and analysis of variance (ANOVA). Results of the study revealed that school environment and institutional roles influence the academic performance of secondary school students in agricultural science in the area significantly at $p<0.001$ in the Chi square analysis while the results of ANOVA on the factors and students' academic performance in agricultural science was insignificant. The study concludes that school environment and institutional roles are factors to be given attention by school proprietors and administrators and recommends among others that there should be increased funding to procure adequate facilities.
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Keywords: Institutional Roles, students' academic performance, agricultural science, secondary schools, Likert analysis, ANOVA, Emohua LGA, Rivers State

INTRODUCTION

Educational institutions at all levels play very vital roles in the training and development of persons or individuals under their responsibility. The secondary school system of education assumes the role of training and producing students for tertiary institutions and manpower for national development and world of work. Secondary school in the view of Federal Republic of Nigeria (FRN) (2013), is the educational institution that receives children receive after primary education and before the tertiary stage. Secondary school is divided into two stages as provided by the National Policy on Education. (a) Junior Secondary School: It is part of free and compulsory education. The junior secondary school is both pre-vocational and academic. It teaches basic subjects which enable pupils to acquire skills and further knowledge which is provided within the duration of three years. (b) Senior Secondary School: The duration for senior secondary school is three years. It is comprehensive and designed to broaden pupils' knowledge and outlook. Ogu, (2016) noted that at the end of the three years' course, students are expected to write West African Senior Secondary School Certificate examination conducted by West African Examination Council (WAEC) and Senior Secondary Certificate Examination conducted by National

Examination Council (NECO). This imperative responsibility has placed secondary schools at the centre of the efforts of governments to increase the rate of literacy level in Nigeria. However, to this end, students' success depends on their academic performance during class works, oral and written tests, assignments as well as other organized national examinations among others (Abdullahi et al., 2015).

The school is a social and learning agent that provides the environment (institutional roles) upon which a child may be formally educated in order to attain personal educational goals. Human beings have unlimited capacity to learn, but however be limited by the behaviour patterns and facilities that the immediate environment offers. In the submission of Umoh (2006), nature only provides the raw materials in form of potentials, but it is the environment that determines the extent of development. Umoh and Etuk, (2003) therefore asserted that a child who wants to learn agricultural science and develop desirable attitudes, interest, appreciation, understanding, habits, abilities, knowledge and skills requires a stimulating environment. A stimulating school environment enables the teachers to teach a variety of activities with broad-base ideas about what the students are likely to learn or respond to. This makes it possible for both the teachers and the students to work cooperatively and productively towards attainment of educational goals.

Some institutional roles or factors that affect the academic performance of students include the following: availability of science and computer laboratories and library facilities, adequate classroom facilities and workshop facilities, farm buildings and structures, farm lands and play grounds among others. Teachers and other personnel to manage and service the physical facilities are the teaching, non-teaching and the administrative staff of the school. The availability of those resources and facilities in a given school environment influence the teaching, learning and the performance of both the teachers and the students (Nsa et al., 2012). According to Abbasi and Mir, (2012) physical resources and staff competence are important in determining the academic performance of students. The authors emphasized the fact that effective teaching results in better learning outcomes and increases students' quantitative academic outcomes. Hence improving teacher quality can be used as a tool in increasing students' achievements. Heinesen, (2010) further affirmed that teachers' ability and competence prove significant in improving students' academic performance and that instructors' teaching style enhances understanding of concepts taught. Engin-Dermir, (2009) opined that teachers play crucial roles in promoting educational growth and performance. Noting that a teacher's qualification, knowledge of the subject matter, enthusiasm, interaction with students, method of lesson delivery and encouraging participation in discussions have positive and significant impact on students' performance. Academic performance is seen as the way in which a learner, teacher or an institution have achieved their educational goals. It is usually measured by the way the teachers and the learners in a school perform and progress to the next level. It is reflected in the transition rates from a lower grade to a higher one. A school that is able to have more students progressing is judged to be performing well academically (Maimela, 2016). School performance can either be good or poor with regards academics. It is measured by pass rates at different grades or levels and periods. Schools have monthly tests and term examinations which are meant to assess the progress of students in their learning. There are also assessments such as quizzes and class-work which assess the progress of students on a daily basis per subject. All these reflect the academic performance of the school. However, the most used type of assessment of academic performance is the terminal examination which comes at the end of the term. Academic performance in schools is done after teaching and learning has taken place then the teacher evaluates whether learners have acquired what they learnt in a number of ways. For regular grading, students demonstrate their knowledge by taking written and oral tests, carrying out presentations, doing homework and participating in class activities and discussions. Teachers evaluate in the form of scores, letter or number grades and remarks, to describe how well a student has done (Siddiek, 2012; Maimela, 2016)

Although studies abound on factors that influence students' academic performance, however, some institutional roles are yet to be critically examined (Ogbogu, 2011). Ogbogu, (2014) opined that performance is vital because the level of success students achieve from the school has far-reaching implications for their future personal and professional lives. Students' performance impact on their career choice, personal income and level of success, as well as the degree of participation in community life. Although a number of some personal and social factors such as family income, self-motivation, inability to manage school work and students' personal circumstances, amongst others have contributed to the declining performance of many students, their impact may vary with context.

Romer in Ogbogu, (2014) recognized the importance of class attendance in enhancing students' performance. The author reported that in a class, students who attended class regularly made the highest grades. Ogbogu, (2014) however, noted that institutional factors alone did not significantly affect students' performance, which implies that a myriad of some other factors such as students' age, work ethics, self-motivation, socio-economic status and some others could play significant roles in determining students' academic performance. In the same vein Sirin, (2012) in a study established the fact that it is nearly impossible to predict students' performance using institutional variables alone; rather

their performance is contingent upon a number of some other factors. But in an emphatic submission, Engin-Dermir, (2009) opined that teachers play crucial roles in promoting educational growth and academic performance; and affirmed that teacher's qualification, knowledge of the subject matter, enthusiasm, interaction with students, method of lesson delivery and encouraging participation in discussions have positive and significant impact on students' performance. The poor performance of students which has become a challenging problem for the academic community has wide ranging implications for national development. Students perform poorly because the institutions have failed to create the environment that is accommodating and conducive to their learning and educational needs. Udo, (2008) reported that, there was a significant relationship between availability of farming facilities and students' performance in agricultural science. A few secondary schools have adequate school environment, but many other schools do not have conducive learning environment. This accounts for the poor performance of students in practical examinations in agricultural science paper one. Most urban schools and private secondary schools do not have farming facilities. They rely on classroom instructions. They perform well in theoretical examinations (agricultural science paper two), but very poorly on practical examination due to lack of exposure (WAEC, 2014). Libraries are an important but poorly developed feature of infrastructure in most secondary schools in Nigeria. Libraries are important in helping academics generate information for the purpose of effective teaching of students and research. Maimela, (2016) asserts that school libraries are distinct from public libraries because they serve as learner-oriented laboratories which support, extend and individualize the school's curriculum. Advocates of school library media programs have long been convinced of the relationship between quality library media programs and academic performance. This is further supported with the report that researchers have demonstrated that school libraries have a positive impact on students' performance. This study was carried out on the assumption that identification of some of these roles that are associated with students' academic performance and those factors that are not, will assist to improve the performance of students in agricultural science in Emohua LGA. Specifically, the paper sought; some of such institutional roles/factors which affect students' academic performance include: poor funding, lack of frequent curricular review, overpopulation, students' unrest, staff strikes, poor infrastructure, poor relations between institutions and government and inadequate teaching and research.

Literature exists on the effect of institutional roles on students' academic performance in agricultural science in secondary schools which include Abbasi and Mir, (2012), Nsa, Offiong, Nsa, Offiong, Udo, and Ikot, (2014), Ogbogu, (2014), Abdullahi et al., (2015) and Maimela, (2016) just to mention but a few. None of these authors had work on the present copy especially in Emohua LGA of Rivers State, Nigeria, therefore, the justification of the study.

Objectives of the study

The main objective of the study is to analyze the effect of institutional roles in students' academic performance in agricultural science in secondary schools in Emohua LGA of Rivers State. The specific objectives are to:
(i) Evaluate the influence of school environment, location, regular class attendance and emoluments on students' academic performance in agricultural science in secondary schools in Emohua L G A.
(ii) Determine the extent of use and non-use of library facilities by students in agricultural science in secondary schools in Emohua L G A.
(iii) Determine the influence of type of school's library available, and other resources available on academic performance of students on agricultural science in secondary schools in Emohua L G A.
(iv) Estimating the influences of institutional roles on the academic performance in agricultural science in secondary schools in Emohua LGA

Research questions

(i) To what extent do school environment location, regular class attendance and emoluments influence students' academic performance in agricultural science in secondary schools in Emohua LGA?
(ii) What is the extent of use and non-use of library facilities by students in agricultural science in secondary schools in Emohua LGA?
(iii) What is the influence of type of school's library available and other resources available on academic performance of students in agricultural science in secondary schools in Emohua GA?
(iv) What is the influence of institutional roles on the academic performance in agricultural science in secondary schools in Emohua LGA?

Hypotheses

H_{01}:There is no significant difference on students' responses on the use and non-use of library facilities by students of agricultural science in secondary schools in Emohua LGA.
H_{02}: There is no significant difference on students' responses on the influence of school environment location, regular class attendance and emoluments on students' academic performance in agricultural science in secondary schools in Emohua LGA.
H_{03}: There is no significant difference on students' responses on the influence of type of school's library

available and other resources available on academic performance of students in agricultural science in secondary schools in Emohua LGA.

METHODOLOGY

Area of study

Emohua Local Government Area is one of the 23 Local Government Areas in Rivers State, with its headquarters in Emohua. It consists of ten communities and towns, namely; Obelle, Rumuji, Ibaa, Ogbakiri, Ndele, Elele-Alimini, Rumuekpe, Omudioga, Egbada and Ubimini. Emohua LGA is made up of five district councils running 16 (sixteen) secondary schools.

Population of study

The population of the study consisted of all agricultural science teachers and all students that offer agricultural science in the schools in the LGA.

Data collection

Information for this study were gathered through the use of structured questionnaire designed to collect primary data from the respondents. The study adopted a diagnostic research design because it enabled the researcher to determine the frequency of the effects of institutional roles on students' academic performance in agricultural science in secondary schools in Emohua Local Government Area, Rivers State.

Sample size and sampling techniques

Ten secondary schools were randomly sampled out of the 16 popular secondary school. 30 students' samples and 5 teachers were randomly drawn giving a total of 300 students and 50 teachers. A total sample of 350 respondents comprising of 50 agricultural science teachers and 300 secondary students were selected through simple random sampling for the study. These teachers and students sampled included both males and females.

Validity of instrument

The instrument for this study was validated by experts in the Department of Educational Management from the Faculty of Education, Ignatius Ajuru University of Education Rivers State.

Data analysis

Data were analyzed using descriptive statistical tools. Other tools used for further analysis of data were chi-square and analysis of variance (ANOVA).

RESULTS AND DISCUSSION

Institutional role and students' academic performance

The teachers' responses on influences of school environment, location, regular classes attendance, and emoluments on students' academic performance in agricultural science in secondary schools in Emohua LGA is shown on (Table 1). Table 1 represents data from teachers' response on the influence of school environment, location, regular class attendance and enrolment on students' academic performance in Emohua LGA. Table 1 revealed both positive and negative responses. The results revealed that 72% of respondents positively affirmed that good and bad environment could influence students' academic performance while 28% felt negatively about the subject. Also 56% of respondents felt that the location of schools could influence positively on the students' academic performance, while 44% of respondents had a negative view about the location of schools and its influence on students' performance. Further, 92% of respondents indicated positively that regular class attendance could influence students' academic performance while only 8% were negative about it. Furthermore, 84% of respondents felt positively that improvement on teachers' salary had a positive effect on students' academic performance while only 16% felt negatively about this factor. About 80% of respondents were positive that an increase in teachers' salary could positively affect teaching attitude of teachers while 20% felt it will not make any different. However, 76% of respondents felt positively that teachers' emolument would better the relationship between students and authority while 24% disagreed. These results are similar to the results of Heinesen, (2010), Abbasi and Mir, (2012), Nsa et al. (2014).

School facilities and students' academic performance

Table 2 captured students' responses to rate of use and non-use of library facilities in secondary schools in Emohua LGA. Results in (Table 2) showed that about 42.6% of respondents indicated that they often use the school library facility, 38.67% use the library often while 11.66% of respondents indicated that they only use the schools' library facility when they have assignments. About 28% of the agricultural science students don't use the library at all while about 61.67% seldom use the library facilities in secondary schools in Emohua LGA. Table 3 captured positive, negative, indifferent responses to the influence of types of school's library available and

Table 1. Teachers' responses on influence of school environment location, regular class attendance and emoluments on students; academic performance in agricultural science in secondary schools in Emohua LGA.

Factors influencing school supervision	Responses			Percentage		
	Positive	Negative	Total	Positive	Negative	Total
Does good/bad environment of school affect students' academic performance	36	14	50	72.0	28.0	100
Does the location of school have any influence on student academic performance?	28	22	50	56.0	44.0	100
Does regular class attendance have any effect on student academic performance?	46	4	50	92.0	8.0	100
Does improvement on teachers environment (salary) has any effect on students' academic performance?	42	8	50	84.0	16.0	100
Does increase in salary affect teachers' teaching attitudes?	40	10	50	80.0	20.0	100
Does improvement in teachers' emolument better their relationship with students and school authority?	38	12	50	76.0	24.0	100

Source: Field survey, 2015

Table 2. Students' responses to the use and non-use of library facilities in secondary schools in Emohua LGA

Use of Library Frequency	Use of library	Non-use of Library	% Use of Library	% Non-use of Library
Not at all	21	84	7.00	28.00
Occasional usage	116	122	38.67	40.67
Very often usage	128	63	42.67	21.00
Only when I have assignment	35	31	11.66	10.33
Total	300	300	100	100

Source: Field survey, 2015

Table 3. Students' responses to the influence of type of school's library available, and other resources available on academic performance of students in secondary schools in Emohua LGA.

Students Responses	Positive	negative	Indifferent	Total	% Positive	% Negative	% Indifferent	Total %
Does the type of school you attend affect your academic performance	138	130	32	300	46.00	43.33	10.67	100
Do your schools have library facilities?	205	68	27	300	68.33	22.67	9.00	100
Does the availability of instructional materials affect your performance?	275	10	15	300	91.67	3.33	5.00	100
Is the relationship between teachers and principal cordial	249	39	12	300	83.00	13.00	4.00	100
Does this relationship affect the school and students' performance	151	121	28	300	50.33	40.33	9.34	100

Source: Field survey, 2015

positively that if teachers and principal relationship was cordial, and therefore it would affect positively students' performance while 13% felt negatively and 4% were indifferent about the subject .matter. About 50.33% of

Table 4. Chi-square analysis for influence of school environment location, regular class attendance and emoluments on students; academic performance in secondary schools in Emohua L G A.

Factors influencing	Positive	Negative	Expected Frequencies
Good/bad environment effect	36 (38.33)	14 (11.67)	50
Location of school effect	28 (38.33)	22 (11.67)	50
Regular school attendance effect	46 (38.33)	4 (11.67)	50
Improvement on teachers emolument effect	42 (38.33)	8 (11.67)	50
increase in salary of teachers	40 (38.33)	10 (11.67)	50
Effect of improvement of the teachers emolument	38 (38.33)	12 (11.67)	50
Total	230	70	300

Source: Field survey, 2015

H_0: P ≠ N_i H_i P ≠ N: X_c^2 = estimated chi-square results showed that X^2_c = 20.94, while $X^2_{0.001}$ = 20.50. This means that p< 0.001, indicating there is significant differences in the relationship, with degree of freedom of 5.

Table 5. Chi-square analysis for students' responses to the use and non-use of library facilities in secondary schools in Emohua LGA.

Library use frequency	Use of Library	Non-use of Library	Expected Frequencies
Not at all	21 (52.5)	84 (52.5)	105
Occasional usage	116 (119)	122 (119)	238
Very often usage	128 (95.5)	63 (95.5)	191
Only when I have assignment	35 (33)	31 (33)	66
Total	300	300	600

Source: Field survey, 2015

X_c^2 = estimated chi-square results showing that X^2_c = 60.314, while $X^2_{0.001}$ = 16.30. This means that p< 0.001, indicating there is significant differences in the relationship. The degree of freedom was 3.

other resources also available on academic performance of students in agricultural science in secondary schools in Emohua LGA. Nearly 46%% of respondents indicated that school attended could influence student performance, 43.22% disagreed while 10.67% were indifferent about the variables. About 68.33% of respondents also indicated that their school had library facilities, 22.67% had a negative response about availability of library facilities in their school while 9% were indifferent. Further, 91.67% of respondents agreed that availability of instructional materials in their school affected students' academic performance positively, only 3.3% disagreed while some 5% were indifferent. The results furthermore showed that 83% of respondents felt respondents indicated positively that the relationship between teachers and principal affected the school administration and academic performance positively, 40.33% disagreed while about 9.34% were indifferent about the issue. Therefore, the effective use of library facilities and instructional materials are paramount to positive students' academic performance in agricultural science in secondary schools in Emohua LGA. These results are similar to the results of Udo, (2008), Engin-Dermir, (2009), Maimela, (2016).

Hypothesis formulated was tested using the figures on (Table 1) by chi-square analysis as in (Table 4), that there is no significant difference on students' responses on the environment, location, regular classes attendance, and students' academic performance in agricultural science in secondary schools in Emohua LGA.

The estimated result showed that X^2_c (20.94) > $X^2_{0.001}$ (20.50). Therefore, we reject the H_0 (null) hypothesis that there is no significant difference and accept the H_1 hypothesis that there is significant different in the students responses.

The next hypothesis set was to test if there is a significant difference in students' responses to the use and non-use of library facilities and its influence in students' academic performance in agricultural science in secondary schools in Emohua LGA Rivers State (Table 5). The results of the chi square analysis showed that there was significant difference in the responses as to the number of agricultural science students that used the library facilities, significant at p<0.001. The X^2_c = 60.34, while $X^2_{0.001}$ = 16.30 at the degree of freedom of 3. Hence, the H_0 (null) hypothesis was rejected. This goes to say that the use of library facilities in the secondary schools in Emohua LGA by agricultural science students was a necessary condition to attain excellence in the subject of agricultural science in secondary schools in Emohua LGA (Ogbogu, 2014).

Table 6 showed the analysis of variance (ANOVA) results. The H_0 hypothesis was set to test the null hypothesis that there was no significant difference on the

Table 6. One-way ANOVA for students' responses to the influence of type of school's library available, and other resources available on academic performance of students in secondary schools in Emohua LGA.

Source of variation	Sum of square	Degree of freedom	Variance	F_c	$F_{0.05}$
Total	2,250,000	14			
Between columns (students' performance)	83,373.6	2	41.686.8	0.248	3.89
Within sample means (Error)	2,016,626.4	12	168.052.2		

Source: Estimated Field Survey, 2015, F_c = F test calculated; $F_{0.001}$ = F-test tabulated. $V_1 = 2; V_2 = 12$

Table7. Students' responses to the influences of institutional roles on the academic performance in agricultural science in Emohua LGA.

	Excellent	Good	Average	Low	Mean	Decision
Types of school attended	121	29	93	57	2.71	Reject
Size of class	92	63	90	55	2.64	Reject
Type of schooling system(boarding or day)	-	90	120	90	2.00	Accept
Schools supervision by eternal authority	65	154	21	60	2.74	Reject
Supervision of teachers by school authorities	233	37	10	-	3.54	Reject

Source: Field survey, 2015

students' responses on types of schools, library available and other resources as against students' academic performance responses. The results from Table 6 showed that the Fc = 0.248 while $F_{0.05}$ = 3.89, at V_1= 2 and V_2 = 12. This showed that using the analysis of variance statistical tool, the students responses were not significant at 0.05 (5%) level of significance because p>0.05. Therefore the null hypothesis was accepted that there was not significant different in students responses in Emohua LGA with regards to students' responses to those of availability of library facilities, availability of institutional materials, teacher and principal relationship. Therefore, the hypothesis was retained. The ANOVA results are similar to the results of Sirin, (2012), and Ogbogu, (2014), stated that it is not only the institutional factors that influence the students' academic performance, other factors are also included. The last H_0 hypothesis was formulated (Table 7) to find if there are significant differences to students' academic performance in agricultural science in secondary schools in Emohua LGA. The hypothesis was tested with a 4-point Likert scale analysis and the results presented on the Table 7 accordingly. The minimum mean score was accepted at 2.50 for the decision to be rejected outside which the decision is accepted.

Table 7 revealed the result of Likert scale analysis on students' responses to the influences of institutional roles on students' academic performance in agricultural science in secondary schools in Emohua LGA. The table had excellent (4), good (3), average (2), low (1) and their individual means according to different questions and decision rule. The type of schools attended by students whether government or private affected the student performance based on the result of the mean value of 2.71, therefore the hypothesis was rejected for the mean score been greater than 2.50. The size of class affected students' academic performance in Emohua LGA based with mean value of 2.64, hence, the null hypothesis was also rejected. The schooling system had an insignificant influence in students' performance in agricultural science based on the mean score of 2.00 which made the null hypothesis to be accepted because it is lower than 2.50 minimum values. School supervision by external authorities significantly influenced students' performance in agricultural science based on the mean score of 2.74 which means the null hypothesis was rejected. The supervision of teachers was most significant influence on students' academic performance in agricultural science based on the mean score of 3.54 which made the null hypothesis to be rejected. Therefore, the most significant factors which affected students' academic performance in agricultural science in secondary schools in Emohua LGA were mean scores which were rejected.

This was based on the fact that they had higher values than the average which was 2.50. This therefore means that factors such as teachers' supervision, type of school attended and size of class were the most influential factors.

These results are similar to the results of Maimela, 2016) on the importance of library to the students' academic performance. Udo, (2008) results showed that many schools did not have conducive learning environment which is similar to the results of this study in respect of the types of schools attended being a significant factor in students' academic performance. Engin-Dermir, (2009) results showed that teachers played vital role in students' academic performance. These results are similar to the result of this study where control of teachers is a significant factor.

Conclusion and Recommendations

The study concludes based on the results of the study that school environment and institutional roles influence the performance of secondary school students in agricultural science in the Emohua LGA, Rivers State. It is on this premise that the following recommendations are made: There should be increase in the funding of secondary schools for the adequate procurement of facilities to enhance teaching and learning.

Authors' declaration

We declared that this study is an original research by our research team and we agree to publish it in the journal.

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