

Influence Of Rural Environment On The Girl-Child's Effective Study Of Biology In Ukum Local Government Area Of Benue State

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Abstract:

This study examined influence of rural environment on the girl-child's effective study of biology in Ukum Local Government Area of Benue State, Nigeria. The study employed the use of survey design. A sample of 150 female students were randomly selected from 10 secondary schools in the local government while 10 management staff, one each from the 10 schools participated in the study. A structured questionnaire titled "Influence of Rural Environment on Girl-Child towards Biology Questionnaire (IREGB-Q)" was used to collect data from the participants. Three research questions were answered using Mean and Standard Deviation scores while three hypotheses were tested using independent t-test analysis. The results revealed a significant influence of lack of qualified biology teachers on the girl-child's effective study of biology ($t(8)=4.303, p<.05$); inadequate facilities in rural environment significantly influenced the girl-child's effective study of biology ($t(148)=4.037, p<.05$) also the level of poverty in rural environment significantly influenced the girl-child's effective study of biology ($t(148)=14.102, p<.05$). The study found that rural environment is plagued with many factors that hamper effective study of biology by the girl-child including lack of qualified biology teachers, inadequate school facilities and poverty. The study recommends among others that the government and other concerned stakeholders should help to equip rural schools with necessary school facilities that can enhance learning of biology by the girl-child in rural environment.

Key Words: Influence, rural, environment, girl child, effective.

Introduction

The environment in which learning takes place has been identified as one of the factors that determine effectiveness of learning especially among secondary school students, (Muluku, 2012). According to Agboghoroma (2009), school setting (whether urban or rural) plays an important role in students' knowledge. The location of a school can influence a child's knowledge of the sciences including Biology, physics and chemistry as well as general knowledge and attitude (Akpochofo, 2001).

Empirical evidence abound on the association between school location and students' performance, for instance in a study on the effect of school environment on students' achievement, Akpochofo (2001) found that students from urban centres had higher scores on an intelligence test than rural students and concluded that the environment influences a child's intellectual development in school. Similarly, Agboghoroma (2005) study revealed that there was a significant difference in the knowledge acquisition between urban and rural in favour of the urban students. In

a comparative study on academic performances and aspirations in urban and rural environments of some selected secondary schools in plateau state, Ewurum (2006) also found that academic performances and aspirations of students were very much related to environmental conditions. The study revealed that students from urban areas performed better academically and their inspirational level were higher.

There is a general believe that rural environment is less stimulating to the rural child; than the urban environment to the urban child. It therefore appear that students in urban environment enjoy more academic opportunities than their counterparts in the rural environment and consequently perform comparatively better than them.

Rural environment is a setting that poses a lot of challenges to schools and learners towards effective study. Rural schools face significant barriers when it comes to education. There are many aspects about rural schools that make them less fortunate than other types of schools. The actual environment of rural schools sometimes makes it hard for their students to succeed because these schools are geographically and culturally isolated due to their locations and they usually lack the conditions that urban schools have. In addition, the location of these rural schools forces them to use more effort in order to network with people and to get the materials needed for teachers and students (Berliner, 2004).

In the view of Bhaskar and Khan (2003), critical areas in rural education are political commitment and planning of rural education, administrative problems, community participation, learning needs of students, efficiency, costs, esteem, and contribution of education to rural employment. Since rural schools are geographically isolated from major cities, it is hard for them to receive the resources that they need in order to address all of these areas. Gibbs (2000) noted that the materials that rural schools are provided with are out of date, and technological improvements such as computers and internet access are not available in most rural areas. Since the conditions of rural schools are not motivating to students, they may experience learned helplessness, and feel that no matter what they do, they cannot succeed.

Gardiner (2008) reported that conditions in rural areas have many shortcomings despite their potential, and that the conditions of poverty and under-development are reflected in the quality of education available there. The author further pointed out that the girl-child in the rural areas especially is expected to carry out certain domestic tasks in the early morning and in the afternoon in most cases forgetting about what is going on in the school. These duties clash with the routines and timetables of the school most at times. Furthermore, many of the children go to school hungry, and are unable to concentrate, since breakfast is rarely provided for in the Ukum rural environment. This trend has the tendency to

make the students academically weak and exhibit negative attitude to learning especially Biology that require absolute concentration.

The girl-child in rural environment is usually a victim of the challenges posed by this kind of academic setting towards effective study. Machindu and Minde (2010) noted that although the number of rural girls who are enrolled in secondary schools has increased over the years, the risk of them dropping out is higher than boys.

Given the importance of girl-child education, efforts to boost female education have been made by governments, international organisations and Non-Governmental Organizations (NGOs). However, there is still a gender disparity in education, particularly in the rural settings. Females still have low access to education, low participation and poor performance in many subjects, especially science subjects including Biology (Machindu & Minde, 2010).

Biology is one of the science subjects one must pass so as to qualify to offer some science courses at tertiary level of education, yet our rural environment continue to interfere with effective study of Biology by the girl-child in rural schools. The question is "what do we do?" It is against this background that this research investigated the influence of rural environment on the girl-child towards effective study of Biology, in Ukum Local Government Area of Benue State, Nigeria.

Research Questions

The following research questions are raised to guide this study:

1. What is the extent of influence of lack of qualified biology teachers on the girl-child's effective study of biology?
2. How does inadequate school facilities in rural environment influence the girl-child's effective study of Biology?
3. What is the extent of influence of poverty in rural environment on the girl-child effective study of Biology?.

Hypotheses

The following hypotheses were postulated and tested:

1. Lack of qualified Biology teachers in rural environment does not significantly influence the girl-child's effective study of Biology.
2. Inadequate school facilities in rural environment does not significantly influence the girl-child's effective study of Biology.
3. Poverty in rural environment does not significantly influence the girl-child's effective study of Biology.

Methodology

The purpose of the study was to determine the influence of rural environment on the girl-child effective study of Biology. The study used survey design, and the study area was Ukum Local Government Area of Benue State, Nigeria. The population of the study comprised all the 42 government grant aided schools and the 6,380 students as well as the 478 teachers of biology. A sample of 150 students and ten

teachers were selected for the study. An instrument known as "Influence of Rural Environment on Girl-child towards Biology Questionnaire (IREGBQ) that was validated by three experts, two from science education and the other from measurement and evaluation all from Benue State University, Makurdi was used to collect the data. The IREGBQ yielded reliability coefficient of 0.82 using split half was

constructed by the researchers. It was assumed by the researchers that rural environment with its inadequacies would negatively influence effective study of Biology by the girl-child.

Research Question 1: Does lack of qualified Biology teachers in rural environment significantly influence the girl-child's effective study of Biology?

Table 1: Mean and standard deviation showing influence of lack of qualified biology teachers on the girl-child's effective study of biology

SN	Item	SA	A	D	SD	\bar{X}	Std.	Remark
1	There are no enough qualified teachers to effectively handle biology in my school.	4	4	2	-	3.20	.789	Accepted
2	Most qualified biology teachers don't like teaching in rural schools due to poor state of infrastructure	5	3	2	-	3.30	.823	Accepted
3	Teachers handling biology in my school are not the subject specialists	2	6	2	-	3.00	1.054	Accepted
4	It is difficult to convince qualified biology teachers to come to rural	4	3	2	1	1.84	.632	Rejected

areas.

5	Competent biology teachers prefer teaching in urban schools where they can enjoy basic amenities.	6	4	-	-	2.10	.876	Rejected
6	Biology teachers in my school are mostly those with NCE and lower certificates.	-	1	6	3	3.40	.843	Accepted
7	Most biology teachers in my school lack classroom management skills.	-	2	7	1	2.70	.675	Accepted
8	The number of biology teachers we have is too little to cope with the population of students.	6	2	2	-	3.10	.876	Accepted
9	Some parents have withdrawn their children from my school because of lack of biology teachers.	1	5	4	-	3.00	.667	Accepted

10	Supply of biology teachers to my school is very inadequate and it influences students' performance.	3	6	-	1	3.60	.516	Accepted
Cluster mean and standard deviation						2.924	.7443	Accepted

The result presented in Table 1 revealed that most of the management staff reported that there is insufficient supply of qualified biology teachers in their school and this influences the girl-child effective study of biology. This is due to the fact that out of the 10 items bordering on lack of lack of qualified biology teachers, items 1, 2, 3, 6, 7, 8, 9 and 10 all have mean scores and standard deviation above 2.5 which is the cutoff point with the exception of two items; items 4 and 5 which have mean and standard deviation scores below the cutoff point. Following the cluster mean and standard deviation scores of 2.924 and .7448 respectively, research question one is therefore accepted. This means that lack of qualified biology teachers is one of the major environmental factors influencing the girl-child effective study of biology, in rural areas.

Research Question two: Do inadequate school facilities in rural environment significantly influence the girl-child's effective study of Biology?

Table 2: Mean and standard deviation showing influence of inadequate school facilities on the girl-child's effective study of biology

SN	Item	SA	A	D	SD	\bar{X}	Std.	Remark
1	My school has no equipped biology laboratory where practicals can be performed	46	68	32	4	3.04	.793	Accepted
2	There is no hostel accommodation in my school and it hampers effective study of biology.	44	58	46	2	2.96	.810	Accepted
3	Classrooms in my school are overcrowded which makes learning very difficult.	47	67	38	3	3.05	.784	Accepted

4	Distance from home to my school is so long that it is difficult to be in school at the right time.	36	66	44	4	2.89	.769	Accepted
5	My school has no electricity supply for students to study at night.	41	70	32	7	2.97	.823	Accepted
6	My school lacks teaching materials like chalk and chalkboard.	38	82	23	7	3.01	.773	Accepted
7	My school has no furnished library for students to read and learn on their own.	28	77	31	14	2.79	.854	Accepted
Cluster mean and standard deviation						2.96	.805	Accepted

The result presented in Table 2 shows that most of the female students sampled reported that there is gross inadequacy of school facilities this affects them towards effective study of biology. This is evident in the fact that all the seven items (Items 1-7) have mean scores and standard deviation above 2.5 which is the cutoff point. Given the cluster mean and standard deviation of 2.96 and .805 respectively, research question two is therefore accepted. This means that inadequate school facilities in the rural environment is one of the factors affecting the girl-child's effective study of biology.

Research Question 3: Does poverty in rural environment significantly influence the girl-child's effective study of Biology?

Table 3: Mean and standard deviation showing influence of poverty in rural environment on the girl-child's effective study of biology

SN	Item	SA	A	D	SD	\bar{X}	Std.	Remark
8	My parents lack adequate finance to cater for my educational needs and that of my siblings.	50	72	16	12	3.07	.872	Accepted
9	I sometimes stay away from school in order to source money for my school fees.	55	80	14	1	3.26	.650	Accepted
10	My parents want me to get married because there is no money to pay for my education.	32	66	33	19	2.74	.937	Accepted

11	I have no textbooks especially in biology because there is no money to buy.	54	61	23	12	3.05	.915	Accepted
12	I don't always study at home because I spend most of my time on the farm after school.	32	86	20	12	2.92	.815	Accepted
13	The girl child is seen as a source of money in my community.	47	81	22	-	3.17	.660	Accepted
14	Lack of money is the major challenge facing my study in school.	38	82	23	7	3.01	.773	Accepted
Cluster mean and standard deviation						3.03	.803	Accepted

The result presented in Table 2 shows that most of the female students sampled reported that the level of poverty in rural environment affects them towards effective study of biology. This is evident in the fact that all the seven items ranging from 8-14 have mean scores and standard deviation above 2.5 which is the cutoff point. Also with the cluster means and standard deviation of 3.03 and .803 respectively, research question three is therefore accepted. This means that the level of poverty in rural environment is one of the factors affecting the girl-child towards effective study of biology.

4.2.2 Testing research hypotheses

Hypothesis 1: Lack of qualified Biology teachers in rural environment does not significantly affect the girl-child towards effective study of Biology.

Table 4: Independent t-test showing differences in effective study of biology between those in schools with high and low supply of qualified biology teachers.

	Effectiveness in biology	N	\bar{X}	SD	df	t	p	Remark
Lack of qualified biology teachers	High	6	31.00	1.265			<.05	Sig.
	Low	4	26.50	2.082				

The result presented in Table 4 showed that there is a significant difference between students in schools with high and those with low supply of qualified biology teachers on effective study of biology. Schools with high supply of qualified biology teachers has ($X=31.00$, $SD=1.265$) while those with low supply of qualified biology teachers has ($X=26.50$ $SD=2.082$); $t(8)=4.303$, $P<.05$). This implies a significant

result and the hypothesis that lack of qualified biology teachers does not affect the girl-child towards effective study of biology is therefore rejected.

Hypothesis 2: Inadequate school facilities in rural environment does not significantly affect the girl-child towards effective study of Biology.

Table 5: Independent t-test showing differences in effective study of biology between those in schools with adequate and inadequate school facilities.

	Effectiveness in biology	N	\bar{X}	SD	df	t	p	Remark
Inadequate school facilities	Adequate	98	2.14	1.593	148	4.037	<.05	Sig.
	Inadequate	52	19.94	1.954				

The result presented in Table 5 showed that there is a significant difference between students in schools with high and those with low school facilities in effective study of biology. Schools adequate school facilities has ($X=2.14$, $SD=1.593$) while those in schools with inadequate school facilities has ($X=19.94$ $SD=1.954$); $t(148)=4.037$, $P<.05$). This implies a significant result and the hypothesis that inadequate school facilities does not affect the girl-child towards effective study of biology is therefore rejected.

Hypothesis 3: Poverty in rural environment does not significantly affect the girl-child towards effective study of Biology.

Table 6: Independent t-test showing differences in effective study of biology between those in high poverty areas and those in low poverty areas.

	Effectiveness in biology	N	\bar{X}	SD	df	t	p	Remark
Poverty in rural environment	High	9	22	1.	1	14.	<.	Sig
		5	.8	88	4	10	05	.
	Low	5	18	2.				
		5	.1	00				
		6	4					

The result presented in Table 6 showed that there is a significant difference between students in areas with high level of poverty and those in areas with low level of poverty when it comes to effective study of biology. This is evident by the analysis of data which indicates that those in areas with high level of poverty has ($X=22.85$, $SD=1.885$) while those in areas with low levels of poverty has ($X=18.16$ $SD=2.004$);

$t(148)=14.102$, $P<.05$). This implies a significant result and the hypothesis that poverty in rural environment does not significantly affect the girl-child towards effective study of biology is therefore rejected.

4.3 Discussion of Findings

This study investigated the influence of rural environment on the girl-child towards effective study of biology. Three research questions were raised and answered with corresponding three hypotheses tested. All the research questions were accepted while the correspondent hypotheses were rejected.

The first research question sought the extent to which lack of qualified biology teachers in rural environment influence the girl-children's effective study of Biology. The result confirmed that lack of qualified biology teachers in rural environment actually negatively influenced the girl-child study of Biology.

The corresponding hypothesis which states that, lack of qualified biology teachers does not significantly influence the girl child effective study of biology, was rejected. This means that lack of qualified biology teachers actually negatively influenced the girl-child effective study of biology, significantly. This indicates that with high supply of qualified biology teachers to rural schools, there could be increased level of effectiveness in study of biology while with low supply of qualified biology teachers to rural environment, there might be reduced effectiveness in study of biology among the girl-child. This

could be so because, qualified teachers acquire the needed training which enhances their teaching skills and consequent effective performance of students in the subject.

This finding is in support of many empirical findings. For instance the finding agrees with Agusibo (2008) who observed that lack of qualified biology teachers is one of the factors that significantly contributes to poor performance of students in biology. The finding is also in line with Bauch (2001) who found that the effectiveness of students in biology depends on effectiveness of the teachers. It is also congruent with Akinfe, Oloffiniyi and Fashiku (2012) who reported that trained professional teachers have qualities that enhance academic achievement of students.

The second research question sought to find out the extent to which inadequate school facilities in rural environment influence the girl-child effective study of Biology. The result in Table 2 indicates that the research question was rejected too which means that inadequate school facilities in rural environment actually affect the girl-child effective study of biology. This is also the same for the second hypothesis which states that lack of school facilities does not significantly affect the girl-child towards effective study of biology. This hypothesis was rejected because the result was not significant. This means that lack of school facilities significantly influence the girl-child towards effective study of biology.

This finding could be true because, students need facilities such as chalk and chalkboard, proper seating arrangement, electricity, adequate classrooms, laboratories among others for practical classes as well as equipped libraries in order to facilitate their learning. Where these facilities are lacking, the students will likely not study effectively. For instance, where classrooms are overcrowded and students hang on the widow to receive their lessons, they cannot learn effectively. This finding is congruent with Owoeye and Yara (2011) who found that school facilities are potent to high academic performance of students. It also agrees with Balogun (2002) who reported that there can be no effective education program without facilities for teaching-learning. Also Outola (2002), and Muluku (2012) who found that school facilities like buildings, seat, size of classrooms, contribute to good academic performance as they enhance effective teaching-learning activities, the girl-child inclusive.

The third research question sought the extent to which poverty in rural environment influence the girl child's effective study of biology. The result on Table 3 shows that poverty in rural environment negatively influence the girl-child effective study of biology. On this, the third hypothesis was rejected, which means that poverty in rural environment significantly and negatively influenced the girl-child effective study of biology. This is because poverty, they say, is a 'disease'. When you are infected with poverty,

you cannot function effectively. In relation to students' effectiveness in school, poverty can stop them from learning effectively. For instance, a student with poor parents often misses classes because he could not pay school fees in time, stay away to hustle for money and may lack the necessary materials that can facilitate his effective study. All these can hamper a student's effectiveness in a subject especially biology.

This finding is in line with several other findings including that of Gill and Sidhu (1988) who found significant positive relationship between social economic status of parents and academic achievement. It also agrees with Khan and Jemberu (2002) who found same positive correlation between parents' economic status and the achievement of students. The finding nevertheless, disagrees with Chatterji (2002) who found no effect of economic conditions on achievement of students and Sood (1990) who also reported no significant effect.

Conclusion

Based on the findings of this study, it can be concluded that rural environment is plagued with many factors that hamper effective study of biology by the girl-child. These factors include lack of qualified biology teachers, inadequate school facilities and poverty, in this case.

Recommendations

The following recommendations are made based on the findings of the study:

1. Government and private school owners should try and balance the posting of

qualified teachers to urban and rural schools. Also, posting of teachers should be strictly followed up to ensure that teachers actually report to where they are posted and there should be a stipulated minimum number of years a teacher must stay in a school before seeking transfer.

2. The government and other concerned stakeholders should help to equip rural schools with necessary school facilities that can enhance learning of biology by the girl-child in rural environment.
3. Scholarship scheme should be provided for the girl-child at all levels of study particularly to rural school students to encourage them to learn.
4. The economy of rural populace should be deliberately improved by our various governments. This will improve the poverty level of the rural populace which might invariably improve effective study by students particularly the girl-child in the rural setting.

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