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EFFECT OF QUALIFICATION AND EXPERIENCE OF BIOLOGY TEACHERS ON THE STATUS OF ECOLOGY TEACHING IN KWARA STATE

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Abstract

This study examined the effect of qualification and experience of Biology teachers on the status of ecology teaching in Kwara State. The study sample included one hundred and forty-two (142) Secondary Schools selected by random sampling technique. The researcher designed teachers' questionnaire which was administered to four hundred and fifty (450) teachers selected from 142 senior secondary schools in eight (8) Local Government Areas of Kwara State. Researcher-designed validated questionnaire was used to elicit information from the respondents on the status of ecology teaching. Three research questions were raised and two hypotheses formulated. Frequency counts and chi-square statistical tools were used to analysis the data collected. Finding of this study revealed that 68% of Biology teachers agreed with the status of the contents while 32% disagreed. However, both qualified and unqualified teachers viewed ecology teaching the same way that is ecology teaching was not properly done due to the fact that some Biology teachers skip certain areas of the syllabus that they find difficult to teach. Similarly, experienced and less experienced teachers had the same views about status of ecology teaching in Kwara State. Based on the findings, the following recommendations were made: biology teachers be encourage to be making used of natural resources to teach ecology and practicals should be carried out satisfactorily in the schools.; teachers should be sponsored to seminars and workshops specifically on Ecology teaching.

Keywords: Qualification, Experience, Biology teachers, Ecology teaching

Introduction

Biology deals with the study of all the varied aspects of living organisms. It is one of the science subjects, offered by candidates sitting for the senior school certificate (SSC) ordinary level examinations. Biology is the most popular subject among the pure science subjects (Idodo, 1996). Biology at the senior secondary school level can be grouped under such headings as: Cell and Unicellular Organisms, simple multicellular animals, insects, the arthropods, higher animals, reptiles and birds, mammals, flowerless plants, flowering plants, physical processes found in living organisms, respiration, food substances, nutrition of green plants, transport systems, excretion, ecology, etc. Ecology

Table 1: The Nigeria Nation-Wide statistics of performance in Science and related subjects in May/June, 2008-2010 Senior School Certificate Examinations

Year	Subject	Total Enrolment	Total Sat	A1- C6 (% Pass)	D7- E8 (% Pass)	TOTAL NO A1-E8	F9 % Failure
2008	Biology	1285048	1259965	427844	329961	757605	484071
			(98.1)	(33.9)	(26.2)	(60.1)	(38.4)
	Chemistry	428513	418423	185949	114697	300646	110417
			(98.0)	(44.4)	(27.4)	(71.9)	(26.4)
	Physics	424893	415113	200345	91116	291461	116776
			(97.7)	(44.3)	(22.0)	(70.2)	(28.1)
2009	Biology	1364655	1340206	383112	413014	796126	471312
			(98.2)	(28.6)	(30.8)	(59.4)	(35.2)
	Chemistry	478235	468546	204726	114020	318746	119260
			(98.0)	(43.7)	(24.3)	(68.0)	(25.5)
	Physics	474887	465636	222722	141595	364317	79919
			(98.1)	(47.8)	(30.4)	(78.2)	(17.2)
2010	Biology	1325408	1300418	427644	329961	757605	484071
			(98.1)	(33.9)	(26.2)	(60.1)	(38.4)
	Chemistry	477573	465643	236043	109944	346003	988165
			(97.5)	(50.7)	(23.6)	(74.3)	(21.1)
	Physics	475414	463755	237756	122417	360173	84716
			(97.6)	(51.3)	(26.4)	(77.7)	(18.3)

Source: Statistics Section West African Examination Council (WAEC) Office Yaba, Lagos (2011).

Effect of Qualification and Experience of Biology Teachers

is the study of interactions of organisms with their physical environment and with each other. No plant or animal is independent of its environment.

If organisms must survive, then the environment must provide suitable conditions for their existence because they are likely to be affected by conditions around them (Stone, 1990). Ecological studies deal with any of the three levels of the organization of the organism, the individual, the population and communities. It deals also with the way in which the organisms at each of these levels of organization function in harmony with the non-living physical environment. Ecology has many useful applications aimed at maintaining a healthier and more productive biosphere for the life of humans and other living organisms. It provides for the judicious use of natural resources often referred to as conservation. (Ndu, 1990). The sub topics under ecology at the senior secondary school level are basic ecological concepts, Aquatic habitants, Fresh water, Swamps, Marsh, Estuary, Grass land, Major biomes of the world, ecology of Population study and Problem of survival etc.

The following are the objectives for teaching senior secondary school Biology:

1. To provide basic literacy in Biology for functional living in the society.
2. To acquire essential scientific skills and attitudes as a preparation for the technological application of Biology.
3. To acquire basic concepts and principles of Biology as a preparation for further studies.
4. To stimulate and enhance creativity (National Biology Curriculum, 1993 page 20-22).

The focus of the secondary schools is to produce students that will proceed to tertiary institutions for further education. Some researchers reports show that teachers found some concepts in ecology difficult (Ndukwe, 1988). Okeke and Ochuba (1986) worked on the level of understanding of ecological concepts. The study revealed low understanding of the three selected concepts by secondary school certificate students on some selected ecology concepts such as population, habitat and ecosystem. Apart from the three selected concepts, the findings call for further investigations of the other ecology concepts so as to improve the understanding of these concepts among secondary school students and to know the best method to be employed in teaching them. Jegede and Lagoke (1986) worked on the status of ecological field works in Nigerian secondary schools and found out that teachers did not have a positive attitude towards the teaching of ecological work. Adeniyi (1985) worked on misconceptions held by junior secondary school students in selected ecological concepts and found out that the absence of Yoruba equivalent of the ecological concepts was a factor for such misconception held by students. Ugwuandu (1984) worked on problems of teaching ecology and genetics at the secondary school level and found that teachers found some concepts difficult to teach. Abidoye (2010) found the results of students in Biology Examination conducted by WAEC discouraging. It is shown in table 1 on page 5.

Effect of Qualification and Experience of Biology Teachers

The results in table 1 show a decline in students' performance in years sampled, 2008-2010. The percentage of students that had credits was very low compared to the total entry. In 2008-33.9%, in 2009-28.6% and in 2010-33.9% throughout the examination results, the performance of biology students was at credit pass was below 52% of the total number students who offered biology in the external examination. In the years 2008, 2009 and 2010. The percentage failures were 38.4%, 35.2% and 38.4%. It could therefore be seen from the table that percentage failure of students' performance increased yearly. The result in table1 showed the poor performances for all the senior secondary schools in Nigeria. Many reasons have been advanced for the poor performance such as

- i. Negative attitude of both teachers and students (Akintoye & Shofuyi, 2002)
- ii. Lack of adequate laboratory equipment (Jimoh, 1992)
- iii. Some teaching methods adopted by Biology teachers (Harbor – Peters & Ogameka, 1991)
- iv. Teachers' difficulty in understanding and teaching of certain Biology concepts (Abimola, 1998)
- v. Inadequate coverage of the Biology syllabus (WAEC, 1985).

Since ecology has been identified to be one of the difficult concepts to both teachers and students of Biology (Abimbola 1998: NERDC, 1993: Oyeyemi 1991 and Ugwuandu, 1984, Soyinka 1983 and WAEC, 1998 – 2000). Researchers reported that most teachers in Nigeria secondary schools grossly neglect the teaching of ecology like that of genetics. The Chief Examiner's Report on Ecology revealed low achievement in ecology by students (WAEC 2004). In all the studies examined, ecology was difficult due to the following reasons:

- i. Neglect of ecology by most secondary school teachers
- ii. Academic ability and area of specialization of teachers

None of the studies above examined the qualification of teachers and experience of biology teachers. Hence, the need for this study.

Purpose of the Study

The purpose of this study was to determine the influence of qualification and experience of Biology teachers on their views about the status of ecology teaching in Kwara State.

Research Questions

- There were three research questions and two hypotheses. They are
1. What is the status of ecology teaching in senior secondary schools in Kwara State as viewed by Biology teachers?
 2. Do the views of Biology teachers' on ecology teaching vary with their qualification?

3. How does the view of Biology teachers' on ecology teaching vary with their teaching experience?

Research hypotheses:-

1. There is no significant difference between qualified and unqualified biology teacher on the status of ecology teaching
2. There is no significant difference in the view of experienced and less experienced biology teachers on the status of ecology teaching

A total of one hundred and forty two (142) public schools were sampled for the study. Five hundred questionnaire copies were given to Biology teachers across the sampled public schools for study, but four hundred and fifty copies were filled and returned.

Data Analysis and Results

Table 2: Number and Percentages of Teachers' Responses

Variable	Number of teachers	Total	Percentage distributed
Qualified	209	450	46.4
Unqualified	241		53.6
Less-experience	182	450	40.4
Experienced	268		59.6

Table 2 shows the distribution of four hundred and fifty (450) respondents involved in the study. Four hundred and fifty respondents were distributed into four variables i.e. qualification and teaching experience. There were two hundred and nine (209) Qualified and 241 unqualified respondents. Also there were 268 experienced and 182 less-experienced Biology teachers.

Research Question One

What is the status of Ecology teaching in senior secondary schools in Kwara State as viewed by Biology teachers?

Table 3:

The number and percentages of Teachers' responses on Ecology Teaching

CONTENTS	Agreed %	Disagreed %	Total %
General responses of the teachers	68	32	100

The general response to the contents was that 68% of the Biology teachers agreed that teaching of Ecology was not done properly and 32% said it was alright. This shows that there should be improvement on the status of Ecology teaching by the Biology teachers. The total respondents percentages was hundred percent.

Effect of Qualification and Experience of Biology Teachers

Research Question Two: Do the views of Biology teachers' in Ecology teaching vary with their qualification?

Research Question Three: How does the views of Biology teachers' in Ecology teaching vary with their teaching experience?

Table 4: Chi- square Analysis of Average overall of the Responses on the basis of Qualification (qualified and less-qualified) and Teaching Experience (Less experienced and experienced) Biology Teachers on the Status of Ecology Teaching.

QUALIFICATION	df	X2	p-value	TEACHING EXPERIENCE	df	X2	p-value
Qualified	449	0.41	0.062	Less-experienced	449	0.56	0.078
Unqualified				Experienced			

The average results of the analysis related to the research questions as are shown in table 4. From Table 4, the Chi-square calculated (X^2 Cal) was 0.41, while the table value was 3.84 at 0.05 alpha levels, with degree of freedom of 449 this shows that the views of Biology teachers on the teaching of Ecology did not vary significantly with qualifications. With this, the null hypothesis (H_{01}) was not rejected.

Similarly, the calculated X^2 for experience of teachers was 0.56 while the table value was 3.84. Therefore H_{02} was not rejected. This table 4 shows that both the Qualified and Unqualified have similar opinion also the experienced and less experienced Biology teachers have the same viewed about the teaching of Ecology in Kwara State.

Summary of Major Findings

In this study, the major findings are

- 1) Ecology teaching was accorded low status in Kwara State with 68% agreement of Biology teachers that said that there should be improvement in the Biology curriculum of some Ecology concept that are lacking.
- 2) Both qualified and unqualified biology teachers agreed that Ecology teaching was not doing to the fact that some Biology teachers skip certain areas of the syllabus that they find difficult to teach.
- 3) Experienced and less experienced teachers agreed that ecology teaching was not properly taught because there was no real instructional material to carry out the practical work.

Discussion of Results of Status Ecology Teaching

In this study, it was found out that ecology teaching had low status in Kwara State, and has effect on students' performance. The results of the study indicated that many Biology teachers had the views that there should be improvement in the Biology curriculum of some Ecology concept that are lacking. This finding is in agreement with the finding of Adeshina (2002) who examined chemistry teachers' perception of the

characteristics of an effective teacher and the result revealed that the effectiveness is important in teaching; also that of Abidoye and Abimbola (2008) who examined the effect of location and qualification of biology teachers on the teaching of ecology and their result indicated that the status is very important in teaching of ecology.

With respect to the qualification, the qualified biology teachers agreed with unqualified Biology teachers that some biology teachers skip certain areas of the syllabus that they find difficult to teach. This may be due to the fact that some certain concepts are difficult to teach by the biology teachers. This finding is in line with the findings of Abidoye (2015) who also examined the influence of gender and academic performance on the perception of Biology teachers on the teaching of Ecology in the senior secondary schools. Ogundele (1995) examined the influence of teachers' qualification and experiences on students' achievement in biology and the result indicated that there was no significant difference in the influence of the teachers.

Similarly the experienced and less experienced teachers agreed that ecology teaching was not properly done. This may be as a result that the biology teachers were not exposing to seminar and workshop. This finding is in agreement with the findings of Abimbola and Abidoye (2013) on the views of Kwara State senior school biology teachers on the status of ecology teaching and the result indicated that there was no significant difference in the viewed of experienced and less-experienced biology teachers.

Conclusion

Considering the analysis of data obtained in this study and interpretation of the result of the finding; the following conclusions were drawn from the study:

- Ecology teaching was accorded low status in Kwara State with 68% agreement of Biology teachers that said that there should be improvement in the Biology curriculum of some Ecology concept that are lacking.
- Both qualified and unqualified biology teachers agreed that Ecology teaching was not doing to the fact that some Biology teachers skip certain areas of the syllabus that they find difficult to teach.
- Experienced and less experienced teachers agreed that ecology teaching was not properly taught because there was no real instructional material to carry out the practical work.

Recommendations

In line with the finding and conclusions drawn in this study, it is obvious that qualification and experience do not have significant difference in. In order to enhance effectiveness of biology teachers on the teaching of ecology the following recommendations are therefore proffered biology teachers be encourage to be making used of natural resources to teach ecology and practicals should be carried out satisfactorily in the schools.; teachers should be sponsored to seminars and workshops specifically on Ecology teaching.

Effect of Qualification and Experience of Biology Teachers

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