



COMPETENCES POSSESSED BY BIOLOGY TEACHER FOR EFFECTIVE TEACHING AND LEARNING OF BIOLOGY IN ENUGU SOUTH LOCAL GOVERNMENT AREA OF ENUGU STATE

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Abstract: *The titled of the study is competences possessed by Biology teacher for effective teaching and learning of biology in Enugu South Local Government Area. Four purpose of the study and four research questions were formulated. A survey research design was used. The population of the study consisted of 54 Biology teachers in the fourteen (14) Secondary schools in Enugu South Local Government Area. The total of 54 Biology teachers was used. There was no sampling. Questionnaire was used as instrument for data collection. Three Experts validated the instrument. The reliability coefficient index obtained was 0.89 which indicated that the instrument was highly reliable. The mean statistics was used to answer the research questions. The findings of the study revealed that for effective teaching of Biology, Biology teacher must obtain the required academic qualification Such as NCE, Degree, M.Sc and P.hD. A minimum of 1 years of experience is one of the criterion a competent teacher need to possessed for effective teaching and learning. The use of demonstration method, discussion method, instructional method, laboratory method, activity based method and collaborative method is appropriate for effective teaching and learning of Biology. The researcher recommended that among others that biology teachers should be trained and retrained for effective teaching and learning.*

Keywords: *Competences Possessed, Biology Teacher, Effective Teaching, Learning Of Biology*

Introduction

Teaching is a unique and dynamic profession. As the school is the mirror of the society and an agent of social change, teaching becomes a process and an instrument of nation building (Philip, 2014). In education, the classroom teacher is accountable for the destiny of the nation because there is a strong bond between his instructional activities, the eventual outcome of his instruction and the development or otherwise of the nation. Nzeneri (2018) stated that since the inference of teacher's action has multiplying effects on the destiny of persons, groups and nations, teaching becomes an overwhelming responsibility or task.

Ozochi (2017) believed that the word "teacher" covers those persons in schools who are responsible for the education of students. He is the central process of quality and equality in education. However, a teacher is described as a professional who impacts desirable skills, knowledge, information and attitude among others into the learner. He plays an important role in the teaching-learning process between him and the learners, he (the teacher) is the prime mover.

Teachers' competency in teaching and learning is an important factor in determining the success of a teaching session. Their ability and wisdom in handling learning activities will have a direct impact on students' active involvement in learning activities. Therefore, the

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development of teacher's competency involving the sorts of fostering positive attitudes (Awang, Jindal-Snape & Barber, 2013) was a major agenda to strengthen the teaching profession and to ensure great development of the education quality in many countries around the world. In the Indonesian context, the government has set specific standards in determining the implementation of quality education in accordance with the education laws which related to education curriculum, competency of teachers, educational infrastructure, organization of learning activities and educational assessment (Awang, 2011). Everything is interconnected in assuring the standard of quality. To this regard, particular attention is given on the quality of science subjects in order to create a scientific-minded citizen. Science subject is covering general science and pure Science of Biology, Physics and Chemistry subjects. Science subjects require practical training as well as theoretical studies.

Therefore, to be competent, teachers need to be efficient in designing, planning and implementing the lesson (James, 2014) . Apart from that, teachers need to assess the practical training and laboratory experiment. The country needs more scientific-minded people to accomplish the national mission for Nigeria to be a developed nation. Therefore, students need to be nurtured to love science and to positively practice scientific culture. Positive attitudes towards science and scientific activities will exist through constant monitoring of experiments and continuous assessment of practical activities. In accordance with the goals of the National Education System in providing quality education, hence it is the responsibility of teachers to have a comprehensive plan, to implement and evaluate every subject (Isong, 2017). In the context of globalization and industrial world today, knowledge and understanding of the scientific aspects can enhance Nigerians to be more competitive in the global arena. Momoh (2017) opined that one of the ways to improve teachers' competency especially in Biology is the

teachers need to be well versed with the content of the Biology curriculum, skilful in using a variety of teaching methods and teaching aids, efficient in coordinating all the necessary equipment and ensure safety of students while conducting laboratory experiments. Students are unable to conduct experiments and predict the outcome because they are not accustomed to the laboratory activities. During laboratory activities, students should be given the opportunity to ask questions, make hypotheses, experiments and deduce experimental results through observation, data processing and making inference.

Biology as a branch of science plays a vital role in producing knowledge of relevant concepts, scientific skills, environment and natural phenomena. Biology education is a process of impacting knowledge skills and attitudes in Biology to a learner at any level. It gives the learner a sound academic knowledge, skills and ample opportunity to apply this knowledge.

According to Okenyi (2012), Biology education is an application of principles of education in teaching and learning Biology. It is also the act of teaching and training in order to inculcate or transfer the knowledge of Biology to students . Biology is also a branch of science which has been structured to equip the students with the knowledge of relevant concepts and scientific skills (Adepoju, 2016). Biology is all the knowledge of living things that has come to us from the past. It is therefore the science of life. Educating people in science especially Biology has been acknowledged as a way of promoting economic development, eliminating poverty and introducing social welfare.

Over the years, science education in Nigeria has faced various problems. The school curriculum offers a child centered teaching learning approach as students are encouraged to take up the related subjects including Biology, which occupies a unique position in the school curriculum and is central to many science related courses (Aina, 2012). In Nigeria, the inclusion of science subjects in the school, curriculum is to promote national



development as the nation adopts more science oriented policies and programmes in education (Oriahi, 2010).

Popham (2013) opined that the capacity and efficiency of teachers in conducting the activity and learning process will have a positive impact on students learning orientation. Teachers are also required to provide authentic learning experiences and create active learning through active interaction with the subject matter (Jiac, 2013). Therefore, teachers need be really competent in their teaching of their subjects in school. For Biology subject, teacher's competency in creating and planning will greatly provide significant impact on the teaching process and will greatly influence students to change their behaviors, Therefore, this study seeks to identify the competence possesses by Biology teachers for effective teaching and learning of Biology in Enugu South Local Government of Enugu State.

Statement of problem

It has also been observed that the present state of Biology teaching in Nigeria indicates that many people who teach Biology in public secondary schools are not professional Biology teachers (Inyang, 2013). This might be one of the reasons for the poor performance of students in the subject (Biology).

Competent Biology teachers produce outstanding differences which result in positive learner's outcomes. On the other hand, lack of sufficient competent Biology teachers is a problem for students and their academic performance. Indeed teacher's academic background, training and professional competence is at stake (Ivowi, 2016). There is deficiency and poor academic performance of students in Biology and this could be traced to lack of teachers' competence and learning resources in our classrooms (Nwosu, 2017).

The single most important influence on student learning is the quality of teacher, yet most schools are still face with incompetent teachers. Meanwhile, teaching and learning of science subject most especially Biology depends on teachers own knowledge and competency of

the content and ability to adequately deliver the instruction to the students. In the light this, the researcher therefore intends to carry out this study on competence possesses by Biology teachers in the teaching and learning of Biology in Enugu South Local Government of Enugu State.

Research Questions

The following research questions guided the study:

1. What is the academic qualification to be possessed by Biology teachers for effective teaching and learning of Biology in Enugu South Local Government Area of Enugu State?
2. What is the years of experience to be possessed by Biology teachers for effective teaching and learning of Biology in Enugu South Local Government Area of Enugu State?
3. What are the teaching methods to be used by Biology teachers for effective teaching and learning of Biology in Enugu South Local Government Area of Enugu State?

Methodology

The research design adopted for this study was a survey research design.

The area of the study was all the public secondary schools in Enugu South Local Government Area of Enugu State. The choice of the area for the study was because the school in the local government area within the reach of the researcher. The population of the study was fifty four (54) Biology teachers in fourteen (14) secondary schools in Enugu South Local Government Area of Enugu State. All the 54 Biology teachers were used for the study. Therefore, there was no sampling.

The instrument used for data collection was a structured questionnaire, which was constructed in accordance with the research questions. The instrument was validated by two lecturers from Department of Science Education (Biology Option) and one from Measurement and Evaluation in Enugu State College of Education (Technical). The reliability index obtained



obtained for the instrument was 0.89 using cronbach alpha. The researcher visited the sampled schools and administered the questionnaire personally to the teachers

Results

Research Question 1: What is the academic qualification to be possessed by Biology teachers for effective teaching and learning of Biology in Enugu South Local Government Area of Enugu State?

Table 1: Mean rating of the respondents on academic qualification to be possessed by Biology teachers for effective teaching and learning of Biology

S/N		SA 4	A 3	D 2	SD 1	N	$\sum fx$	X	DECISION
1	Teachers with SSCE qualification can teach Biology effectively	4	14	12	24	54	106	1.9	D
2	Teachers who obtain NCE are better in teaching of Biology	26	14	9	5	54	170	3.1	SA
3	First Degree qualified teachers are more effective in the teaching of Biology	24	13	10	7	54	162	3.0	SA
4	Teachers who are Masters Degree holder do great in teaching of Biology	22	27	3	2	54	177	3.3	SA
5	Teachers who are Ph.D holders are more effective in teaching of Biology	18	22	10	4	54	162	3.0	SA

From the Table 1, the analysis showed that items 2,3,4 and 5 with mean scores of 3.1,3.0,3.3 and 3.0 were above the cutoff point of 2.50. This implies that teachers with NCE, Degree, Master Degree and Ph.D are more effective in teaching Biology. The mean score of item 1 is 1.9. This value is while items is below the cut-off mark of

and collected back on the spot after completion. **Mean was used to answer the research question.**

2.50, therefore implies that teachers with SSCE are not effective in teaching Biology.

Research Question 2: What is the years of experience to be possessed by Biology teachers for effective teaching and learning of Biology in Enugu South Local Government Area of Enugu State?



Table 2: Mean rating of the respondent on years of experience to be possessed by Biology teachers for effective teaching and learning of Biology

S/N	Years of Experience	SA 4	A 3	D 2	SD 1	N	Σfx	X	DECISION
5	Biology teacher does not need years of experience to teach effectively	14	4	24	12	54	128	2.4	D
6	Biology teachers who have 1-5 years teach Biology more effectively	21	14	11	8	54	156	2.9	A
7	Biology teachers with 5-10 years of experience teach more effectively	21	15	5	13	54	152	2.8	A
8	Biology teacher with 10 years and above teaching experience are more effective in teaching Biology	20	22	9	3	54	167	3.1	SA

From the Table 2, the analysis showed that items 6, 7 and 8 have mean scores of 2.9, 2.8 and 3.1 respectively. This means that 1-5 years, 5-10 years and 10 years and above is the years of experience for effective teaching of Biology. But item 5 with a mean score of 2.4 shows that the respondents disagree that Biology teachers do not need years of experience to teach biology effectively.

Research Question 3: What are the teaching methods to be used by Biology teachers for effective teaching and learning of Biology in Enugu South Local Government Area of Enugu State?

Table 3: Mean responses of the respondents on teaching method used by Biology teachers for effective teaching and learning of Biology

S/N	Items	SA 4	A 3	D 2	SD 1	N	ΣFx	X	DECISION
9	The use of Lecture method by Biology teachers in teaching is more appropriate for teaching Biology	5	7	27	15	54	110	2.0	D
10	The use of demonstration method makes students to participate in class	26	15	5	8	54	167	3.1	SA
11	Biology teachers makes proper impact on student when using discussion method of teaching	22	15	8	9	54	158	2.9	A
12	Instructional method of teaching are more appropriate to use by Biology teacher when teaching Biology	23	17	5	9	54	162	3.0	SA
13	The use of Laboratory Method is more appropriate in teaching Biology	21	14	11	8	54	162	3.0	SA



14	Biology teacher make use of activity base method of teaching for easier teaching and learning of Biology	16	18	11	9	54	149	2.8	A
15	Biology teachers uses collaborating method for effective teaching and learning	26	17	5	6	54	171	3.2	SA
16	Field trip method is more proficient for Biology teacher for effective teaching	21	14	11	8	54	156	2.9	A
17	Teacher applied debriefing teaching method for effective teaching of Biology	25	11	5	13	54	156	2.9	A
18	Vocabulary drills is best used by Biology teacher for effective teaching of Biology	24	22	5	3	54	169	3.1	SA
19	Class projects methods is more proficient for teachers	28	13	6	7	54	170	3.1	SA
20	Recitation teaching method is best asked for effective teaching of Biology	26	23	3	2	54	181	3.4	SA
21	Debate is a good method of teaching used by Biology teacher for effective teaching of Biology	18	22	10	4	54	162	3.0	SA

Table 3 showed that items 10-20 are above the cut-off score of 2.50 which implies that the respondents agreed that for effective teaching of Biology, Biology teachers need to apply the use of demonstration method, discussion method, instructional method, laboratory method, activity based method and collaborative method. Other methods include field trip, debriefing, vocabularies drills, class method and recitation. However, item 9 which has a mean of 2.0 indicated that the respondents disagreed that lecture method is effective for the teaching of Biology

Discussion of the findings

In Table 1, it was discovered that for effective teaching of Biology, a Biology teacher should possessed requisite certificate in education such as NCE, Degree, Master Degree and Ph.D, while teachers with SSCE are not effective in teaching Biology. According to the Ministry of Education the minimum qualification a teacher must possessed is NCE and other educational certificate. The findings of this study is in line with the findings of

Ndubuisi (2011) who stated that education without a good qualified teachers often produce unqualified graduates, he recommended that in order to have effective teaching, a teacher must possess the required academic qualification or pass through educational field in order to obtain the basic certificate for effective teaching.

From the Table 2 analysis, it was discovered that Biology teachers who have 1-5 years, 5-10 years and 10 years and above is the years of experience are effective for teaching of Biology. But item 5 with a mean score of 2.4 shows that the respondents disagree that Biology teacher do not need years of experience to teach biology effectively. This finding is in line with Gilad (2010) who stated that an experience teacher has more ways to impact on students, teachers without years of experience lacks what it takes to inculcate knowledge on students.

Table 3 analysis revealed that for effective teaching of Biology, Biology teachers need to apply the use of demonstration method, discussion method, instructional



method, laboratory method, activity based method and collaborative method for effective teaching and learning of Biology. These findings are in line with findings of Mamdu (2014) who stated that qualified teachers know when to change their teaching style for effective teaching. He went further to explained that using appropriate teaching methods is one of the criterion of a competent teacher. He recommended that teachers must know what teaching method they will apply during teaching for effective teaching and learning to take place.

Conclusion

From the findings it was concluded that

1. For effective teaching of Biology teacher must obtain the required academic qualification Such as NCE, Degree, M.Sc and P.hD
2. A minimum of 1 years of experience is one of the criterion a competent teacher need to possessed for effective teaching and learning.
3. The use of demonstration method, discussion method, instructional method, laboratory method, activity based method and collaborative method in teaching of Biology in secondary school is appropriate for effective teaching and learning of Biology.

Recommendations

Based on the findings the researcher recommended the following

1. Teacher should be trained and retrained for effective teaching and learning
2. Teachers must adopt means of improvising instructional materials for effective teaching and learning
3. Teachers should adopt appropriate teaching methods for effective teaching and learning of Biology

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