

Teacher's Characteristics and Implementation of National Curriculum for Secondary School Biology in Southwest, Nigeria

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Abstract

The implementation of national Biology curriculum depends on the superiority and aptness of the teacher's transactional skills; which are a replication of his/her qualification and experience. In view of this, the study examined teacher's characteristics and implementation of national curriculum for secondary school Biology in Southwest, Nigeria. The study specifically examined the availability of qualified and level of experience of Biology teachers in implementing the curriculum. The descriptive research design of the survey type was used in this study. The population of the study comprised all Biology teachers in all the public secondary schools in Lagos, Ogun, Oyo, Osun, Ondo and Ekiti. The samples for the study consisted of 180 biology teachers drawn from 90 public secondary schools in Southwest, Nigeria. The sample was selected using multistage sampling procedure. An Inventory on Teachers' Characteristics (ITC) was used to collect data for the study. The validity methods used were face and content validity. The responses obtained were collated and analysed using descriptive statistics. The findings of the study revealed that less than half of the Biology teachers were qualified to teach Biology at the senior secondary school level but most of the teachers teaching Biology were experienced in the teaching of Biology at the senior secondary school level. It was recommended that school administrators should ensure that only qualified teachers are recruited to teach Biology in senior secondary schools.

CJAR

Accepted 15 December 2020
Published 25 December 2020
DOI: 10.5281/zenodo.4393692



Keywords: Teacher's Characteristics, Implementation, National Curriculum, Biology,

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Introduction

The contents of the senior secondary school Biology programme of study places importance on laboratory techniques, field studies, guided discovery, and skills. The curriculum for teaching Biology in senior secondary schools emphasized the association between living and non-living things; relevance of Biology to agriculture; the make-up and physiology of organisms, the use of natural resource, adaption, lands, plants and animals-their differences, some basic biological concepts, populations and implications, theories of evolution and application of the rule of heredity in agriculture and medicine.

Analyzing the role of instructors in curriculum development, Amos (2012) emphasized the belief that no educational system can rise above the dominance of its teachers. A good teacher is an epithet of all kinds of skills without which the students' achievement will be low. The role of the instructor therefore is very vital in curriculum evaluation, implementation and interpretation, especially when it comes to evaluating the gains in education. One of the major duties of a teacher in any curriculum interpretation and implementation is that of passing information to the learner. The teacher plays other encircling roles such as:

- a) Participating in curriculum planning, learning and guiding;
- b) Organizing students to meet their set goals, and
- c) Understanding and helping in bridging the gap between theory and practice in education (Kuncel, 2011).

The discharge of these functions effectively assists students to grow in depth and dimension. The role of teachers in the implementation of the curriculum is dynamic as they assume the position of guidance and counsellors and parents' substitutes especially at the lower levels of education. They are also in charge of directing the students' thought, guiding their ideas and driving them to aspire to higher heights in life. Therefore, the most vital determinant of event in the classroom is the teacher. However good the lesson notes are, the management of curriculum depends on the sophistication and appropriateness of instructional aids, and the teacher's transactional skills; which are a reflection of his/her educational qualification and experience (Nwachukwu & Chukwuneke, 2008).

A discussion of teacher qualifications includes such issues as what subject the instructor majored in, whether the teacher has a Bachelor's degree or a Master's degree, whether the teacher has passed the required licensure tests, and so forth (Igwebuike, 2012). Igwebuike further defines qualifications as those attribute that teachers have even before got employed that contributes to their teaching qualities. These qualities, which she calls 'teachers' personal resources', include the following: knowledge, skills and expertise, beliefs, attitudes and values, credentials and personal qualities.

The researcher submits that a teaching qualification is one of a number of academic and professional degrees that allows a person to become a registered teacher in secondary school. Such qualifications include, but are not limited to, the Postgraduate Certificate in Education (PGDE), Bachelor of Education (B.Ed) and Nigeria Certificate in Education (NCE). Professionally, certified teachers are those who got professional training that gave them professional knowledge, skills, techniques, aptitudes as different from the general education (Igwebuike, 2012). They hold degrees like, B.Ed., B.Sc. Ed, B.A. Ed, and M.Ed and so on.

Lawal (2011) documents that teacher's qualification gave the reason for approximately 40 to 60 percent of the difference in average of students' achievement in assessment. Zeidan (2010) reveals that teachers' qualification affects students' performance in Science. The researcher suggests that the availability of sufficient qualified teachers must have been a determinant for students' performance.

The Biology teacher assumes a vital position as the quality of teachers in any educational system determines to a large degree the quality of the educational system itself (FME, 2014). In spite of the vital position of Biology teachers to the thriving implementation of Biology programme, it appears that most schools in Nigeria have inadequate qualified science (Biology) teachers. The Biology curriculum just like any other Science is activity oriented and learner-centered. Therefore, emphasis is laid more on learning and teaching Biology as a process rather than as a body of knowledge. However, it appears that science teachers are poorly trained in content and pedagogy.

Teacher's teaching experience has a vital influence on implementation of Biology curriculum. Experienced Biology teachers is observed to have a richer background of know-how to draw from and can add insight and ideas to the course of teaching and learning, are receptive to correction and less dictatorial in classroom. However, the researcher observed that most secondary schools in Nigeria have a large number of young Biology teachers with few years of teaching experience. Many of these teachers seem to lack the much needed skills that could bring about effective teaching and learning in schools in terms of teaching methodology. Hence teaching of Biology tends to be done in abstract while learning is perhaps by rote memory. The issue of whether or not an association existed between teachers' teaching experience and implementation of Biology curriculum in secondary schools in Nigeria added to the problem of this study.

Murnane (2006) discovered that teacher efficiency improves rapidly over the first three years of teaching and reaches its highest point between the third and fifth year but found no ample improvement after year five. In contrast, few studies suggest that teacher experience effects may be seen after a longer period of time. In the extreme case, Clotfelter (2007) discovered evidence of growing teacher effectiveness out to 20 or more years in their analyses of North Carolina teacher's data, although more than half of the achievement in teacher efficiency occurred during the first few years of teaching.

Based on the foregoing, this study examined teacher's characteristics and implementation of national curriculum for secondary school Biology in Southwest, Nigeria. The study specifically examined the availability of qualified and level of experience of Biology teachers in implementing the curriculum

Research Questions

The following research questions were raised for this study:

1. Are there qualified Biology teachers in schools to implement the curriculum?
2. Are there experienced Biology teachers in schools to implement the curriculum?

Methodology

The descriptive research design of the survey type was used in this study. The population of the study comprised all Biology teachers in all the public secondary schools in Lagos, Ogun, Oyo, Osun, Ondo and Ekiti. The samples for the study consisted of 180 biology teachers drawn from 90 public secondary schools in Southwest, Nigeria. The sample was selected using multistage sampling procedure.

An instrument was used for collecting the data for the study. The instrument was Inventory on Teachers' Characteristics (ITC). The inventory was divided into two sections. Section A and B. Section A sought for the demographic data of the teachers, while section B evaluated the qualification and teaching experience of the respondents.

The validity methods used were face and content validity. A copy of the instrument was presented to experts from the field of Tests and Measurement. The instrument used for



the study was administered on the respondents by the researcher. The responses obtained were collated and analysed using descriptive statistics. The research questions were answered using frequency count, percentages and bar charts.

Results

Question 1: Are there qualified Biology teachers in schools to implement the curriculum?

Table 1: Frequency and Percentage Analysis of Biology Teachers' Qualification

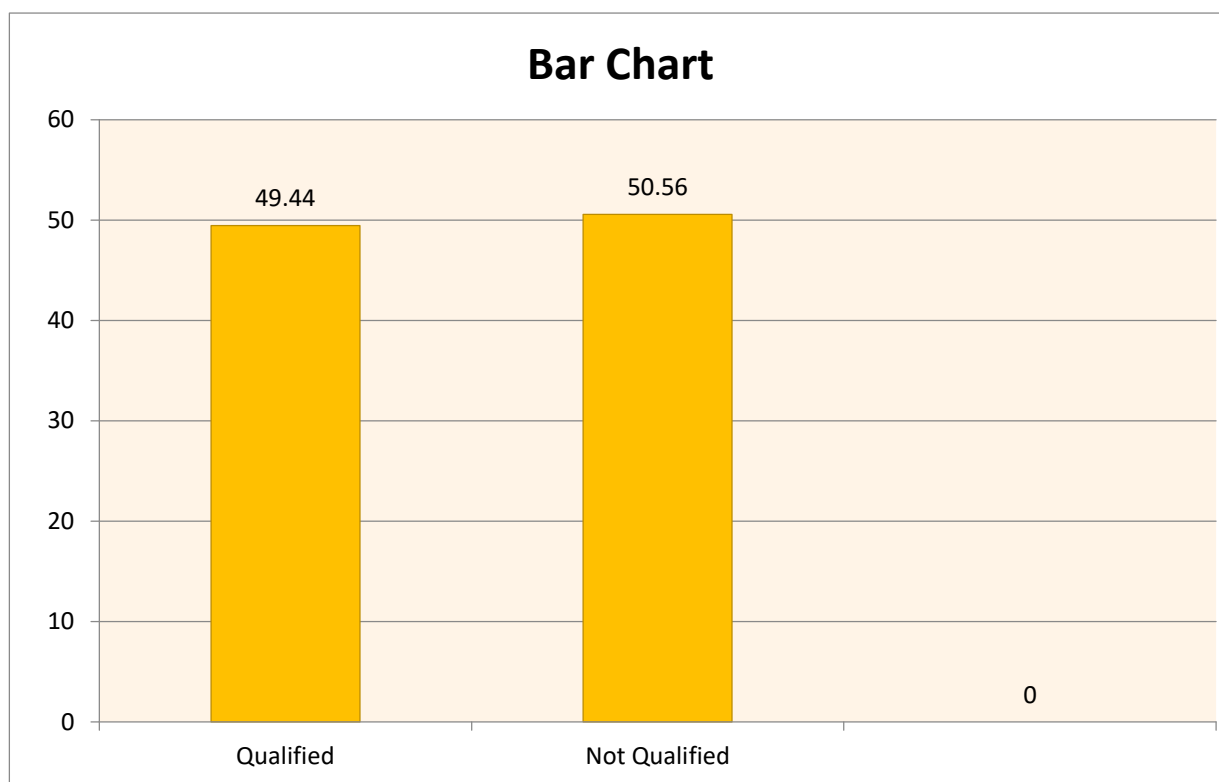
Qualification	B.Sc(Ed.)/B.Ed*	B.Sc+PGD*	B.Sc.	NCE	Others	Total
No of teachers	53	36	38	27	26	180
Percentage	29.4	20.0	21.1	15.0	14.4	100

*Qualified

Table 2: Percentage summary on Biology Teachers' Qualification

Condition	No. of teachers	Percentage %
Qualified	89	49.44
Not Qualified	91	50.56
Total	180	100

Table 1 and table 2 showed that 89(49.44%) of the Biology teachers sampled were qualified to teach the subject according to the minimum standard for secondary schools by the Federal Ministry on Education (2014) which stated that B.Ed or B.Sc. + PGD (Edu) or B.Sc.(Ed.) are the minimum qualifications for the Biology teachers at the Senior Secondary School level in Nigeria. 91 (50.56%) of the sampled Biology teachers were not qualified to teach Biology at the Senior Secondary school level while 89 (49.44%) of the sampled Biology teachers were qualified to teach Biology at Senior Secondary school level. Therefore, there are not enough qualified Biology teachers in secondary schools to implement the Biology curriculum. Figure i further showed the analysis of Biology teachers based on their qualification.

Figure i: Bar Chart showing Biology Teacher's Qualification

The table showed that 50.56% of the sampled Biology teachers were not qualified to teach Biology at the Senior Secondary school level while 49.44% of the sampled Biology teachers were qualified to teach Biology at Senior Secondary school level. Hence there are not enough qualified Biology teachers in secondary schools to implement the curriculum.

Question 2: Are there experienced Biology teachers in schools to implement the curriculum?

Table 3: Frequency and Percentage Analysis of Biology Teachers' Experience

Experience	1 – 4 Years	5 – 10 Years	11 – 15 Years	Above 15 Years	Total
No of teachers	11	68	59	42	180
Percentage	6.1	37.8	32.8	23.3	100

The table showed that 11 (6.1%) of the sampled Biology teachers have taught Biology at the Senior Secondary school level between 1-4 years while 68 (37.8%) taught between 5 – 10 years and 59 (32.8%) taught between 11 – 15 years. It was revealed that 42 (23.3%) taught Biology at the Senior Secondary school level above 15 years. Therefore, most of the teachers teaching Biology are experienced teachers as almost 94% of them had put in at least 5 years in teaching. This was in agreement with the recommended standard by the Federal Ministry of Education. Figure ii further revealed the analysis of Biology teachers based on their experience.

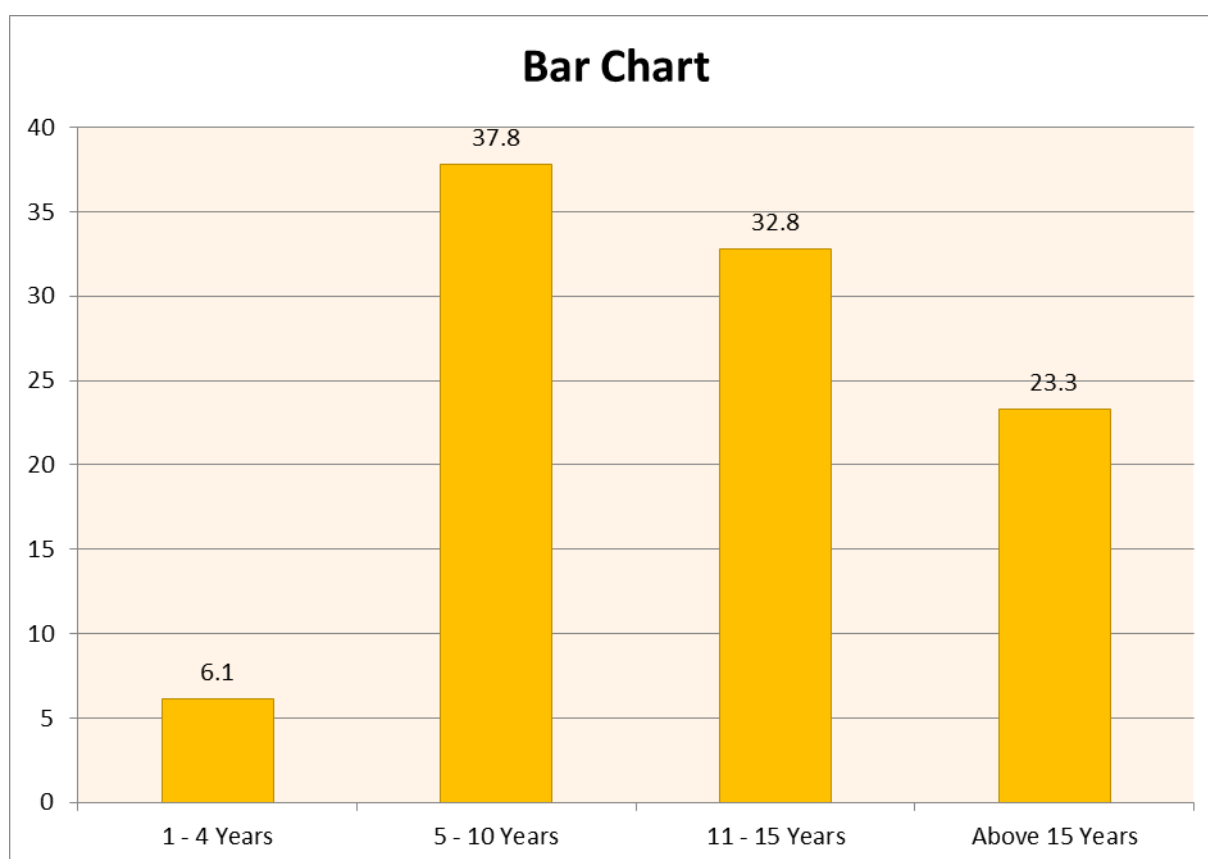


Figure ii: Bar Chart showing Biology Teacher's Experience

The graph showed that 6.1% of the sampled Biology teachers have taught Biology at the Senior Secondary school level between 1-4 years while 37.8% taught between 5 – 10 years and 32.8% taught between 11 – 15 years. It showed that 23.3% taught Biology at the Senior Secondary school level above 15 years. Hence, there are experienced teachers in secondary schools to implement the Biology Curriculum.

Discussion

The result of the study revealed that less than half of the Biology teachers were qualified to teach Biology at the senior secondary school level. This implies that the teachers who are not qualified to teach Biology are more than half of the sampled teachers. Most of the teachers teaching Biology have either a degree certificate in Sciences without education background or a National Certificate in Education. According to the Federal Ministry of Education, B.Ed or B.Sc. (Ed.) or B.Sc + PGDE are the minimum qualifications for the Biology teachers at the senior secondary school level in Nigeria. This finding is in line with the submission of Eze (2007) who concluded in his study that most of the Biology teachers were not educational qualified and therefore not competent to teach the subject effectively. Igwebuike (2012) concluded that there is shortage of qualified teachers in most of our secondary schools which negatively contribute to the quality of teaching and curriculum implementation.

Related to teachers' qualification is their teaching experience. The study revealed that most of the Biology teachers were experienced to teach Biology at the senior secondary school level. This implies that high percentage of the teachers teaching Biology had put in

many years in teaching Biology. This finding is in agreement with the findings of Ajayi (2007) and Elechi (2010) who found out that there is high percentage of experienced teachers teaching in our secondary schools. If teacher learning accumulates with longer years of teaching practice, experienced teachers should be more effective in curriculum implementation than novice teachers.

Conclusion

Sequel to the findings of this study, it was concluded that less than half of the Biology teachers were qualified to teach Biology at the senior secondary school level but most of the teachers teaching Biology were experienced in the teaching of Biology at the senior secondary school level.

Recommendations

Based on the findings of this study, it was recommended that school administrators should ensure that only qualified teachers are recruited to teach Biology in senior secondary schools. Qualified and sufficient numbers of dedicated teachers are needed to teach the contents of the curriculum.

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Cite this article:

Author(s), ADEUYA, VICTORIA OLUYEMI (PHD), (2020). "Teacher's Characteristics and Implementation of National Curriculum for Secondary School Biology in Southwest, Nigeria". **Name of the Journal:** Commonwealth Journal of Academic Research, (CJAR.EU), P, 1- 9. DOI: <http://doi.org/10.5281/zenodo.4393692>, Issue: 9, Vol.: 1, Article: 1, Month: December, Year: 2020. Retrieved from <https://www.cjar.eu/all-issues/>

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