

## EVALUATION OF TEACHERS' IMPLEMENTATION OF NEW BIOLOGY CURRICULUM AT SENIOR SECONDARY SCHOOLS IN KATSINA ZONAL EDUCATION QUALITY ASSURANCE, KATSINA STATE, NIGERIA

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### Abstract

This study is titled “evaluation of teachers’ implementation of new Biology curriculum at senior secondary schools in Katsina zonal education quality assurance, Katsina state, Nigeria”. Two objectives, research questions and hypothesis were formulated to guide the study. Using a descriptive survey design, the study sampled all 60 Biology teachers across 23 public secondary schools in Katsina zonal education quality assurance, through an intact sampling technique. Data were collected using a structured and validated questionnaire titled “Evaluation of Teachers Implementation of New Biology Curriculum Questionnaire (ETINBCQ)” with reliability of 0.78 using Cronbach alpha. Descriptive statistics of mean and standard deviation were used to answer the research questions, while one-sample t-test was used to test the hypotheses. Findings revealed that while teachers demonstrated a moderate to high-moderate level of implementation in areas such as curriculum goals and content, none achieved optimal implementation across all components. The t-test results showed significant differences in the teachers’ levels of implementation of the curriculum goals, objectives and content. The study concluded that although Biology teachers showed commendable efforts in implementing the curriculum, notable gaps remain, particularly in instructional methods, materials, and evaluation strategies. It recommended targeted training for teachers, increased provision of instructional resources, and stronger collaboration among stakeholders to enhance effective curriculum delivery.

**Keywords:** Evaluation, Teachers, Curriculum Implementation, Biology.

### Introduction

The new Biology curriculum, introduced in 2008 by the Nigerian Educational Research and Development Council (NERDC) under the Federal Ministry of Education, was designed for senior secondary schools to ensure continuity from SS1 to SS3. It emphasizes depth, relevance, and integration of content, aligning classroom activities with national goals (Ajani, 2023). The curriculum’s philosophy, based on the federal government’s education policy (Mbagwui & Igbegiriii, 2019) seeks to develop students’ laboratory and field skills, promote relevant biological knowledge, foster application of science to life, and instill functional scientific attitudes.

Modern curriculum design emphasizes clearly defined goals and objectives, interactive teaching methodologies, and well-articulated roles for both teachers and students (Jacobs,

2010). Moving away from the traditional model of rote learning, contemporary approaches promote critical thinking and practical engagement through activities such as experiments, field trips, group work, and project-based learning. In this learner-centered framework, teachers are regarded as facilitators of knowledge, expected to employ a variety of instructional materials ranging from charts and models to information and communication technology (ICT) tools to support active, hands-on learning.

Teachers are also responsible for guiding students in interpreting and applying scientific knowledge to real-world contexts, encouraging independent study habits, and fostering awareness of environmental issues. These instructional practices are grounded in a theoretical framework that supports effective curriculum implementation and evaluation. Among the relevant theoretical underpinnings is evaluation theory. As Miller (2010) explains, evaluation theories are intended to equip evaluators with the foundational tools necessary for making the many decisions involved in designing and conducting evaluations. Such theories offer critical guidance on issues including: the role of the evaluator and their relationship to the individuals and communities involved; the selection of evaluation questions and the alignment with appropriate methods; the process of participant selection; and the identification of informational needs such as determining who will receive the evaluation findings and in what format. The curriculum is student-centered and performance-based, requiring careful implementation of content, methods, materials, and evaluation strategies. It calls for adaptation to local needs and enrichment with relevant materials from the environment to enhance classroom effectiveness and learning outcomes. (Sharma, 2024).

### **Statement of the Problem**

The successful implementation of any newly introduced curriculum in an educational system depends largely on the teachers, who serve as the primary agents of execution in the classroom. However, recent trends in student academic performance raise serious concerns about the effectiveness of curriculum implementation in Nigerian secondary schools. Statistical data from the West African Examinations Council (WAEC) between 2020 and 2023 reveal a consistent trend of mass failure in science subjects, with Biology being particularly affected across the state (Macauley, 2023). This challenge is particularly pronounced in public secondary schools, where students consistently record lower performance compared to their counterparts in private schools. Each time WAEC or NECO results are released, private school students tend to achieve significantly higher grades in Biology than those in public schools (Anthony, 2021).

This disparity can be justified by the authors' argument that educational outcomes are strongly influenced by the broader philosophy and quality of educational practice guiding a school system. According to Anthony the degree to which schools implement sound educational principles such as adequate funding, qualified teachers, functional facilities, and effective curriculum delivery directly shapes learners' performance. Private schools often align more closely with these standards, thereby creating learning environments that support better academic achievement compared to many public schools, where systemic constraints may hinder effective curriculum implementation and student learning. This recurring disparity

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raises critical questions about the level of understanding and implementation of the newly introduced Biology curriculum by public school teachers. It is against this backdrop that the researcher seeks to investigate whether the components of the new Biology curriculum are adequately understood and to what extent they are being implemented in public secondary school classrooms. In view of the above problem it was presumed that Biology teachers were not knowledgeable enough to handle the task of implementation of the designed components of the new Biology curriculum which has to do with: mastery of the objectives and goals of the new Biology, content, methods of teaching, instructional materials and resources, Evaluation procedures and implementation procedures as enshrined in the new Biology curriculum. Therefore, this study would like to identify the problems with the implementation and proffer solutions to the identified problems.

### **Objectives of the Study**

The study was set to achieve the following objectives:

1. To evaluate the extent to which teachers have achieved the goals and objectives of the new Biology curriculum in senior secondary schools within the Katsina zonal education quality assurance, Katsina state.
2. To evaluate teachers' level of implementation of the content of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state.

### **Research Questions**

The following research questions were derived from the research objectives:

1. What is the teachers' level of achievement of the goals and objectives of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state?
2. What is the teachers' level of implementation of the content of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state?

### **Hypotheses**

Based on the research questions, the following research hypotheses were formed and tested at 0.05 level of significance:

- 1) There is no significance difference between teachers' level of achievement of the goals and objectives of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state.
- 2) There is no significant difference between teachers' level of implementation of the content of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state.

### **Methodology**

This study employed a descriptive survey design in its conduct to evaluate teachers on the implementation of new Biology curriculum in secondary schools in zonal education quality assurance, Katsina state. The reason behind the selection of this design is that it provides the perception of teachers in the implementation of new biology curriculum in secondary schools. The population of the study involved the Biology teachers in the public secondary schools in

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the education zone. There are 23 public secondary schools with a total number of 60 Biology teachers. The schools are distributed within three (3) local government area councils in Katsina zonal education quality assurance (ZEQA). The sample size involved the entire population of Biology teachers within Katsina zone. Since the research involved the entire population, the sampling technique employed is intact sampling technique whereas no Biology teacher was excluded during the administration of the questionnaire within the zone. The instrument of the research study is questionnaire titled: “Evaluation of Teachers’ Implementation of the New Biology Curriculum in Secondary Schools” (ETINBCQ). This instrument was modified and adapted from Okam (2011).

To ascertain the validity and reliability of the instrument, twenty (20) questionnaires were administered to Biology teachers in two (2) schools. The study employed test-re-test method in which the reliability coefficient was found to be 0.987, which clearly shows that the instrument is reliable. The data collected was processed using Statistical Package for Social Science (SPSS) version 21. Descriptive statistics of mean and standard deviation were used to answer the research questions, while inferential statistics specifically one-sample t-test was used to test the hypotheses.

**Results**

**Research Question One:** What is the teachers’ level of achievement of the goals and objectives of the new Biology curriculum senior secondary schools in Katsina zonal education quality assurance, Katsina state?

**Table 1: Mean difference of teacher’s level of achievement of goals and objectives in new Biology curriculum.**

Variable	N	Mean	SD
Goals and objectives	60	33.1176	4.59893

From table 1, the result shows that teachers mean score of 33.11 in achieving the goals and objectives of the new Biology curriculum, with a standard deviation of 4.59 among 60 respondents. This indicates that teachers have higher moderate level of implementation of the goals and objectives of the new Biology curriculum for implementation.

**Research Question Two:** What is the teachers’ level of implementation of the content of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state?

**Table 2: Mean difference of teachers’ level of implementation of the content of the new Biology curriculum.**

Variable	N	Mean	SD
Content structures	60	30.0147	4.88217

Table 2 indicated that the mean score of 30.01 for 60 teachers shows a moderate level of implementation of the content structures of the new Biology curriculum, with a standard deviation of 4.88, indicating some variation in how effectively different teachers implement the curriculum content.

**Hypothesis One**

HO1: There is no significance difference between teachers’ level of the achievement of the goals and objectives of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state.

**Table 3: T-test for related sample on teachers’ level of achievement of the goals and objectives of new Biology curriculum for its implementation**

Variable	N	II	SD	Df	t	p
Goals and objectives	60	4.59893	33.1176	59	.000	Rejected

On table 3, the calculated P- value is .000 which is less than 0.05. The significance of the t-value is critical (constant). Thus, the null hypothesis is rejected as such there is higher moderate significant difference in teachers’ level of implementation of the objectives and goals of new Biology curriculum in secondary schools.

**Hypothesis Two:** There is no significant difference between teachers level of implementation of the content of the new Biology curriculum in senior secondary schools in Katsina zonal education quality assurance, Katsina state.

**Table 4: One-sample t-test on teachers’ level of implementation of the content of new Biology curriculum**

Variable	N	II	SD	Df	t	p
Content	60	30.014	4.882	59	.000	Rejected

On able 4, the calculated P- value is .000 which is less than alpha 0.05. Thus, the null hypothesis is rejected; there is higher moderate significant difference in teachers’ level of implementation of the content of new Biology curriculum in secondary schools where as the t-value is critical (constant).

**Discussion on Findings**

The results of hypothesis one revealed a statistically significant difference in teachers’ level of implementation of the content of the new Biology curriculum. The one-sample t-test produced a p-value of 0.000, which is below the 0.05 level of significance, resulting in the rejection of the null hypothesis. This indicates that teachers do not implement the curriculum content uniformly across schools within the Katsina zonal education quality assurance. The variation in implementation may be attributed to differences in teachers’ mastery of curriculum guidelines, their individual teaching experiences, or their exposure to professional development programmes. This finding corroborates the position of Okafor (2017), who argued that Biology, being a subject grounded in the study of nature, requires strong conceptual understanding from teachers to ensure effective curriculum delivery. Okafor further emphasized that Biology occupies a critical position in both science and arts education at the secondary school level, making consistent and accurate content implementation essential for student success.

Similarly, the findings from hypothesis two showed a significant difference in teachers’ level of implementation regarding the use of instructional methods and strategies prescribed in the new Biology curriculum. With a p-value of 0.000, the null hypothesis was equally rejected.

This implies that teachers do not adopt the recommended teaching methods and strategies in a consistent manner. Such inconsistencies may stem from disparities in teachers' professional training backgrounds, availability of instructional materials, and varying levels of familiarity with modern pedagogical approaches expected in curriculum delivery. These variations suggest that while some teachers may be adequately prepared to use innovative and learner-centered methodologies, others may rely on traditional teacher-centered strategies, which may not support the curriculum's intended outcomes. This finding supported the findings of Anthony (2021) that teachers do not adopt the recommended teaching methods and strategies for teaching Biology.

### **Conclusion**

The study concluded that there are significant differences in teachers' levels of implementation across various components of the new Biology curriculum in secondary schools. Specifically, teachers showed varying degrees of success in implementing the curriculum's goals, objectives, content, teaching methods, and use of instructional materials. While many teachers successfully implemented the curriculum goals and content, differences in perception and approach affected overall effectiveness, particularly in teaching methods and the use of diverse instructional materials.

### **Recommendations**

The following recommendations were made:

1. Government should provide training to teachers on the implementation of any newly introduced curriculum in secondary schools.
2. There should be collaborative efforts between government, parents and other educational stakeholders in providing necessary practical materials to enhance effective implementation of any curriculum in secondary school level

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