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AVAILABILITY AND UTILIZATION OF STANDARD BIOLOGY TEXTBOOKS IN PUBLIC SENIOR SECONDARY SCHOOLS IN EGOR LOCAL GOVERNMENT AREA OF EDO STATE.

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Abstract

This study investigated the availability and utilization of standard biology textbooks in public senior secondary schools in Egor Local Government Area of Edo State. The study was motivated by the poor performance of students in biology in external examinations. Four research questions guided the study. The study adopted a descriptive survey research design. The population comprised all public senior secondary school Biology students in Egor Local Government Area of Edo State. A sample size of 2698 was drawn using census sampling techniques. Data were collected using a checklist of approved Biology textbooks developed by the researcher in line with the State Ministry of Education-approved textbooks, and a questionnaire, termed the Availability and Utilization of Biology Textbooks Questionnaire (AUSTBQ), was used to assess utilization. AUSTBQ was validated by education experts, and its reliability was assessed using Cronbach's alpha. The data collected were analyzed using descriptive statistics, such as frequencies and

percentages, to address the research questions. The findings revealed that only 3 out of the 13 schools investigated have a functional library. These libraries have only a limited number of copies of one approved biology textbook, which is not easily accessible to students. The remaining 10 schools are without a functional library. Students in the schools rely heavily on teachers' notes for examination preparation. It was also found that utilization of available textbooks by both teachers and students is generally low, with many students relying heavily on teacher notes rather than textbooks for study and revision. The study therefore recommended improved provision of NERDC-approved Biology textbooks, better funding and standardization of school libraries, and increased encouragement and supervision of textbook use by teachers and school administrators to enhance effective teaching and learning of Biology in senior secondary schools.

Keywords: Biology, Textbooks, Availability, Utilization, Curriculum.

Introduction

At the First National Curriculum Conference in 1969, the term “Curriculum” was defined as all the learning experiences a learner has under the guidance of the school. According to Denis Lawton, the curriculum is a selection from society's culture. This selection is transcribed as a documented term, “explicit curriculum”. This is presented to the teacher through the school for implementation. This document encompasses various subject disciplines, including Biology. According to Eromosele and Omoifo (2021), biology is the science that studies living things, including their structures, functions, growth, evolution, and interactions with their surroundings. It provides information on how organisms adapt and change, as well as how their life processes are sustained. A solid understanding of biology is essential for pursuing careers in environmental science, biotechnology, agriculture, medicine, and nursing. According to Eromosele and Omoifo (2021), Biological knowledge also enables people to understand how their bodies function and to recognize potential threats in their environment. Achieving these requires that students be well taught with the right educational materials, including textbooks.

According to Osakwe (2020), a textbook is a standardized educational resource, either digital or printed, that supports classroom

instruction by providing organized, curriculum-aligned content. Among other things, UNESCO (2024) emphasized the significance of standardized textbooks, including content coherence across all educational materials that influence students' educational experiences and cognitive and pedagogical coherence between the curriculum and its implementation in the classroom. Other importance of standardized textbooks include:

1. Enhance foundational learning amongst African children and as instructional aids for teachers.
2. Organize and align learning with the curriculum;
3. Help Instructors with Instruction and Lesson Delivery
4. Promote self-directed and autonomous learning
5. Enhance pupils' academic achievement by offering a consistent curriculum content
6. It helps reduce the time students spend copying notes and promotes the time they spend engaging in valuable educational activities. UNESCO in 2024.
7. Textbooks reduce learning distractions and encourage a good reading habit.
8. They are affordable for long-term use and accessible in areas with poor internet.

The Federal Republic of Nigeria (2026) states that the Nigerian Educational Research and Development Council (NERDC) exercises its legal authority to authorize textbooks for use in Nigerian classrooms. They list the following as the suggested standardized biology textbooks:

1. Modern Biology for Senior Secondary Schools by Sarojini T. Ramalingam;
2. Essential Biology for Senior Secondary Schools by M.C. Michael;
3. College Biology for Senior Secondary Schools by G. Idodo-Umeh
4. Comprehensive Biology for Senior Secondary Schools by Chris Nweze
5. Senior Secondary Biology, Books 1-3 by Ndu, F.O., et

These textbooks have curriculum-aligned content. According to UNESCO (2024), this allows teachers to use them as a curriculum guide. In Nigeria, the State Ministry of Education is responsible for inspecting and verifying adherence to basic criteria, such as instructional and structural facilities, including the library, before school approval. These criteria suggest that before schools are granted permission to operate, the library must be accessible and fully equipped with the approved standard textbooks made available for students' usage. According to Onuoha and Chukwuneke (2020),

availability is the extent to which teachers and students in a school have access to sufficient, up-to-date biology textbooks. It is anticipated that textbooks will be made available for individual student use, in classes, and in school libraries. But the question still stands: Are these biology textbooks actually accessible? And if so, are teachers and students making good use of them?

Mwikali Kiende and Ogeta (2024) define textbook utilization as the actual use of textbooks by instructors for lesson planning and delivery, and by students for study, homework, and revision. According to them, the most effective ways to improve the quality of education in our schools are dedicated, well-trained teachers and high-quality textbooks. Fangfang and Lei (2024) found that the utilization of textbooks influences students' interest and attitudes, as well as their performance and scientific understanding.

With the advent of the internet, there are now more ways to obtain knowledge and educational resources. Teachers and students can access up-to-date knowledge through online platforms. (Agu and Udechukwu, 2025; Onojah and others, 2024).

Notwithstanding these benefits, the internet has drawbacks in Nigeria, such as an erratic power supply, expensive data or subscription fees, inadequate network connectivity, and expensive ICT equipment, which discourage

the use of technology in education. This was confirmed by Prof. Adedimi in the Nation Newspaper of 7th August 2025, while commenting on the poor performance of students in WASSCE 2025. According to him, 'Many young Nigerians are distracted by technology these days'; to him, quality time that should be spent on study is spent on social media. He opined that the poor performance recorded in WAEC in 2025 was due to technoference, which causes students to focus not on their primary assignment but on technology. He claims that one way to combat this threat is to give students educational materials. The 21st-century technological advancements shouldn't eliminate the use of textbooks in the classroom. The Biology Chief Examiners Report 2023 recommended that teachers and school officials should ensure that students are properly prepared for examination by using textbooks that cover a wide range of the syllabus, rather than bemoaning the low performance of Biology students. This suggests that not every textbook covers the subject in sufficient detail. To overcome this, school must work in agreement with the specifications laid down by the Nigerian Educational Research and Development Council for school ownership, which include conformity of textbooks with the Nigerian school curriculum approved by NERDC; Compliance with National Educational Goals; Cultural and Moral Suitability as well

as the book being written and published by competent and recognized professionals. All these essential features are questionable when we allow our students' success to be determined solely by online educational sources.

Lev Vygotsky's Constructivist Learning Theory (1978). Posited that active learning takes place in a socially mediated process in which students engage with peers, teachers, and educational resources (materials) to create knowledge. Scaffolding is necessary to close the gap in the Zone of Proximal Development (ZPD). As teaching tools, textbooks help students close this gap by acting as scaffolding. Students can interact with one another in a social setting in the library. Collaborative learning is also encouraged through libraries and shared textbooks, where students collaborate to analyze data, solve problems, and understand diagrams. Thus, Vygotsky's theories offer a solid theoretical foundation for understanding why students' learning outcomes and conceptual understanding are significantly affected by the accessibility and use of common biology textbooks.

Research available to the researcher revealed that research on the availability of libraries and textbooks has been conducted in other states of Nigeria (Onuoha, 2020). In his study on the Provision and utilization of School Library Information Resources at Ndume Otuka Secondary School, Abia State, he

posited that although textbooks and magazines are available in Abia State, few of these resources were found to be utilized by the students. He recommended the creation of proper awareness to encourage use by the students,

Alabi (2021) investigated the Quality of schools and Library Spaces in Lagos State Public Schools. According to him, most public schools in Lagos State do not meet the required land area specifications for their establishment. According to him, the smallest population, 127 students, uses a library with a floor area of 59.5 sqm, while the largest population, 3,020 students, uses a library with a floor area of 36 sqm. It was therefore recommended that the government ensure that schools have spacious libraries and that students' enrolment be used as a yardstick for providing schools with library services. Olajide (2021) also reported similar findings in Ekiti State, where he found that although textbooks were available in school libraries, most of the personnel in charge of the libraries lacked librarianship qualifications. According to him, school libraries are underrated in their support for the curriculum. Obadiora 2024, who worked on the Perception of Education Stakeholders on Learners' Use of Library Facilities and Resources in Secondary Schools in Osun State, revealed widespread inadequacies, including a lack of current textbooks, supplementary science materials, and

adequate reading space. According to him, several secondary schools in Osun State were grossly underutilized with students reporting a lack of essential learning materials and a perception that available resources did not adequately support their academic needs. In some cases, libraries exist only nominally and are grossly under-utilised due to a lack of trained librarians, poor management, or insufficient library resources which do not align with the curriculum (Akiu & Olatunbosun, 2022). Markinde and Abdusalam (2022) also reported similar findings in the Ilorin metropolis. According to them, these barriers restrict the students' access to coherent curriculum-aligned learning materials. Osakwe (2021) reported similar findings in Delta State, positing that the lack and inadequacy of textbooks in schools expose students to fragmented learning experiences. Enebechi (2023) posited that most of the biology textbooks available were too complex and poorly structured. Mwikali Kiende and Ogeta (2024), in their study on Textbook Use and Its Effect on Students' Academic Achievement in Public Secondary Schools in Makueni County, Kenya, demonstrated that students' academic performance was positively affected by the efficient use of textbooks.

This research has become timely and relevant as researchers have found that students' examination performance has been

negatively affected by the advent of technology. Solving this means restoring the ancient landmark to complement the school system's technology. Hence, the need to investigate the Availability and Utilization of Standard Biology Textbooks for Curriculum Implementation in Public Senior Secondary Schools.

Statement of The Problem

According to the West African Examinations Council (WAEC) Chief Examiners' Report, 36.4% of students failed Biology in 2023. In 2024, 32.19% giving, a total of 15,692, failed Biology. In 2025, 36.4% failed Biology, giving a total of 17,744 students. The poor performance in 2025 was attributed to a newly introduced feature, "serialization," which made collusion and other forms of examination malpractice extremely difficult to perpetrate. The Biology Curriculum is designed to give students a level playing field to pass the subject without resorting to malpractice. If the Curriculum is adequately taught and guided with adequate learning materials, students should be able to obtain a credit pass independently. It therefore becomes important to trace the likely cause of this poor performance. A student who is confident in his or her ability will not rely on examination malpractice to pass. If students are provided with the required learning materials and adequately guided, they will learn. This study, therefore, seeks to investigate the availability and utilization of

standard biology textbooks for Curriculum implementation in public secondary schools.

Objectives of the Study

The objective of the study was to determine the extent to which standard Biology textbooks are available in Senior Secondary School Libraries and utilized in curriculum implementation.

Research Questions

1. What percentage of public senior secondary schools in Egor Local Government Area have a standard Library?
2. Are there standard biology textbooks in the libraries?
3. How adequate are the textbooks for the population of biology students?
4. What percentage of biology students have a personal biology textbook for personal study and assignment?
5. What percentage of students make adequate use of the library for self-study and assignments?

Methodology

This study adopted a descriptive survey research design. The population of the study consisted of all 2698 senior secondary school students (SSS I–SSS III) offering Biology in the 13 Public Senior Secondary Schools in the Egor Local Government Area, Benin City, Edo State. The census sampling technique was adapted to investigate the

availability of libraries in the thirteen (13) public secondary schools in Egor Local Government Area. Purposive sampling was used to select schools with libraries for the administration of the utilization questionnaire. From the three schools with available libraries, a simple random sampling technique was used to select 100 students from each population, yielding sample sizes of 33, 33, and 34, respectively. Two instruments were used for data collection: a checklist of approved Biology textbooks developed by the researcher, aligned with the State Ministry of Education-approved textbooks.

The structured questionnaire, termed Availability and Utilization of Biology Textbooks Questionnaire (AUSTBQ), was developed by researchers. AUSTBQ consisted of Section A, which solicited respondents' demographic information, while Section B consisted of items related to the utilization of standard Biology textbooks. The response format is based on a 4-point scale comprising Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

The research instruments were validated by three persons: a lecturer from the Department of Curriculum and Instructional Technology, Faculty of Education, University of Benin,

Benin City; a biology teacher; and a third person from the Ministry of Education, Benin City. Their observations and corrections were incorporated into the final copy used for data collection.

A pilot test was conducted with 20 students who were not part of this study. The data collected were analyzed using Cronbach's Alpha statistics. A reliability coefficient of 0.79 was obtained, indicating that the instrument was reliable.

The researcher, with permission from the school principals, visited the libraries of the thirteen (13) public senior secondary schools in the Egor Local Government Area of Edo State to assess the availability of standard Biology textbooks using the developed checklist.

Observations from the 13 schools visited showed that most do not have a library. The questionnaire on utilization could not be administered to students from those schools without a library. Only the students in schools with libraries were administered a questionnaire on utilization. The researcher personally administered the questionnaires to the respondents. Respondents were given time to complete the questionnaire, and their responses were immediately collected.

The data collected were analyzed using frequency counts and simple percentages.

Results

Research Question 1: What percentage of public senior secondary schools in Egor Local Government Area have a standard Library?

Table 1: Availability of standard Libraries in Public Secondary Schools in Egor Local Government Area of Edo State.

S/N	Name of schools	of	Availability of Library	Type of biology textbooks available	Number of copies available	State of the textbook	Pop. of biology students	Pop. of students with personal biology textbooks
1.	Edo Boys High School	1		Essential Biology	20	Good	SS1= 62 SS2= 58 SS3= 42	SS1= 16 SS2= 7 SS3= 12
2.	Uselu Sen Sch	0		-	-	-	SS1= 51 SS2= 47 SS3= 32	SS1= 8 SS2= 3 SS3= 7
3.	Govt Science Sec Sch	1		Essential Biology	12	Good	SS1= 92 SS2= 63 SS3= 44	SS1= 10 SS2= 5 SS3= 7
4.	Eweka Sec Sch	0		-	-	-	SS1= 68 SS2= 53 SS3= 57	SS1= 13 SS2= 9 SS3= 3
5.	Asoro Sec Sch	0		-	-	-	SS1= 273 SS2= 146 SS3= 120	SS1= 15 SS2= 8 SS3= 12
6.	Egor Sec Sch	0		-	-	-	SS1= 143 SS2= 65 SS3= 57	SS1= 14 SS2= 7 SS3= 8
7.	Iyoba Girls College	1		Essential Biology	10	Worn out	SS1= 97 SS2= 83 SS3= 62	SS1= 16 SS2= 10 SS3= 4
8.	Use Sen Sch	0		-	-	-	SS1= 43 SS2= 33 SS3= 20	SS1= 6 SS2= 5 SS3= 2
9.	Uwelu Sec Sch	0		-	-	-	SS1= 64 SS2= 58 SS3= 42	SS1= 9 SS2= 7 SS3= 3
10.	Evbareke Sec Sch	0		-	-	-	SS1= 120 SS2= 87 SS3= 32	SS1= 8 SS2= 3 SS3= 5
11.	Ohonre Sec Sch	0		-	-	-	SS1= 48 SS2= 41 SS3= 34	SS1= 6 SS2= 5 SS3= 2
12.	Evbuotuba Sec Sch	0		-	-	-	SS1= 93 SS2= 88 SS3= 52	SS1= 11 SS2= 10 SS3= 7
13.	Okhokugbo Sen Sec Sch	0		-	-	-	SS1= 57 SS2= 40 SS3= 31	SS1= 8 SS2= 5 SS3= 3
TOTAL		23 %					SS1= 1211 SS2= 862 2698 SS3= 625	SS1= 140 SS2= 84 301 SS3= 77

Table I presents the number of schools, the availability of libraries, the types of biology textbooks available in libraries, the student populations at the schools, and the number of students with personal biology textbooks for self-study. The table shows that out of the 13 schools in the Egor Local Government Area, 23% have standard libraries. Two of the three schools have a single type of biology

textbook, which is in limited supply relative to the number of Biology students at those schools. The remainder consists of only a few Essential Biology textbooks, which are in poor condition. The population of Biology students in Egor Local Government is 2698. Only 301 students, representing 11.2% of the biology student population, have personal Biology textbooks.

Table 2: Students' Utilization of the Library for Self-study and Assignment

S/N	ITEMS	SA	A	D	SD
1.	I visit the school library regularly for self-study.	30	17	25	28
		30%	17%	25%	28%
2.	I use the library to complete my school assignments.	27	16	34	23
		27%	16%	34%	23%
3.	The library contains current and standard Biology textbooks.	21	26	32	21
		21%	26%	32%	21%
4.	I find the textbooks and materials I need for my assignments in the library.	21	22	31	26
		21%	22%	31%	26%
5.	The school provides easy access for students who cannot afford personal copies.	17	25	39	19
		17%	25%	39%	19%
6.	The Biology textbooks in the school library are in good condition and usable.	18	32	29	21
		18%	32%	29%	21%
7.	I borrow Biology textbooks from the library when needed.	13	24	45	18
		13%	24%	45%	18%
8.	Some Biology textbooks in the library are outdated.	13	18	34	35
		13%	18%	34%	35%
9.	Limited copies of Biology textbooks discourage me from using the library.	18	17	41	24
		18%	17%	41%	24%
10.	The borrowing system for biology textbooks is easy and accessible.	17	20	30	33
		17%	20%	30%	33%
11.	I feel motivated to read biology when I have access to the library's textbooks.	24	21	38	17
		24%	21%	38%	17%
12.	I rely on library biology textbooks when my personal textbook is unavailable.	16	25	30	25
		16%	25%	30%	25%
13.	I use the library's biology textbooks for practical diagrams and illustrations.	20	23	36	21
		20%	23%	36%	21%

KEY: %acceptance=SA+A ≥ 50%

Table 2 revealed percentages below 50% across the items investigated, except for items 6 and 11, which indicated that the textbooks in the library are in good condition (50%). They also indicated their motivation to study biology

if they are granted access to the library (60%), but this access is not freely granted, as revealed in item 5, at 42%. As a result, many of the students who do not have personal biology textbooks rely on teachers' notes for

examination preparation (41%). Findings revealed that although students are not discouraged by the limited number of biology textbooks, as indicated by item 9 (SA+A=35%), they are hindered by the borrowing system, which is neither easy nor accessible to students, as indicated by item 10 (SA+A=37%). These led students to avoid regularly visiting the library for self-study and assignments, as revealed in items 1 and 2.

Discussion of Findings

Findings from this research revealed that only three of the thirteen public senior secondary schools in the Egor Local Government Area have standard libraries. This reflects an alarming situation on the effect on students' performance in Biology in Nigeria. This finding aligns with Alabi (2021), who observed that many public secondary schools operate libraries that fall below recommended standards for space, student capacity, and resources. The lack of functional libraries in most schools directly limits students' access to essential academic materials, including textbooks. Such inadequacies can hinder students' independent learning, reduce opportunities for self-directed study, and negatively affect overall academic performance, particularly in subjects like Biology that require engagement with multiple sources of information. This study also discovered that the Essential Biology Textbook was the only recommended Biology

textbook available in the libraries of the three schools. This mirrors the findings of Makinde and Abdulsalam (2022), who reported that many public secondary schools in Nigeria rely on a very narrow range of prescribed textbooks. The limited availability of multiple textbooks restricts students' exposure to varied explanations, diagrams, practical examples, and alternative approaches to complex biological concepts. Consequently, students' ability to understand, analyze, and apply scientific knowledge is constrained, and their learning experiences are often fragmented, relying heavily on teacher notes or peer discussions rather than comprehensive study resources.

Additionally, the student-textbook ratio of 201:14 underscores the severity of textbook inadequacy in these schools. This finding is consistent with Osakwe (2021), who emphasized that insufficient textbook copies in public schools force students to share books or rely solely on classroom notes. Such circumstances limit students' opportunities for independent revision, reduce the quality of their preparation for examinations, and hinder mastery of practical concepts that require repeated consultation of textbooks. The high student-to-textbook ratio indicates that even when textbooks exist, they are not readily accessible to all students, creating inequalities in learning opportunities within the same classroom.

Furthermore, the finding that only 301 out of 2698 students (11.15%) of the population possess personal Biology textbooks further highlights the challenge of resource insufficiency in public schools. This low personal ownership of textbooks aligns with Enebechi (2023), who observed that limited access to personal learning materials constrains students' ability to study independently, complete assignments, or prepare adequately for examinations. Personal ownership of textbooks is critical for reinforcing learning beyond the classroom and allowing students to revisit complex topics at their own pace. The lack of individual textbooks, therefore, represents a significant barrier to effective Biology education in these schools.

Lastly, the generally low functionality and utilization of school libraries for Biology learning, as indicated by limited student visitation for self-study, low use for assignments, difficulty accessing textbooks, challenges with borrowing systems, low motivation to read Biology, and limited use of library textbooks for diagrams and illustrations, mirrors earlier findings from Onuoha and Chukwueke (2020). Even where libraries exist, under-utilization remains a serious problem due to inadequate resources, poor management, limited library space, and the absence of trained librarians. These limitations reduce students' engagement with library resources and prevent libraries from

serving as supportive spaces for deep learning and inquiry-based activities. For subjects like Biology, which are content-heavy and rely on visual aids, diagrams, and updated references, poorly functional libraries further compound the difficulties students face in acquiring conceptual understanding and performing effectively in internal and external assessments.

Conclusion

In conclusion, the state of the library in public Senior Secondary schools in the Egor Local Government Area of Edo State is alarming. If good performance is expected of students, there is a need to overhaul the library with standard biology textbooks, grant students easy access to borrowing, and provide self-study.

Recommendations

1. The government should ensure that all public Senior Secondary Schools' libraries are revitalized and equipped with functional and adequate library materials, which include a variety of current and approved biology textbooks.
2. The government should subsidize textbooks to encourage personal ownership amongst students.
3. School authorities should encourage regular use of libraries by implementing structured library hours, motivating students to use

library resources for self-study and assignments, and integrating library visits into the curriculum.

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