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Evaluation on the Implementation of Physics Curriculum among Senior Secondary School Teachers in Bayelsa State, Nigeria

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Abstract

The purpose of this study was to evaluate the implementation of physics curriculum in secondary schools in Bayelsa state. Five research questions were used to guide the study. The study adopted descriptive research of survey design. The population of the study comprised of 217 public secondary school physics teachers. The sample consisted of 36 physics teachers selected through the random sampling techniques from the three senatorial districts of the state. The instruments used for data collection was physics Teacher Evaluation Questionnaire (PTEQ) and Guidelines for Physics Implementation Checklist. The instruments were face-validated by three experts in the field of curriculum development and measurement and evaluation. The reliability of the instrument was determined through test – re-test methods, on analysis using Cronbach's Alpha statistics the result showed 0.82 and 0.74 respectively. Data collected were analyzed using frequency, percentage, mean and standard deviation. The findings showed that the qualified graduate physics teachers available for the implementation of physics curriculum are not adequate. Majority of the secondary schools do not have standard physics laboratories with modern teaching facilities and equipment for the effective teaching and learning of physics. More so physics teachers do not organize practical physics class regularly expect when preparing for external examination. The study recommended that adequate standard physics laboratory with modern facilities and equipment should be provided by the government and school authorities for secondary schools and more qualified graduate experience physics teachers should be recruited.

Keywords: Evaluation, Implementation, Curriculum, Infrastructural Facilities, Secondary Schools.

Introduction

Science is an area of learning that is absolutely necessary for development because of its linkage to technology and industry. Physics is one of the science subject which is the bedrock of scientific and technological development worldwide. Physics is concerned with the structure of matter, force and the interactions between the fundamentals constituents of the universe that are observable. Brecht (2021) defined physics as the study of the physical plane of matter, motion, force and energy. Physics is an academic discipline in Nigerian schools, it understanding facilitates advancement in the world of science and technology which translates to national and human capital developments. The objectives of physics in the national curriculum of physics in the Nigerian Educational Research and Development Council (NERDC 2012) are to provide literacy in physics for functional living in the society, to acquire basic concepts and principles as preparatory for further studies, to acquire relevant skills and attitude of science as preparation for technological application of physics, and to stimulate and enhance creativity as well as provide course, which is complete for students not proceeding to higher education, while it is at the same time, a reasonable adequate foundation for a

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post-secondary physics courses. These objectives whether general or specific are only achieved by the teacher and students through the proper implementation of the secondary school physics curriculum. Thus, teachers and students must ensure that they maintain a good achievement in physics to ensure the attainability of these objectives. Apparently, the achievement of students in physics leaves much to be desired. As noted by scholar, students achievement in physics at the secondary school level has continue to decline. The report of Okeke and Ajoku (2022) reveals that secondary school students' achievement in physics is low.

A secondary schools physics curriculum is a structured educational program designed to teach students the principles and concepts of physics. Raji (2022) defined curriculum as the organization of learning sequence that is expected to take place during a course or program with respect to knowledge, skills and attitudes in essence. Thus, the physics curriculum is a well defined and prescribed course of study which students are expected to fulfil as to attain a certain level of education. The curriculum typically covers a range of sections such as integration of matter, space and time conservation principles, wave motions, fields at rest and in motion, energy quantization and physics in technology and all these section are to be well implemented to achieve the objectives of the physics curriculum. Curriculum implementation refers to the process of translating the curriculum into actual teaching and learning experience in the classrooms physics curriculum. It involves the strategies and activities used by teachers to deliver the content and achieve the learning outcomes specified in the curriculum (Nevenglosky, 2022). Physics curriculum implementation refers to the process of putting into practice the planned curriculum for physics education within educational setting. This involves the adaption of educational standards lesson plan, teaching, method, assessment strategies and the provision of resources to ensure that students effectively learn physics concepts. Thus, effective implementation of physics curriculum, required human and material resources such as individuals, instructor/teachers, the learners, learning materials, infrastructural facilities, assessment of learning, outcome etc. Implementing a secondary school physics curriculum can be complex and is influenced by various factor or indices including, inadequacy of qualified physics teachers, inadequate instructional materials, /facilities, time constraints, lack of physics practical activities, low content coverage of physics curriculum, pedagogical approaches, lack of maximum classroom interactions, students negative attitudes towards the subject etc. Baokye (2022) highlights other as over-crowded curriculum, non conducive learning environment, inadequate teaching skills possessed by teachers, inadequate instructional materials and other challenges.

The implication of these factors is that during planning and implementation of the secondary school curriculum, if some of these factors are not put into consideration, the curriculum may not effectively implemented. Thus, at the level of physics curriculum implementation, attention must be given to the objectives stated in the curriculum as to ensure that the implementation process and the objectives, are not at variance. As a result of these factors various studies have shown a persistent gap between the curriculum objectives and the students actual performance in physics subjects, causing educators to question the effectiveness of the current physics curriculum implementation and educational framework (Adeyemo 2021, Ibe 2022, Adebule et al 2023). One of the ways to determine if a curriculum is well implemented or not is through evaluation.

Curriculum evaluation is the process of assessing and analyzing the effectives of a curriculum in meeting its intended educational goals and objectives. Gopal and Preskill (2022) defined curriculum evaluation as systematic process of collecting and analyzing qualitative as well as quantitative data

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in order to inform learning and decision about the curriculum. Physics curriculum evaluation involves assessing the physics curriculum in terms of alignment with the official planned curriculum with national and state standards, its relevance to the needs and interest of students for understanding and mastery of key physics concepts and its ability to prepare students for further study or careers in science, technology, engineering and mathematics (STEM) fields. This study determine the level of the implementation of the physics curriculum in the area of physics teachers qualifications, instructional materials and facilities, frequency of practical activities, state of physics laboratories and assessment of learning outcomes. A role of qualified physics teacher in the implementation of the physics curriculum is crucial because he is the major implements of the physics curriculum. Balogun (2022) submitted that no effective science programme, including physics can exist without standard infrastructural standard laboratories, equipment, and instructional materials for teaching and learning. Practical work has been regarded as a learning activity in which the students are actively engaged in manipulation and observation of real objects and materials which develop skills. Also types of assessment use to determine learning outcome in physics is crucial.

Physics is an essential aspect of science and technology, the importance of physics cannot be underrated, because is the one of the bedrocks of scientific and technological development worldwide. Physics is the crux of technology and indispensable single element in modern society development.

As importance the subject is physics scholars has noted that the performance of physics students at the secondary school is low (Adeyemo 2023). Jegede, Awodun, and Olusola (2022) noted that in spite of the enormous role that physics play in national development and effort of government and other stakeholders in promoting science education, physics result in most certified examination bodies like West African Examination Council (WAEC) have not been satisfactory. The continuous poor achievement of students in physics as reported above threatens the objectives of physics as captured by NERDC (2012) and the advancement expected in the world of science and technology. Based on this background that this study to evaluate the implementation of the physics curriculum in secondary school in Bayelsa state.

Statement of the Problem

The physics curriculum in secondary schools play a crucial role in shaping students understanding of the physical world and fostering critical thinking and problem –solving skills. Despite of this, there seem to be discrepancies between the official prescribed physics curriculum and the implemented curriculum. As a result students seem not to acquire the necessary competencies or practical skills in physics to apply their knowledge in real-world scenarios. This is shown in their performance assessment in national examinations and other evaluative measures. Therefore this study is carried out to evaluate the extent of implementation of the physics curriculum in secondary schools in Bayelsa state to determine if the qualified physics teachers, standard physics laboratories, instructional materials, practical activities, and method of assessing students learning outcome are in place for proper implementation of the curriculum.

Objectives of the Study

The objectives of the study was to evaluate the implementation of physics curriculum in secondary schools in Bayelsa state, specifically in the area of qualified physics teachers, standard physics laboratories, instructional materials practical activities and method of accessing students learning outcome in physics.

Research Questions

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1. What is the percentage of qualified physics teachers in the schools to implement the physics curriculum in Bayelsa state?
2. What is the extent of adequacy of well equipped standard physics laboratories and equipment in Bayelsa state?
3. How often do physics teachers conduct practical work in the schools in Bayelsa state?
4. What is the extent of adequacy of the recommended instructional materials for the teaching and learning of physics in the secondary schools?
5. What form of achievement test are used for evaluating learning outcomes in physics?

Methodology

The study employed a descriptive research of survey type. The population for this study comprised of entire 217 public senior secondary school physics teachers in Bayelsa state. The random sampling technique was used to sample 36 senior secondary schools, 12 from each of the three senatorial district of the state and 36 physics teachers. The instruments used for data collection are Physics Teacher Evaluation Questionnaire (PTEQ) and Guidelines and Essential Equipment for physics Implementation Checklists. The face validity of the questionnaire were determined by three experts from the field curriculum development and measurement and evaluation. The reliability of the instrument was adopted using a test – retest method, on analysis using Cronbach's Alpha statistics the result showed 0.82 and 0.74 reliability respectively. The data collected were analyzed using frequency count, percentage, mean and standard deviation and 2.50 is the criterion mean score of agreeing or disagreeing.

Presentation of Results

Research question 1: What is the percentage of qualified physics teachers in the schools to implement the physics curriculum in Bayelsa state?

Table 1: Frequency and percentage statistics showing the qualification of senior secondary school physics teachers

S/N	Qualification	Frequency	Percentage (%)
1	B.Sc (Ed) + PGDE	11	30.5
2	NCE (Physics Major & Minor)	9	25.0
3	OND (in Physics related disciplines)	5	13.9
4	HND (in Physics related disciplines)	4	11.1
5	B.Sc (Engineering)	2	5.6
6	B.Sc (Physics)	3	8.3
7	M.Sc (Ed) Other science subject	2	5.6
	Total	36	100

The result from table 1 shows that 11 (30.5%) of the teachers have B.Sc (Ed) (Physics), 9 (25.0%) have N.C.E qualifications, 5 (13.9%) have OND, 4 (11.1%), 4 have HND, 2 (5.6%) have B.Sc (Engineering), 3 (8.3%) have B.Sc physics, and 2 (5.6%) have M.Sc (Ed) in other science subjects. The result showed that the bulk of teachers, teaching physics in the secondary schools are B.Sc (Ed) physics and NCE. However, other category of unqualified teachers (OND, HND, B.Sc Engineering) etc also teaches physics, these are not qualified for effective implantation of the physics curriculum. According to specification of physics guidelines, the N.C.E teachers are not suppose to teach at the senior secondary school level. Therefore, the available qualified graduate physics teachers in the school teaching physics are of low percentage and not adequate.

Research Question 2: What is the extent of availability and adequacy of well equipped standard physics laboratories and equipment in Bayelsa state?

Table 2a: Mean and standard deviation of adequacy of standard physics laboratories and facilities

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	Items	N=36	$\bar{x}$	SD	Decision
1	Standard Physics Laboratory		2.89	0.48	Adequate
2	Laboratory table and slabs		2.14	0.56	Inadequate
3	Electrical System		2.05	0.62	Inadequate
4	Area of carrying out repairs		1.18	0.68	Inadequate
5	Water and gas supply		1.92	0.57	Inadequate
6	Preparatory room		1.83	0.72	Inadequate
7	Dark room		2.12	0.63	Inadequate
	Aggregate Mean		2.02		
	Criterion Mean		2.50		

Table 2a, Item I with the mean of 2.89 which is above the criterion mean of 2.50 showed that most of the schools have physics laboratories. However, from items 2 – 7 with mean range of 1.18 – 2.14 below the decision mean of 2.50 showed that the most of the schools did not have adequate physics laboratories facilities. The aggregate mean of 2.02 revealed low extent of adequacy of facilities.

Table 2b: Mean and standard deviation of adequacy of physics equipments in schools.

	Physics apparatus for	N=36	$\bar{x}$	SD	Decision
1	Mechanics		3.24	1.56	Adequate
2	Heat		2.60	0.82	Adequate
3	Optics		2.64	0.64	Adequate
4	State of matter		2.54	0.72	Adequate
5	Sound		2.32	0.62	Inadequate
6	Electricity		2.14	0.45	Inadequate
7	Electronics		1.94	0.52	Inadequate
8	Waves		2.11	0.78	Inadequate
9	Physics in technology		1.73	0.48	Inadequate
10	Quanta		1.14	0.43	Inadequate
	Pool Mean		2.24		
	Criterion Mean		2.50		

From table 2b Item 1 – 4 with mean rating of 2.54 to 3.24 which is above the decision mean 2.50 indicates that the equipment for teaching mechanics, heat, optics and state of matter are adequate, while item 6 – 10 with mean range of 1.14 to 2.32 below the decision mean of 2.50 showed that the equipment for teaching the topics in these items are inadequate. The aggregate means of 2.24 is an indication that majority of equipment for effective teaching and learning of physics are not adequate.

Research question 3: How often do physics teachers conduct practical work in the schools in Bayelsa state?

	Senatorial District	Weekly	Monthly	Termly	When Preparing for External Examination
1	Bayelsa central	1	3	4	5
2	Bayelsa East		1	3	3
3	Bayelsa West		1	3	4
		1(1.6%)	5 (7.9%)	10 (15.9%)	13 (20.6%)

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The table 3 show that 1.6% of the schools occasionally organized practical weekly, (7.9%) organized practical monthly, 15.9% organized practical termly and 20.6% organized practical when preparing for an external examinations. This revealed that most of the school physics teachers do not organized practical physics class regularly except when preparing for external examinations.

Research question 4: What is the extent of adequacy of the recommended instructional materials for the teaching and learning of physics in the secondary schools?

Table 4: Mean and standard deviation on the extent of adequacy of the recommended instructional materials for teaching and learning of physics.

S/N	Instructional materials/Resources	N	$\bar{x}$	SD	Decision
	Printed materials				
1.	Textbooks & Workbook	36	3.72	0.38	HE
2.	Journals	36	2.82	0.42	HE
3.	Magazines	36	2.56	0.52	HE
4.	Bulletins	36	2.51	0.57	HE
5.	Laboratory manual	36	2.67	0.62	HE
	Visual Materials				
6.	Chalkboard	36	3.89	0.43	HE
7.	Photographs	36	1.48	0.49	LE
8.	Map/Whiteboard	36	2.10	0.54	LE
9.	Chart and poster	36	2.14	0.64	LE
10.	Computer	36	1.48	0.62	LE
11.	Diagram	36	2.54	0.72	HE
12.	Slide and projector models	36	1.24	0.65	LE
13.	Electric board	36	1.18	0.72	LE
	Audio Materials				
14.	Cassette and tape recorder	36	2.10	0.64	LE
15.	Radio	36	2.15	0.72	LE
16.	Record player	36	1.14	0.68	LE
	Audio Visual				
17.	Television Set	36	2.12	0.54	LE
18.	Video tape	36	2.15	0.67	LE
19.	Cine film	36	1.12	0.73	LE
20.	Slide and television	36	1.14	0.71	LE
21.	Projectors	36	1.92	0.65	LE
	Aggregate Mean		2.36		
	Criterion Mean		2.50		

From table 4, the instructional materials on items 1, 2, 3, 4, 5, 6 and 11 which are under printed materials and other like, chalkboard and diagram with mean range of 2.51 to 3.72 which is above the decision mean of 2.50 have a high extent of adequacy. While instructional materials on items 8 to 21 under visual, audio and audio visual materials with the mean rating of 1.14 to 2.15 which is below the criterion mean of 2.50 have a low extent of adequacy. The aggregate mean of 2.36 is an indication that majority of the instructional materials for effective teaching and learning of physics are not adequate.

Research question 5: What form of achievement test was used for evaluation learning outcome in Bayelsa state?

Table 5: Achievement test used for evaluating learning outcome in physics.

Senatorial District	Teacher Made Test	School Set exam	State set exam	External Examination

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1	Bayelsa central	√	√	√	√
2	Bayelsa East	√	√	√	√
3	Bayelsa West	√	√	√	√

Table 5 present the result of achievement test which assess learning outcomes in physics. It shows a mix of assessment including teacher-made test, school set examinations, those from the ministry of education and external examinations.

Discussion of Findings

The first findings of the study indicated that many categories of unqualified teachers made of OND, HND, B.Sc in related subjects who are not qualified for effective implementation of the physics curriculum also teaches physics. The N.C.E who are qualified teachers are not suppose to teach at the senior secondary school level. From the analysis the qualified graduate physics teachers, available with the percentage of 30.5% are not adequate. Therefore the qualified graduate physics teachers available for the implementation of physics curriculum in the sample schools are not enough. The findings of this study is in line with that of Ngada (2020) that the availability of professional teachers in our schools is low. The findings is also in agreement with of Adeyemo (2020) who found out that teaching is gradually becoming a vocation rather than a profession hence an abundance of unqualified physics teachers teaching physics as a result of those available 'hand' in replace of qualified teachers.

The second findings of the study from table 2a showed that most of the school have physics laboratories but they don't have adequate facilities such is electric system, darkroom supply of water and gas, area for carrying out repairs among others, from the finding most of the secondary schools do not have stand physics laboratory structure with modern teaching facilities for the effective teaching and learning of physics. The finding confirmed that of Akinbobola (2021) that laboratory facilities for the teaching of physics are not adequate in numbers for effective teaching of physics. Another finding from table 2b showed that the physics laboratory equipment for effective teaching and learning of practical physics are not adequate especially for the teaching of electricity, electronic, quanta physics, waves, and physics in technology. This finding is in line with the finding of Ayua et al, (2024) that most of our scholarly school physics laboratories are not well-equipped with physics apparatus to conduct practicals. These findings also confirm the report of Kwari (2023) who noted that one of the major difficulties in teaching physics is the lack of adequate infrastructure and equipped physics laboratories in public schools.

The third finding of the study as indicted in table 3 showed most of the school physics teachers does not organize practical physics class regularly except when preparing for external examinations. This finding of the study align with that of Afolabi (2020) that there are little or no practical demonstration by physics teachers in some of our secondary schools in most schools students are introduced to physics practicals two weeks to external examination. The fourth findings of the study as indicated in table 4, showed that majority of the instructional materials for effective teaching and learning of physics are not adequate, availability of instructional materials is of low extent so teaching and learning resources and materials are lacking in many schools in Bayelsa state. The finding agrees with that of Feidipe et al (2024) who reported that the teaching and learning of physics is greatly impacted by inadequate instructional materials. The fifth finding of this study from table 5 showed that, assessment of learning outcome of student in physics is the combination of both teacher set examination, school set examination, those from ministry of education and external examination. These examinations provide standardized ways to access students knowledge and understanding of

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physics. The findings is in line with the view of Nicholas and Nkopodi (2020) that students should be assessed to determine learning outcomes and with technique that strike a balance between the cognitive, affective and psychomotor domain

Conclusion

In accordance with the findings of this study, it is concluded that the qualified graduate physics teachers available for the implementation of physics curriculum are not adequate. More so great numbers of the secondary schools do not have standard physics laboratory structure with modern teaching facilities and equipment for the effective teaching and learning of physics in Bayelsa state. Furthermore physics teachers do not organize practical physics class regularly except when preparing for external examination. Finally, the study concludes that the recommended instructional materials for teaching and learning of physics in senior secondary schools are not adequate.

Recommendation

Based on the finding of this study, the following recommendation are made:

1. Adequate standard physics laboratories, equipments, instructional facilities and materials should be provided by the government and schools authorities for secondary schools.
2. Government should employ more qualified graduate physics teacher and personnel for the teaching of physics.
3. Physics teacher should make practicals physics lesson a priority so that it stimulate the students towards acquiring relevant skills and enhance creativity.

References

Adeyemo, T. (2023) Physics Curriculum Implementation challenges in Nigeria Secondary Schools. *Journal of Education Research, 10*(2) 145 – 162.

Adebule, S.O, Aydele OS, & Akomolafe, O.D (2023) Evaluation of the Implementation of the Senior Secondary School Physics Curriculum in Nigeria. *International Journal of Education Learning and Development, 11*(6), 34 – 43.

Afolabi, A. (2020) Addressing Inadequate Teaching Physics Equipment in Secondary Schools. A study of schools in Ogun state. *African Journal of Physics Education, 5*(2), 78 – 92.

Akinbobola, A. (2021). The Challenges of physics Education Infrastructure and Teacher Qualification in Nigeria Secondary Schools. *International Journals of Physics Education Research, 12*(4), 289 – 302.

Ayua A.G, Fatoki, O.J. Anande, T.J &Akwaji N. I. (2024). State of physics laboratories on private and public secondary schools in Markudi Benue State Nigeria. *Vunokiang Multidisciplinary Journal of Science and Technology Education, 12*(1), 108 – 110.

Balogun K. (2022) Inadequate qualified teachers and poor students' academic performance in physics. A case study of selected secondary schools in Ogun state. *International Journal of Science Education, 15*(3), 220 – 235.

Baokye, K.A. (2022). Assessing the effectiveness of the physics curriculum implementation in Ghanaian high schools. A comparative study. *International Journal of Science Education, 40*(6), 789 -805.

Brecht, M. (2021) What is Physics? *Retrieved from https://study.com/learn/lesson/what-is-physics-branches.html*

Fadipe, B.M. Uwaechia, F. C, Olusola, E, &Ezekwudo, C.C (2024) Impact of inadequate instructional materials on the effective teaching and learning of physics in Bwari Area Council of Nigeria Federal Capital Abuja. *International Journal of Humanities Social Science and Education, 4*(3), 1511 – 1518.

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Jegede, J. A. Awodun, A. M. & Olusola O.T (2022) Inadequate teaching Physics equipment and its implication for curriculum implementation in secondary schools in Nigeria. *European Journal of Educational studies, 7*(1) 103 – 115.

Nevenglosky, A. (2022. The effect inadequate physics curriculum content on students academic performance. Evidence from Nigeria. *Journal of Educational Psychology 35*(1), 78 – 91.

Ngada, C. (2020) "Addressing the inadequate teaching physics equipment in African schools. A review of current practices and future perspectives"*Journal of African Science Education, 9*(1), 34 – 47.

Nicholas Z. &Nkpodi, N. (2020) Physics Teachers views and practices on the Assessment of students practical work skills. *Eurasia Journal of Mathematics, Science and Technology Education,16*(8), 1 – 9.

Nigerian Educational Research and Development Council (NERDC) 2012. National Minimum standards for the science curricula in Nigerian Secondary Schools 4thedition. Abuja. NERDC

Okeke, U. &Ajoku .L (2022) Physics curriculum evaluation. A comparative study of different assessment methods in Nigeria schools. *Nigerian Journal of curriculum studies, 7*(3), 45- 58.

Raji, S. (2022) Improving physics curriculum content for effective teaching and learning in Nigeria. *International Journal of Physics Education, 12*(1), 45 – 56.

Kwari I.A (2023) Assessing the impact of infrastructure on physics curriculum implementation in Nigeria Schools. *Journal of Educational Infrastructure Studies, 9*(1) 21 – 36.