

Impact of Curriculum Development and Planning on Teaching and Learning of Integrated Science in Junior Secondary Schools, Port Harcourt, Rivers state, Nigeria

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Abstract

This paper investigated the impact of curriculum development and planning on teachers' performance in teaching and learning of Integrated Science among Junior Secondary School in Port Harcourt. The purpose of the study is to ascertain how curriculum development and planning impact teaching and learning of Integrated Science at Junior Secondary Schools level in the state. A total of 130 respondents were selected using a researcher structured questionnaire administered through a descriptive survey design. The collected data were statistically analyzed using the Statistical Package for the Social Sciences (SPSS), IBM version 26. Analytical procedures adopted included descriptive statistics, frequencies, percentages, along with inferential statistics consisting of Mann Whitney U test and Spearman rho correlation procedures. Test of significance was fixed at alpha value of 0.05 ($P \leq 0.05$). Findings from the study revealed that curriculum development and planning had significant impact on teachers' performance of its' implementation. The study revealed that implementation of the curriculum was associated with a number of challenges bordering on inadequacies in staff recruitment, lack of training opportunities for teachers among others that were militating against the curriculum implementation. The challenges were inversely correlated with performances of the teachers in the curriculum implementation. Based on the findings of this study, the following recommends were made. That appointment of teachers for the subject should be based on professional qualification of personnel. Continuous in-house training of teachers through seminars and workshops along with provision of in-service training is needed, where teachers could be given the opportunity to go for a formal training towards enhancing their performances.

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1.0 Introduction

Integrated science is an integral part for the basic foundation of science education in the Nigerian educational system. A good foundation in integrated science at Junior Secondary School is found to boost students' motivation for interest in core science subjects like physics biology and Chemistry at the Senior Secondary School level where the fundamental requirement for science courses are usually laid. Integrated Science curriculum materials were designed for the first two years in the secondary schools. These included pupils' text, workbook and Teacher's Guide. These materials were revised to meet the requirements of the National Policy on Education when the 6-3-3-4 education system was introduced in 1982 (Afolabi, Ogunkunle, Toluhi, Appah, & Pelupssiya, 2021). The importance of Integrated Science necessitated effective curriculum planning and implementation. Effective curriculum development and planning are therefore integral parts for improving the quality of science education in Junior Secondary Schools. Effective curriculum development has a major impact on educational outcomes, teachers' quality and classroom experience. This informed the designing of curriculum for enhancement of skills and knowledge amongst the individuals concerned and fulfilling the needs of the community (Kapur, 2018). Curriculum development is aimed at standardizing the objectives of the course content for the teacher and improving learning experience for the students. In developing a curriculum, the objectives are constructed using behavioural terms by creating observable and measurable objectives with variable time expectations (Nkok & Nkok, 2025). Effective curriculum development and planning in integrated science at junior secondary levels determines to a major extent the learning outcomes through effective organization of its' content, guiding instructional methods, and alignment with the systems' educational goals. Among others, effective curriculum development and planning fosters teacher effectiveness and student engagement, while systematic curriculum design enhances scientific skill acquisition, preparing students for senior science courses in their professional orientations. Integrated science is therefore the bedrock on which scientific and technological studies rest. However, studies have revealed that the implementation of the Integrated Sciences curriculum is not meeting the desired expectation (Oguche, 2020).

Curriculum development and planning is considered to have major impacts Integrated Science in Junior Secondary schools by providing structured, sequential contents that enhances teacher effectiveness and student engagement. Effective planning therefore ensures that better pedagogical methods are in line with educational goals which help to fosters essential science skills thereby increasing students' interest in core science subjects like chemistry, physics and biology at the Senior Secondary School and at tertiary levels of education (Ajayi & Ogunyemi, 2023; Chukelu & Nkok, 2024). It is expected that well planned curriculum would define learning outcomes and activities thereby providing a roadmap for teachers to follow as well as improve learning Outcomes. Effective curriculum development would therefore provide teachers with tools, topics, methods needed for effective teaching and better classroom instruction. These processes are expected to enhance interest students in sciences: Efficient planning is therefore expected to facilitate effective utilization of human and material resources by maximizing teaching efficiency for the education goals.

Well-developed curriculum and planning are important for fostering scientific literacy among Junior Secondary School students if they are to have adequate motivation for sciences at the Senior Secondary School and at tertiary levels of education. The challenges of effective curriculum and planning in the study area are faced with numerous constraints bordering on structures, resources and personnel adequacy and effectiveness. Effective curriculum and planning therefore requires regular update for effective implementation. However, among Junior Secondary Schools in the study area there are lack of practical experience, shortage of science equipment and facilities, poor teaching methods, limited time allotted to integrated science on Schools' time table and lack of competent science instructors. These and other concerns necessitated this research, in other to determine the impact of Curriculum Development and Planning on teaching and learning of Integrated Science among the Junior Secondary Schools.

Research Objectives

The purpose of the study is to ascertain the impact of curriculum development and planning on teaching and learning of Integrated Science in Port Harcourt's Junior Secondary Schools. The specific objectives were structured as follows:

1. To determine the impact of Curriculum Development and Planning on teaching and learning of Integrated Science and
2. To identify the problems militating against the teaching of Integrated Science curriculum at Junior Secondary Schools.

Research Questions

The following research questions guided the study:

1. What are the impacts of Curriculum Development and Planning on teaching and learning of Integrated Science in Junior Secondary Schools in Port Harcourt?
2. What are the problems militating against the teaching of Integrated Science Curriculum in Junior Secondary Schools?

Research Hypotheses

The following null hypotheses were tested:

- H_{0i}: There is no significant difference in the opinion of male and female teachers in public and private Junior Secondary Schools in Port Harcourt on impact of Integrated Science Curriculum and planning on performance of students.
- H_{0ii}: There is no significant relationship between problems militating against the teaching of Integrated Science and impact of Curriculum Development and Planning among Port Harcourt Junior Secondary Schools.

Methodology

The study adopted a cross-sectional survey design Singh (2023) to facilitate extraction of data from teachers across the twenty one public Junior Secondary Schools and forty-eight private Junior Secondary Schools in Port Harcourt involved in the teaching and learning of basic Science.

A total of 155 respondents were selected using a researcher structured questionnaire. But 25 of the teachers were not able to complete the copies administered to them. The 130 or 83.9% who completed their copies with full information were used for the study. The collected data were statistically analyzed using the Statistical Package for the Social Sciences (SPSS), IBM version 26. Analytical procedures adopted included descriptive statistics, frequencies, and percentages, along with inferential statistics consisting of Mann Whitney U test and Spearman rho correlation procedures used in the test of stated hypotheses because of the non-parametric nature of the responses' assessment. Test of significance was fixed at alpha value of 0.05 ($P \leq 0.05$).

Result and Discussions

Of the total (130) respondents who completed the questionnaire administrations made up of 76.0% female and 24.0% males. By implication, most of the female teachers teaching Integrated Science in the Junior Secondary Schools involved in the study were females. In terms of school location, 69.2% were from Junior Secondary Schools located in urban setting while 30.8% were from rural areas of the study location. Though first degree was the dominant certificate but teachers with the National Certificate in Education (NCE) were more and accounted for 46.2% of the highest observed qualification. Others with B. ED were 23.1% while 30.8% had B. SC. By their years of experience on the job, 15.4% had between 1 and three years while 15.4% had between 4 and 7years of experience on the job. Those with between 8 and 12years of experience were 3.08% and 3.9% had between 34.6 13 and 17years. But 34.6 had above 17years of teaching experience on the job. A distribution that clearly indicated that the teachers had adequate years of experience to provide valid information for the subject of investigation.

Impacts of Curriculum Development and Planning on teachers' performance in teaching of Integrated Science

Performances of the teachers in relation to impact of curriculum and planning on the teaching and learning of the subjects was based on their perceptions and activities aimed at promoting better outcome for the learners. Those included their reflective views on goal attainment, activities relating to implementation of the curriculum and effective motivation enhance by their participation in the teaching and learning of the subject among the Junior Secondary School involved in the study. Table 1 showed the performances of the teachers in this perspective.

Table 1: Opinions of respondents Curriculum Development and Planning on teachers' performance in teaching Integrated Science at the Junior Secondary Schools

Sn	Teachers' performance in teaching	SA	A	D	SD	Mean	Std. Dev
1	Teachers have no positive views of Integrated Science on influence his or her statement of objectives	50(38.5)	10(7.7)	25(19.2)	45(34.6)	2.5	1.31
2	Affective and psychomotor objectives have not been neglected by teachers in teaching of Integrated Science	60(46.2)	15(11.5)	25(19.2)	30(23.1)	2.8	1.25
3	Teachers teach Integrated Science as base from which core sciences could emanate	55(42.3)	25(19.2)	10(7.7)	40(30.8)	2.7	1.29
4	Teachers use integrated approach for students in order to achieve more knowledge on science education	70(53.8)	5(3.8)	30(23.1)	40(30.8)	2.9	1.24
5	Teacher successfully carry out instruction in order to attain significant learning of Integrated Science	80(61.5)	10(7.7)	20(15.4)	25(19.2)	3.2	1.77
6	Teachers organize content of Integrated Science in a spiral form	65(50.0)	13(10.0)	10(7.7)	40(30.8)	2.8	1.34
Aggregate mean						2.8	1.18

(Benchmark = 2.50)

The overall performances of the teachers in relation to the implementation of the curriculum of the subjects in the selected Junior Secondary schools was above average. This is indicated with the aggregate mean score of 2.8 which is greater than the benchmark indicated at the bottom of the table. By percentage distribution, 19.2% and 34.6% had this view. But 38.5% and 7.7% strongly agreed and agreed respectively that Teachers have no positive views of Integrated Science influence his or her statement of objectives. The table revealed that the teachers had positive views on the influence their statement of curriculum objectives had on the learners. This is reflected in their non-negligence of the affective and psychomotor objectives in their teaching and learning of the subject. The table revealed that the teachers usually teach with the anticipation that they performance could enhance prospects of core sciences' knowledge by the learners. This could explain their ability to successfully carry out instructions of the curriculum in order to attain significant learning outcome by the learners. The observation here implied that the teachers could be said to have adequate performance in relation to the impact of curriculum development and planning.

Problems militating against the teaching of Integrated Science Curriculum in Junior Secondary Schools

Among constraints militating against effective impacts of curriculum development and planning on teaching and learning of Integrated Science in the Junior Secondary Schools of the study areas, were inadequate professional orientation of teachers responsible for implementation of the curriculum. Among others, Table 2 showed the opinion of teachers involved in the study, on some of these challenges.

Table 2: Opinions of teachers on problems militating against impacts of curriculum development and planning on teaching and learning of the subject

Problems militating against impacts of curriculum development and planning	SA	A	D	SD	Mean	Std. Dev
1. Teachers of Integrated Science who are not opportune to attend training and workshops in order to perform better in class teaching	90(69.2)	10(7.7)	2(1.5)	28(21.5)	3.8	1.27

2. Well qualified teachers are not normally recruited to teach Integrated Science	80(61.5)	5(3.8)	15(11.5)	30(23.1)	3.0	1.29
3. Inability of teachers to improvise instructional materials due to lack of professional competence	70(53.8)	10(7.7)	20(15.4)	30(23.1)	3.0	1.27
4. Most of the teachers in Integrated Science are not qualified to implement the curriculum	61(46.9)	19(14.6)	20(15.4)	30(23.1)	2.9	1.18
Aggregate mean					3.2	1.23

(Benchmark = 2.50)

Among the challenges as rated in Table 2 is the problem of inadequate opportunity for teachers to attend training and workshops in order to perform better in class teaching of the subjects. In Table 2, 69.2% of the teachers strongly agreed with this constraint while 7.7% agreed. Teachers who disagreed with the problem were 1.5% while 21.5% strongly disagreed with the opinion. Another constraint was blamed on recruitment of personnel. In the table, 61.5% and 3.8% of the teachers strongly agreed and agreed respectively with the suggestion that well qualified teachers were not normally recruited to teach Integrated Science. This could be responsible for the inability of the teachers to improvise instructional materials where such is lacking because the professional competence is lacking. This is further reflected in the last item of the table where 46.9% and 14.6% of the respondents strongly agreed and agreed respectively with the suggestion that most of the teachers responsible for the curriculum implementation in the Junior Secondary schools were not qualified to teach the subject. The observations here revealed that the major problems militating against effective teaching of Integrated Science Curriculum in the selected Junior Secondary Schools revolved round personnel recruitment process not based on merit or professionalism and lack of adequate opportunity for teacher to attend trainings and workshops.

Test of Hypotheses

The first hypothesis of the study was aimed at determining significant difference in opinions of male and female teachers on impact of Integrated Science Curriculum development and planning on performance of the teachers in its implementation. The null hypothesis is stated thus: H_{0i}: There is no significant difference in the opinion of male and female teachers in public and private Junior Secondary Schools in Port Harcourt on impact of Integrated Science Curriculum and planning on performance of teachers. The result of the Mann-Whitney U test used for the hypothesis is summarized in Table 3.

Table 3: Mann-Whitney U test on impact of curriculum development and planning in relation to teachers' performance in teaching Integrated Science at Junior Secondary Schools

Gender	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Z-value	p-value
Male	32	113.00	3616.00	48.000	8.000	0.000
Female	98	49.99	4899.00			
Total	130					

The result of the test revealed a significant gender difference in the teachers performances in relation to the impact of the curriculum development and planning as it relates to their teaching activities in the Junior Secondary Schools. As indicated with the mean rank, the male teachers had higher perception of the teaching performances than was observed among the female teachers. The Mann-Whitney U was 48.000 with a Z-values of 8.00 and a p-value of 0.000 ($p < 0.05$). The observations provided sufficient evidence for rejecting the null hypothesis.

H_{0ii}: There is no significant relationship between problems militating against the teaching of Integrated Science and impact of Curriculum Development/Planning among Port Harcourt Junior Secondary Schools.

The Spearman rho was used to test the relationship between problems militating against the teaching of Integrated Science and impact of Curriculum Development/Planning and the teachers' performances in the process of implementation. A summary of the result is presented in Table 4.

Table 4. Correlation between problems militating against the teaching of Integrated Science and impact of Curriculum Development/Planning

Variables	N	Mean	Std. Dev.	r – value	df	p-value
Problem of curriculum development	130	3.02	1.226	-0.949	128	0.000
Teachers' Performance	130	2.77	1.177			

The result in Table 4 revealed that problems militating against the teaching of Integrated Science in the selected Junior Secondary Schools were inversely and significantly correlated impact of Curriculum Development/Planning on teachers; performance. The observed correlation coefficient was -0.949 with a p-value of 0.000 ($p < 0.05$), obtained at 128, degree of freedom. These observations provided enough evidence for the null hypothesis to be rejected. In other words, problems associated with the teaching of the subject in the selected Junior Secondary Schools could be adversely impacting teachers' performances in the curriculum implementation of integrated Science.

Discussion of the Findings

This paper examined impact of Curriculum Development and Planning on teaching performances in teaching and learning of Integrated Science among selected Junior Secondary schools in Port Harcourt with teachers of the subject as the target respondents. Findings of the study established that teachers responsible for the teaching of the subject in the Junior Secondary Schools were mostly females. It was found that the NCE was the dominant professional certificate among the teachers. Though most teachers had first degree which was the highest attainment among the teachers but only few had degrees that were related to professional teaching of the subject. The study established that teachers were lacking adequate opportunities for re-training and attending seminars and workshops to wards boosting their teaching knowledge of the subject. The study revealed that in spite of these challenges, curriculum development and planning as it relates to the subjects had positive impact on the teachers' performances in teaching and learning of the subject. In the test of the related hypothesis, significant difference was found in the performance of the teachers based on gender. Female teachers had lower perceived performance than was observed among the males.

Findings of the study revealed some major problems militating against the impact of curriculum/planning on the performance of teachers in the teaching of the subject. Among such constraints were recruitment of non-professional personnel as teachers of the subject. Employment of unqualified personnel and inability of some teachers to improvise where there is deficiency of lack of instructional materials professional competence that was lacking. This is further reflected in the last item of the table were 46.9% and 14.6% of the respondents strongly agreed and agreed respectively with the suggestion that most of the teachers responsible for the curriculum implementation in the Junior Secondary schools were not qualified to teach the subject. The observations here revealed that the major problems militating against effective teaching of Integrated Science Curriculum in the selected Junior Secondary Schools revolved round personnel recruitment process not based on merit or professionalism and lack of adequate opportunity for teacher to attend trainings and workshops. Challenges encountered in the implementation of the curriculum were found to be inversely correlated to performances of teachers in teaching of the subject among the selected Junior Secondary Schools.

Conclusion and Recommendations

This study revealed that curriculum development and planning had significant impact on teachers' performance of its; implementation. The study revealed that implementation of the curriculum was associated with a number of challenges bordering on inadequacies in staff recruitment, lack of training opportunities for teachers among others that were militating against the curriculum implementation. The challenges were inversely correlated with performances of the teachers in the curriculum implementation.

Based in the findings of this study, the following recommendations were made:

1. Appointment of teachers for the subject should be based on professional qualification of personnel.

2. There is a need for continuous in-house training of teachers through seminars and workshops. Provision of in-service training where teachers are given the opportunity to go for a formal training should also be considered as a way of enhancing their performances.

REFERENCES

- Nkok, E. A. E., & Nkok, U. M. (2025). Impact of Curriculum Reforms on the Teaching and Learning of Basic Science in Port Harcourt Secondary Schools. *Faculty of Natural and Applied Sciences Journal of Mathematics, and Science Education*, 6(3), 74–81. <https://doi.org/10.63561/fnas-jmse.v6i3.89>
- Afolabi, F., Ogunkunle, R., Toluhi, O., Appah, E., & Pelupssiya, M. O. (2021). reforms in Nigeria science education: A Prerequisite for Socio-Economic Development. *International Journal of Innovative Sciences and Research Technology*, 6(2), 167-173.
- Ajayi, K., & Ogunyemi, B. (2023) curriculum reform and sustainable development in Nigeia: A critical analysis. *Ethiopian Journal of Education*, 43(2), 75-78
- Chukelu, U. C., & Nkok, E. A. E. (2024) Effect of mother tongue (igbo) on academic achievement of lower universal basic education (UBE) pupils in basic science in Nwagele L.G.A. Imo State, Nigeria. *Journal of science, Technology and Education Nasarawa State University*. 1(8)2651-5569
- Ogwuche J. M. (2020). Impact of Curriculum Development and Planning on Teaching and Learning of Integrated Science in Junior Secondary Schools, Port Harcourt, Rivers State, Nigeria. A Thesis submitted in partial fulfilment of the requirements for the award of degree of Masters in Science Education of National Open University of Nigeria.
- Quansah R. E, Sakyi-Hagan, N. A. Essiam C. (2019). Challenges Affecting the Teaching and Learning of Integrated Science in Rural Junior High Schools in Ghana *Science Education International* 30(4), 329-333 <https://doi.org/10.33828/sei.v30.i4.10>
- Singh S. (2023). What is Descriptive Research? Definition, Methods, Types and Examples. <https://researcher.life/blog/article/what-is-descriptive-research-definition-methods-types-and-examples/>