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OBJECTIVES OF PHYSICAL EDUCATION COMPONENT OF THE BASIC SCIENCE AND TECHNOLOGY CURRICULUM VERSUS TEACHERS' COMPETENCE IN JUNIOR SECONDARY SCHOOLS IN EDO STATE

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ABSTRACT

The purpose of the study was to assess the objectives of physical education component of the basic science and technology curriculum versus teachers' competence in junior secondary schools in Edo State. Two research questions were raised to guide the study.

The study adopted descriptive survey research design. The population of the study was 109,778 respondents, made up of 109,383 students, all 78 PE teachers and 317 head teachers of public junior secondary schools (JSS), representing the eighteen (18) LGAs in Edo State. The sample size of the study was 1,060 comprising 70 PE teachers, 90 Head teachers and 900 students in public JSS; and they were selected using the multi-stage sampling procedure. Two instruments were used to obtain data in the study, via: "Objectives of Physical Education Rating Scale (OPERS) and Rating Scale of Physical Education Teachers Instructional Ability (RSPETIA)". The instruments were validated by two experts of Human Kinetics and one in Measurement and Evaluation. The cronbach alpha statistics was used to determine the reliability of the instrument, the R-values of 0.95 and 0.96 were obtained for the OPERS and RSPETIA respectively.

The findings showed that PE content component of the Basic Science and Technology provides opportunities for learners to develop interest in Physical education, sports and game-like activities; improve self-confidence in the performance of physical skills; acquire basic skills in various games and sports activities; develop the various organic systems of the body through the application of skills in games and sports, among others. Also, rating of teachers' instructional ability is generally good. It was concluded that PE component of the BST curriculum provided avenue for learners to develop interest in PE, sports and games, and so on. As well as PE teachers' pedagogical skills rated good. It was chiefly recommended that there be periodic

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evaluation of the extent of attainment of the objectives of PE in relation to students' learning practicability; as well as teachers' effectiveness.

Keywords: Physical education component, Teachers' competence, Objectives, Curriculum, Basic science, Technology curriculum

INTRODUCTION

Physical Education plays a major role in the education of students being a contributory factor to their physical, mental, social and emotional development. It provides students a wide range of motor activities for the development of physical competence. Participation in regular physical activity improves students' flexibility, muscular strength, muscular endurance, body composition and helps them to build cardiovascular endurance, which helps in improving physical fitness levels. Physical Education (PE) curriculum teaches students self-discipline, improves self-esteem, influences moral development, improves socialization and development of social skills such as responsibility, respect, friendship and cooperation (Bailey, 2005). Participation in physical activity as offered in the PE curriculum is capable of nurturing leadership skills, social skills, and also assist students response to sports and non-sports related activities (Ding & Sugiyama, 2016). It possibly can reinforce students' knowledge across several curricula areas such as Mathematics, Science, and Social studies (Cichy et al, 2020). Participation in physical activity during physical education classes comes in the form of sports, play, games, dance, and so on; as PE is the subject matter base of sports and it ensures early introduction of sports skills and knowledge to school pupils and students. This brings about immediate and long term health benefits, as well as improved quality of life to learners.

The Federal Government of Nigeria in reacting to the 1969 United Nations Educational Scientific Cultural Organization (UNESCO) national curriculum conference conducted in Lagos, where the justification was given on the need for PE to be included in the schools' curriculum then formulated a National Policy on Education (NPE) in 1977. The policy supported that PE should be taught at all educational levels. The revised edition of the NPE in 1981 stipulated that PE should be made a teaching subject in the junior secondary schools (JSS) and an examinable subject in the West African School Certificate Examinations.

The new Basic Science and Technology (BST) Curriculum at the junior secondary educational school level, like the earlier one, is organized around four themes (Nigerian Educational Research and Development Council (NERDC), 2012). The themes are Basic Science, Basic Technology, Physical and Health Education (PHE), and Information Technology (IT). Basic Science is made up of three sub-themes which are learning about our environment, you and energy, and science and development. Basic Technology is made up of five sub-themes which are understanding basic technology, materials and processing, drawing practice, tools, machines and processes, and safety. Information Technology (IT) comprises of four sub-themes which are basic computer operations and concepts,

computer ethics, computer application packages, and basic knowledge of information technology. PHE or PE a component of the Basic Science and Technology Curriculum which is our focus, is made up of six sub-themes which are basic human movement, sports and games, health education, moving our body parts, athletics, and contact and non-contact games.

The revised Basic Science and Technology Curriculum (NERDC, 2012) is an upshot of merging of four subject curricula were previously taught at primary and junior secondary schools (JSS) namely Basic Science, Basic Technology, Physical and Health Education, and Computer Studies/Information Communication Technology (ICT). This revised basic education curriculum generally which streamed the number of junior school subjects to ten is regarded by some experts as a bundle of confusion (Ukor & Agbidye, 2015) this is so evident in the current state of basic science and technology curriculum.

Some of the worrisome and contending issues in the newly introduced curriculum are that teachers who are supposed to implement the new curriculum are not adequately trained and sensitized on how to implement the new curriculum and so there is a watering down of the content of the many emerging sub-themes (Ewesor & Itie, 2015; Ukor & Agbidye, 2015). Similarly, a study by Likoko, Mutsotso and Nasongo (2013), on adequacy of instructional materials and physical facilities and their effect on quality of teacher preparation, found that there is a significant difference in resource availability in the higher performing schools and low performing schools. Vasiliadou, Derri, Galanis & Emmanouilidou, 2009 studied the training in-service physical educators should have to improve class time management, and they found that even a short but focused training can significantly influence class time management, which is considered an important criterion of teaching effectiveness.

Hence, for effective and efficient teaching and learning, there exists the requirement for highly trained teachers of PE to enhance the attainment of the objectives of the PE and sports programme component of the BST.

STATEMENT OF THE PROBLEM

Research has shown that physical education teachers faced four major challenges, namely; knowledge of the subject, assessment, facilities and equipment, and classroom management (Veloo & Md-Ali, 2016). The challenges African schools face in the teaching and learning of physical education generally include those related to facilities and equipment, course materials, teachers' professionalism or competence, in-service training, stakeholders understanding of the purpose of this subject and even student's attitudes as a result of other factors (Makunja, 2016; Osamwonyi, 2016).

The situation of PE as a subject in Nigeria was very worrisome when it was standing on its own as a subject. Today, the situation has become more complex and perplexing with the combination of the subject with three others like Information technology, Basic Science, and Basic Technology now called Basic Science and Technology (BST). The subject has become less desirable now that it has been hidden and perhaps laminated/integrated within other subjects. Looking

at this from another angle, there is no connection or similarities between or among these subjects which are combined with PE in terms of being related in meaning. Also in terms of results from the junior school certificate, students cannot really tell their score or performance in the subjects. These and others have presented serious curricula issues that need to be addressed.

The need therefore exist for an empirical investigation to assessing the extent of PE implementation within the integrated mode of the physical education curriculum in the basic science and technology curriculum.

RESEARCH QUESTIONS

What are PE teachers' ratings of the objectives of PE component of the BST?

What is the rating of instructional ability (competence) of PE teachers?

METHODOLOGY

Research Design

The descriptive survey research design was adopted for this study. This design was adopted because it allows for a systematic gathering of information related to determining the objectives of physical education component of the Basic Science and Technology curriculum vis-à-vis teachers' competence in JSS.

Population of the Study

The population of the study consists of 109,778 respondents, made up of 109,383 students and all 78 PE teachers as well as all 317 head teachers of public junior secondary schools, representing the eighteen (18) local government areas in Edo State. **Table 1** that follows is a representation of the population used in this study.

SAMPLE AND SAMPLING TECHNIQUES

The sample size of this study was 1,060 respondents comprising seventy (70) PE teachers, ninety (90) Head teachers, and nine hundred (900) students in public junior secondary schools in Edo State.

The multi-stage sampling procedure was adopted in the selection of the sample for the study. At the first stage, the researcher used the existing stratification of Edo State into eighteen (18) local government areas spread across the three senatorial districts, namely: Akoko-Edo, Egor, Esan Central, Esan North East, Esan South East, Esan West, Etsako Central, Etsako East, Etsako West, Igueben, Ikpoba-Okha, Oredo, Orhionmwon, Ovia North East, Ovia South West, Owan East, Owan West, and Uhunmwonde.

At the second stage, the simple random sampling technique of balloting with replacement was used to select ninety (90) public junior secondary schools in Edo state. This involved the use of pieces of paper, which were folded and put in bags from which the researcher picked schools based on their local government area; put it back in the bag, and then picked another. The procedure was used to select five (5) public JSS in each LGA, thus giving a total of ninety (90) out of 317. At the third stage, the simple random sampling technique was also used to

select 70 teachers from the 78 PE teachers from all LGA in the State. The fourth stage involved using proportionate random sampling technique to select ten (10) students from each of the 90 selected public JSS to give a total of 900 students selected for the study (i.e. 50 students from each LGA). Additionally, the head teachers/principals of each of the sampled schools were used in the study, totaling 90 head teachers/principals. **Table 2** is a representation of the sample used in the study.

Table 1. Distribution of PE teachers, head teachers and students in Edo State, Nigeria.

S/N	Local Government Area	No of Public Junior Sec Schools	PE Teachers	Head teachers	Students
1	Akoko-Edo	29	5	29	6312
2	Egor	13	5	13	9528
3	Esan Central	14	4	14	2782
4	Esan North East	12	0	12	3589
5	Esan South East	17	1	17	2002
6	Esan West	16	5	16	4135
7	Etsako Central	9	0	9	2049
8	Etsako East	16	0	16	4459
9	Etsako West	28	7	28	6888
10	Igueben	10	0	10	1149
11	Ikpoba-Okha	20	17	20	22498
12	Oredo	14	5	14	18157
13	Orhionmwon	28	5	28	3848
14	Ovia North East	29	8	29	6413
15	Ovia South West	15	5	15	2882
16	Owan East	16	4	16	4116
17	Owan West	10	2	10	3210
18	Uhunmwonde	21	5	21	5366
	Total	317	78	317	109383

Source: Post Primary Education Board (2021)

Table 2. Sample distribution of PE Teachers, head teachers, and students in public Junior Secondary Schools Edo State, Nigeria.

S/N	LGA	No of Schools Considered from each LGA	No of PE teachers selected from each LGA	No of Head teachers selected from each LGA	Number of students selected from each LGA
1	Akoko-Edo	5	4	5	50
2	Egor	5	3	5	50
3	Esan Central	5	4	5	50
4	Esan North East	5	0	5	50
5	Esan South East	5	1	5	50
6	Esan West	5	4	5	50
7	Etsako Central	5	0	5	50
8	Etsako East	5	0	5	50
9	Etsako West	5	7	5	50
10	Igueben	5	0	5	50
11	Ikpoba-Okha	5	16	5	50
12	Oredo	5	4	5	50
13	Orhionmwon	5	5	5	50
14	Ovia North East	5	8	5	50
15	Ovia South West	5	4	5	50
16	Owan East	5	4	5	50
17	Owan West	5	2	5	50
18	Uhunmwonde	5	4	5	50
	Total	90	70	90	900

RESEARCH INSTRUMENTS

The instruments used for this study were

Objectives of Physical Education Rating Scale (OPERS)

Rating Scale of Physical Education Teachers Instructional Ability (RSPETIA)

The OPERS was a rating scale containing 20 items on Objectives of physical education. The responses ranged from: Emphasized excellently (5); Very good emphasis (4); Good emphasis (3); fairly good emphasis (2); and emphasized poorly (1). The PE teachers carried out this assessment.

The RSPETIA is a rating scale containing 20 items on ratings of instructional ability of PE teachers. The Head teacher used this to assess their PE teachers on a scale of Excellent (5), Very Good (4), Good (3), Fair (2), and Poor (1).

VALIDITY OF THE INSTRUMENT

The instrument was validated by the two experts of Human Kinetics and one expert of Educational Measurement and Evaluation in the University of Benin. This was carried out to ascertain the construct and content validity of the instrument.

RELIABILITY OF THE INSTRUMENT

To establish reliability of the instrument, the researchers carried out a pilot test using twenty students, ten teachers, and ten head teachers drawn from twenty public junior secondary schools in Edo State. These students, teachers, and head teachers were not involved in the main study. The instrument was given to the various respondents to fill, the data obtained were analyzed using Cronbach's Alpha Statistics, which is a measure of the internal consistency of test items. Reliability correlation coefficients were obtained as follows: teacher's rating of the objectives of physical education (0.95); and instructional ability of PE teachers (0.96). These were considered good reliability coefficients for the study.

METHOD OF DATA ANALYSIS

The data collected were analyzed using the descriptive statistics of frequency count, percentage, mean and standard deviation to answer the research questions. The Statistical Packages for Social Sciences (SPSS) was employed in carrying out the analyses. Benchmarks that aided decision making are as follows:

Research Question 1: What are PE teachers' ratings of the objectives of PE component of BST?

Table 1: Mean ratings of Teacher's Objectives of Physical Education; 2.50 mean and above = High Priority (HP) and Less than 2.50 = Low priority (LP)

Research Question 2: What is the rating of instructional ability (competence) of PE teachers?

Table 2: Mean ratings of instructional ability of PE teachers

5.00 - Excellent

4.00 - 4.99 Very Good

3.00 - 3.99 Good

2.00 - 2.99 Fair

1.00 - 1.99 Poor

PRESENTATION OF RESULTS

Research Q Question 1: What are PE teachers' ratings of the objectives of PE component of BST?

Table 3 in relation to research question 1 shows a cluster mean of 3.95 which shows high priority of PE teachers' ratings of the Objectives of Physical Education Component of Basic Science and Technology. This shows that the PE content component of the Basic Science and Technology provides opportunities for learners to develop the objectives in Physical education as stipulated in the programme.

Table 3. Mean ratings of PE Teachers' Objectives of PE Component of BST.

Objectives	Mean	Std. Deviation	Decision
Develop interest in Physical education, sports and game-like activities.	3.94	.93	HP
Improve self-confidence in the performance of physical skills	4.51	.88	HP
Acquire basic skills in various games and sports activities	3.83	.82	HP
Develop the various organic systems of the body through the application of skills in games and sports	3.71	.99	HP
Develop safety and security consciousness to meet daily emergencies of life	3.86	.73	HP
Acquire basic knowledge of games, rules, strategies, techniques, etiquette necessary for participating in games and sports	3.91	.74	HP
Enjoy wholesome recreation through the application of basic skills in games and sports.	3.80	.83	HP
Develop optimal level of physical fitness and muscular efficiency for the performance of daily activities	4.31	1.11	HP
Get prepared to qualify for numerous career opportunities in physical education, sports, recreation and allied fields within contemporary society	3.71	.86	HP
Develop general positive mental traits for understanding and appreciating simple movement skills	3.91	.61	HP
Acquire skills to the highest that guarantees a place in the school team	3.77	1.00	HP
Learn games and sports activities that could be continued after school years	4.00	0.91	HP
Apply scientific knowledge of exercise to keep weight controlled.	3.97	.82	HP
Develop ability to maintain good health	3.94	.77	HP
Develop emotional stability and self-confidence	4.23	1.17	HP
Exercise self-control in the use and abuse of drugs and related vices	3.80	.76	HP
Develop better interpersonal and social relationships with other people through the medium of games and sports	3.91	.70	HP
Apply scientific principles to the execution of daily movement tasks.	3.74	.74	HP
Apply learnt life-saving skills in the management of injuries and physical disability	3.97	.57	HP
Cluster	3.95	0.90	HP

Key: HP: High priority; SD: Standard deviation

Research Question 2: What is the rating of instructional ability of PE teachers? **(Table 4).**

Table 4. Mean ratings of instructional ability of PE teachers.

Instructional ability of PE employed by PE teachers	Mean	Std. Deviation	Decision
The teacher uses explicit and appropriate teaching methodology to convey the kinds of concepts (skills, facts, attitudes, values, and so on) students are to learn.	4.23	.646	Very Good
The objectives of the lesson were clearly and operationally formulated	3.94	.725	Good
The PE lessons is planned in logical sequence	3.89	.758	Good
The facts are adequate and well stated	3.97	.747	Good
The previous knowledge necessary for understanding the lesson was accurately stated	4.06	.639	Very Good
The teacher has identified adequate aids, games, and skills for teaching PE lesson effectively	3.63	1.215	Good
The teacher ascertains the readiness level of the class at the start of the PE lesson	3.83	.954	Good
The use of whiteboard for illustration, review, note-taking, and board summary is good	3.97	1.098	Good
Teacher uses multiple and varied levels of well distributed questions to elicit students responses and comprehension	3.83	1.071	Good
The teacher offered appropriate incentives and feedback/reinforcement (such as praise, marks, rewards) to the learners	3.86	.912	Good
The teacher effectively evaluated the learning outcome	3.89	1.022	Good
The students participated and showed interest in the PE lesson taught	3.86	1.061	Good
The teacher demonstrates adequate knowledge and skills of the subject matter content	4.09	1.067	Very Good
The stated objectives were met to a large extent	3.89	1.022	Good
Dressed modestly and appropriately, neat and well-groomed for classroom	.26	.701	Very Good
Demonstrates emotional stability and self-confidence	4.09	.818	Very Good
Accepts and profits from constructive criticism	3.83	.822	Good
Uses verbal and nonverbal communication that are positive, supportive and purposeful	4.14	.772	Very Good
Demonstrates awareness of students individual differences and needs	4.00	.728	Very Good
Presents assignments clearly and precisely	4.03	.785	Very Good
Cluster	3.96	0.88	Good

Key: 5.00: Excellent; 4.00 - 4.99: Very Good; 3.00 - 3.99: Good; 2.00 - 2.99: Fair; 1.00 - 1.99 Poor

Table 2 shows the results of research question 2. The mean ranges from 3.63, which the teacher has identified adequate aids, games, and skills for teaching PE lesson effectively, to 4.26, which shows teachers uses explicit and appropriate teaching methodology to convey the kind of concepts (skills, facts, attitudes, values, and so on) students are to learn. A cluster mean of 3.96 further goes to reveal high instructional ability of PE employed by Physical Education teachers.

DISCUSSION OF FINDINGS

Results in research question 1 shows that PE content component of the Basic Science and Technology provides opportunities for learners to develop interest in Physical education, sports and game-like activities; improve self-confidence in the performance of physical skills; acquire basic skills in various games and sports activities; develop the various organic systems of the body through the application of skills in games and sports, among others. This agrees with the findings of Zipporah, Kadenyi, and Maithya (2016), that majority of the teachers are not adequately prepared for the implementation of PE syllabus and so needs the benefits PE provides. This also agrees with the study by Yaro, Arshad and Salleh (2017), who revealed that the definition of high-quality education to include provision of adequate instructional materials, the provision of educational infrastructure, imparting the "right" knowledge, meeting education "yardsticks", provision of teacher support and welfare, creating a conducive learning atmosphere and availability of high-quality teachers.

Results in research question 2 revealed that rating of teachers' instructional ability is generally good. This finding is to a large extent in line with the findings by Husain, Hasan, Wahab and Jantan (2015) who found most students indicate that physical education is an interesting subject which is not unconnected with the teachers' good use of appropriate instructional techniques. On the other hand this finding negate the finding by Aktop and Karahan (2012), who found that most PE teachers found that PE lesson curriculum was insufficient, and that most teachers use command style and there was a significant gender difference in preference of teaching strategies. This is in addition to the fact that the attitude of the majority of Physical Education teachers towards the lesson is negative.

CONCLUSION

It was concluded that PE component of the BST curriculum provides opportunities for learners to develop interest in PE, sports and games; improve self-confidence in physical skills performance, and so on. As well as PE teachers' pedagogical skills rated good.

RECOMMENDATIONS

There should be a periodic evaluation of the extent of the attainment of the objectives of PE in relation to students' learning practicability; as well as teachers' effectiveness.

Regular training and re-training of PE teachers should be carried out to enhance their instructional ability.

PE teachers should be made to compulsorily undergo professional in-service training annually to help hone their pedagogical skills.

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