PRIMARY SCHOOL TEACHERS' PERCEPTIONS OF REBRANDING BASIC SCIENCE EDUCATION IN OYO TOWN, NIGERIA

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Abstract
Basic science laid a solid foundation for individual, national and international science and technological advancement. A shaky basic Science education impairs individual and national growth and development. The contents, objectives, methodology and evaluation strategies adopted in BSE are already dated in the milieu of post-covid pandemic and the challenges of 21st century skills development. There is thus a stringent need of rebranding BSE. This paper therefore investigated the primary school teachers' perceptions of rebranding BSE in Oyo town, Nigeria. A mixed methods in concurrent triangulation was adopted for the study, sampled 400 teachers from 20 public and 20 private primary schools in the town. Two self-constructed and validated instruments: Primary School Teachers' Perception of Rebranding Basic Science Education Questionnaire (PSTPRBQ, R=.74) and Interview (PSTPRBI, IRR=.71) were used for data collection. T-test and ANOVA were used to test the set hypotheses, frequency counts, percentages and thematic analysis for research questions. Many teachers agreed that there is a need for rebranding BSE in schools, however uncertain of what and how to rebrand BSE. There is a significant primary school teachers' perceptions of rebranding BSE in Oyo town (Mean=58.72, t=39.04, df=399, p<.05). The perception was not beclouded by gender and school types whereas field of specialization (t=21.73, df=398, p<.05) and academic qualifications ($F_{(2,397)}$ =17.26, p<.05) had significant influence on their perception. Therefore, BSE should be taught by well qualified teachers, need for BSE curriculum renovation, seminars, workshops, training and symposia for BSE teachers to enhance rebranding of the subject in Oyo town.

Keywords: Primary school teachers' perception, Basic Science Education (BSE), Rebranding BSE, Field of specialization, Academic qualification

Introduction

Basic science teaching and learning instill scientific contents, principles, processes, methods, ethics, facts, concepts, constructs, hypotheses, theories, laws, in the would-be scientists and those would be non-scientists. It presents sciences that are basic, indispensable, necessary and fundamental to man's existence and understanding of the cosmic world. The essence of Basic science education at the primary and junior (lower) secondary levels is to enhance students' scientific thinking through learning activities that involve planning, designing, measuring, observing, evaluating procedures, examining evidence, and analyzing data (Nigeria Educational Research and Development Council, NERDC, 2012). The main goals and objectives of Basic science education are to develop curiosity and interest in science; develop the ability to inquire and solve problems; acquire basic scientific knowledge and concepts for living in and contributing to a scientific and technological world; recognize the usefulness and limitations of science and the interconnections among science, technology, and society, and develop an attitude of responsible citizenship, including respect for the environment and commitment to the wise use of resources; become familiar with the language of science and be `equipped with the skills to communicate ideas in science-related contexts; appreciate and understand the evolutionary nature of scientific knowledge; attain personal growth through studying science and be prepared

for further studies or careers in scientific and technological fields (FRN, 2013).

The Basic science contents taught at the primary 1 to 6, the lower basic educational level contains scientific investigation which encompasses exploring the environment (e.g., visiting the park), being a scientist, simple investigations, observations, and interpretations are carried out throughout the primary science curriculum, life and living things which encompasses the body healthy living habits, characteristics of living things, plants and animals, personal and environmental hygiene, food, growth and reproduction, air; the material world that contains environmentally friendly practices, conservation of the environment and natural resources, matter; energy and change that entails the nature of heat, saving energy, motion, light, sound, electricity; earth and beyond contains topics on the sun, moon, and stars, day and night, weather and seasons, earth, water and the water cycle, light, sound; and lastly on science, technology, and society which contains reuse and recycle, caring for the environment, wise use of natural resources, our society and the world, information technology in everyday life, Life and technology, population, problems in the world (e.g. famine, war, and poverty) (NERDC, 2012).

The Basic Science topics taught at the junior (lower) secondary level, grades 7-9 (secondary 1-secondary 3) equally seems thorough and far-reaching. The Basic Science Education (BSE) curriculum contents seem exhaustive, comprehensive and far-reaching at the first glance, however, the 21st century skills and the post-pandemic saga of 2020 compels the inclusion of concepts like artificial intelligence, robotic science, blockchain technology, cybernetics, augmented and virtual realities and data science into the curriculum. The pupils, right from the primary education should be exposed to the use of machine in human learning which will trigger their critical thinking skill, the creativity skills, collaboration and communication skills. It would equally develop at the foundational stage of learning citizenship skills, knowledge construction, problem solving, self-regulation, digital literacy skills and many other latent, dormant skills in the pupils.

Adjoined to the rebranding of the BSE curriculum contents is the upgrading of the behavioural or instructional objectives of the package. As there are injections of novel contents to the BSE, the objectives should equally be set in tandem with the 21st century skills development. By the end of instructional interactivity and engagement with the learners of BSE, the pupils should be able to demonstrate critical thinking, creativity, collaboration, communication, citizenship, knowledge construction, self-regulation, digital literacy skills and many other positive skills that are entrepreneurial in this milieu. Instead of the pupils developing rote knowledge of facts, concepts, hypotheses, theories, laws and scientific principles by cramming and regurgitation, the learners would be skillful and dexterous in using their hands, brain and legs in manipulation of materials to produce new and creative materials enabling the BSE curriculum fully entrenched in not only the cognitive but the affective and the psychomotor domains also.

Rebranding the BSE curriculum contents that necessitate the improvement in the statement of the behavioural objectives of the subject equally calls for the advancement in the subject methodologies. The BSE teachers should learn how to blend and integrate technology and reflective thinking into the teaching and learning of Basic Science (National Science Teaching Association, 2012; 2020; Adebiyi, 2019; Obanya, 2021; Okebukola, 2021; Adesina, 2022). The use of Computer Assisted Instructions (CAI), the use of mobile learning, the learning management systems and other cybernetics propelled instructional strategies to sync with the Next Generation Science Standard (NGSS). The rebranding of BSE methodologies with technology will avail the pupils' opportunities to effectively and efficiently develop the 21st century skills most especially the digital literacy skills. Organization for Economic Cooperation and Development (2018) identified that having specified the knowledge, skills, attitudes and values that today's students need to thrive and shape their world, the next is the selection of appropriate instructional systems to develop effectively these knowledge, skills, attitudes and values.

As the Basic Science education curriculum

contents change, the instructional objectives and methodology modified, so the evaluation procedure ought to change technologically. The era of cramming and regurgitation of facts and concepts in science should go for digital presentation of scientific facts, concepts, hypotheses, theories, laws and principles in audio and video recordings. This will invariably develop the pupils' communication and collaboration skills. The use of embedded instructional videos, audios, games, analytics, quizzes and assignment would invariably take evaluation from the conventional paper-pen format to technology-based assessment.

However, as expedient as the rebranding of Basic Science education might be, the perception of the curriculum implementers (Basic Science teachers) is very paramount to the effectiveness and efficiency of the pre-determined learning outcomes (instructional objectives) attainment. The Merriam-Webster online dictionary (2023) described the noun perception as a result of perceiving, observation, a mental image, concept awareness of the elements of environment through physical sensation, the physical sensation interpreted in the light of acquire experiences. The perception individuals make about an issue, environment, situation, event or an object is contingent on the person's beliefs, mental impression, sensual conception and individual vicarious experience in life.

Ajzen (1991) in the Theory of Planned Behaviour posited that attitudes, subjective norms and perceived behavioural control predicted intentions and intention along with perceived control predicted behavior. Likewise, by extension, perceived control discriminates individual intentions and behavior. Thus, the Basic Science education teachers' perception of rebranding Basic Science curriculum invariable predict their intention and behaviours towards such rebranded BSE.

Adesina and Adesina (2022) reviewed the constructivists' theories of human perception as the end product of the interaction between stimulus and internal thoughts, expectations and knowledge of the observers (the teachers of BSE in this context). The rebranding of BSE and its acceptability for onward implementation is contingent on their perception, the internal thoughts, expectations and knowledge of the BSE teachers. Their resistance or acceptance of the use of the rebranded BSE curriculum hinge on their perception of need for such rebranding. Do the BSE teachers conceive needs for such rebranding? Will they adopt and implement the shift to the rebranded BSE? All hinges on their perception for the need of BSE rebranding.

Fakomogbon, Adebayo, Adegbija,, Shittu and Oyelekan (2014) investigated subject specialization and science teachers' perception of information and communication technology for instruction in Kwara state adopted a descriptive survey research design, sampled 256 science teachers and used a validated questionnaire for data collection, frequency counts, mean, chi-square and ANOVA for data analysis, found that the science teachers' perceptions of ICT was generally positively low and there was a significant difference in secondary school teachers' perception based on area of specialization.

Afolabi, Afolabi and Adesina (2018) surveyed primary school teachers' perceptions about advancing BSE through technologies in Oyo township, found that there was a significant influence of teachers' perspectives on advancing BSE through technology and that the perception was not beclouded by the teachers' gender, teaching experience, class taught and academic qualifications. Oke and Adesina (2020) investigated lecturers' perceived impacts of information and communication technologies (ICTs) on colleges of education curriculum implementation in Oyo township, adopting a descriptive survey design, sampled 246 lecturers and a validated instrument for data collection found a significant lecturers' perceived impacts of ICTs on educational curriculum implementation in Oyo township with significant differential effects of their educational levels and school of affiliation on their perceptions.

Adesina and Rabiu (2021) studied pre-service teachers' perception of facilitating enabling learning communities in science, vocational, technical and mathematics education (system)

through computer assisted instructions sampled 720 pre-service teachers in Oyo town, adopting a mixed methods of research in concurrent triangulation found that the pre-service teachers perceived computer assisted instructions as an effective tools of facilitating enabling learning communities in science, vocational, technical and mathematics education and their perception was significant, gender, age, religion, school of study and levels of education did not significantly affect their perceptions.

Edu, Edu and Kalu (2012) researched on the influence of academic qualification and gender on teachers' perception of difficult concepts in primary science in Ikom educational zone of Cross-River state, Nigeria, sampled 520 teachers, adopted the expost-facto research type of descriptive survey design, the findings revealed that teachers' academic qualification and gender did not significantly influence teachers' perception of difficult topics in primary science curriculum. While Okpala (2019) studied the effect of teachers' qualification and instructional materials on Basic science students' academic performance in Ukwnani LGA of Delta state, sampled hundred students from five different schools, adopted a correlational design, used a validated questionnaire for data collection and chi-square for data analysis, the results showed a significant relationship between teachers' academic qualification and students' performance in basic science.

Also, Casian, Mugo and Claire (2021) researched on the impact of teacher qualification on students' academic performance in public secondary schools in Rwanda, adopted a corelational design for the study, sampled 121 teachers, questionnaire and guided interview were used for data collection, pearson product moment correlation and linear regression analysis for data analysis, the findings revealed a significant relationship of teacher qualification and students' academic performance.

Hwang and Kisida (2021) researched on the effects of teacher specialization on students' achievement, used administrative data from the Indiana Department of Education (IDOE) from 2010-11 through 2016-17 school years, sampled 15,895 unique maths teachers and 17,101 unique reading teachers linking up 591,311 unique students to the sampled teachers, the primary goal is to estimate the causal-effect of subject area specialization on teaching effectiveness and school improvement, the results indicated that teachers' specialization leads to lower teaching effectiveness in maths and reading and that the negative effects are larger when teaching students who are more likely to experience difficulties in schools.

Adesina and Adesina (2022) investigated perception of flipped instructional methodology the differential effects of pre-service teachers gender and age, adopted a mixed methods in concurrent triangulation, sampled 476 pre-service science teachers using two validated research instruments found that the majority of the pre-service science teachers preferred flipped methodology to the conventional lecture method and there is a significant pre-service science NCE teachers' perception of the novel methodology. The perception was not influenced by gender and age of the respondents. Rojo-Ramos, Castillo-Paredes, Adsuar, Mendoza-Munoz, Denche-Zamorano and Gomez-Paniagua (2023) studied the influence of educational specialty on perceptions towards corporal expression of prospective teachers, sampled 437 aspiring Spanish instructors and a validated questionnaire for data collection, analysed data revealed that the aspiring instructors displayed good perceptions of corporal expression while there is a significant difference in the expression based on the dimension of education specialty, gender variable did not mediate those perceptions.

There is dearth of research reports on the primary school teachers' perception of rebranding Basic Science education in Oyo town and Nigeria at large, there is also inconclusiveness in the effects of gender, school type, academic qualifications and field of specialty on the teachers' perception, thus, this study investigates the primary school teachers' perceptions of rebranding Basic science education in Oyo town, Nigeria with the moderating effects of teachers' gender, school types, academic qualification and field of specialty on their perceptions.

Statement of the problem

The covid-19 pandemic of 2020 shut all institutions as well as the academic industries which would not have locked up all instructional interactivity and engagement had it been the use of technology either in synchronous or asynchronous form had been integrated into instructional contents and process including Basic Science Education (BSE). The post-pandemic effects call for rebranding of BSE curriculum. Many graduates lack the 21st century skills which are expedient for entrepreneurship and employability. These skills ought to be embedded in the BSE curriculum right from the basic educational level. The rebranding or revision or development of any curriculum package is not as important as the perception which subsumed behavioural intentions, attitudes and behavioural control of the implementers (the BSE teachers). This calls for a critical investigation on the primary school teachers' perceptions of rebranding Basic Science education in Oyo town, Nigeria. Research findings have reported that perceptions individual holds about phenomenon like rebranding BSE can be influenced by some endogenous factors like gender, types of schools, academic qualification, years of teaching experience, field of specialty and many other variables. Thus, this study examined the primary school teachers' perceptions of rebranding basic science education vis-à-vis the impacts of gender, school types, academic qualification and field of specialty of the teachers in Oyo town, Nigeria.

Objectives of the Study

The main thrust of the research is to investigate the perceptions of primary school teachers on rebranding Basic Science education in Oyo town, Nigeria. The specific objectives of the study are; to:

i. assess the level of primary school teachers' perception of rebranding Basic Science education in Oyo town;
ii. examine the differences in primary school teachers' perception of rebranding Basic Science education based on gender, school types, academic qualifications and field of specialty.

Research Questions

1. What is the level of primary school teachers' perception of rebranding Basic Science education?
2. Are there differences in the primary school teachers' perception of rebranding Basic Science education based on gender, school types, academic qualifications and field of specialty?

Hypotheses

H_o1: There is no significant primary school teachers' perceptions of rebranding Basic Science education in Oyo town, Nigeria;

H_o2: There is no significant difference in primary school teachers' perceptions of rebranding Basic Science education based on gender;

H_o3: There is no significant difference in primary school teachers' perceptions of rebranding Basic Science education based on school types;

H_o4: There is no significant difference in primary school teachers' perceptions of rebranding Basic Science education based on academic qualifications;

H_o5: There is no significant difference in primary school teachers' perceptions of rebranding Basic Science education based on field of specialty;

Methodology

The correlational design in mixed methods of concurrent triangulation was adopted for the study. This approach was much more fitting as it allows a simultaneous collection and analyses of both the qualitative and quantitative data for robust and more comprehensive results discussion. All the primary school teachers in Oyo town (Afijio, Atiba, East and West- Oyo Local Government Areas), Oyo state constituted the population for the study. A multistage sampling method was adopted to select the sample, stratified random sampling technique was used to select five public and five private primary schools in each of the four local government Areas of the town, a simple random sampling technique was adopted to select 10 teachers from each of the randomly selected schools to make a total of 400 participants. Two self-constructed and validated instruments:

Primary School Teachers' Perception of Rebranding Basic Science Education Questionnaire (PSTPRBQ) and Primary School Teachers' Perception of Rebranding Basic Science Education Interview (PSTPRBI). PSTPRBQ was constructed on the perception of the primary school teachers on rebranding the components of the BSE curriculum (the contents of instruction, the instructional objectives, the methodologies and the evaluation strategies). 27 items were initially generated on the scale which on validation was reduced to 20. The 20-item PSTPRBQ was administered on40 teachers at Akinyele Local Government Area of the state; the collated data were subjected to Cronbach's Alpha reliability which yielded a value of 0.74. PSTPRBI contains 10 structured interview questions which were given to experts for critiques and the items were reduced to four. The four-item PSTPRBI was trial-tested atAkinyele Local Government Area of the state and the collated responses were subjected to Fleiss Kappa Interrater reliability which yielded 0.71 index.The researcher as well as the assistants went to administer the instruments in the sampled primary schools, having sought permission from the Head of the school; ten copies of PSTPRBQ were administered in each schoolto make 400 copies. Two teachers were randomly interviewed based on the items on PSTPRBI. The socio-demographicvariables of the respondents were presented in table of frequency counts and percentages, mean and standard deviation and thematic analysis were used to answer the research questions. T-test and Analysis of Variance (ANOVA) were used to test the set hypotheses at 0.05 level of significance.

Results

Table 1: Socio-demographic Variables of the Respondents

Variables	Frequency	Percentage (%)
Gender		
Male	121	30.33
Female	279	69.67
Total	400	100.0
School Types		
Public	200	50.0
Private	200	50.0
Total	400	100.0
Academic Qualifications		
NCE	82	20.50
First Degree	285	71.25
Master Degree	33	8.25
Total	400	100.0
Arca of Specially		
Science	136	34.0
Non-Science	264	66.0
Total	400	100.0

From Table 1, there are 121 (30.33%) male and 279 (69.67%) female primary school teachers in the distribution, 200 (50.0%) public and 200 (50.0%) private, 82 (20.50%) NCE, 285 (71.25%) first degree holders and 33 (8.25%) Masters degree holders, 136 (34.0%) science and 264 (66.0%) non-science area of specialty respondents in the sample. There are more of the respondents that are female, first degree holders and non-science in the distribution.

Answer to Research Questions

What is the level of primary school teachers' perception of rebranding Basic Science education?

Table 2: Primary School Teachers' Perception Level of Rebranding Basic Science Education in Oyo town, Nigeria

S/N	ITEMS	SA (%)	A (%)	D (%)	SD (%)	Mean	SD
1.	Contents of Basic science education needs improvement	262 (65.5)	37 (9.25)	27 (6.75)	74 (18.5)	3.07	.83
2.	There is a need to revise the Basic science education curriculum contents	249 (65.5)	52 (13.0)	18 (4.5)	81 (20.25)	2.97	2.06
3.	The challenge of Covid-19 pandemic and 21st century skills call for Basic science education contents rebranding.	193 (48.25)	79 (19.75)	23 (5.75)	105 (26.25)	2.79	2.15
4.	The Basic science education contents are ok for the present situation	72 (18.0)	42 (10.5)	31 (7.75)	255 (63.75)	2.62	2.41
5.	Basic science education curriculum contents do not need rebranding to meet the challenges of time	58 (14.5)	42 (10.5)	42 (10.5)	267 (66.75)	2.85	2.11
6.	The objectives of Basic science education needs revision	237 (59.25)	33 (8.25)	35 (8.75)	87 (21.75)	3.16	.69
7.	There is a need to improve the Basic science education curriculum objectives.	225 (56.25)	41 (10.25)	31 (7.75)	92 (23.0)	3.11	.73
8.	The Basic science education objectives must change to meet the covid-19 pandemic requirements and the 21st century skills development	189 (47.25)	52 (13.0)	23 (5.75)	114 (28.5)	2.82	2.13
9.	The Basic science education objectives are ok for the present situation	84 (21.0)	74 (18.5)	58 (14.5)	239 (59.75)	2.69	2.35
10.	Basic science education curriculum objectives do not need rebranding to meet the challenges of time	64 (16.0)	19 (4.75)	39 (9.75)	275 (68.75)	2.73	2.25
11.	Methodology of Basic science education needs revision.	208 (52.0)	22 (5.5)	28 (7.0)	123 (30.75)	2.94	1.89
12.	There is a need to improve the Basic science education curriculum methodology.	241 (60.25)	41 (10.0)	34 (8.5)	98 (24.5)	3.31	.57
13.	The challenges of Covid-19 pandemic and 21st century skills call for Basic science education methodology rebranding.	189 (47.25)	27 (6.75)	30 (7.5)	123 (30.75)	3.14	.82
14.	The Basic science education methodologies are ok for the present situation.	64 (16.0)	58 (14.5)	79 (19.75)	237 (70.75)	2.61	2.23
15.	Basic science education curriculum methodologies do not need rebranding to meet the challenges of time.	34 (8.5)	21 (5.25)	92 (23.0)	252 (63.0)	2.49	2.61

S/N	ITEMS	SA (%)	A (%)	D (%)	SD (%)	Mean	SD
16.	Evaluation strategies of Basic science education needs revision	137 (34.25)	84 (21.0)	39 (9.75)	140 (35.0)	2.73	2.49
17.	There is a need to improve the Basic science education curriculum evaluation.	119 (29.75)	86 (21.5)	22 (5.5)	173 (43.25)	2.81	2.31
18.	The challenges of Covid-19 pandemic and 21st century skills call for Basic science education evaluation rebranding.	98 (24.5)	142 (35.5)	16 (4.0)	144 (36.0)	2.62	2.74
19.	The Basic science education evaluation strategies are ok for the present situation.	103 (25.75)	42 (10.5)	31 (7.75)	244 (56.0)	2.98	1.19
20.	Basic science education curriculum evaluation strategies do not need rebranding to meet the challenges of time.	101 (25.25)	37 (9.25)	51 (12.75)	211 (52.75)	2.97	1.23
	Grand mean=2.87						

Table 2 revealed that majority 299 (74.75%) agreed that the contents of Basic science education needs improvement while the minority 101 (25.25%) of the respondents disagreed with the statement, 301 (75.25%) of the respondents agreed that there is a need to revise the Basic science education curriculum contents while 99 (24.75%) disagreed with the assertion. Minority 91 (22.75%) agreed that the Basic science education curriculum contents do not need rebranding to meet the challenges of time while the majority 309 (77.25%) disagreed with the statement. 278 (69.50%) agreed that the objectives of Basic science education needs revision whereas a small proportion 122 (33.50%) of the respondents disagreed with the statement. Minority 86 (21.5%) agreed that the Basic science education curriculum objectives do not need rebranding to meet the challenges of time while the majority 314 (78.5%) disagreed with the assertion. 249 (62.25%) agreed that the methodology of Basic science education needs revision while the minority 151 (37.75%) disagreed with the statement. Minority 55 (13.75%) of the respondents agreed that the Basic science education curriculum methodologies do not need rebranding to meet the challenges of time whereas the majority 345 (86.25) disagreed with the assertion. 221 (55.25%) agreed that the evaluation strategies of Basic science education needs revision whereas minority of 179 (44.75%) disagreed with the statement. 138 (34.50%) agreed that the Basic science education curriculum evaluation strategies do not need rebranding to meet the challenges of time while a larger proportion 262 (65.50%) of the respondents disagreed with the assertion. The grand mean of the scores of 2.87 indicates that a high and positive perception of primary school teachers of rebranding basic science education in Oyo town, Nigeria. However, the thematic analysis revealed that majority of the respondents while acceding to rebranding BSE did not understand the components of the BSE to be rebranded. They could not conceive the need to change the BSE contents, the objectives, the methodology and the evaluation components of BSE.

1. Are there differences in the primary school teachers' perception of rebranding Basic Science education based on gender, school types, academic qualifications and field of specialty?

Table 3: Differences in the Primary School Teachers' Perception Level of Rebranding Basic Science Education based on gender, school types, academic qualifications and field of specialty.

Variables	Perception Scores
Gender	
Male	59.08
Female	58.62
School types	
Public	57.83
Private	59.27
Academic Qualifications	
NCE	52.81
First Degree	59.38
Master Degree	62.75
Area of Specialty	
Science	63.91
Non-Science	51.38

From Table 3, it shows that the male respondents had higher perception than the female although the margin was so small (0.46). The private primary school teachers had higher mean perception score than their public counterparts with a marginal difference of 1.44. The second degree holder in the respondents had the highest perception mean score of 62.74 followed by the first degree holders with perception mean score of 59.38 while the NCE holders had the least perception mean score of 52.81. The science specialists among the respondents had higher perception mean score of 63.91 than their non-science specialists with 51.38.

From the qualitative analysis, both the male and the female teachers responded that the BSE needs rebranding stating that the curriculum changes with increase in knowledge and societal issues like Covid-19 pandemic. However, majority of the respondents did not understand the aspects of BSE that ought to be rebranded; only very few, noted to be science teachers with some postgraduate experience identified the BSE contents and the methods of instruction as the components that should be rebranded. None of the interviewed respondents identify the need to rebrand the BSE objectives and the evaluation strategies. Majority of them recognized professional teachers' development programme, workshop and training as means to rebrand the BSE.

H_o1: There is no significant primary school teachers' perceptions of rebranding Basic Science education in Oyo town, Nigeria.

Table 4: t-Test Analysis of Primary School Teachers' Perceptions of Rebranding Basic Science Education in Oyo town

Teachers' Perception	N	Mean	SD	Df	T	Sig.	Remarks
Rebranding BSE	400	58.72	9.35	399	39.04	.015	*S

Table 4 indicates that the primary school teachers' perceptions of rebranding Basic science education in Oyo town is significant (mean=58.72, df=399, t=39.04, p<.05). Therefore, Ho1 was not accepted.

H_o2: There is no significant difference in primary school teachers' perceptions of rebranding Basic Science education based on gender.

Table 5: t-Test Analysis of difference in Primary School Teachers' Perceptions of Rebranding Basic Science Education Based on Gender

Teachers' Perception	N	Mean	SD	Df	T	Sig.	Remarks
Rebranding BSE	121	59.08	8.61	398	2.15	.130	NS
Female	279	58.62	12.99				

From Table 5, there is no significant difference inprimary school teachers' perceptions of rebranding Basic Science education based on gender (t=2.15, df=398, p>.05). Therefore, Ho2 was accepted.

H_o3: There is no significant difference in primary school teachers' perceptions of rebranding Basic Science education based on school types.

Table 6: T-Test Analysis of difference in Primary School Teachers' Perceptions of Rebranding Basic Science Education Based on School Types

Teachers' Perception	N	Mean	SD	Df	T	Sig.	Remarks
Public	200	57.83	13.82	398	1.74	.271	NS
Private	200	59.27	9.04				

Table 6 shows that there is no significant difference in primary school teachers' perception of rebranding basic science education based on school types (t=1.74, df=398, p>.05). Therefore, Ho2 was accepted.

H_o4: There is no significant difference in primary school teacher's perceptions of rebranding Basic Science education based on academic qualifications

Table 7.0: t-Test Analysis of Primary School Teachers' Perceptions of Rebranding Basic Science Education Based on Academic Qualifications

Source of Variations	Sum of Squares	df	Mean Squares	F.	Sig.	Remarks
Between	8.693,482	2	4.346.741	17.26	0.021	NS
Within	99,980.083	397	251.839			
Total	108,673.565	399				

Table 7.0 shows that there is a significant difference in primary school teachers' perceptions of rebranding basic science education based on academic qualifications ($F_{(2,397)}$=17.26, p<.05). Therefore, Ho4 was not accepted. To determine the direction of the differences, a Bonferroni post-hoc test was conducted as presented in Table 7.1.

Table 7.1: Bonferroni Post-hoc Analysis of Primary School Teachers' Perceptions of Rebranding Basic Science Education Based on Academic Qualifications.

Academic Qualifications	N	Mean	SD
NCE	82	52.81	13.27
First Degree	285	59.38	11.06
Master Degree	33	62.74	7.53

From Table 7.1, the significant differencein primary school teachers' perceptions of rebranding basic science education based on academic qualifications was owing to the difference in Masters Degree holders mean perception score of 62.74 which was higher than that of the first degree holder of 59.38 while those with NCE had the least mean score of 52. 81.

H_o5: "There is no significant difference in primary school teachers' perceptions of rebranding Basic Science education based on field of specialty

Table 8: T-Test Analysis of Primary School Teachers' Perception of Rebranding Basic Science Education Based on Field of Specialty

Teachers' Perception	N	Mean	SD	Df	T	Sig.	Remarks
Science	136	63.91	7.95	398	13.28	.001	*S
Non-Science	264	51.38	12.37				

Table 8 shows that there is a significantdifference in primary school teachers' perceptions of rebranding basic science education based on field of specialty (t=13.28, df= 398; p<.05). Therefore, Ho5 was not accepted.

Discussion

From the findings of the study, the primary school teachers perceived highly the rebranding of Basic science education in Oyo town. They responded that the curriculum needs revision but they were not able to pinpoint the area and the needs for such rebranding. However, their perception of rebranding of Basic science education was significant. This could be owing to the persistent low learning outcomes in cognitive, affective and the psychomotor domains of Basic science education. This finding is corroborated by Afolabi, Afolabi and Adesina (2018) that primary school teachers had strong perceptions about advancing BSE through technologies in Oyo township. The result also finds supports in Oke and Adesina (2020), Adesina and Rabiu (2021), Rojo-Ramos, et al. (2023) that teachers and pre-service teachers often have good, significant perceptions of educational processes. The finding is contrast to the result of Fakomogbon, et al (2014) who investigated subject specialization and science teachers' perception of information and communication technology for instruction in Kwara state that found their perception very low.

Furthermore, the primary school teachers' perception of rebranding Basic science education in Oyo town was not beclouded by gender and school types. This could be owing to the paramount importance of rebranding BSE in the town dovetailing from the persistent pupils' learning outcomes in the subject in primary and Junior Secondary schools. Moreover, the respondents whether male or female, being in the public or the private schools had similar experiences of the student's learning outcomes in BSE and engage their pupils with the same BSE curriculum. These results find supports in Afolabi, Afolabi and Adesina (2018), Adesina and Rabiu (2021), Edu et al (2012), Rojo-Ramos, et al (2023) that gender and school type did not significantly influence teachers' perception of educational processes.

Additionally, the findings of the study revealed that the primary school teachers' perception of rebranding Basic science education in Oyo town was significantly influenced by academic qualification and field of specialty. The higher qualified teachers with first and second degree holders among the sampled primary school teachers and those with science related field of specialty had better perception of rebranding Basic science education in Oyo town. These can be explained on the basis of the more academically qualified an individual is, the more prognostic and extrapolative in teaching and learning one is, such with higher educational qualification would be more rational, critical in thoughts about the presents BSE curriculum and its learning outcomes than their contemporaries with lower qualifications. In a similar vein, the respondents with specialty in science are more prone to the global happenings in scientific phenomena and thus more prone to reason for rebranding in BSE than their non-science field of specialty counterparts. These results find supports in Fakomogbon, et al (2014), Afolabi, Afolabi and Adesina (2018), Oke and Adesina (2020), Okpala (2019) Casian, Mugo and Claire (2021), Rojo-Ramos, et al (2023) that teachers had significant difference in perceptions based on academic qualifications and field of specialty. The contrast of these findings was reported by Adesina and Rabiu (2021), Edu et al (2012), Hwang and Kisida (2021) that academic qualifications and field of specialty were not significant enough to influence the primary school teachers' perception of rebranding BSE in Oyo town.

Conclusion

From the qualitative and the quantitative results

of the study, it could be precisely concluded that the primary school teachers have a high perception of rebranding Basic science education in Oyo town and that their perception was significant. That the primary school teachers have a high perception of rebranding Basic science education was not beclouded by gender and school types whereas the academic qualifications and the field of specialty of the respondents significantly influence their perception of rebranding science education in Oyo town.

Recommendations

From the findings of the study, the following are recommended:

i. The Nigeria Educational Research Development Council should conduct more critical studies on the rebranding of the present Basic Science Education (BSE) curriculum contents, objectives, methodology and the evaluation strategies in tandem with the trending issues in the natural world and the 21st century to facilitate a comprehensive rebranding of BSE curriculum for schools;

ii. Federal and state educational ministries to organize more often Professional Development Programs for primary school teachers on recent trends in science teaching and learning to dispel obsolescence of knowledge, skills and methods in the foundational teachers.,

iii. Federal and state governments should recruit more science filed of specialty teachers in primary schools with higher qualifications and stop migration of the more qualified teachers from the foundational level of education in the state. This will engender qualitative BSE at the primary education that would serve as pivot for further advancement in science education in the state.

iv. Professional associations like Science Teachers Association of Nigeria (STAN), Mathematicians Association of Nigeria (Man), Basic Science Teachers Association of Nigeria (BSAN), Nigerian Union of Teachers should organize conferences, workshops, seminars, symposia and lectures of the trending issues in Basic science education this will enable and empower the BSE teachers to keep abreast of the novel and workable contents, objectives, methodologies and evaluation strategies in the subject.

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