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Constraints Militating against Effective Implementation of the 3-Year Upper Basic Science and Technology Curriculum in Nigeria

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Abstract

This study examined the constraints militating against effective implementation of the 3-year Upper Basic Science and Technology curriculum in North Central Nigeria. It employed a cross sectional survey design. The population comprised all 10,688 Basic Science and Technology teachers in North Central Nigeria. The sample consisted of 288 teachers randomly selected from 72 government and private secondary schools in the study area. Basic Science and Technology Teachers Questionnaire (BSTTQ) was used for data collection. The instrument was validated by three experts, two in Science Education and one in Test and Measurement. The reliability coefficient of the instrument was

determined using Cronbach alpha and the measure of internal consistence of instrument was obtained as 0.89. The three research questions which guided the study were answered using mean and standard deviation, while the three null hypotheses were tested at 0.05 level of significance using t-test. The findings revealed that teacher related constraints such as number of unqualified teachers, nonpayment of salaries among others, militates against effective implementation of the curriculum in government secondary schools (GSS) to great extent, while the same constraints affect the implementation of the curriculum in private secondary schools (PSS) moderately. In the same way, instructional materials and facilities constraints the effective implementation of the 3-year Upper Basic Science and Technology curriculum in government schools to a great extent compared to private secondary schools that are affected moderately. It was recommended based on the findings that the government through the Ministry of Education (MOE) and State Universal Basic Education Boards (SUBEB) should ensure that the teacher-related constraints that hinder effective implementation of the curriculum are solved especially in government secondary schools by employing more qualified teachers in the four areas of the subject. More instructional materials such as projectors, instructional television, and internet should be provided especially in government secondary schools for effective implementation of the curriculum. Also more facilities such as furniture, workshops and laboratories should be provided to a great extent in both government and private secondary schools, if actually the 3-year Upper Basic Science and Technology curriculum is to be implemented effectively in Nigeria.

Keywords: Basic Science and Technology, Curriculum Implementation, Curriculum Implementation Constraints, Science Education, Basic Education

Introduction

The digital transformation revolution has changed every part of livelihood all over the world. There is no doubt that the role of science and technology in modern society cannot be overemphasis. More importantly, all the challenges facing the world and communities particularly in Africa today depends solely on science and technology education to find appropriate solutions. Thus, the aim of science and technology at the foundation or basic education level is to guide students towards a knowledge economy that is undeniably moving towards the use of ever emerging innovations. According to Kamp (2019) soon everybody will have access to practically infinite data, practically infinite processing power, at practically infinite speeds. The author is of the opinion that the knowledge society has transformed to a global learning culture. It is no longer creation and dissemination, but the acquisition, sharing and collaborative collection of knowledge that have become the key factors for success.

However, knowledge construction at any level of teaching and learning is an output of curriculum implementation which is usually characterized with a lot of constraints especially in developing countries (Jose, 2015). According to Ewesor and Itie (2015) the teacher who is engaged in the implementation of science and technology curriculum at the basic education level needs to be very careful because this is the age or level where children come across science and technology for the first time in their life. Therefore, the curriculum should be flexible enough to enable the teacher fast track ways of making children develop interest in science and technology in order to overcome any

negative influence towards their learning of the subject. The curriculum should specify the materials that will be highly motivating to catch the interest of the children at this level that they are still young. The curriculum should aim at developing the cognitive, affective and psychomotor abilities of the child because education is supposed to effect the total development of the learner. Both the teacher and learners should be familiar with the aims/objectives of the curriculum in order to easy implementation.

Curriculum as a set of education plans should be prepared and adapted based on the learning situation and future demand. Nwafor (2012) opines that the concept of curriculum implementation is the actual engagement of learners with planned learning opportunities. It is the actual carrying-out of societal, culture or government policies spelt out in the curriculum. Steve (2018) viewed curriculum implementation as the process of putting the curriculum into work for the achievement of the goals for which the curriculum is designed. Shao-Wen (2012) described curriculum implementation as the translation of the objectives of the curriculum from paper to practice. According to Ivowi (2004), curriculum implementation is the translation of theory into practice, or proposal into action.

In Nigeria, science and technology curriculum implementation started in late 1940s in order to produce the manpower that was needed in all sectors of the economy (Abudullahi, 1982 in Brown, 2015). According to Nwafor and Eze (2014), poor maintenance of school facilities and equipment as well as inadequate instructional resources are the major constraints of curriculum implementation in the country. The authors observed that many government and private owned schools still have insufficient classrooms with broken seats which are major impediments for curriculum implementation in the Nigeria. John (2015) opine that an ideal environment for implementation of a curriculum should make learners feel comfortable to learn and be informed. According to Jose (2015) Learners after being exposed to science and technology curriculum should show that they have acquired lasting skills and ideas towards evolving trends and innovations that would eventually bring solutions to the pending societal problems especially in developing countries. In this way, science and technology education would become important not only to the learner but to the community for the attainment of the sustainable development goals (SDGs).

In order to join the global trend on modern science and technology teaching/learning, the education stakeholders in Nigeria called for a complete formulation of a new structure for the 9-year Basic Education Curriculum (BEC). This is because of too many subjects offered at the lower, middle and upper basic education levels in the country which the content of some subjects seem to be duplicated in other subjects (Nigeria Educational Research and Development Council NERDC, 2010). The content of some subjects such as Basic Science and Basic Technology were reduced after some of the subjects were compressed and merged (NERDC, 2012). It was on this basis that four different subjects were reshaped and merged to become Basic Science and Technology. The subjects merged include; Basic Science, Basic Technology, Physical and Health Education, and Computer Science/Information Communication (Akpan, 2015).

According to the Universal Basic Education Commission (UBEC, 2010), the merger of these single subjects curricular became necessary for the following reasons:

i. Recommendations of the Presidential Summit on Education (2010) to reduce the number of subjects offered in Primary and Junior Secondary Schools;

ii. Feedback from the implementation of the curricula in schools that identified repetition and duplication of concepts as the major cause of curriculum overload;

iii. Need to encourage innovative teaching and learning approaches and techniques that promote creativity and critical thinking in learners;

iv. Need to promote the holistic view of Science and Technology at the Basic Education level for better understanding of contemporary and changing world; and

v. Need to infuse emergent issues that are of national and global concern such as; gender sensitivity, globalization, disaster risk reduction, consumer education, climate change and entrepreneurship.

It is expected that, these well-articulated reasons for the merging of four important subject areas as Basic Science and Technology can be achieved if all the constraints that hindered the curriculum implementation of the single subject areas especially at the upper basic education level are addressed. This means; providing resources, facilities and funds in right quantity and quality, also the effective management of these resources are major determinants that can put Nigeria on the global map in science and technology education. Bilsel and Oral (2010) assert that there are significant social and economic differences between developed and developing countries. Many of the underlying causes of these differences are rooted in the long history of development of such nations and include social, cultural and economic variables, historical and political elements, international relations and geographical factors. These, however, do not tell the whole story. The differences in scientific and technological infrastructure and in the popularization of science and technology in the two groups of countries are the most important causes of differential social and economic levels. This is because the essential prerequisite to a country's scientific and technological progress is early recognition of the necessity of a well-designed and implemented science and technology curriculum. Keith (2010) states that experience in developing countries over the past three decades have demonstrated that a strong scientific and technological base is a prerequisite for industrial growth. This is because today's technologies have changed the frontiers of industrial growth by expanding knowledge systems into all aspects of production, market-access, comparative advantage and socio-economic well-being. These dramatic shifts in the worlds' economic process should be central in science and technology curriculum implementation for success especially in developing economies.

The Nigeria secondary school curriculum implementation is expected to give the students the necessary skills to earn a living in the society and to play their roles in the attainment of the Sustainable Development Goals (SDGs) while still building background for future education and for lifelong learning. However previous studies have shown that both government and private own secondary schools in Nigeria are constrained in so many ways in the implementation of the Basic Education Curriculum and the Senior Secondary School Curriculum.

Ogbuagu, Eyibe and Okoli (2010) examined the challenges encountered in the teaching and learning of Basic Technology in the junior secondary schools in Anambra State. The result showed non availability of standard and functional instructional materials, workshop and textbooks, lack of tools and equipment, poor teacher qualification, insufficient time, poor funding and nonchalant attitude of the government towards education are some of the major challenges encountered in the teaching and learning of Basic Technology in both government and private secondary schools. Ogungbesan (2012) evaluated the implementation of the Basic Science curriculum in the south west Nigeria. The findings revealed that 66.5% of the Basic Science teachers surveyed were not professionally qualified to teach the subject, 78% of the schools covered lack instructional aids. Olusegun (2015) investigated the impediments on the implementation of Computer Science Education (CSE) curriculum in public secondary schools in Osun state, Nigeria. The findings of the study showed that the extent of CSE curriculum implementation in the State was very low (18.33%), there were no computer facilities in the schools to effectively implement the curriculum. Idehen and Oshodin (2008) assessed the factors that affect physical and health education instruction in secondary schools in Edo State, Nigeria. The study revealed that lack of basic school facilities, teachers, relevant textbooks as well as pamphlets and posters were factors central to the poor state of instruction in the subject.

Statement of the Problem

Basic Science and Technology is one of the key subjects in the present 9-year Basic Education Programme in Nigeria, offered at the lower, middle and upper Basic Education levels. This subject has indicators for the attainment of the Sustainable Development Goals (SDGs). However, a number of researchers on the curriculum implementation of the individual subject areas (that is; Basic science, Basic Technology, Physical and Health Education and Computer Science) that now form Basic Science and Technology; Odehen and Oshodin (2008), Ogbuagu, Eyibe and Okoli (2010), Ogungbesan (2012) and Olusegun (2015) discovered that the implementation of these individual subject curricular was characterized with some many constraints such as; poor teacher qualification, non-availability of standard and functional instructional materials, workshop and textbooks, lack of tools and equipment among other issues. So now that these subjects are merged as Basic Science and Technology are those constraints that marred effective implementation of the single subject curricular solved or they are multiplied? It is in attempt to answer this question that this study investigated the constraints militating against effective implementation of the 3-year upper Basic Science and Technology curriculum in Government Secondary Schools (GSS) and Private Secondary Schools (PSS) in North

central Nigeria. Thus, the problem of the study is pose in question form; what is the extent to which teacher factor, instructional materials and school facilities militates against effective implementation of the present 3-year Upper Basic Science and Technology curriculum?

Purpose of the Study

The main purpose of this study was to investigate the constraints militating against effective implementation of the 3-year upper Basic Science and Technology curriculum in Government Secondary Schools (GSS) and Private Secondary Schools (PSS) in North central Nigeria. Specifically, the study sought to:

i. Find out the extent to which teacher related constraints militate against effective implementation of the 3-year upper basic science and technology curriculum.
ii. Determine the extent to which instructional materials constraints affect effective implementation of the 3-year upper basic science and technology curriculum.
iii. Ascertain the extent to which facilities constraints hamper effective implementation of the 3- year upper basic science and technology curriculum.

Research Questions

The following research questions were asked in this study:

i. What is the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum?
ii. What is the extent to which instructional materials constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum?
iii. What is the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum?

Research Hypotheses

The following hypotheses were tested at 0.05 level of significance.

i. There is no significant difference in the mean rating scores of teachers on the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS.
ii. There is no significant difference in the mean rating scores of teachers on the extent to which instructional materials constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS.

iii. There is no significant difference in the mean rating scores of teachers on the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS.

Methodology

The study employed a cross sectional survey design on the extent to which effective implementation of the 3-year Upper Basic Science and Technology curriculum is constrained. The population comprised all 10,688 Basic Science and Technology teachers in North Central Nigeria. The sample consisted of 288 teachers randomly selected in both government and private secondary schools in the study area. Basic Science and Technology Teachers Questionnaire (BSTTQ) was used for data collection. The instrument was validated by three experts, two in Science Education and one in Test and Measurement. The reliability coefficient of the instrument was determined using Cronbach alpha and internal consistency of instrument was obtained as 0.89. The instrument which contained three sections A, B and C was developed on a modified Likert-type four point rating scale of 4, 3, 2, and 1 as follows: each item in the three sections of the instrument has; Great Extent (GE) = 4pionts = 3.50 – 4.00, Moderate Extent (ME) = 3pionts = 2.50 – 3.49, Less Extent (LE) = 2pionts = 1.50 – 2.49, No Extent (NE) = 1piont= 0.50 – 1.49. Meanwhile, any item with the mean of 2.50 and above was accepted as great extent while items with the mean of 2.49 and below were considered less extent. The instrument was administered to the respondents by the researcher alongside one trained research assistant. The data collected was analyzed using mean and standard deviation (SD). While the three null hypotheses were tested at 0.05 level of significance using independent t-test.

Results

The presentation of the data for this study is done according to the research questions and research hypotheses.

Research Question One

What is the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum?

Table 1: The extent to which teacher-related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum

S/No.	Teacher-Related Constraints	GSS			PSS		
		Mean	SD	Dec	Mean	SD	Dec
1	Number of unqualified teachers	3.33	1.21	ME	4.72	1.33	GE
2	Non-payment of teachers' salaries	4.00	1.17	GE	2.10	1.18	LE
3	Teachers non-attendance to seminars/workshops	3.56	1.31	GE	2.30	1.21	LE
4	Low level of teachers motivation by school owners	4.40	1.71	GE	3.30	1.31	ME
5	Low level of teachers knowledge of the BST curriculum	3.50	1.10	GE	3.51	1.17	GE

6	Irregular attendance of teachers to BST lessons	3.54	1.15	GE	2.20	1.10	LE
7	Inability of BST teachers to use required teaching aids during lessons.	4.32	1.18	GE	2.68	1.11	ME
8	Low level of BST teachers' knowledge of ICT	4.10	1.21	GE	2.99	1.19	ME
9	Inability of BST teachers to organize practical activities for students	3.46	1.12	GE	2.62	1.21	ME
10	Low level of teachers' assessment of BST students.	2.50	1.31	ME	2.11	1.31	LE
	Composite Mean	**3.67**			**2.85**		

Key: BST = Basic Science and Technology
GSS = Government Secondary Schools
PSS = Private Secondary Schools
GE = Great Extent, ME = Moderate Extent, LE = Less Extent & NE = No Extent

The result in Table 1 of shows the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum. The result revealed that the teacher-related constraints such as the number of unqualified teachers', non-payment of teachers' salaries among other issues militates against effective implementation of the 3-year Upper Basic Science and Technology curriculum in government secondary schools (GSS) to great extent with a composite mean of 3.67. While the same constraints affect the implementation of the curriculum in private secondary schools (PSS) to a moderate extent with a composite mean of 2.85.

Research Question Two

What is the extent to which instructional materials constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum?

Table 2: The extent to which instructional materials constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum.

S/No.	BST Instructional Materials	GSS Mean	SD	Dec	PSS Mean	SD	Dec
1	Textbooks	2.25	1.19	LE	2.00	1.61	LE
2	Posters	2.50	1.31	ME	2.21	1.17	LE
3	Charts	2.60	1.14	ME	2.20	1.31	LE
4	White boards	3.11	1.20	ME	2.42	1.19	LE
5	Curriculum manuals	3.10	1.39	ME	3.30	1.31	ME
6	Models	2.51	1.41	ME	2.70	1.21	ME
7	Drawings	2.31	1.11	LE	2.09	1.22	LE
8	Puzzles	2.40	1.34	LE	2.21	1.39	LE
9	Instructional television	3.80	1.17	GE	3.50	1.22	GE

10	Projector	3.64	1.27	GE	3.56	1.18	GE
11	Internet	3.50	1.31	GE	3.00	1.19	ME
12	Models	2.58	1.40	ME	2.50	1.71	ME
13	Trace boards	3.70	1.22	GE	3.30	1.27	ME
14	Journals	2.52	1.27	ME	2.07	1.19	LE
15	Slides	2.58	1.19	ME	2.44	1.17	LE
	Composite Mean	**2.87**			**2.63**		

Key: BST = Basic Science and Technology
GSS = Government Secondary Schools
PSS = Private Secondary Schools
GE = Great Extent, ME = Moderate Extent, LE = Less Extent & NE = No Extent

The result in Table 2 presents the extent to which instructional materials constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum. The result showed that, instructional resources constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum moderately in both government secondary schools (GSS) and private secondary schools (PSS) with composite means of 2.87 and 2.63 respectively.

Research Question Three

What is extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum?

Table 3: The extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum

S/No	Facilities	GSS			PSS		
		Mean	SD	Dec	Mean	SD	Dec
1	Classrooms	3.20	1.11	ME	2.31	1.18	LE
2	Furniture	4.29	1.23	GE	2.70	1.31	ME
3	Laboratories	3.60	1.15	GE	3.50	1.27	GE
4	Workshops	4.70	1.16	GE	3.61	1.17	GE
5	Sport/Games facilities	2.62	1.21	ME	2.58	1.19	ME
6	ICT/Comp. facilities	3.64	1.28	GE	3.40	1.37	GE
7	Electricity	2.52	1.31	ME	2.11	1.26	LE
8	Water	2.61	1.39	ME	2.00	1.30	LE
9	Library	2.50	1.45	ME	2.37	1.18	LE
10	Offices	2.60	1.72	ME	2.54	1.23	ME
11	Toilets	2.54	1.19	ME	2.32	1.18	LE
12	Stores	2.60	1.39	ME	2.56	1.28	ME
	Composite Mean	**3.11**			**2.66**		

Key: BST = Basic Science and Technology
GSS = Government Secondary Schools
PSS = Private Secondary Schools
GE = Great Extent, ME = Moderate Extent, LE = Less Extent & NE = No Extent

The result in Table 3 reports the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum. The result revealed that, facilities constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum in both government secondary schools (GSS) and private secondary schools (PSS) moderately with composite means of 3.11 and 2.66 respectively.

Research Hypothesis One

There is no significant difference in the mean rating scores of teachers on the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS.

Table 4: t-test of independent sample of the difference in the mean rating scores of teachers on the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS

Variables	N	Mean	SD	t	df	p	Level of Sig	Decision
GSS	288	2.6710	0.5331	0.055	56	0.032	0.05	Significant
PSS	288	2.8530	0.5400					

The t-test of independent sample of the difference in the mean ratings of teachers on the extent to which teacher-related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS recorded t-test value of 0.055 with a p-value of 0.032 which is less than 0.05 level of significance ($p=0.032<0.05$). Therefore, the null hypothesis is rejected. This implies that, there is significant difference on the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in government and private secondary schools.

Research Hypothesis Two

There is no significance difference in the mean rating scores of teachers on the extent to which instructional materials constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS.

Table 5: t-test of independent sample of the difference in the mean rating scores of teachers on the extent to which instructional materials constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS

Variables	N	Mean	SD	t	df	p	Level of Sig	Decision
GSS	288	2.8733	0.5121	0.055	56	0.029	0.05	Significant
PSS	288	2.6333	0.5020					

The t-test of independent sample of the difference in the mean ratings of teachers on the extent to which instructional materials constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS recorded t-test value of 0.055 with a p-value of 0.029 which is less than 0.05 level of significance ($p=0.029<0.05$). Therefore, the null hypothesis is rejected. This means that, there is significant difference on the extent to which instructional materials constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in government and private secondary schools.

Research Hypothesis Three

There is no significance difference in the mean rating scores of teachers on the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS.

Table 6: t-test of independent sample of the difference in the mean rating scores of teachers on the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS

Variables	N	Mean	SD	T	df	P	Level of Sig	Decision
GSS	288	3.1183	0.5632	0.055	56	0.041	0.05	Significant
PSS	288	2.6666	0.5112					

The t-test of independent sample of the difference in the mean ratings of teachers on the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS recorded t-test value of 0.055 with a p-value of 0.041 which is less than 0.05 level of significance ($p=0.041<0.05$). Therefore, the null hypothesis is rejected. This shows that, there is significant difference on the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in government and private secondary schools.

Discussion of Findings

The result on research question one on the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum. The result revealed that, the teacher related constraints such as the number of unqualified teachers, non-payment of teachers' salaries militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in government secondary schools (GSS) to great extent, while the same constraints affect the implementation of the curriculum in private secondary schools (PSS) to a moderate extent. The t-test of independent sample of the difference in the mean rating scores of teachers on the extent to which teacher related constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS recorded t-test value of 0.055 with a p-value of 0.032 which is less than 0.05 level of significance ($p=0.032<0.05$). Therefore, the null hypothesis is rejected. This implies that, the teacher related constraints affect the implementation of the curriculum more grievously in government secondary schools than in private secondary schools. The finding is in line with Ogbuagu, Eyibe and Okoli (2010) who reported that poor teacher qualification and other teacher related factors are the major constraints that affect the implementation of the curriculum.

The t-test of independent sample of the difference between the mean rating scores of teachers on the extent to which instructional materials constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS recorded t-test value of 0.055 with a p-value of 0.029 which is less than 0.05 level of significance ($p=0.029<0.05$). Therefore, the null hypothesis is rejected. This means that, instructional materials constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum in government secondary schools more seriously compared to private secondary schools. The finding is in agreement with Ogungbesan (2012) who reported that 78% of the schools lack instructional aids. The t-test of independent sample of the difference in the mean rating scores of teachers on the extent to which facilities constraints militate against effective implementation of the 3-year Upper Basic Science and Technology curriculum in GSS and PSS recorded t-test value of 0.055 with a p-value of 0.041 which is less than 0.05 level of significance ($p=0.041<0.05$). Therefore, the null hypothesis is rejected. This indicates that, facilities constraints affect effective implementation of the 3-year Upper Basic Science and Technology curriculum in private secondary schools lightly compared to government secondary schools that are heavily affected. The finding is in consonance with Idehen and Oshodin (2008) and Olusegun (2015) that attributed the failure in the curriculum implementation of the individual subject areas that now form Basic Science and Technology curriculum to lack of basic schools facilities.

Conclusion

It is concluded based on the findings that teacher related constraints such as; number of unqualified teachers, nonpayment of salaries among others militate against effective implementation of the curriculum in government secondary schools (GSS) to great extent, while the same constraints affect the implementation of the curriculum in

private secondary schools (PSS) moderately. In the same way, instructional materials constraints as well as facilities constraints hinder effective implementation of the 3-year Upper Basic Science and Technology curriculum in both government and private secondary schools to a great extent.

Recommendations

It was recommended based on the findings that; the government through the Ministry of Education (MOE) and State Universal Basic Education Boards (SUBEB) should ensure that;

i. The Teacher related constraints that hinder effective implementation of the curriculum are solved especially in government secondary schools by employing more qualified teachers in the four areas of the subject.
ii. More instructional materials such as projectors, instructional television, and internet are provided especially in government secondary schools for effective implementation of the curriculum.
iii. More facilities such as; furniture, workshops and laboratories are provided to a great extent in both government and private secondary schools.

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