



# Senior Secondary School Physics Curriculum Content Coverage and Student’s Achievement in Katagum Educational Zone, Bauchi State, Nigeria

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## Abstract

The study was conducted mainly to find the Level of Physics Curriculum Content Coverage and Factors Responsible for Non-coverage of the Curriculum and their Effects on Students’ Achievement in Katagum Educational Zone, Bauchi State Nigeria. The study employed survey research design. The population of the study comprised of 8,912 students and the sample was made up of 200 SS II physics students. Four research questions were answered and three hypotheses were tested in the study. Descriptive and inferential statistics were used to answer questions and test the hypotheses stated. Three instruments were used in collecting data for the study namely; Physics Curriculum Content Coverage Rating Scale (PCCCRS), Physics Students Achievements Test (PSAT), and Factors Responsible for Non-Physics Curriculum Content Coverage (FRNPCCC). The three instruments were validated by three experts. The reliabilities of the three instruments were computed using Cronbach alpha and test-retest reliability coefficient indexes. The reliabilities of PCCCRS, PSAT, FRNPCCC were found to be Inter-rater of value of 0.76, Cronbach alpha with a value of 0.86 and test-retest reliability of 0.84. The findings revealed that; there is significant effect of physics curriculum content coverage on students’ achievements, some topics are partially or totally not covered by the teachers and have direct effects on students’ achievement, there are significant differences among schools with high, moderate and low physics content coverage, there is significant difference between physics curriculum content coverage in public and private schools. It was found that, among all the 25 factors tested, only 6 factors were not among the factors responsible for non-content coverage of physics curriculum in secondary. Increase in teachers’ content coverage of specified curriculum leads to an increase in students’ achievement in Physics; factors such as lack of professional/qualified physics teachers, lack of teaching materials/ laboratories, Physics teachers’ welfare, Boko-haram insurgency and so on were found to be responsible for the none curriculum content coverage in schools. Based on the findings of the study, it was recommended among others that Ministries of Education and all stakeholders should frequently supervise teachers to curb lousiness, laziness and sluggishness on the part of teachers to ensure proper coverage of academic contents of physics in schools.

Keywords: Physics Curriculum Content Coverage, Achievement.

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## **INTRODUCTION**

Physics is a fundamental science whose discoveries continue to drive the rapid development of our modern technological society. Physics is the bedrock of science and technology. It provides the basic knowledge and understanding of principles whose application contributes immensely to the quality of life in the society.

According to Norwegian University of Science and Technology (NTNU,2016), Physics is a natural science based on experiments, measurements and mathematical analysis with the purpose of finding quantitative physical laws for everything from the Nano world of the micro cosmos to the planets, solar systems and galaxies that occupy the macro cosmos.

The Nigerian Educational Research and Development Council (NERDC, 2009) stated in the new Nigeria's' senior secondary school Physics curriculum that, the objectives of physics in the secondary school curriculum are to; Provide basic literacy in physics for functional living in the society, acquire basic concepts and principles of physics as preparatory for further studies, acquire essential scientific skills and attitudes as a preparatory for technological application of physics, stimulate and enhance creativity and provide a course, which is complete for students not proceeding to higher education, while it is at the same time a reasonable adequate foundation for a post-secondary Physics course. To achieve these objectives, the curriculum in Physics is expected to reflect adequate content coverage. Despite these laudable objectives of physics, student's achievement seems to be inadequate (Oniyangi, 2013). Based on the significant influence the curriculum has over students' achievement, there is need to investigate into the physics curriculum content coverage in relation to students' achievement.

Nigerian schools are classified into public and private institutions. Public schools are those owned by government, while private schools are those owned by private organizations. In the general outlook, there seems to be a major distinction between public and private schools in Nigeria. The distinction could be in their sources of support and finance. In the Nigerian context, public schools depend primarily on local, state and federal government allocation while private schools are usually supported by tuitions payments and sometimes by funds from other public sources such as religious organizations, endowments, grants, charitable donations to mention a few. With the knowledge of the public and private schools in Nigerian educational system, a lot of factors have come into play that contribute to its development. The factors according to Amadalo (2012) include teacher's qualification, class size, population, facilities, school governance and parental involvements among others. These could likely be the factors that are hindering understanding and performance in physics in both public and private schools in Nigeria.

The factors that contribute negatively to curriculum content coverage include the following; teachers' attitudes to work, (such as absenteeism, late coming), nature of curriculum (such as its wideness,), internal crisis (such as Boko Haram insurgency, inter religious crisis, farmers/herders crisis) teacher's workload, school discipline, time management, sickness, group discussions, and supervisory activities by heads of departments and institutions (Amadalo, 2012). Based on the issues discussed, this study is set to determine the level of curriculum content coverage and students' achievement in physics in Katagum Educational zone Bauchi State.

### **Statement of the Problem**

There is public outcry about students' performance in physics and it is related to non-curriculum content coverage in secondary schools in Nigeria. For example, Abamba (2012) showed that an increased in content covered will lead to improved achievement of students in

examinations. Akuche and Okunola (2017) stated that, as important as Physics is to the technological advancement of a nation, students still perform below standards in the subject. Over the years, researches have been carried out and the process is still on to address the perceived causes of poor performance in Physics. Jegede and Adedayo (2016) stated that, the performance of students who enrolled for Physics at the Senior Secondary School Certificate Examinations (SSCE) between 2010 and 2015 was not encouraging. According to the West African Examination Council WAEC Chief Examiner's report of (2010 & 2011). In 2010 out of 487,963 students that sat for physics, only 32.64% of the students had a minimum of credit with 67.36% scoring below credit. In 2011, 587,772 students sat, while only 26.08% had a minimum of credit with 73.20% failing the examination. These poor achievements in physics have been like that up to 2015. It also implies that only a few students would eventually be able to pursue Physics related careers in higher institutions. This will consequently have great implication on manpower development in Engineering and other related professional science fields.

Ayansina (2016) opined that improving students' achievement in physics is featured prominently as a goal of educational reform in many countries, and method for monitoring success often centered on conducting assessments at the local, national and international level and a good curricular practice is a part of this process. The researchers are not aware of any study of this nature that investigated into senior secondary school physics curriculum content coverage and student's achievements between the schools with high and low physics curriculum content coverage in Katagum Educational Zone, Bauchi State, Nigeria. The broad question to be answered in this study was to what extent is the curriculum of physics covered and what factors are responsible for the non-coverage of the physics curriculum in Katagum Educational Zone Bauchi State Nigeria.

### **Aim and Objectives of the Study**

The major aim of this study is to investigate into senior secondary school's physics curriculum content coverage and students' achievement in Katagum Educational Zone, Bauchi State, Nigeria. The specific objectives are to:

- Find out the status of physics curriculum content coverage among secondary school students in Katagum Educational Zone.
- Determine the difference in students' achievements among schools with high, moderate and low physics content coverage in Katagum Educational Zone.
- Determine the extent of physics curriculum content coverage in public and private schools.
- Determine the factors responsible for non-content coverage of physics curriculum in secondary schools in Katagum Educational Zone.

### **Research Questions**

The following research questions are formulated to guide the study:

- What is the level of physics curriculum content coverage among secondary schools in Katagum Educational Zone?
- To what extent do the achievement mean scores of physics students differ between schools with high, moderate and low physics curriculum content coverage?
- What is the difference in students' achievement mean score between public and private schools in Katagum Educational Zone?

- What are the factors responsible for non-coverage of physics curriculum contents in schools in Katagum Educational Zone?

## **Hypotheses**

The following null hypotheses were put forward and tested at 0.05 level of significance:

- There is no significant difference in physics curriculum content coverage on students' achievements in Katagum Educational Zone.
- There is no significant difference in students' achievements means scores between schools with high and low physics curriculum content coverage in Katagum Educational Zone.
- There is no significant difference between physics curriculum content coverage in public and private schools in Katagum Educational Zone.

## **METHODOLOGY**

This study adopted descriptive survey research design. This design was used because it allows collection of data to be done under natural setting and relatively quicker and cheaper to undertake. The population of this study comprised of 8,912 physics students in forty-three (43) senior secondary schools in Katagum Educational Zone Bauchi State. There are different types of schools which cut across private, public and Voluntary Agency Schools. There are single-sex and mixed schools, constituted the population from which the students and schools' samples were drawn. In order to reflect fairness in the composition of the sample, out of the study population of 43 secondary schools, sampling fraction is done where a quarter of schools' population is selected which gives the number of 11 schools. The sample schools have the total number of 615 SS11 students, out of which 200 students were randomly selected using sampling fraction. In selecting the schools, random sampling technique was used.

The main instruments used for data collection in this research work are, Physics Curriculum Content Coverage Rating Scale (PCCCRS): This consisted of two sections, namely A & B. Section A of the instrument sought for information of the respondents, such as sex, school type, and school number. Section B of the instrument consists of 24 topics of curriculum content for SSII physics contents for the whole terms. The responses of students and teachers were scored on the basis of Totally Covered (TC), Partially Covered (PC) or Not Taught (NT).

The Physics Students Achievements Test (PSAT) consists of forty-five objectives test, while Factors Responsible for Non Physics Curriculum Content Coverage questionnaire (FRNPCCCQ): Consists of 25 items for the teachers to respond. Each item is presented as a factor which consists of four scales: 4 for Strongly Agreed (SA), 3 for Agreed (A), 2 for Disagreed (D), and 1 for Strongly Disagree.

## **RESULTS**

### **Research Question One**

What is the level of physics curriculum content coverage among secondary schools in Katagum Educational Zone?

Table 1: Level of Physics Curriculum Content Coverage among Secondary Schools in Katagum Educational Zone

S/N	Curriculum Content N=200.	Rating			Mean	Std. Dev
		TC (3)	PC (2)	NT (1)		
1.	Heat Energy: Temperature and its Measurement, Types of Thermometers.	161	20	19	2.71	.631
2.	Heat Energy Measurement: Concept of Specific Heat Capacity, its measurement and its significant	122	59	19	2.52	.665
3.	Heat Energy Measurement: Latent Heat, Evaporation, and Boiling point, Sublimation, Relative Humidity and Dew Point.	113	62	25	2.44	.706
4.	Gas Laws: Boyle's Law, Charles's Law, Pressure Law General Law and their Applications.	152	27	21	2.66	.662
5.	Production and Propagation of Waves	165	28	7	2.79	.487
6.	Types of Waves and Properties of Wave.	173	13	14	2.80	.552
7.	Light Waves: Sources of Light, Light and Matter, Shadows, Eclipse and Pinhole Camera.	105	53	42	2.32	.799
8.	Light Waves: reflection of Light, Law of reflection and formation of Images, its application	116	48	36	2.40	.777
9.	Light Waves: Reflection of Light through glass block, Real and Apparent Depth, Critical Angle.	97	53	50	2.24	.827
10.	Light Waves: Reflection of Light through Triangular Glass Prism, Angle of minimum deviation	58	65	77	1.91	.818
11.	Light Waves: Dispersion of Light, Converging and Diverging of Light, Images formed by Lenses	95	35	70	2.13	.902
12.	Application of light Waves: Simple Camera and Projector, The human Eye, Microscopes, Telescope and Prism binocular.	74	47	79	1.98	.876
13.	Sound Wave: Its Sources, Transmission, Speed in media and Characteristics of Sound.	129	44	27	2.51	.723
14.	Noise and Music, Forced Vibration –Resonance, Harmonics and Overtones, Stationary Waves.	114	40	46	2.34	.829
15.	Application of Sound Waves: Vibrations in string and pipe, percussion instruments, Echoes and their application, Hearing aids.	95	51	54	2.21	.841
16.	Molecular Theory of Matter: Pressure of fluids, Applications of Atmospheric and Gas Pressure	88	55	57	2.16	.839
17.	Electromagnetic Waves: Electromagnetic Spectrum	130	45	25	2.53	.708
18.	Gravitational Field: Newton's Law of Universal Gravitation, Gravitational Potential, Escape Vel.	151	34	15	2.68	.608
19.	Solar System, Kepler's Law, Natural and Artificial Satellites.	97	61	42	2.28	.789
20.	Electric Field: Production of continuous charges, primary and secondary cells, series and parallel arrangement of cells and resistors.	99	37	64	2.18	.888
21.	E.m.f of a cell, Internal Resistance of a cell, standard resistors and rheostats, Resistivity, Con.	69	39	92	1.89	.892
22.	Shunt and Multiplier, Principle of potentiometer, Wheatstone and meter bridges.	31	33	136	1.48	.750
23.	Electric Field: Electrolysis, Electrolytes and Non Electrolyte, application of Electrolysis.	95	50	55	2.20	.845
24.	Conduction of Electricity through Gases: Hot Cathode, Thermionic emission, Cathode Ray Oscilloscope.	58	55	87	1.86	.841
25.	Electric Forces between point Charges: Electric field Intensity, Electric Potentials.	118	32	50	2.34	.853
26.	Capacitors and Capacitances, Arrangement, storage and application of capacitors.	106	36	58	2.24	.875
27.	Magnetic Field: concept and properties of magnetic field, magnetic Flux and density, Magnetic field around bar magnet, Methods.	92	60	48	2.22	.809
28.	Magnetic Screening or Shield, Electromagnets and its applications; temporary magnets and, Electric Bell, telephone earpiece.	42	38	120	1.61	.813
29.	The Earth Magnetic Field: Angle of Declination, Angle of Dip, Horizontal component of Earth's Magnetic field, Neutral point Mariner's compass.	38	46	116	1.61	.788
30.	Electromagnetic Field: A current Carrying Wire, A current Carrying Solenoid in a magnetic field, Electric motor, moving coil galvanometer.	55	62	83	1.86	.821
31.	Electromagnetic Induction, Faraday's Law, Lenz's Law, Motor Generator effect, Eddy current	75	39	86	1.95	.898
32.	The Transformer, Power transmission, The Induction Coil.	67	29	104	1.82	.908
<b>Decision mean = 2.00</b>		<b>Aggregate mean = 2.21</b>				

Table 1 revealed that 10 contents in the curriculum were partially or not covered by the physics teachers in the sampled schools. The mean scores of these items were found below the decision mean of 2.00. The results also show that the level of physics curriculum content coverage among secondary schools in Katagum Educational Zone was found to be high (aggregate mean of 2.21 is greater than decision mean of 2.00).

### Research Question Two

To what extent does the achievement mean scores of physics students differed between schools with high, moderate and low physics curriculum content coverage in Katagum Educational Zone?

Table 2: Means, Standard Deviation and Standard Error of Physics Students' Achievement Scores Based on their Level of Curriculum Coverage

Level	N	Mean	Std. Dev.	Std. Error
Low	61	13.16	6.097	.781
Moderate	73	16.62	7.039	.824
High	66	21.18	6.897	.849
<b>Total</b>	<b>200</b>	<b>17.07</b>	<b>7.418</b>	<b>.525</b>

Table 2. Shows the Mean, Standard Deviation and Standard Error of physics students' achievement scores based on their school levels of curriculum content coverage. The table revealed that students with high level of curriculum content coverage had the largest achievement mean score of (21.18) followed by those with moderate level of curriculum content coverage with achievement mean score of 16.62. The table also revealed that those with low level of curriculum content coverage had the least achievement mean scores of 13.16. This implies that the level of curriculum content coverage has a great effect on the achievement of students in physics.

### Research Question Three

What is the difference in students' achievement mean score between public and private schools in Katagum Educational Zone?

Table 3: Means, Standard Error and Mean Difference of Physics Students' Achievement Scores based on School Type

Variable	N	Mean	Std. Error Mean	Mean difference
Public	135	68.64	1.108	6.59
Private	65	75.23	1.707	

Table 3 shows the Mean, Standard Error and mean difference of physics students' achievement scores based on school type. The table revealed that difference exists in the achievements of students based on their school type. The difference of 6.59 is observed in favour of private schools. This implies that students from private schools achieved better than those from public schools.

## Research Question Four

What are the factors responsible for non-coverage of physics curriculums content in schools in Katagum Educational Zone?

Table 4: Factors Responsible for Non-coverage of Physics Curriculums Content in Schools in Katagum Educational Zone

SN	Statements	SA (4)	A (3)	D (2)	SD (1)	Mean	Std. Dev
1	I find it difficult to cover the curriculum because of time	3	7	4	2	2.69	.946
2	Too much activities in school affects my curriculum content coverage	3	3	7	3	2.38	1.025
3	The overloaded nature of physics curriculum affects its coverage.	4	8	2	2	2.88	.957
4	Non-professional physics teachers affect curriculum content coverage.	5	6	5	-	3.00	.816
5	The difficult nature of some topics to teach affect physics curriculum coverage.	3	7	5	1	2.75	.856
6	Teacher/student ratio affects the physics contents coverage.	2	11	3	-	2.94	.574
7	Absenteeism of teachers to physics lessons affects its content coverage.	5	7	4	-	3.06	.772
8	Not using team teaching affects physics curriculum content coverage.	1	4	11	-	2.38	.619
9	Lack of physics teaching materials affects its content coverage.	6	9	1	-	3.31	.602
10	Absenteeism of students to physics lessons affects its content coverage.	3	6	5	2	2.63	.957
11	Class room size affects physics content coverage.	4	8	2	2	2.88	.957
12	Frequent supervision by administrators/supervisor affects physics content coverage	3	6	5	2	2.63	.957
13	Lack of physics practical's materials affects its content coverage.	4	10	1	1	3.06	.772
14	Poor school administration affects physics content coverage.	4	7	3	2	2.81	.981
15	Physics teachers' welfare affects physics content coverage.	6	6	2	2	3.00	1.033
16	Mathematical nature of physics curriculum affects its content coverage.	1	7	6	2	2.44	.814
17.	School location affects physics curriculum content coverage.	2	4	5	5	2.19	1.047
18.	It is difficult to cover physics curriculum in public schools.	3	5	5	3	2.50	1.033
19.	Student`s parental status affects physics curriculum content coverage.	2	6	4	4	2.38	1.025
20.	Lack of relevant physics text books affects its curriculum content coverage.	5	8	1	2	3.00	.966
21.	Strike actions by teachers affect physics content coverage	4	9	1	2	2.94	.929
22.	Boko-haram insurgency affect physics curriculum coverage	5	6	2	3	2.81	1.109
23.	Ethnic crisis affect physics curriculum coverage.	4	5	4	3	2.63	1.088
24.	Farmers/Herders crisis, affect physics curriculum coverage	5	4	4	3	2.69	1.138
25.	Inter Religions crisis affect physics curriculum coverage.	2	6	5	3	2.44	.964

**Decision mean = 2.50**

Table 4 shows the factors responsible for non-coverage of physics curriculums content in schools in Katagum Educational Zone. The table revealed that eighteen factors were identified as factors responsible for non-coverage of physics curriculum content in the sampled schools (mean scores greater than 2.50 of the decision mean).

## Hypotheses

### Hypothesis One

There is no significant effect of physics curriculum content coverage on students' achievements in Katagum Educational Zone.

Table 5: Summary of Paired Sampled t-test between Curriculum Content Coverage and PSAT

Variable	N	Mean	Std. Dev	df	t-cal	t-crit	p-value	Remark
Coverage	200	70.78	13.493	199	30.669	1.962	0.000	Significant
PSAT	200	36.42	15.826					

Significant at  $p \leq 0.05$

Table 5 shows the summary of paired sampled t-test between Curriculum Content Coverage and PSAT. The Table revealed that at  $df = 199$ , t-cal (30.669) is greater than t-crit (1.962). In other word, the p-value of 0.000 is less than the 0.05 level of confidence. Therefore, the hypothesis is rejected. This means that there is a significant effect of physics curriculum content coverage on students' achievements in Katagum Educational Zone Bauchi State Nigeria. This implies that physics curriculum content coverage has a significant effect on students' achievement in physics.

### Hypothesis Two

There is no significant difference in students' achievements means scores between schools with high, moderate and low physics curriculum content coverage in Katagum Educational Zone.

Table 6: Summary of Analysis of Variance (ANOVA) of the Level of Curriculum Content Coverage on the Academy Achievement of Physics Students

	Sum of Squares	Df	Mean Square	Fcal	Sig.
Between Groups	2061.581	2	1030.790	22.843	.000
Within Groups	8889.439	197	45.124		
Total	10951.020	199			

Table 6 shows the summary of Analysis of Variance (ANOVA) of the level of curriculum content coverage on the achievement of physics students. The Table revealed that significant difference exists among the level of curriculum content coverage on the achievement of physics students; p-value (0.000) less than 0.05 level of confidence. In order to determine which level of curriculum content coverage differs significantly, Scheffe Post-hoc analysis was done and the result is presented in Table 7.



Table 7: Scheffe Post-Hoc Analysis: Pairwise Comparison of Students' Achievement based on their level of Curriculum Content Coverage (Low, Medium and High)

Dependent Variable: PSATs Scheffe						
(I) Coverage Level	(J) Coverage Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Bound	
					Lower Bound	Upper Bound
Low	Moderate	-3.453*	1.165	.014	-6.33	-.58
	High	-8.018*	1.193	.000	-10.96	-5.08
Moderate	Low	3.453*	1.165	.014	.58	6.33
	High	-4.565*	1.141	.000	-7.38	-1.75
High	Low	8.018*	1.193	.000	5.08	10.96
	Moderate	4.565*	1.141	.000	1.75	7.38

\*Significant at 0.05

Table 7 shows Scheffe Post-Hoc Analysis: Pairwise Comparison of students' achievement based on their level of curriculum content coverage (Low, Medium and High). Post-hoc analysis revealed that all the three levels of curriculum content (Low, medium and high) are significantly difference from each other, this is because their p-values are all less than 0.05 level of confidence.

### Hypothesis Three

There is no significant difference between physics curriculum content coverage in public and private schools in Katagum Educational Zone.

Table 8: Summary of Independent Sampled t-test between Physics Curriculum Content Coverage in Public and Private Schools

Variable	N	Mean	Std. Dev	df	t-cal	t-crit	p-value	Remark
Public	135	68.64	12.873	198	3.317	1.962	0.001	Significant
Private	65	75.23	13.760					

Significant at  $p \leq 0.05$

Table 8 shows the summary of Independent sampled t-test between physics curriculum content coverage in public and private schools. The Table revealed that large amount of physics curriculum content coverage was observed in private schools (75.23) while lesser amount of mean score of students in public schools (68.64) was observed. This implies that there is a significant difference between the public and private schools on physics curriculum content coverage (p-value of 0.001 less than 0.05 level of confidence).

## DISCUSSION

By critical observation on the level of physics curriculum content coverage among secondary schools in Katagum Educational Zone Bauchi State Nigeria. It was revealed in Table 1 that some topics are partially or totally not covered. The ten (10) contents in the curriculum were partially or not covered by the physics teachers in the sampled schools. The mean scores of these items were found below the decision mean of 2.00. This finding showed that an increase in content covered lead to improve achievement of students in examinations. This finding is in line with that of Kafu (2010), who found that many teachers rush to complete the syllabus and skip some topics in the curriculum.

Table 2 revealed high level of curriculum content coverage with largest achievement mean score of (21.18) followed by those with medium level of curriculum content coverage with achievement mean score of 16.62. This result showed that those with low level of curriculum content coverage have least achievement mean scores of 13.16. This implies that the level of curriculum content coverage has great effect on students' achievement in physics. This finding is in consonance with the findings of Abamba (2012) who found that failure to teach an aspect of a subject leads to poor achievements in examinations especially external examinations.

Table 3 revealed that difference exists in the performance of students based on their school type. The difference of 6.59 was observed in favour of private schools. The results from table 4 revealed that factors such as time, over loaded nature of the physics curriculum, difficult nature of physics, teachers'/students ratio, absenteeism of teachers as some of the factors affecting curriculum content coverage. Eighteen (18) factors were identified as factors responsible for non-coverage of physics curriculums content in the sampled schools (mean scores greater than 2.50 of the decision mean). This finding is in line with, Isaac, Aquinas and Joseph (2014). Where they found that Poor achievement of students in physics were due to poor curriculum content coverage and academic qualification and/or certificate in education.

All the hypotheses tested, rejected their correspond null hypotheses that; there is significant effect of physics curriculum content coverage on students' achievements in Katagum Educational Zone Bauchi State Nigeria, there is significant difference in students' achievements means scores between schools with high, moderate and low physics curriculum content coverage in Katagum Educational Zone, Bauchi State, there is significant difference between physics curriculum content coverage in public and private schools in Katagum Educational Zone Bauchi State, Nigeria.

## **CONCLUSION**

From the research, the following conclusions were drawn: An increase in teachers' content coverage of specified curriculum leads to an increase in students' achievement in Physics. There exists a difference in students' achievements among the schools with high, moderate and low physics curriculum content coverage. There is significant difference in physics curriculum content coverage between public and private schools.

## **Recommendations**

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

- Ministries and all stakeholders should frequently supervise teachers to curb lousiness, laziness and sluggishness on the part of teachers to ensure proper coverage of academic schemes.
- The heads of departments and teachers should take into consideration the contents in a particular topic and the treatment duration of physics topics on the school timetable of senior secondary school to ensure proper coverage of the syllabus.
- Government in collaboration with the Ministries of Education should intensify their efforts in educating physics teachers in senior secondary schools by way of sponsoring them to attend conferences, workshops and seminars to update their knowledge of the contents they are teaching to avoid deliberate failure to teach some content areas.

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