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Upper Primary Teachers' Knowledge Of Standard-Based Based Science Curriculum And Classroom Instructional Practices

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Abstract
The study examined upper primary school science teachers' curriculum knowledge, attitude, and their classroom instructional practices in the implementation of the Standards-Based curriculum in the Krachi-East Municipality in the Oti Region of Ghana. A mixed method concurrent triangulation research design was used for the study. A total of 251 upper primary school Science teachers were purposively selected from different schools to participate in the study. Convenient sampling was used to select 10 participants for qualitative phase. Data were collected through a survey questionnaire, classroom observation guide and a semi structured interview guide. The descriptive function of SPSS version 20 was used to organize the quantitative data into frequencies, percentage mean scores and standard deviation. Data were presented in frequency tables and pie charts. The qualitative data were coded and analyzed based on the research questions and used to further explore the upper primary science teachers, curriculum knowledge, attitude, and classroom instructional practice. The findings for the study showed that teachers generally had good fundamental knowledge of the curriculum, and majority of them held positive attitudes towards it. Again, majority of these teachers used some of the recommended classroom instructional practices in the curriculum. Though most of the science teachers generally adopted expected inquiry based teaching practices at the introduction stage of their lessons, they used more teacher-centred instructional approach for the rest of the lesson presentation. It was generally observed that the teachers' curriculum knowledge was not translated into their classroom instructional practices due to factors including inadequate school physical resources, inadequate curriculum and teaching-learning resources, large class sizes, and teachers' inability to complete shift from their old teaching practices to the recommended instructional practices. It was therefore recommended that in-service training, workshops, seminars and short professional courses among others be organised for the teachers on the instructional practices as recommended in the new science curriculum

Keywords: *Curriculum knowledge, implementation, Standard-Based Curriculum classroom Instructional Practice*

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I. INTRODUCTION

Ghana, recently introduced a new curriculum known as Standard-Based Curriculum (SBC) to replace the Objective-Based Curriculum which had been in used for decades in the primary level of basic education. The SBC is expected to prepare the learners to fit well in the rapidly developing Ghana and to meet the challenges of the 21st century. To achieve this, the SBC science component is designed to help learners develop the spirit of curiosity, creativity, innovation and critical thinking for investigating and understanding their environment (NaCCA, Ministry of Education [MOE], 2019). The intention of the SBC science is to provide a "minimum period of schooling that needed to ensure that children acquire basic literacy, numeracy and problem-solving skills as well as skills for creativity and healthy living" as recommended by Anamuah-Mensah Committee (Anamuah-Mensah Report, 2002, p.22). The Government of Ghana has recognized and argued that science should form an integral part of Ghana's educational system since science is the backbone of social, economic, political, and physical development of the country (Ministry of Education, 2019).

The implementation of SBC by the government of Ghana is also an effort United Nation's (UN) Sustainable Development Goal four (SDG 4) which was adopted by world leaders in September, 2015. This goal recognizes and encourages nations to increase their effort to make available high-quality education to promote sustainable development, which can improve quality of life and equip locals with the tools needed to

develop innovative solutions to the world's problems. The curriculum is aimed at developing individuals to become scientifically literate, good problem solvers, have the ability to think creatively and have both the confidence and competence to participate fully in Ghanaian society as responsible local and global citizens (NaCCA, Ministry of Education, 2019)

Since the basic school teachers at the primary level are the direct implementers of the SBC Science curriculum, it is important that they have the required curriculum knowledge towards effective and efficient implementation of the new curriculum. A successful implementation of any new curriculum depends on the teachers' adequate knowledge of the reformed curriculum and the right attitude to achieve the goals of the curriculum through their classroom practices (Azar, 2010; Donohue & Levitt, 2001). The curriculum comes with new content, instructional strategies and assessment techniques which may differ from the experiences of the teachers. So to achieve the content objective of the curriculum the teachers must be well equipped with the relevant content knowledge of the curriculum. Teachers with high curriculum knowledge effectively teach with confidence while teachers with the insufficient curriculum knowledge may be unable to effectively implement the curriculum (Phillips, et. al., 2017).

The most challenging aspect of implementation of any new curriculum is the teachers' readiness to implement it (Iskandar, 2015; Areekkuzhiyil, 2014; Adu & Ngibe, 2014). This is because teachers' confidence is often linked with their knowledge of the curriculum. Therefore, any perceived difficulties or barriers the teachers may have with the content of the curriculum must be addressed for fruitful implementation of a curriculum (Phillips, et. al., 2017). It was for this reason that the Ministry of Education organized a five day in-service training countrywide on the implementation of the Standards-Based Curriculum which involved about 152,000 teachers.

Critics of the new curriculum and its implementation believed that the standards-based curriculum is a good move and timely for improving quality education, but feared that teachers were not adequately prepared to successfully implement the new curriculum. This observation is buttressed by the fact that teachers normally face challenges of adjusting to the curriculum innovation (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2010). Also, there are no products of the new curriculum from teacher institutions who are trained to handle the curriculum. The study was to investigate the upper primary school science teachers' curriculum knowledge and classroom instructional practices for implementation of the new curriculum in the Krachi Municipality of Oti Region of Ghana.

Research questions

The study addressed the following research questions:

1. What is the curriculum knowledge level of upper primary teachers for the implementation of Standards-Based Science Curriculum in Krachi East Municipality?
2. What are the upper primary teachers' classroom instructional practices towards the implementation of Standards-Based Science Curriculum in Krachi East Municipality?
3. What is the relationship between upper primary teachers' curriculum knowledge of the standards-based science curriculum and their classroom instructional practices?

II. Theoretical Framework and Literature Review

The study was situated within Rogan and Grayson's (2003) theory of curriculum implementation. The theory has three constructs namely, profile of implementation, capacity to support innovation, and support from outside agencies.

According to Jacaly and Deborah (2014), the standards-based curriculum is a design that has taken into consideration the expected standards of district, or nation and it contains the skills, knowledge and dispositions that learners should demonstrate to meet these standards. Selection of a curriculum model and/or activities that will guide learners to attain the standards enshrined in the curriculum is critical for its implementation. Therefore, teachers must equip themselves with its knowledge and carefully choose content and activities that will permit learners to reach these standards during the implementation process, (Stedentop, Mand & Taggart, 1986).

Teachers' teachings are complex activities which are based on their informed pedagogical philosophies which draw on different kinds of knowledge. For instance Shulman (1986) indicated that curriculum knowledge involves the interconnection of content knowledge, common pedagogical knowledge, curricular knowledge, PCK and knowledge of learners as well as knowledge of educational aims and purposes. In Ghana education system, science teachers' curriculum knowledge of the basic school curriculum comprises knowledge about aims or goals, objectives, content, teaching and learning materials, teaching methods and various forms of assessment.

Science teacher curriculum knowledge of has great influence on their overall pedagogical repertoire and plays a critical role in how the teacher implements the intended curriculum. According to Connelly and

Clandinin cited by Ntumi (2016), this could only be said to have occurred when the learner acquires knowledge and the skills for teaching. According to Ntumi (2016), key challenges such as inadequate teaching and learning materials, inadequate in-service training before and during curriculum implementation, lack of learners' parent involvement and inadequate teachers' knowledge in the curriculum serves as barriers for successful curriculum implementation in schools. Research findings report that teachers' insufficient knowledge of the curriculum would slow down their pupils' understanding and progress (MacDonald et al., 2016; Phillips, et. al., 2017; Vold, 2017).

The new curriculum may require the teachers to learn the contents and shift from their familiar ways of teaching to the new instructional methods. Hence, the study sought to investigate the teachers' knowledge of the new standard-based and their classroom practices towards its implementation.

III. Methodology

The study was carried out in the Krachi East Municipal in the Oti Region of Ghana. Krachi East Municipal is one of the eight districts in Oti Region. The study employed a concurrent triangulation mixed method research design for collection and analysis of data to determine teachers' knowledge of the SBSC and their classroom instructional practices.

The study adopted a census sampling technique in selecting teachers for the first phase of the study where every upper primary science teachers were identified and used for the study This technique is often used when data is gathered on every member of the population and reasonably so when the population is small (Parker, 2011). The sample consisted of 251 upper primary school science teachers in the Krachi East District of Oti Region of Ghana. Convenience sampling technique was used to select 10 teachers, four males and six females for the qualitative phase of the study. The selection was based on factors such as availability of the teachers to the researcher and willingness of the teachers to participate in the second phase of the study.

Instrumentation

In order to do this, the questionnaire, classroom observation and interview were used to collect the data.

Data Collection Procedure

Permission was obtained from Director of the Municipal Directorate of the Ghana Education Service. This was used to obtain permission from the heads of primary Schools to collect data for the study. The researcher met with the teachers of the various schools to familiarize herself with them and to inform them about the purpose of the study. The visit was also used to arrange the dates and times to administer the instruments. They were assured of the confidentiality and the fact that their anonymity would be protected. They were also informed that they could withdraw from the study at any point in time they so wished.

Data was collected in three phases. The first phase involved the administration of the questionnaires which involved the whole sample. The second phase involved observations of ten teachers' science lessons. Each observation was immediately followed by an interview.

Data Analysis

Data analysis is process of reducing and organizing data into meaningful and interpretable forms (Berg, 2001). Quantitative and qualitative data methods of analysis were used to organize the quantitative and qualitative data respectively.

The data collected from the questionnaire analysed quantitatively while observation schedule and interviews were analysed qualitatively.

The responses from the questionnaire items were coded according to the sections. The responses of items on the demographic information of the participants, teachers' curriculum knowledge and science curriculum organization were coded with assigned marks. Statistical Product and Service Solution (SPSS version 20) was used to analyze the quantitative data. The options of the questionnaire items were recategorised to facilitate the analysis of the data: strongly agree and agree into agree, strongly disagree and disagree into disagree, and undecided. The result of the analysis was presented in tables and used to answer the respective research questions.

For qualitative analysis, the study used conventional and summative approaches to analyze the teachers' view of classroom practices and observation data. The statements from teachers about their views of classroom practices were grouped into similar themes and coded for analysis. Summative content analysis begun with identifying and quantifying certain words or content and matched them according to the designed observational guide items. Each correct observation items were organized into frequency count and converted percentage for analysis.

The audio-recorded transcribed data with data from open-ended were used in the analysis. The data collected from interview and open-ended items in the questionnaire was also thematically analysed as

qualitative data. The qualitative interview data was used to address issues on upper primary teachers' classroom instructional practices for the implementation of Standard-Based Science Curriculum arising from the quantitative phase. An interpretive analytic method was applied on the responses interview data. The responses in the items were organized into themes and coded for analysis. The interview verbatim quotations and observation data collected was used to validate the responses gathered from the questionnaire.

IV. Results and Discussion

Background Information on the Sample

Table 1
Demographic information on the study sample (n = 237)

Variable	Category	Frequency	% frequency
Gender	Male	157	66.4
	Female	80	33.6
Total (%)		**237**	**100**
Academic qualification	Cert A	14	5.9
	Diploma	195	81.3
	HND	5	2.1
	First Degree	17	7.2
	Second degree	5	2.1
	Others	2	0.4
Total (%)		**237**	**100**
Professional Qualification	Cert A/ Diploma	209	88.2
	B. Ed	24	10.1
Total (%)		**233**	**98.3**

Table 1 reports on the demographic characteristics of the sample. From the table, two-thirds (66.4 %) of the sample were males whiles 33.6 % constituted the female teachers. Thus the male teachers dominated the study sample. It was also observed that majority of the teachers (82.3 %) obtained certificates of diploma in education. Majority of the respondents were professional teachers (98.3 %). About 2 % of the teachers did not indicate their professional status. Also, almost all the teachers were qualified to teach at the upper primary since they had the minimum qualification of a certificate or Diploma in Education to teach at that level.

The Teachers' Years of Teaching Experience

Table 2
Participants' Years of Teaching Experience, Class Sizes and Number of Classes Taught

Variables	Category	Frequency	Percentage (%)
Years of Teaching experience	1-3	88	37.1
	4-6	73	30.8
	7-10	45	19.0
	11 and above	31	13.1
Total		**237**	**100**
Number of Classes taught	4	93	39.2
	5	78	32.9
	6	66	27.9
Total		**237**	**100**
Class size	≤ 20	7	3.0
	21- 35	105	44.3
	36-50	32	13.5
	≥ 51	93	39.2
Total		**237**	**100**

The teachers' years of teaching experience, their class sizes and classes taught are presented in Table 2. About 37 % of the participants had taught for between one and three years while almost half of them (49.8 %) had between four and ten years of teaching experiences. Less than 10% of the participants taught for eleven or more. This suggests that almost all teachers had been involved with the implementation of the new curriculum at the upper primary school.

The participants were distributed among the upper primary classes; with class four having highest number (39.2 %) and class six with least number (28.7 %) of teachers. In terms of class sizes, the result showed that 3.0 % of teachers taught in classes with less than 20 pupils whiles 39.2 % of the teachers taught in classes with over 51 pupils. About 44 % of the teachers taught in classes with class sizes within the range of 21 to 35 pupils which is within the range of recommended class size in Ghana. These results suggest that a little over 50 % of the teachers taught in over populated classes. This could over burden the teachers in the implementation of the curriculum.

Teachers' participation in INSET training programmes

Data on teachers' participation in the INSET training on the curriculum was organized into two categories: whether attended the training or not, and if attended, how many INSET training programmes the teacher participated in.

Table 3
Teachers' participation in INSET programmes on the new curriculum

Variables	Responses	Frequency	% frequency
INSET Attended	Yes	108	45.6
	No	129	54.4
Total		**237**	**100**
Number of times Attended	1	47	43.5
	2	29	27.0
	3	25	23.0
	4 and above	7	6.5
Total		**108**	**100**

Table 3 presents data on teachers' participation in training programmes on the standard-based curriculum. Table 3 indicates that 54.4 % of the teachers did not participate in the INSET training on the implementation of the new curriculum, whiles 45.6 % of them indicated that they had participated in one or more training programmes on the implementation of the new curriculum. The high percentage of participants that did not attend the training programmes could affect the implementation of the new curriculum.

What is the curriculum knowledge level of upper primary teachers for the implementation of Standards-Based Science Curriculum in Krachi East Municipality?

The teachers' curriculum knowledge 'levels were determined based on their knowledge of the aim and objectives, teaching methods, teaching resources or materials, organization and content of the curriculum. The teachers' responses to the questionnaire items were further probed through interviews with a sub-sample of 237 participants.

***Upper Primary Teachers' Knowledge of the Science Curriculum* Aims**

The knowledge level on the aim and objectives of the teachers were categorized and each category assigned a criterion of judgments which ranged from: very poor knowledge (0 – 2), poor knowledge (3 – 5), average knowledge (6 – 8) to high knowledge (9 -11).

Table 4
Teachers' knowledge on the aims and objectives of Standard-Based Science Curriculum

Range of Score		Description of knowledge level	Number of teachers (% frequency)	MS	SD
0 – 2		Very poor Knowledge	20 (8.4)	1.01	.24
3 – 5		Poor Knowledge	38 (16.0)	1.18	.17
6 – 8		Average Knowledge	72(30.4)	2.13	.25
9 – 11		High Knowledge	107(45.2)	3.65	.32

Table 4 presents teachers' knowledge levels on aims and objectives of the standard- based curriculum. From the table 4, 20 (8.4 %) out of the total number of teachers (n = 237) with a mean score of 1.01 and SD = 0.24. had very poor knowledge level on the curriculum aims and objectives. Less than 20 % of the teachers indicated poor knowledge on the aim and objectives of the new curriculum while about a third of the teachers (30.4 %) indicated average knowledge of the aim and objectives of the new curriculum. About 45 % exhibited high knowledge on the objectives of the new curriculum.

Further information was sought through interviews on the teachers' knowledge of the curriculum aims and objectives. The interviewees when asked to state the aim and objectives of teaching science in the upper primary and 78.5 % of them correctly stated them. This is exemplified by the following excerpts from the transcripts:

*The purpose of teaching science in upper primary make the children sees the environment as their own. It opens their mind for them to know that science is not any difficult thing. All that we are living with is science (**Tr. A**);* and *purpose of teaching science in the upper primary is to equip them practically to know more about science content (**Tr. C**).*

Based on the above findings, it could therefore be concluded that the teacher had average knowledge aims and objectives of the standards-based science curriculum.

Upper primary teachers' knowledge of science teaching strategies

Table 5

Upper primary teachers' Levels of knowledge of the recommended teaching instructional practice/ strategies of SBSC

Range of Score	Description of knowledge level	Frequency	% Freq
0 – 4	Very poor Knowledge	12	4.8
5 – 8	Poor Knowledge	72	30.3
9 – 12	Average Knowledge	144	60.9
13 – 16	High Knowledge	9	4.0
	Total	**237**	**100**

The upper primary teachers' levels of knowledge about the recommended teaching approach for implementation of the new curriculum are presented in Table 5. The results in table 5 indicated that 12 (4.8 %) indicated very poor knowledge on recommended teaching strategies of the new curriculum. Also, 72 (30.3 %) of the respondents indicated poor knowledge level on the strategies. The average knowledge range registered more than half of the sample (60.9 %) while only four percent of the respondents indicated high knowledge of the recommended teaching strategies. Generally the respondents' knowledge of the recommended teaching strategies was on the average. This implied that the respondents would have challenges using the strategies in their lessons.

Upper primary teachers' knowledge of the organisation of science strand of the new curriculum

The teachers' knowledge of the organization of science curriculum was investigated. The areas included grouping of curriculum strands, number of period per week and allocation of teaching period for theory and practical lessons in a week.

Table 6

Upper primary teachers' levels of knowledge on organisation of the new science curriculum

Range of Score	Description of knowledge level	Frequency	% Frequency
0 – 3	Poor Knowledge	89	37.6
4 – 6	Average Knowledge	137	57.8
7 – 10	High Knowledge	11	4.6
Total		**237**	**100**

The upper primary teachers' levels of knowledge on the organisation of the standard-based curriculum are presented in Table 6. About 38 % (89) of the participants indicated had poor knowledge of the organisation of the curriculum while more than half of the participants (137, 57.8 %) exhibited average knowledge on the organisation of the curriculum. Less than 5 % of the participants had high knowledge on the organisation of the new curriculum content. Generally, the participants had average knowledge level on organisation of the new curriculum.

Upper primary teachers' knowledge of science curriculum content

The teachers' knowledge of science curriculum content based on the main strands and their sub-strands was examined. The participants' responses were used to determine their knowledge level on the new curriculum content.

Table 7

Teachers' knowledge level on the science strand of SBS curriculum

Range of score	Description of knowledge level	Freq	% Freq
10 – 12	High knowledge	5	2.2
7 -9	Average knowledge	63	26.6
4 – 6	Poor knowledge	49	20.7
0 -3	Very poor knowledge	120	50.6
Total		**237 (100)**	**100**

The upper primary teachers' knowledge levels are presented in Table 7. Only very few teachers (5, 2.1 %) showed high knowledge on the content of the new curriculum. A total of 63 (26.6 %) respondents exhibited

an average knowledge on the content or concepts of the new curriculum. Generally the teachers exhibited poor knowledge on the curriculum content.

In summary, the findings from the result showed that the teachers had low level of knowledge on all the aspects of the science strand of the new curriculum. This may negatively affect the implementation of the curriculum.

What are the upper primary teachers' classroom instructional practices towards the implementation of Standards-Based Science Curriculum in Krachi East Municipality?

The classroom observation guide was used to determine instructional practices of a sub-sample of ten teachers. The instrument measured five weighted aspects of science instruction namely; introduction (7), presentation (20), reference to relevant social issues (x) and evaluation (8) during the lesson delivery. Each identified strategy was assigned a score of one and the frequency for each stage per teacher was determined and converted into a percentage.

Table 8

Lesson observation scores for upper primary teachers' classroom instructional practices

Item	**Teachers(10)**										**% Freq.**
	A	B	C	D	E	F	G	H	I	J	
Introduction											
Elicit interest of learners	2	1	1	1	1	1	1	2	1	2	13
Engagement	4	2	2	1	2	2	3	4	2	4	26
Total frequency/% frequency	**6 (85.7)**	**3 (42.9)**	**3 (42. 9)**	**2 (28.6)**	**3 (42.9)**	**3 (42.9)**	**4 (42.9)**	**6 (42.9)**	**3 (42.9)**	**6 (42. 9)**	**39 (55.7)**
Lesson Presentation											
Exploration	5	2	3	5	3	3	2	4	2	6	35
Explanation	5	2	4	4	5	3	2	4	2	6	37
Extension	5	3	2	5	3	4	4	3	3	5	37
Total score (%)	**15 (75.0)**	**7 (35.0)**	**9 (45. 0)**	**14 (70.0)**	**11 (55.0)**	**10 (55.0)**	**8 (40.0)**	**11 (55.0)**	**7 (35.0)**	**17 (85. 0)**	**109 (54.5)**
Lesson Conclusion											
Nature of Lesson	0	1	1	0	0	1	1	0	0	1	5
Evaluate	2	2	2	3	2	2	1	3	1	3	21
Inclusion of society	0	0	0	0	0	1	0	1	0	1	3
Total score (%)	**2 (25.0)**	**3 (37.5)**	**3 (37. 5)**	**3 (37.5)**	**2 (25.0)**	**4 (50.0)**	**2 (25.0)**	**4 (50.0)**	**1 (12.5)**	**5 (62. 5)**	**29 (36.3)**
Overall total (%)	**23 (65.7)**	**13 (37.1)**	**15 (42. 9)**	**19 (45.0)**	**18 (54.3)**	**17 (48.6)**	**14 (40.0)**	**21 (60.0)**	**11 (31.4)**	**28 (80. 0)**	**17.9 (50.5)**

The observation of the upper primary teachers' classroom instructional practices

are summarised and presented in Table 8. It was observed that all the teachers performed between the ranges of 39.5 -76.3 % score marks gathered from their lesson observed. Four teachers' lesson (Teacher A, D, H, and J lessons) out of the ten teachers were scored above 50.0 % (between 52 and 76.3 %. Few teachers (3 teachers) representing 4 % addressed social issues or linked lesson to social issues in the pupils' environment during their lesson. Table 8 also reveals that 60.0 % average marks score were scored during lesson introduction, 54.0 % average marks score were scored during presentation stage and 32.9 % average marks were scored during their lesson evaluation stage for the ten (10) teachers' lessons observed. It was therefore concluded that the teachers performed well in the introduction stages (60 %) of their lesson delivery. They however performed poorly in the lesson evaluation stage. The further detail marks distributions are shown in the results in Appendix F, G, and C. The overall scored of the ten teachers' lesson was 49.7 %. It was therefore concluded that the teachers' classroom practices were poor.

The observed participants were interviewed to probe their poor classroom practices towards implementation of the curriculum. The interviewees proffered challenges they encountered in the implementation of the new curriculum which included non-unavailability of teaching learning resources, textbooks and ICT tools in the schools. These findings are highlighted in the following excerpts:

Tr. B complained about lack of ICT resources to facilitate teaching and learning. He intimated that: *You know SBSC talks more about use of technology to teach and to use projectors to present the lesson. However we don't have such things in our school.*

The issue of inadequacy of teaching learning materials was a concern to the teachers which is well expressed Tr. B through the following excerpt:

Inadequate resource material affects lesson delivery, so I resort to lecture method of teaching. Because of this the learners find it difficult t to follow the lesson since they are unable to reason in the abstract. Myself it makes teaching very difficult for me.

Another challenge faced by the teachers was lack of pupil's textbooks to support the resource packs provided by GES. one of the interviewees had this to say: *The absence of pupil's textbooks poses a challenge to the pupils when you want them to prepare before coming to the class. they are also unable to learn when they go home (Tr. A).*

What is the relationship between upper primary teachers' curriculum knowledge of the standards-based science curriculum and their classroom instructional practices?

The research question sought to establish any relationship among upper primary science teachers' content knowledge and Classroom practice. A Pearson Correlation analysis was run between the data collected on these factors.

Table 8

Pearson correlation among science teachers' SBC curriculum knowledge and classroom practice

		curriculum knowledge	Classroom practice
curriculum knowledge	Pearson Correlation	1	.201*
	Sig. (2-tailed)		.021
Classroom practice	Pearson Correlation	.201*	1
	Sig. (2-tailed)	.021	

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

The results of the analysis are presented in Table 9. The result indicated that the correlation result between the teachers' curriculum knowledge and classroom practice was 0.201 ($p = 0.02$), which suggested that there was some minimum positive association between the two variables. It was therefore concluded that there was positive relationship between the teachers' curriculum knowledge and classroom practices for the implementation of the new curriculum. The poor performance of teachers on the classroom practice was attributed to the inadequate content knowledge of teachers on the new curriculum.

V. Conclusion

Successful implementation of every new curriculum depends on the teachers' knowledge on various expects of the curriculum and the adequate skills of expected classroom instructional practices. The result showed that all the teacher of the study area had basic professional requirement to teach the upper primary science, and the also attended at least one training workshop on the new curriculum. The findings showed that the teachers had very good curriculum knowledge on the aim and objectives, the recommended instructional practices, and the organization of the new curriculum. However, the majority of the teachers had poor knowledge on the new curriculum content, which was attributed to their non-familiarity to the new content of the curriculum.

The teachers' classroom practice was observed to be poor during the implementation of the new curriculum. Considering the inadequate teachers' knowledge in the content area of the curriculum, it was therefore concluded that there was positive relationship between the teachers' curriculum content knowledge and classroom practices for the implementation of the new curriculum. The poor performance of teachers on the classroom practice was attributed to the inadequate content knowledge of teachers on the curriculum.

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References

[1]. Adu, E. O. & Ngibe, N. C. P (2014). Continuous Change In Curriculum: South African Teachers' Perceptions. Mediterranean Journal Of Social Sciences (MJSS), 5, 23, 983-989.
[2]. Alexander, R. J. (2009). Culture And Pedagogy: International Comparisons In Primary Education. Boston: Blackwell.
[3]. Alister, J., & Judy, M. (2003). Considering Pedagogical Content Knowledge In The Context Of Research On Teaching: An Example From Technology. Waikato Journal Of Education, 9, 77-89.
[4]. All Answers Ltd. (2018). Writing A Dissertation Background. Retrieved From Https://Ukdiss.Com/Guides/Background.Php?Vref=1.

[5]. American Association For The Advancement Of Science (AAAS). (1993). Project 2061: Benchmarks For Science Literacy. New York: Oxford University Press.
[6]. Anamuah-Mensah, J. (2002). Enhancing The Teaching And Learning Of Science And Technology For Nation Building. GAST Annual Conference, Sekondi: Ghana.
[7]. Areekkuzhiyil, S. (2014). Attitude Of Teachers Towards The Restructured Curriculum At Undergraduate Level In Kerala. Journal Of Research, Extension And Development, 2(5), 1-10.
[8]. Azar, D. (2010). Physical Activity Correlates In Young Women With Depressive Symptoms: A Qualitative Study. International Journal Of Behavioral Nutrition And Physical Activity, 7(1), 3.
[9]. Berg, B. I. (2001). Qualitative Research Method For The Social Sciences (4th Ed.). Boston: Allyn & Bacon.
[10]. Connelly, F. M. & Clandinin, D. J. (1988). Personal Practical Knowledge And The Modes Of Knowing: Relevance For Teaching And Learning. In: E. Eisner (Ed.). Learning And Teaching The Ways Of Knowing, (Pp. 174-198).
[11]. Donohue, J. J. &Levitt, D. S. (2001). The Impact Of Legalized Abortion On Crime. The Quarterly Journal Of Economics, 116, 2, 379-420
[12]. Etikan, I., Musa, S. A. & Alkassim, R. S. (2016). Comparison Of Convenience Sampling And Purposive Sampling. American Journal Of Theoretical And Applied Statistics, 5, 1-4.
[13]. Iskandar. (2015). The Impact Of New-Build Gentrification In Iskandar Malaysia: A Case Study Of Nusajaya. Conference On Quality Of Life 2014, ABRA International Conference On Quality Of Life, Aqol2014, 26-28 December 2014, Istanbul, Turkey.
[14]. Jacaly, L. G. & Deborah, T. (2014). Introduction To Standards-Based Curriculum Development. Pp. 1-19; 9781449691745_CH01_SAMP.Pdf.
[15]. Macdonald, A., Barton, G., Baguley, M. & Hartwig, K. (2016). Teachers' Curriculum Stories: Perceptions And Preparedness To Enact Change. Educational Philosophy And Theory, 48(13), 1336-1351.
[16]. Ministry Of Education, (Moe) (2019). National Pre-Tertiary Education Curriculum Framework For Developing Subject Curricula (Pp. 1-90).
[17]. Nacca. Ministry Of Education, (Moe). (2019). National Pre-Tertiary Education Curriculum Framework For Developing Subject Curricula (Pp. 1-95).
[18]. Ntumi, S. (2016). Challenges Pre-School Teachers Face In The Implementation Of The Early Childhood Curriculum In The Cape Coast Metropolis. Journal Of Education And Practice, 7(1), 54-62.
[19]. Phillips, D., Johnson, A., Weiland, C., & Hutchison, J. E. (2017). Public Preschool In A More Diverse America: Implications For Next-Generation Evaluation Research. Ann Arbor, MI: Poverty Solutions.
[20]. Rogan, J. M. & Grayson, D. (2003). Towards A Theory Of Curriculum Implementation With Particular Reference To Developing Countries. International Journal Of Science Education, 10(25), 1171-1204.
[21]. Stedentop, D., Mand, C. & Taggart, A. (1986). Physical Education: Teaching And Curriculum Strategies For Grade 5-12. The Mcgraw-Hill Companies, Inc. P 311.
[22]. UNESCO. (2010). Guidebook On Textbook Research And Textbook. Revision 2nd Revised And Updated Edition.
[23]. Vold, E. (2017). Qualifying Foreign Language Teachers: Is Teacher Training Enough? International Journal Of Educational Research, 5, 8240-8253.