

Effective Leadership through Efficient Utilization of Educational Facilities: A Ghanaian Case Study

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Abstract

The study, conducted in Nyakrom Secondary Technical School in Ghana, sought to find out whether the teaching and learning space facilities were being used efficiently. Structured and unstructured questionnaire items were utilized to elicit information from fifty (50) students in twelve (12) classes using stratified random sampling and ten (10) teachers and six (6) administrators using the purposive sampling method. Interviews were conducted among the ten teachers and six administrators. Data collected was analysed by means of descriptive statistics, frequency distribution tables and percentages. The result of the study showed that contrary to the prevailing perception, Nyakrom Secondary Technical School had not exceeded its optimum enrolment and that the school could comfortably accommodate more than the existing 560 student population, if teaching and learning space facilities were efficiently utilized. There was the need to plan an effective timetable that would take into consideration the spaces, class size and class enrolment. Finally, it was revealed that the classrooms needed to be adequately furnished and the school should be provided with a well-equipped, spacious assembly hall for meetings and examinations to withstand the test of time.

1. Introduction

The challenges facing education delivery in sub-Saharan Africa have been enormous. These challenges have become even greater in the twenty-first century when the need for more scientists, engineers, doctors and skilled technicians is perhaps more urgent, in view of today's globalized economic demands (Verspoor & Bregman, 2009; Anamuah-Mensah, 2002; Brossard & Amelewonou, 2006). Since today's globalized economy is increasingly based on knowledge, technology and skills and since universal basic education is only a first step, governments all over Africa, just as in other parts of the world, are eager to step up their efforts at improving education delivery at all levels (Glassman & Sullivan, 2008; Ndulu & O'Connell, 2006).

It is on record that secondary school enrolment in sub-Saharan African countries averages only about 30% compared to 65% for developing countries worldwide, and close to 100% in East Asia. In addition, the quality of secondary education in Sub-Saharan Africa in most cases is not where it needs to be (Verspoor & Bregman, 2009). There are several reasons for the low enrolment of secondary education in these nations; a major one being the fact that these institutions, which are comparatively expensive, were designed to educate a small elite, a reality which will have to be addressed if African nations, including Ghana, are to meet the competitive demands of the globalized world. Certainly, attempts to increase access of secondary education to the majority will have to take several issues into consideration. It is generally believed that three of the critical issues to be considered are efficiency, additional efforts by countries and economic growth (Anamuah-Mensah, 2002).

By efficiency, we refer to the process of getting more from what is spent. By additional efforts, we mean the situation where governments and other partners offer their support in the education delivery. By economic growth, we refer to the ability of nations and their communities to bring down the comparatively high cost of high school education such that it could be available to as many people as possible if nations are to meet the goals aimed at social change and national development for sub-Saharan Africa. Such steps would require leadership that is effective and efficient.

This paper addresses the issue of efficiency as it relates to the education delivery of high schools in Ghana. Specifically, the researchers wished to study how the leadership of a senior high school in Ghana utilizes its teaching and learning space facilities. It is believed that the findings of the study may help management to improve upon time, space and overall utilization rate in the school. The study may also help the school administrators to determine whether there is the critical need for the construction of additional classrooms, a project which can be quite expensive for many schools in Ghana and elsewhere.

Since leadership involves the efficient and effective use of the organization's resources to achieve maximum results; (Afful-Broni, 2004) and since schools in Ghana, like in other sub-Saharan African countries, face a number of challenges, it is believed that this study could offer insights into addressing some of the challenges facing education delivery in the sub-region. It is also believed that the study could offer relevant recommendations that may help alleviate some of the problems of the leadership of this and other institutions whose conditions may be similar.

Universally, education is recognized as an investment in people. It yields economic benefits and contributes to a country's future wealth by increasing the productive capacity of its citizenry. Education is key to the socio-economic, cultural and political development of any nation. In developing countries, like Ghana, governments are compelled by this realization to provide, at least, basic and secondary education to their citizens and to an extent, tertiary education depending on the resources available. As a result, Ghana's Ministry of Education is sometimes found to be competing with other sectors of the economy for financial support from the government in order to provide these services to students. Obviously, educational practitioners, policy makers and administrators must ensure optimum use of these scarce resources.

The Nyakrom Secondary/Technical School, a co-educational institution, is one example of the many senior high schools established by the government of Ghana. The school has a limited number of buildings, including the administration block, four classroom blocks, Home Science laboratory, a laboratory for the sciences and wood workshop. It also has two dormitory blocks and buildings for the technical and Home Economics department. With a total student population of five hundred and sixty (560), these students belong to twelve (12) classes. The sizes of the classes range from 30 to 78. Most of the classrooms are too small for the number of students within the class. Inevitably, the classrooms appear congested. In addition, some of the classrooms have poor ventilation and inadequate lighting.

The establishment of the Nyakrom Secondary Technical School is the outcome of the government's sustained intention over the years to ensure that more senior high schools are provided for as many communities as possible. In spite of periodic challenges, governments over the years have made efforts to improve the educational system in Ghana. The following policy initiatives embarked on by past governments are:

- i. Educationists' Committee of 1920: This marked the beginning of secondary education in Ghana.
- ii. Education Ordinance of 1925: This gave the government the ultimate control of education throughout Ghana.
- iii. Educational Committee of 1937: This gave full assistance for the establishment of good co-educational secondary schools.
- iv. Accelerated Development Plan of 1951: This saw the establishment of more senior high schools in the country. These schools were known as the Trust Schools.
- v. Education Act of 1961: This gave legal backing to the government's decision to make primary education compulsory.
- vi. New Education Reforms of 1987: This saw the establishment of more senior high
- vii. schools especially in rural communities and the introduction of more programmes in technical and vocational training at the basic and senior high levels.
- viii. 2002 President's Committee on Review of Education Reform in Ghana (Republic of Ghana, 2002, p.64).

Among the major innovations of this reform were the emphasis placed on Science and Technology and the addition of Early Childhood Care and Development Education as an integral part of basic education. For this reason, since then, kindergartens are no longer options, but required in every basic school in Ghana.

The omnibus 1987 Educational Reform Initiative (ERI), aimed at ensuring that all children of school-going age had a basic education providing equality of educational opportunities, aimed at making the education system more effective by improving the ratio between costs and performance. There was perhaps the most serious overhaul of Ghana's education system; even though the length of primary education remained the same, the middle school of four years was replaced by a three year Junior Secondary School (JSS). In addition, secondary education which until then, was five years (or seven if the student pursued the sixth form education) was reduced to three and became known as the Senior Secondary School (SSS). Serious efforts were to be made at ensuring that the utilization rates of premises, equipment and staff and the length of time used were the highest possible within the units of pedagogic, administrative and political consideration.

The implementation of these reforms resulted in a significant rise in the demand for infrastructure for basic and secondary education. However, classroom, laboratories and library facilities were inadequate. This problem had been compounded by the high population growth of students in the nation. The products of Junior Secondary School (JSS) started entering the Senior Secondary School (SSS) from January 1990. The 2002 President's Committee on the Review of Education Reforms sought to make sure that there was at least one first-rate senior secondary school in each district and to give each community secondary school basic teaching and learning materials (Government of Ghana, 2003, p.32). Kenny and Foster (1983) indicated that the study on efficiency of the utilization of teaching space facility is a factor of enrolment. Furthermore, they posited that as a resource, it was very difficult to provide it within a short period.

1. 1 Problem Statement

Nyakrom Secondary Technical School starts classes at 7:15 a.m., after students have assembled for morning devotion. The classes originally end at 3:45 p.m. with intermittent short and long breaks of fifteen (15) and

thirty (30) minutes respectively. Although it is the policy of the school administration that all Science and Technology related lessons must be held in the allocated classroom laboratories, there are problems with the implementation of this policy. For instance, there are occasions when two or three Integrated Science classes clash. Obviously, only one of the classes gets access to the laboratory. Incidentally, these same laboratories are vacant during several other periods of the week. Such conflicts on the timetable may give the impression that there is not enough space in the school for Integrated Science lessons. Students majoring in Technical and Home Economics also use special classrooms for their respective courses only. Inevitably, the classrooms remain vacant during other periods of the week.

Some of the students have complained at Student Representative Council meetings about these conflicts and their impact on classes. They contend that the large class sizes do not allow them to move about freely in their classrooms. Some teachers also complain about the large class sizes and seemingly high class occupancy rate. There is thus, a growing dissatisfaction among students and teachers as they are convinced that the situation does not allow for maximum use of laboratory and special classrooms for teaching and learning.

The problems enumerated above serve as a catalyst for the need for this study. Consequently, this study assesses the extent to which the permanent classrooms, i.e. the teaching and learning spaces at Nyakrom Secondary/Technical School are being utilized. The study hopes to arrive at strategies for the optimal utilization of the teaching and learning spaces. The study will also attempt to discover the possibilities for increasing the level of teaching space utilization that will allow for increased enrolment at the school, utilizing the same facilities, if at all possible.

1. 2 Significance of the Study

Education is capital intensive and tends to take a large share of Ghana's national budget. For example, in the year 2000, education accounted for 20% of the total recurrent expenditure of the government. This has increased steadily since then to about 40%. District Assemblies and a number of donor agencies have made significant contributions to education. In spite of all these sources of financial support, the education sector still cries for more funds (Government of Ghana, 2003, p. 21). School authorities, especially those with limited resources, complain about the lack of classroom space, suggesting that government ought to provide more classrooms and laboratory spaces. Whether or not government would be able to provide more facilities, school administrators are expected to plan efficiently and effectively in the usage of these resources to ensure quality education delivery.

Teachers' time must be fully utilized and classrooms should be put to optimum use in order to increase the efficiency of the educational system. The result of the study would help school administrators in planning long term as well as the day-to-day use of classroom space facilities more prudently. The findings are likely to be of benefit to stakeholders of education. Nyakrom Secondary Technical School has been chosen by the Ghana Education Service as one of the model schools in Ghana and it is expected to play a leading role in this effort. Additionally, the information obtained from this study can be used as a basis for planning space utilization of other senior high schools in Ghana whose conditions are similar. Any positive influence on the effective utilization of classroom space that may result from this study will likely be generalized to other model senior high schools in the country.

2. Study Method

To arrive at the findings from this study which examined how leadership could be more effective through the efficient utilization of teaching and learning facilities, the study sought answers to the following research questions:

1. How far is it true that the school population is higher than the available human and material resources?
2. To what extent does the planning of the timetable allow for effective utilization of classroom space?
3. Does the school have enough laboratory space for students in Science and Technology?
4. Considering its facilities, is the school in a position to admit more students?

The research design used in this study was the descriptive survey method. The accessible population for the study was the entire students of Nyakrom Secondary/Technical School. The population size was five hundred and sixty (560) students consisting of three hundred and twenty (320) girls and two hundred and forty (240) boys, and twenty-eight (28) teachers.

Table 1: Nyakrom Secondary/Technical Population by Class – 2009/2010

SSS1		SSS2		SSS3	
Class	Population	Class	Population	Class	Population
1A	26	2A	34	3A	40
1B	44	2B	67	3B	77
1C	38	2C	81	3C	78
1D	30	2D	16	3D	29
Total	138	Total	198	Total	224

Source: Researchers' Field Survey, 2009/2010

- A – Classes offering Technical programme
- B and C - Classes offering General Arts programme
- D - Classes offering Home Economics programme

The target population was considered too large for this study, therefore, stratified random sampling technique was utilized to select fifty (50) students, comprising 30 boys and 20 girls from the twelve (12) classes. In a stratified random sampling, the researcher attempts to stratify the population in such a way that the population within a stratum is homogeneous with respect to the characteristics on the basis of which it is being stratified (Kumar, 1996, cited in Ntukidem, 2004, p. 38-42). In addition, purposive non-random sampling method was used to sample and interview ten (10) of the twenty eight (28) teachers and six administrators. Purposive non-random sampling is a method used in selecting a sample to suit a particular purpose (Agyedu, 1999). This method was used because the researchers wanted to interact with a particular section of the teachers and administrators, namely those who were either heads of departments, those in the timetable committee or those who were directly in charge of the allocation of classrooms for specific classes or activities.

Six (6) administrators of the school, namely the headmaster and his assistant, the bursar, the Senior Housemaster, the Senior Housemistress as well as the District Director of the Agona Directorate of the Ghana Education Service, were selected for interview. A major reason for involving the District Director of Education was to seek information on government directives on the allocation of teachers to schools and the acceptable average class population at the senior high school level. Letters were sent out to him as well as the other administrators of the school to introduce the researchers, the purpose and importance of their study, and to assure them of confidentiality and the freedom they had to choose to be part of the study or not. Such a stand took care of the ethical dimension needed in the research. Furthermore, the interview was to enable the researchers to probe further into issues regarding the efficient utilization of teaching and learning facilities which may not have been clearly stated or answered in the questionnaire administered to the students and teachers.

The questionnaire items were both structured and unstructured; and were chosen because questionnaires are deemed more useful in survey studies. Also, the researchers employed observation and interview methods. These methods helped to substantiate the validity of the information collected by the questionnaires. Two separate questionnaires were prepared one for the students and the other for the teachers and administrators. The questionnaires and interview items were pre-tested at the Potsin Secondary Technical School, and with the help of some colleague lecturers at the University's Centre for Educational Policy Studies, they were checked for good construction, content validity, wording and consistency. Those items found to be improper or misleading were either modified or completely removed.

Having obtained permission from the headmaster and with the help of two research assistants, the questionnaires were distributed to fifty students made up of thirty (30) boys and twenty (20) girls respondents in the various classrooms. The second set of questionnaires was administered to the ten (10) teachers and the six (6) administrators. All fifty (50) questionnaires administered to the students and the sixteen (16) administered to the administrators and teachers were returned. The study, which lasted for six weeks, involved fact finding as existed in the school. A reason for the excellent return rate could be attributed to the fact that the questionnaires were administered to the students on campus; besides, the researchers had efficient support from the research assistants.

The responses from the questionnaire were collated by tallying. Frequency and percentage frequencies were analysed using time utilization rates (TURs), space utilization rates (SURs) and global utilization rates (GURS).

The TURs were calculated by the following equation:

$$TUR = \frac{\text{Number of hours used per week} \times 100}{\text{Number of hours available for use}}$$

The SURs were assessed by the under mentioned formula:

$$SUR = \frac{\text{Average number of students attending} \times 100}{\text{Places available in the class}}$$

The GURs were obtained by the relation:

$$GUR = \frac{\text{Average number of students attending} \times \text{Number of hours used per week} \times 100}{\text{Number of students available in the classroom} \times \text{Theoretical time used per week}}$$

$$GUR = \frac{SUR \times 100}{TUR}$$

3. Results

The researchers were able to retrieve 100% of the questionnaires administered to both groups of respondents. The interior dimensions and the capacity of the various classrooms studied are shown in table 1. This table indicates the actual number of students on roll and the type of seats students use.

Table 1: Summary of Utilization Rates for Classroom Blocks at Nyakrom Secondary/Technical School in the 2009/10 Academic Year

BLOCK	PERIOD	MONDAY			TUESDAY			WEDNESDAY			THURSDAY		
		TUR	SUR	GUR	TUR	SUR	GUR	TUR	SUR	GUR	TUR	SUR	GUR
GHANSAH BLOCK	7.15 - 8.35	75.0	42.2	42.2	62.5	46.7	40.1	100.0	58.5	58.5	75.0	41.3	41.3
	9.05- 11.05	75.5	41.1	35.2	91.7	53.1	49.5	83.3	47.0	43.2	100.0	58.5	58.5
	11.20-1.20	83.3	48.6	45.3	83.3	47.6	44.0	100.0	58.5	58.5	66.7	40.6	30.9
	1.50-3.10	75.0	43.7	43.7	100.0	46.8	46.8	50.0	32.1	32.1	83.3	53.3	50.1
	WH. DAY	77.2	43.9	41.6	84.4	48.6	45.1	83.3	49.0	48.0	81.3	48.5	45.2
FORM TWO BLOCK	7.15-8.35	100.0	82.2	82.2	100.0	82.2	82.2	75.0	50.6	50.6	100.0	82.2	82.2
	9.05-11.05	83.3	64.8	58.9	91.7	73.5	67.7	100.0	82.2	82.2	100.0	82.2	82.2
	11.20-1.20	75.0	71.1	71.1	91.7	78.5	76.0	83.3	73.4	70.4	83.3	64.8	58.9
	1.50-3.10	75.0	71.1	71.1	100.0	82.2	82.2	83.3	66.4	55.8	83.3	75.6	71.2
	WH. DAY	83.3	72.3	70.8	95.9	79.1	77.0	85.4	68.2	64.8	91.7	76.2	73.6
FORM THREE BLOCK	7.15-8.35	100.0	133.3	133.3	75.0	116.1	116.1	75.0	87.5	87.5	100.0	133.3	133.3
	9.05-11.05	75.0	109.5	109.5	100.0	133.3	133.3	100.0	133.3	133.3	75.0	113.9	104.8
	11.20-1.20	83.3	102.6	82.1	91.7	102.6	107.9	100.0	133.3	133.3	91.7	125.4	120.1
	1.50-3.10	100.0	133.3	133.3	58.3	78.6	68.2	75.0	86.9	86.9	100.0	133.3	133.3
	WH. DAY	89.6	119.7	114.6	81.3	107.7	106.4	87.5	110.3	110.3	91.7	126.5	122.9
AVERAGE FOR ALL C/ROOMS	7.15-8.35	91.7	85.9	85.9	79.2	81.7	79.5	83.3	65.5	65.5	91.7	85.6	85.6
	9.05-11.05	77.9	71.8	67.9	94.5	86.6	83.5	94.4	87.5	86.2	91.7	84.9	81.8
	11.20-1.20	80.5	74.1	66.2	88.9	76.2	76.0	94.4	88.4	87.4	80.6	76.9	70.0
	1.50-3.10	83.3	69.9	82.7	86.1	69.2	65.7	69.4	61.8	58.3	88.9	87.5	84.9
	WH. DAY	83.4	75.4	75.7	87.2	78.4	76.2	85.4	75.8	74.4	88.2	83.7	80.6
SPECIALIZED CLASS ROOMS	7.15-8.35	0.0	0.0	0.0	25.0	36.3	36.3	25.0	53.5	53.5	25.0	30.6	30.6
	9.05-11.50	50.0	77.1	63.7	8.3	23.3	7.3	0.0	0.0	0.0	25.0	23.5	12.3
	11.20-1.20	41.7	67.9	43.1	25.0	19.5	11.1	16.7	23.6	15.8	41.7	70.6	50.3
	1.50-3.10	50.0	46.4	46.4	25.0	27.8	27.8	83.3	166.4	138.2	25.0	31.3	31.3
	WH. DAY	35.4	47.9	38.3	20.8	26.7	20.6	31.3	60.9	51.9	29.2	39.0	33.6

Source: Researchers' Field Survey, 2009/10

3.1 Discussions

Attendance to class by students during the time of the survey was normal. Most of the classes had 100% attendance and the very few times a student or two were absent for a lesson were insignificant. Therefore, it was acceptable to assume that the average SUR for all the classes was constant during the time of the study. Since the timetable for the use of regular as well as specialized classrooms remained the same throughout the academic year of the school, it can be deduced that the pattern of use of these educational facilities remained unchanged for the entire academic year of 2009/2010.

The spread of use of the classrooms in all the blocks including the specialized classrooms as shown by the Time Utilization Rates (TURs), Space Utilization Rates (SURs) and Global Utilization Rates (GURs) indicates for the school academic year during the first session (7:15 a.m. to 8:35 a.m.); second session (9:05 a.m. to 11:05 a.m.); third session (11:20 a.m. to 1:20 p.m.) and fourth session (1:50 p.m. to 3:10 p.m.) was not even; indeed there were several periods when the TUR for many of the classrooms was zero; which means that the classrooms were not utilized at all. This was an occurrence spread during the entire week. However, the weekly average TUR for the various classroom blocks ranged between 20.0% to 93.3%.

The Space Utilization Rate (SUR) for a number of classrooms was above 100% implying that the number of students attending the lesson was more than the space available. The researchers had made this observation as well – that the student population appeared too large for the classrooms. With the exception of Ghansah block and the specialized classrooms of Science Laboratory and Wood Workshop built in 1982 and 1989 respectively, and the Form Two block which was built in 1979, all the other classrooms were constructed during the Experimental Junior Secondary School era. The old classrooms were constructed to accommodate a maximum

class population of 35 students. This could be the reason for the congested classrooms. In those classrooms, desks were arranged so tightly that students found it difficult to move about.

A critical study of the data shows that classrooms occupied by Technical and Home Economics classes recorded lower averages of TUR, SUR and GUR than the others. Similar trends were observed during Integrated Science and Computer Studies lessons throughout the class periods of the school. This would be the case where the teachers of such lessons took the whole class from the classroom to the specialized classrooms for teaching and learning. In all cases, no prior arrangements were made for any other classes to use those facilities that were free as a result of these movements.

Generally, the use of classrooms did not follow any particular patterns. There were times when classrooms were empty and other times when they were fully utilized. The average TUR of 85.9% per day for the general classrooms and 29.5% per day for the specialized classrooms for the school academic year indicates that 10 out of the 12 general classrooms available were utilized during the 10 periods that the classrooms available were scheduled to be used in the day. Similarly, the specialized classrooms showed that one out of the five frequencies allocated were fully occupied during the 10 periods per day.

The total number of seats available in the general classrooms was found to be 634 spaces and that of the specialized classrooms were 120 spaces. The average occupancy factor (SURs) of the general classrooms and the specialized classrooms for a week were found to be 79.0% and 42.9% respectively. This meant that an average of 501 seats and 51 seats for the general classrooms and specialized classrooms respectively per period per day were utilized during the term.

The study showed that there was serious shortage of classroom furniture. The fifty students who responded to the questionnaire did not have permanent seats in their classrooms. A significant number of students had to move from classroom to classroom in between lessons looking for vacant seats.

3. 2 General Classrooms

The teachers who were interviewed indicated that any time students left their permanent classrooms for lessons in the specialized classrooms or for break, they only returned to find that their desks had been removed by other students who also needed seats for their lessons. This problem often delayed the beginning of lessons as affirmed by the headmaster and his assistant respondents. Teachers sometimes had to wait for some time for students to settle down before lessons could begin. It was common to find students scuffle over classroom seats. Because of the shortage, classroom seats were moved about too frequently, thereby shortening their life spans and compounding the problem of shortage. Thirty three (33.3%) of the classrooms had enrolment that was above the estimated capacity, making accommodation in the classroom uncomfortable.

Students who responded to the questionnaire confirmed the existence of this congestion and this was also affirmed by the teachers and the administrators in their responses to the questionnaires as well as during the interview sessions. In relation to the congestion, some students had their seats so close to the chalkboard; they had no clear view. According to 80.5% of the student respondents, the arrangement of seats was such that the aisle was not adequate to allow their free movement. Eight of the teachers, representing 80%, confirmed this assertion; and this was further collaborated by the administrators, including the District Director of education.

3. 3 Specialized Classrooms

On Mondays, the TUR and SUR for specialized classrooms was zero percent, indicating that the space was never utilized during the entire day. On Tuesdays, the TUR for the specialized classrooms averaged 20.0%, an indication that the specialized classrooms were vacant for two out of the ten periods of the day. However, calculations for the SUR indicated that most of the time, the specialized classrooms recorded over 100.0% and sometimes as high as 225.0%. This is because, the class populations were too large for the classrooms, and the respondents to the questionnaire confirmed this. This could be one of the reasons why some teachers indicated their preference for conducting practical oriented lessons in the general classrooms to avoid such crowded environments. The underutilization of specialized classroom spaces is shown in the weekly averages of TUR of Bench Workshop indicating 6.7% for the third session (11:20 a.m. to 1:20 p.m.). The most utilized classrooms in the specialized classroom is the Science Laboratory followed by the Computer Rooms. The high values of SUR for the specialized classrooms are due to the large class populations. The weekly average GUR for the four sessions of the day under study namely: 7:15 a.m. to 8:35 a.m., 9:05 a.m. to 11:05 a.m., 11:20 a.m. to 1:20 p.m. and 1:50 p.m. to 3:10 p.m., were all below 20.0%, an indication that the classrooms are underutilized. For example, during the second session (9:05 a.m. to 11:05 a.m.) the TUR for Home Economics Laboratory for the week (Mondays to Fridays) was zero percent. Similar trends occurred during the study

From the researchers' observation, it came to light that the school had no spacious assembly hall for meetings and examinations. The only suitable places for such purposes were rooms H3 and H4, which at times disrupted lessons in such classes, and a teacher respondent affirmed this.

4. Conclusions

A number of findings that emerged from the study are summarized below:

- i. The Nyakrom Secondary/Technical School population was not too high.
- ii. The specialized classrooms were not being utilized efficiently. Most often, the Science and its related lessons were being held outside the mandatory specialized classrooms.
- iii. Many classrooms were congested and many students were not comfortably accommodated. These situations had been aggravated by the lack of adequate classroom furniture, and not due to the problem of space.
- iv. The planning of the timetable did not allow for efficient utilization of the classroom facilities. Therefore, teaching and learning facilities at the school were not efficiently and effectively utilized.
- v. The school had no spacious assembly hall

5. Recommendations

From the findings of the study, the following recommendations are being offered towards improving the efficient use of the school's teaching and learning facilities:

- i. Many of the factors that have contributed to the seeming congestion of the Nyakrom Secondary/Technical School can be managed by adequate and standard supply of classroom furniture. All classrooms should be furnished with seats so that there would be no need to move any pieces of furniture around. This comparatively less expensive and much needed action be taken, rather than allow the impression to be created that more classrooms need to be built.
- ii. The timetable should be more carefully planned to take into account the class population, and the capacities of the general classrooms as well as the specialized classrooms. Perhaps, it would be more appropriate to introduce centralized time-tabling as it is done in the universities and other tertiary institutions. The classrooms would then be allocated to classes according to their needs. This would seem to solve the problem of apparent congestion of classrooms, the non-utilization of specialized classrooms and better guide the times for students' use of specialized classrooms. In a centralized timetable that may be computerized, class populations would go with classroom sizes each period of the day and classrooms would not lie vacant if there were sufficient number of students and programmes that had need for them. Enrolment would increase and utilization rates would go up, just as there would be greater general efficiency.
- iii. The preparation of an effective timetable for a school with several kinds of subject combinations for students is not an easy task. It is recommended that from time to time, seminars, durbars, or workshops on time tabling should be organized for the teachers who are responsible for time table planning and preparation. The management of the school ought to support such an important exercise.
- iv. The study has shown that teaching and learning facilities at the Nyakrom Secondary/Technical School are not being efficiently and effectively used and this has created the impression that the school is congested.
- v. Finally, it is clear that management of the school needs to improve the level of utilization of educational facilities in order to achieve optimum efficiency of the use of resources available.
- vi. For efficient utilization of classrooms, the school should be provided with a well-equipped spacious assembly hall for meetings and examinations to withstand the test of time.

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