

ASSESSING THE EFFECTIVE UTILIZATION OF EDUCATIONAL FACILITIES: STUDY OF NYAKROM SECONDARY TECHNICAL SCHOOL

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ABSTRACT

The study was conducted in Nyakrom Secondary Technical School, sought to find out whether the teaching space facilities were being used efficiently. In other words, whether with facilities available the school had indeed reached their enrolment limit. Both structured and unstructured questionnaire items as well as interview sessions were used to elicit information from fifty (50) students in twelve (12) classes using stratified random sampling and ten (10) teachers using purposive non-sampling method. Data collected were analyzed by means of descriptive statistics, frequency distribution tables and simple percentages. The result of the study showed that Nyakrom Secondary Technical School had not exceeded its optimum enrolment. The school could comfortably accommodate over 560 students if teaching space facilities were efficiently utilized. There was the need to plan an effective timetable that would take into consideration the general classroom spaces, specialized spaces available, 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.

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Introduction

Universally, education is recognized as a form of investment in human beings, yields economic benefits and contributes to a country's future wealth by increasing the productive capacity of its people. Education is the key to the socio-economic, cultural and political development of any nation. In developing countries, including Ghana, governments are compelled by this realization to provide, at least, basic education to the citizenry and higher forms of education as far as resources will permit. Consequently, the educational ministry is found to be competing with other sectors of the economy for financial support from the meager resources of the nation. It makes sense, therefore, that educational practitioners must ensure optimum use of resources. Efforts have been made by various governments to improve the educational system. Notable amongst the programmes mounted in the nation are:

- i) The Educationists' Committee of 1920 which marked the beginning of secondary education in Ghana.
- ii) The 1925 Education Ordinance which gave the government the ultimate control of education throughout Ghana.
- iii) The Educational Committee of 1937 which gave full assistance for the establishment of good co-educational secondary schools.

- iv) The Accelerated Development Plan of 1951 which saw the establishment of more secondary schools in the country (The Trust Schools).
- v) The Education Act of 1961 which gave legal backing to the government's decision to make primary education compulsory.
- vi) The New Education Reforms of 1987 which saw the establishment of more senior secondary school especially in rural communities.
- vii) The 2002 President's Committee on Review of Education Reform in Ghana (Republic of Ghana, 2002:64).

Among the main objectives of the 1987 New Educational Reforms were improving access to education – giving all children of school-going age a basic education providing equality of educational opportunities and making the education system more effective by improving the ratio between costs and performance. Serious efforts were to be made at ensuring that the utilization rates of premises, equipment and staff, and the length of time used are the highest possible within the units of pedagogic, administrative and political consideration. Education is capital intensive and seems to take a large share of the national budget. For example, in 2000, education accounted for 20% of the total recurrent expenditure of the government. This has increased steadily since the last four years 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: 21). School authorities, especially those with limited resources, complain about the lack of classroom space, suggesting that government ought to provide more classroom and laboratory spaces. However, school administrators are expected to plan efficiently and effectively the use of resources.

The implementation of the reforms resulted in a significant rise in demand of infrastructure for basic and secondary education. This problem has been compounded by the high population growth rate of the country. The products of the JSS started entering the SSS from January 1990. Factors, which limit increase in access to senior secondary education in Ghana, include inadequate classrooms, laboratories, and library facilities among others. The 2002 President's Committee on Review of Education Reforms seek to make sure that there is one good senior secondary school in each district and also to give each community secondary school basic teaching and learning materials (Government of Ghana, 2003: 32). Kenny and Foster (1983) argue that the study on efficiency of utilization of teaching space facility is a factor of enrolment, and it is a resource very much difficult to provide within a short time. Besides, information such as time utilization rate and space utilization rate are needed for planning short, medium and long-term enrolments at the level. Again, the assessment of qualitative change in education in areas such as curriculum, instructional methods and evaluation of students' performance is dependent on quantitative information like space, time and global utilization rates obtained through assessment of the utilization of teaching space facilities.

There is very little literature on educational facilities utilization in Ghana. Not much work has been done, especially in the area of educational facilities in the second cycle institutions.

The literature review is, therefore, based on studies done in Great Britain (Rogers, 1993), Canada (Council for Educational Facility Planners (CEFP, 1976), Surveys carried out by the United Nations Educational Scientific and Cultural Organization (UNESCO, 1984) in developed and other developing countries and some studies carried out in higher institutions in Ghana by Owolabi, the CFTC timetabling and space utilization expert (Owolabi, 1998). In addition, Apori (1997) conducted a research study on utilization rate at the science faculty of the University of Cape Coast, and that study was looked at.

Nyakrom Secondary/Technical School starts classes at 7.15 a.m. and closes at 3.45 p.m. with intermittent short and long breaks. It is the policy of the school administration that all science and technology related lessons be held in the allocated classrooms; however, there are some 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 groups could have access to the laboratory. Incidentally, these same laboratories are vacant during several other periods of the week. Such clashes of lessons on the timetable give the indication that there is not enough space in the school for integrated science lessons. Students offering technical and home economics use the special classrooms for their respective courses only, thus the classrooms remain vacant during other periods of the week.

Some of the students have complained at SRC meetings about these clashes and then influence on their classes. They contend that the large class sizes do not allow them to move about freely in their classrooms. Some teachers of the school also complain about the large class size and seemingly class occupancy rate. To them this situation does not allow for maximum use of laboratory and special classrooms for teaching and learning. The study is to assess the optimal utilization of the classrooms at Nyakrom Secondary / Technical School.

The Purpose of the Study

The purpose of the study is to assess the efficient utilization of teaching space facilities at Nyakrom Secondary/Technical School. It will help management to improve time, space and global utilization rate in the school and may assist the school administration to determine whether there is the need for additional classrooms or otherwise.

Research Questions

The study attempts to seek 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. Does the planning of the timetable allow for effective utilization of classroom space?
3. Does the school have enough laboratory space for students on roll?
4. Do lessons of science and technology related programmes take place in the respective special classrooms?
5. Are students comfortably accommodated during lessons?

Significance of the Study

This study is significant, as it will provide documentary evidence to school managers in

planning the day-to-day utilization of classroom space facilities more judiciously. Nyakrom Secondary School is one of the model schools in the country and it is expected to play a leading role as such, therefore any information obtained could be used as a basis for planning space utilization of other secondary schools. Any positive influence on the effective utilization of classroom space that may result from this study, will likely, spill over to other model secondary schools.

Materials and methods

Study Area

Nyakrom Secondary/Technical School was established as a community-based secondary school in September 1982 as a co-educational institution to provide technical and vocational education. It was first established as an Experimental Junior Secondary School in 1979 (NYASTECH, 2005). The school has limited buildings, which include the administration block, four classroom blocks as well science and ICT laboratories. It also has two dormitory blocks and buildings for the technical and home economics departments. With a total students population of five hundred and sixty (560) divided into twelve (12) classes ranging from 30 to 78 class size; it makes use of twelve (12) regular classrooms, one science laboratory, one ICT laboratory, one demonstration classroom for home economics and one special classroom for technical education. Majority of the classrooms are too small for the class sizes, thus the classrooms look congested. Again, some of the classrooms have poor ventilation and natural lighting system.

Research Design

Research design used in this study was the descriptive statistics method.

Population and Sampling Procedure

The accessible population for the study was the entire students of Nyakrom Secondary/Technical School of 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 in the school. Equally, all the four classroom blocks, home science laboratory, science laboratory, and wood workshop was used for the study. Stratified random sampling technique was employed to select fifty (50) students from all the twelve (12) classes. Again, purposive non-random sampling method was used to sample and interview ten (10) teachers.

Instrumentation

Two separate questionnaire were developed; one for the students and the other for the teachers. Again, the researcher employed the observation and interview sessions with the assistant headmaster who was responsible for the allocation of classrooms and members of the school time table committee among others to reflect the view of the school administration on the use of classrooms. The Agona District Directorate of the Ghana Education Service (GES) was contacted to seek the government directives on the allocation of teachers to schools and the average class population at senior secondary school level.

Analysis of Data

Frequencies and simple percentages were analyzed using time utilization rates (TURs), space utilization rates (SURs) and global utilization rates (GURs). A narrative summary including direct quotes was made to further explain the data.

Results and discussion

This section assesses the time utilization rate (TUR) of classrooms at Nyakrom Secondary Technical School.

Table 1: Time Utilization Rate (TUR) of classrooms at Nyakrom Secondary/Technical School in the 2005/06 Academic Year

Block	Session	7:15am-8:35am	9:05am-11:05am	11:20am-1:20pm	1:50pm-3:10pm	Whole Day Av
GHANSAH BLOCK	Mon	75.0	75.5	83.3	75.0	77.2
	Tue	62.5	91.7	83.3	100.0	84.4
	Wed	100.0	83.3	100.0	50.0	83.3
	Thur	75.0	100.0	66.7	83.3	81.3
	Fri	75.0	100.0	100.0	75.0	87.5
	Weekly Av.	75.5	90.0	86.7	76.7	82.7
FORM TWO BLOCK	Mon	100.0	83.3	75.5	75.5	83.3
	Tue	100.0	91.7	91.7	100.0	95.9
	Wed	75.0	100.0	83.3	83.3	85.4
	Thur	100.0	100.0	83.3	83.3	91.7
	Fri	50.0	83.3	83.3	100.0	83.4
	Weekly Av.	85.0	93.3	85.0	84.4	86.9
FORM THREE BLOCK	Mon	100.0	75.0	83.3	100.0	89.6
	Tue	75.0	100.0	91.7	58.3	81.3
	Wed	75.0	100.0	100.0	75.0	87.5
	Thur	100.0	75.0	91.7	100.0	91.7
	Fri	100.0	91.7	83.3	75.0	67.0
	Weekly Av.	90.0	88.3	91.7	81.7	87.9
SP E CI	Mon	0.0	50.0	41.7	50.0	35.4
	Tue	25.0	8.3	25.0	25.0	20.8

Wed	25.0	0.0	16.7	83.3	31.3
Thur	25.0	25.0	41.7	25.0	29.2
Fri	25.0	16.7	16.7	50.0	27.1
Weekly Av.	20.0	22.8	28.3	46.7	29.5

Source: Researcher’s Field Survey, 2005/06

Table 1 indicates the average frequency of use (TUR) of classrooms for the entire school. It also shows the average weekly summaries from Mondays to Fridays as well as the average of whole day. The spread of use of the classrooms in all the blocks including the specialized classrooms as indicated by the time utilization rates (TURs) was not even. There were periods when the TUR for some of the specialized classrooms were zero that means the classrooms were not utilized at all. The weekly average TUR for the various classroom blocks ranged between 20.0% and 93.3%. The average TUR of 85.9% per day for the general classrooms and 29.5% per day for the specialized classrooms were captured in the school’s academic year; indicates that 10 out of the 12 general classrooms and one out of five specialized classrooms available were utilized during the periods that the classrooms available were scheduled to be used in the day. In all cases, no arrangements were made for any other classes to use those facilities. This result was in agreement with the studies of Department of Education and Science (DES,1992), Peat, Marwick and McIntock (1992),Owolabi (1994),UNESCO (1985),Rawlingson (1973)as cited in Kenny and Foster (1983) who recommended a target time utilization levels of 80%

for general purpose teaching rooms, however, contradict (40 – 70%) for specialized rooms (laboratories).

This section ascertains thespace utilization rate (SUR) of classrooms at Nyakrom Secondary Technical School.The result in table 2 shows that the space utilization rates (SUR) for a number of classrooms were above 100% and sometimes as high as 166.4% in specialized classrooms. This is because the class populations were too big for the classrooms. This premise was confirmed by both teacher and student respondents to the questionnaire; This could be one of the reasons why some teachers preferred conducting practical oriented lessons in the general classrooms to avoid such crowded environment. This is true as it was observed that the class population was too big for the classrooms. With the exception of the 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.

Table 2: Space Utilization Rate (SUR) of classrooms at Nyakrom Secondary/Technical School in the 2005/06 Academic Year

Block	Session	7:15am-8:35am	9:05am-11:05am	11:20am-1:20pm	1:50pm-3:10pm	Whole Day Av
GHANSAH BLOCK	Mon	42.2	41.1	48.6	43.7	43.9
	Tue	46.7	53.1	47.6	46.8	48.6
	Wed	58.5	47.0	58.5	32.1	49.0
	Thur	41.3	58.5	40.6	53.5	48.5
	Fri	48.4	58.5	58.5	48.4	53.5
	Weekly Av.	45.4	51.6	50.8	47.2	48.8
FORM TWO BLOCK	Mon	82.2	64.8	71.1	71.1	72.3
	Tue	82.2	73.5	78.5	82.2	79.1
	Wed	50.6	82.2	73.4	66.4	68.2
	Thur	82.2	82.2	64.8	75.6	76.2
	Fri	37.3	77.8	77.8	82.2	68.8
	Weekly Av.	54.2	76.1	73.1	75.5	69.7
FORM THREE BLOCK	Mon	133.3	109.5	106.2	133.3	119.7
	Tue	116.1	133.3	102.6	78.6	107.7
	Wed	87.5	133.3	133.3	86.9	110.3
	Thur	133.3	113.9	125.4	133.3	126.5
	Fri	73.0	88.0	86.0	82.2	82.3
	Weekly Av.	120.6	123.5	120.2	109.6	118.5
SPECIALIZED CLASSROOMS	Mon	0.0	77.1	67.9	46.4	47.9
	Tue	36.3	23.3	19.5	27.8	26.7
	Wed	53.5	0.0	23.6	166.4	60.9
	Thur	30.6	23.5	70.6	31.3	39.0
	Fri	56.3	24.3	26.3	54.3	40.3
	Weekly Av.	35.3	29.6	41.6	65.2	42.9

Source: Researcher’s Field Survey, 2005/06

This could be the reason for the congested classrooms. In those classrooms, desks were packed so tight that students found it difficult to move about. The average occupancy factor (SURs) of the general classrooms and the specialized classrooms 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 academic year. These results corroborated with the findings of Apori (1997), Owolabi (1998; 1990), Rogers (1993) and UNESCO (1985; 1984) that the use of teaching space facilities, based on adequate mapping of class sizes

and seating capacities of spaces, leads to less variation between actual number of students who occupy teaching space facilities and the spaces’ permissible seating capacities. This results in high space utilization rates for the space facilities. It continues that under-utilization occurs when the teaching space facilities have little or no variation in their seating capacities, and is more pronounced when departmentalized time-tabling and space allocation system is practiced.

This section determines the global utilization rate (GUR) of classrooms at Nyakrom Secondary Technical School.

Table 3: Global Utilization Rate (GUR) of classrooms at Nyakrom Secondary/Technical School in the 2005/06 Academic Year

Block	Session	7:15am-8:35am	9:05am-11:05am	11:20am-1:20pm	1:50pm-3:10pm	Whole Day Av
GHANSAH BLOCK	Mon	42.2	35.2	45.3	43.7	41.6
	Tue	40.1	49.5	44.0	46.8	45.1
	Wed	58.5	43.2	58.5	32.1	48.0
	Thur	41.3	58.5	30.9	50.1	45.2
	Fri	48.4	58.5	58.5	48.4	53.5
	Weekly Av.	46.1	49.0	47.4	46.5	47.3
FORM TWO BLOCK	Mon	82.2	58.9	71.1	71.1	70.8
	Tue	82.2	67.7	76.0	82.2	77.0
	Wed	50.6	82.2	70.4	55.8	64.8
	Thur	82.2	82.2	58.9	71.2	73.6
	Fri	37.3	74.8	74.8	82.2	68.8
	Weekly Av.	58.9	73.2	70.3	72.5	68.7
FORM THREE BLOCK	Mon	133.3	109.5	82.1	133.3	114.6
	Tue	116.1	133.3	107.9	68.2	106.4
	Wed	87.5	133.3	133.3	86.9	110.3
	Thur	133.3	104.8	120.1	133.3	122.9
	Fri	133.3	123.5	118.0	116.1	122.7
	Weekly Av.	120.6	120.9	114.3	107.6	115.9
SPECIALIZED CLASSROOMS	Mon	0.0	63.7	43.1	46.4	38.3
	Tue	36.3	7.3	11.1	27.8	20.6
	Wed	53.5	0.0	15.8	138.2	51.9
	Thur	30.6	12.3	50.3	31.3	33.6
	Fri	56.3	8.1	8.7	54.3	31.9
	Weekly Av.	35.3	18.4	27.8	59.6	35.3

Source: Researcher’s Field Survey, 2005/06

Result in table 3 showed that the weekly average global utilization rates of 47.3% and 68.7% for Ghansah and Form Two Blocks, respectively in the academic year were low as compared to the rate of 80% for general purpose classrooms recommended by the British Department of Education and Science (DES, 1992). Contrary, a weekly average global utilization rate of 115.9% was recorded in the Form Three Block. Table 3 also presents average global utilization rate of 35.3% for the specialized classrooms which seemed to give the indication that the specialized classrooms at Nyakrom Secondary School were under-utilized compared to the British Department of Education recommendation of 40 –

70% for the specialized classrooms (DES, 1992; UNESCO, 1985; Kenny and Foster (1983) as cited Rawlingson, 1973). This result was in conformity with the views of Apori (1997), Owolabi (1998) and Ukeje (1992). There were occasions during the week when the GUR of the specialized classrooms were zero. The seemingly satisfactory average value was due to the large population of the classes that utilized the specialized classrooms.

Conclusions

The findings from the study indicated that the population in Nyakrom Secondary/Technical School was not too high. Again, the specialized classrooms

were not being utilized efficiently and most often, the science and its related lessons were held outside the mandatory specialized classrooms. It was emerged that some 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 problem of space. It was established that 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. Finally, it became known that the school has no spacious assembly hall for meetings and examinations to withstand the test of time.

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