

Instructional Space Planning and Students' Academic Performance in South West Nigeria Secondary Schools

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ABSTRACT The study examined the relationship between instructional space planning and students' academic performance in south west Nigeria secondary schools. A descriptive research of the survey design was used in the study. The sample consisted of 1650 respondents comprising 150 school principals and 1500 students. Multistage, stratified and simple random sampling techniques were used to select the sample. Data collected were analyzed using frequency counts, percentages, means and Pearson product moment correlation. The five null hypotheses formulated were tested at 0.05 level of significance. The study revealed that the levels of instructional space planning and students' academic performance were relatively high during the period under study. The study also revealed that students' academic performance was significantly related to instructional space planning, classroom planning, library planning and technical workshops planning. It was revealed that there was no significant relationship between laboratory planning and students' academic performance. Based on the findings, it was recommended that stakeholders should not relent in their effort in sustaining good instructional space planning in order to enhance good students' academic performance.

INTRODUCTION

Instructional spaces such as classrooms, libraries, laboratories and technical workshops are essential in teaching-learning process. The extent to which these spaces could enhance effective teaching and learning depends on their location within the school premises, their structure and facilities. It is not unlikely that well planned instructional spaces in terms of location, structure and facilities will facilitate effective teaching and learning process and as well enhance good academic performance of the students.

While emphasizing the importance of instructional spaces to students' academic performance, Mark (2002) maintained that one cannot expect high level of students' academic performance where school buildings such as classrooms, libraries, technical workshops and laboratories are substandard. He emphasized that clean, quiet, safe, comfortable and healthy environment are important components of successful teaching and learning. Similarly, Ajayi (2007) maintained that high level of students' academic performance may not be guaranteed where instructional space such as classrooms,

libraries, technical workshops and laboratories are structurally defective, not properly ventilated and not spacious enough for use. He further emphasized that structural effectiveness, proper ventilation and well located instructional space may lead to successful teaching and learning process.

It appears the secondary school students' academic performance in Nigeria is poor. Dada (1987), Enaesator (1995), Ajayi (1999) and Akubuiro and Joshua (2004) reported that there was persistent mass failure of students in the Senior School Certificate Examination (SSCE) conducted by the West African Examination Council (WAEC). The observed poor academic performance of the secondary school students in Nigeria may not be unconnected with seemingly poor instructional space planning in the schools.

In the context of this study, instructional space planning refers to the location, structural design and facilities of places such as classrooms, libraries, technical workshops and laboratories where students received academic instruction. In some of the secondary schools, classrooms are not spacious enough, there are no adequate lighting and ventilation in the classrooms, there are instances where classrooms are located very

close to the technical workshops and the main roads, while adequate furniture and fittings are not provided in some of the classrooms. All these may not make such classrooms conducive for teaching and learning process and hence good academic performance of the students may not be guaranteed. Stressing the importance of classroom planning, Philip (1997) maintained that classrooms with adequate lighting and ventilation and properly located within the school, play vital role in students' academic performance.

The importance of school library in teaching and learning cannot be over-emphasized. Fuller (1986) and Popoola (1989) found that school library significantly influence students' academic performance. It appears some of the secondary schools lack adequate library facilities. In some cases school library are not spacious enough and not well located within the school premises. In some cases, the libraries do not have adequate lighting and ventilation that could make them comfortable for the students and teachers to use. In such cases, effective teaching and learning may not be enhanced while students' academic performance may be affected.

According to Bajah (1979), laboratories are essential in the teaching and learning of science subjects. It has been observed that laboratories are not well planned in some of the secondary schools. Apart from the fact that the required facilities are not in the laboratories, some of the laboratories are not spacious, not properly located while some do not have cross ventilation and adequate lighting. Such laboratories may not enhance effective teaching and learning thereby impeding the students' academic performance.

The planning of technical workshops in some of the secondary schools seems to be defective. Apart from the fact that some schools use classrooms as ad hoc technical workshops, in some cases, technical workshops are located very close to the classrooms. Moreover some technical workshops are not spacious and they lack adequate facilities, cross ventilation and adequate lighting. In such cases, the technical workshops may not be conducive for teaching and learning and consequently, students' academic performance may be jeopardized.

Purpose of the Study

The purpose of the study was to find out the relationship between instructional space planning

and students' academic performance in south west Nigeria secondary schools. The study would find out the levels of instructional space planning and students' academic performance. It would also find out whether students' academic performance was significantly related to the planning of classrooms, libraries, technical workshops and laboratories.

Research Hypotheses

1. There is no significant relationship between instructional space planning and students' academic performance
2. There is no significant relationship between classroom planning and students' academic performance
3. There is no significant relationship between laboratory planning and students' academic performance
4. There is no significant relationship between technical workshop planning and students' academic performance
5. There is no significant relationship between library planning and students' academic performance

METHODOLOGY

A descriptive research of the survey design was used in the study. The population of the study comprised all secondary schools in south west Nigeria. A total of 1650 respondents consisting of 150 school principals and 1500 students formed the sample of the study. Multistage, stratified and simple random sampling techniques were used to select the sample. Self designed instruments tagged Instructional Space Planning Questionnaire (ISPQ) and Students Academic Performance Inventory (SAPI) were used to collect data for the study. The data which were collected in 2008 were analyzed using frequency counts, percentages and Pearson Product Moment Correlation. The hypotheses formulated were tested at 0.05 level of significance.

RESULTS

Level of Students' Academic Performance

In analyzing the level of students' academic performance, responses to section B of SAPI was used. Frequency count and percentage score

were used to analyze the responses on items of section of SAPI. In order to determine the level of students' academic performance (low, moderate and high), the mean score and standard deviation of the responses were used. The low level of students' academic performance was determined by subtracting the standard deviation score from the mean score ($73.2 - 14.1 = 59.1$). Moderate level of students' academic performance was determined by using the mean score (73.2) while the high level of students' academic performance was determined by adding the mean score with the standard deviation score ($73.2 + 14.1 = 87.3$). However, the low level of students' academic performance starts from 0 to 59.1, moderate level of students' academic performance starts from 59.2 to 73.2 and high level of students' academic performance starts from 73.3 to 100 (Table 1).

Table 1 shows the level of students' academic performance in the secondary schools. The table shows that out of 150 schools sampled, 18 representing 12 percent had low level of students' academic performance while 59 schools representing 39.3 percent had moderate level of academic performance and 73 schools representing 48.7 percent had high level of academic performance. This shows that the level of students' academic performance was relatively high in the schools sampled for the study

Level of Instructional Space Planning

In analyzing the level of instructional space planning, responses to section B of ISPQ was used. Frequency count and percentage score

Table 1: Level of students' academic performance in south west Nigeria secondary schools

<i>Students' academic performance</i>	<i>Frequency counts</i>	<i>Relative percentage</i>
Low (0-59.1)	18	12.0
Moderate (59.2-73.2)	59	39.3
High (73.3-100)	73	48.7
Total	150	100.0

Table 2: Level of instructional space planning in south west Nigeria secondary schools

<i>Instructional space planning</i>	<i>Frequency counts</i>	<i>Relative percentage</i>
Low (0-33.6)	26	17.3
Moderate (33.7- 46.9)	43	28.7
High (47-100)	81	54.0
Total	150	100.0

were used to analyze the responses on items of section B of ISPQ. In order to determine the level of instructional space planning (low, moderate and high), the mean score and standard deviation of the responses were used. The low level of instructional space planning was determined by subtracting the standard deviation score from the mean score ($46.9 - 13.3 = 33.6$). Moderate level of instructional space planning was determined by using the mean score (49.9) while the high level of instructional space planning was determined by adding the mean score with the standard deviation score ($46.9 + 13.3 = 60.2$). However, the low level of instructional space planning starts from 0 to 33.6, moderate level of instructional space planning starts from 33.7 to 46.9 and high level of instructional space planning starts from 47 to 100 (Table 2).

Table 2 reveals the level of instructional space planning in the secondary schools. The table shows that out of 150 schools sampled, 26 representing 17.3 percent had low level of instructional space planning while 43 schools representing 28.7 percent had moderate level of instructional space planning and 81 schools representing 54 percent had high level of instructional space planning. This shows that the level of level of instructional space planning was relatively high in the schools sampled for the study

Test of Hypotheses

Table 3 shows that instructional space planning, classroom planning, library planning and technical workshop planning have positive and significant relationship with students' academic performance. The table also shows that there is no significant relationship between laboratory planning and students' academic performance. Hence hypotheses 1, 2, 4 and 5 were rejected while hypothesis 3 was not rejected. This means that:

1. There is significant relationship between instructional space planning and students' academic performance.
2. There is significant relationship between classroom planning and students' academic performance.
3. There is significant relationship between library planning and students' academic performance.
4. There is significant relationship between

Table 3: Relationships between instructional space planning and students' academic performance

S. No.	Variable	N	r_{cal}	r_{crit}
1	Instructional space planning Students' academic performance	150	0.196 *	0.195
2	Classroom planning Students' academic performance	150	0.468*	0.195
3	Laboratory planning Students' academic performance	150	0.068	0.195
4	Library planning Students' academic performance	150	0.264 *	0.195
5	Technical workshop planning Students' academic performance	150	0.682 *	0.195

*significant ($P < 0.05$)

technical workshop planning and students' academic performance.

5. There is no significant relationship between laboratory planning and students' academic performance.

DISCUSSION

The study revealed that the level of instructional space planning in south-west Nigeria secondary schools was relatively high during the period under study. The relatively high level of instructional space planning might not be unconnected with proper supervision, control, direction and monitor of instructional space planning by the ministry of education. It is not unlikely that the relatively high level of instructional space planning would enhance better teaching and learning process and facilitate better academic performance. Moreover, the main objective of instructional space planning is to lay solid foundation for educational structure in order to achieve educational goals and satisfy the physical and emotional needs of the learners and to provide for future expansion of the school system.

It was also found that the level of students' academic performance in south-west Nigeria secondary school was relatively high during the period under investigation. The relatively high level of students' academic performance might not be unconnected with the relatively high level of instructional space planning and other factors such as provision of facilities, motivation of

teachers and students' commitment to their studies among others. The finding of this study contradicts that of Oyekanmi (1996) and Ayodele (2000) while it supports that of Yusuf ((2001) and Adebayo (2004).

The study has shown that there was significant relationship between instructional space planning and students' academic performance. This may be as a result of the fact that instructional space planning is directly linked with teaching and learning process in the school system. This implies that better instructional space planning would enhance better students' academic performance, while poor instructional space planning could affect the academic performance of students' negatively.

The study further revealed that classroom planning was significantly related to students' academic performance. It is not unexpected that where classrooms are properly planned in terms of location, structure and facilities, effective teaching and learning process will be enhanced thereby leading to good academic performance of the students. The finding corroborates that of Bullok, Foster and Elizabeth (1997) and Kennedy (1999) that classroom design influence students' academic performance. Hence they advocated that planners should look at students' developmental needs and curriculum in order to make proper planning, re-designing and expanding classroom to those needs and requirements.

It was revealed in the study that there was no significant relationship between laboratory planning and students' academic performance. One would expect that if laboratories are properly planned in terms of location, structure and facilities, this will translate to good academic performance of the students, but the finding has proved this wrong. It must be emphasized that proper planning of the laboratories may not enhance students' academic performance if the teachers are not doing their job well. The finding contradicts that of Bajah (1979) and Fuller (1986) who found significant relationship between laboratories and students' academic performance.

The study also revealed that there was significant relationship between library planning and students' academic performance. This further confirms the important role of library in facilitating effective teaching and learning process. A well planned library could enhance the reading habit of both teachers and students and this could translate into good academic performance of the

students. The finding corroborates that of Fuller (1986) and Oluchukwu (1998) that school library had significant influence on students' academic performance.

It was also found in the study that there was significant relationship between technical workshop planning and students' academic performance. If technical workshops are properly located within the school premises, well structured and equipped, they will create conducive atmosphere for teaching and learning. This could also enhance good academic performance of the students.

CONCLUSION

Instructional space planning particularly in the areas of classrooms, libraries and technical workshops is an important factor in students' academic performance. Moreover, the planning of instructional space and academic performance of the students were good.

RECOMMENDATIONS

Based on the findings, it was recommended that various stakeholders such as the governments, parents, philanthropists and the society at large should give necessary financial and professional support to the secondary schools toward ensuring good instructional space planning. This will facilitate good academic performance of the students. Moreover, the relatively high levels of instructional space planning and students' academic performance in the secondary schools should be improved upon by the school administrators and other stakeholders.

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