

THE INFLUENCE OF SCHOOL FACILITIES ON STUDENT'S ACADEMIC ACHIEVEMENT IN TANZANIA

VENANCE MKWAMA
University of Iringa, Iringa, Tanzania

<https://doi.org/10.37602/IJREHC.2023.4518>

ABSTRACT

This study aimed to examine the influence of school physical facilities on student's academic achievement in public secondary schools in Tanzania. The study employed a cross-sectional design and a mixed approach. Stratified and simple random sampling was used to select the sample of One hundred and fifty respondents. Whereby data collection methods were focus group discussion for thirty teachers, survey questionnaire for one hundred and thirteen students key informant interviews for five heads of schools and two education officers, observation, and documentary review which were analyzed and presented in tables. The data was analyzed through content analysis and descriptive statistics with the aid of SPSS. Pre-test employed to ensure the stability of the methods. There was official permission to carry out a study. Self-respect, protocol, confidentiality, and rights of the participants had been protected to adhere to an ethical code of conduct. The study observed that there is a great influence of school facilities on student's academic achievement. Schools with inadequate facilities displayed relatively poor academic achievement compared to well-equipped schools. This was the reason why the government used various means and strategies to get the facilities. Therefore, the study recommends that the government should put more emphasis in building and improving the quality of basic school facilities in all public secondary schools. It was further recommended that similar studies should be done on the influence of school facilities on students' academic achievement.

Keywords: school facilities, school infrastructures, learning environment

1.0 INTRODUCTION

The availability of basic infrastructure and services such as school buildings, typewriters, computer and laboratories equipment, classrooms, water and electricity supply, sport grounds, libraries and number of books, have a great role in improving learning achievement in schools in different countries of the world (Santika, 2021). In offering a good learning environment, physical facilities such as buildings, tables, chairs, cupboards, and writing tools are highly needed. Schools should pay attention to build and maintain infrastructures to make them more durable. The availability of school infrastructures such as classes, desks, toilets and good learning facilities in different countries worldwide have been prioritized for the intention of enhancing quality education (Nurabadi, 2020).

For example, in Indonesia, school facilities facilitate the education system to be more precise and this increases the ability and academic achievement of most students (Nurabadi, 2020). It has observed that investment in education and both human and material resources are very important in improving the quality of education. Moreover, in Spain, schools' failure was

revealed to be a problem that faces the education system, because of lack of proper infrastructures. Basic school facilities were proposed to be in place to ensure quality education and students' achievements (Martinez & Garcia, 2020). Also, E-learning of system management, teaching aids, libraries, hostels and sport facilities were reported to be significant factors that influence academic achievement in Malaysia. Therefore, with references to the academic institutions to all cited countries, schools should enhance academic achievement by investing in schools' infrastructures (Ramli and Zain, 2017).

Likewise, it was noted that in order to achieve higher results and quality education, schools should be effective in investment on school infrastructure and facilities. Moreover, in the U.S.A in the cities of California and New York there is a challenge on the class size of schools. Large class size limits the academic achievement of students. In Latin America, lack of infrastructure which supports the health of the students and teachers such as toilets, potable water, sanitary drains, electricity and other health services cause violence, discriminations and limited opportunity to learn (Barret & Treves, 2018).

In the United States 53% of public schools need to be replaced or maintained; public school buildings are out of date. In 2015 Congressional Research Service Reports concluded that national data on the condition of school infrastructure and the investment needs are extremely limited and outdated, it found that investment on school buildings will increase student attendance and improve academic performance (School Infrastructure Report Card, 2021).

In Nigeria there is a problem of inadequate classrooms, inadequate water supply, lack of playing grounds, lack of hostels as well as lack of electricity and staff offices these problems are among the challenges in academic performance of the students. The government enhancing provision of alternative power supply such as generator plants, more classrooms, laboratories and other school facilities to improve learning achievements (Oyediran, 2018). Also, the use of laboratories, libraries, and the presence of the internet is the significant predictor of the student academic achievements in Kenya. Inadequate infrastructure in schools result in low learning achievement. Students from schools with fully equipped facilities and favorable environments obtain higher academic performance than students from schools with inadequate facilities (Omolo, 2020).

In Tanzania, it is important for school administrators and school management teams to work hard to improve school environment factors which have been found to have a positive effect toward student commitment on learning. The school environment comprises classrooms, libraries, technical workshops, laboratories, spot and game facilities as well as teachers and quality of teaching methods. School physical facilities play a great role in academic achievement in Tanzania. Moreover, according to Godson and Ngusa (2020), in Tanzania it is important for school administrators to work hard to improve school environment factors which have been found to have a positive effect towards student commitment on learning. Lyimo (2017) carried out a study on the perception of teachers on availability of instructional materials and physical facilities in secondary schools in Arusha District; He found that inadequate physical facilities such as classrooms, desks and chairs lead to teaching and learning more difficult. Kimaro (2020) conducted a study in Shinyanga Municipality, revealing that most public schools have scarcity of books and laboratory apparatus and lack of teaching and learning materials.

Also, the school's environment includes development factors such as social, economic activities and projects of the schools (Godson & Ngussa, 2020). Though it was revealed that most public schools in Tanzania have scarcity of books, laboratory apparatus, lack of teaching and learning materials. Likewise, some schools are located far from student's area of domicile and the schools lack some important infrastructure such as electricity, clean water and hostels, which result in poor learning situations (Kimaro, 2020). In Tanzania, the government under Education and Training Policy and Education Sector Development Plan (ESDP) ensures equal and quality education. The government through force account has been providing funds to public schools in order to build basic facilities such as classes, laboratories, libraries as well as hostels so as to improve learning achievement. Most of the study carried in Tanzania for instance, the study carried by Lyimo (2017), Godson (2020) and Kimaro (2020) reported that school facilities play a significant role to improve student's academic achievement but they failed to explore much on what extent school facilities influence student's academic achievement and the efforts made by government and school administrators to improve and maintain school facilities. However, little is known about the influence of school facilities on student's academic achievement. Therefore, this study intended to examine the influence of school facilities on student's academic achievement in public secondary schools in Tanzania.

2.0 LITERATURE REVIEW

2.1 Theoretical context of the study

The study is guided under Education Production Function. In the education context, Education Production Theory states the relationship between school inputs (such as school facilities) and school output (such as academic achievement) (Bowles, 1970). Moreover, the theory is relevant to the study such that the study is intended to investigate the influence of school facilities on academic achievement whereby school facilities are inputs and academic achievement is output in education context.

2.2 Empirical studies

2.2.1 School physical facilities

Santika (2021) conducted a study in Indonesia on management of school facilities and infrastructure in improving education quality. In his study he found that school facilities such as water and electricity supply, sport grounds, labs as well as libraries and number of books, and computers to a large extent affect the ability of students in learning activities, and influence teachers to retain their works.

Barrette and Treves (2018) conducted a study in the U.S.A on the impact of school infrastructure on learning. On their study they revealed that, effective investment on school facilities achieved higher results and quality education, lack of infrastructure which support students and teachers such as buildings, toilets, potable water, sanitary drains, electricity and other service cause violence, discriminations and limited opportunity to learn.

Sheema and Kayani (2019) conducted a study on the impact of physical facilities to improve teaching learning process in Kashmir. In their study, they found that physical facilities such as playgrounds, water facilities, electricity facilities and libraries stimulate student's interest in

learning. Also, the study revealed that management and provision of proper physical facilities stimulates academic achievement of the students. Ramli and Zain (2017) conducted a study on the impact of facilities on student academic achievement in Malaysia. They found that E-learning of System Management, teaching aids, libraries, hostels and sport facilities are significant factors that influence academic achievement in Malaysia. Oyediran (2018) conducted a study on the factors affecting student academic performance in Nigeria. He found that lack of classrooms, water supply, playing grounds, hostels as well as lack of electricity and staff office led to difficulty in academic performance of the students. The government provided alternative power supply such as generator plants, more classrooms, laboratories and other school facilities equipped with materials to improve learning achievements. Omolo (2020) carried a study on school environmental factors influencing academic performance in secondary schools. He reported that school environment factors had a strong influence on academic performance of students in Migori County in Kenya.

Wambua (2018) carried a study on the physical facilities and strategies used by teachers to improve pupils' performance in social studies in Makeni County in Kenya. He reported that availability of school physical facilities influences pupils' performance. Inadequate school physical facilities result in low performance of the pupils.

Kimaro (2020) conducted a study on the role of the learning environment on student academic performance in public secondary schools in Shinyanga Municipality. he found that most of public schools in Tanzania have scarcity of books and laboratory apparatus and lack of teaching and learning materials. Also some schools are located far from student's area of domicile. And also the schools lack important infrastructure such as electricity, clean water and hostels, this results in poor learning achievement

Godson and Ngusa (2020) carried out a study on the effect of school environment on student commitment towards learning among secondary schools in Monduli District in Tanzania. They found that existence and effective school environment facilities influence student commitment towards learning process and other school related activities. The study showed that school facilities motivate student interest towards learning,

Also, Lyimo (2017) carried out a study on the perception of teachers on availability of instructional materials and physical facilities in secondary schools in Arusha District in Tanzania. He found that there was an inadequate number of teaching and learning materials in Arusha District. Furthermore, schools had inadequate school facilities such as classrooms, desks, chairs and inadequate spaces. These inadequate school facilities made teaching and learning more difficult. School facilities are the indicators of good academic achievements.

3.0 METHODOLOGY

3.1 Research approach

The study employed a mixed research approach in collecting, analyzing, interpreting and recording of data. According to Kothari (2019), the use of a mixture approach allows the researcher to contrast and compare multiple data sources, analysis and processes. The mixed approach enabled to correct the weakness of using one method; therefore it enables one to obtain accurate information.

3.2 Research design

Research design is the conceptual structure within which the research is conducted; it includes an outline of what the researcher will be conducting from the whole process of conducting the research (Kothari, 2019). In this study cross sectional design used and allowed the information to be gathered at one point in time, it helped to gather information through questionnaire, focus group discussion and interviews. Cross sectional design is very useful in qualitative and quantitative designs and helpful in drawing out cause and effect of phenomena (Cresswell, 2018).

3.3 Area of the study

The study was conducted in Mbeya City in Mbeya Region. The researcher used random probability techniques to select Mbeya City among of five big cities in Tanzania which seemed to have similar characteristics on education aspects, those cities were Tanga, Arusha, Mwanza, Mbeya and Dar es Salaam. Moreover, these cities characterized by large number of public secondary schools and a large number of education stakeholders and institutions. Thus, Mbeya City is a suitable area to study about school physical facilities on student's academic achievement.

3.4 Targeted population of the study

The targeted population to this study involved district education officers who are the inspectors and planners in City Council, teachers who are members of school management team, curriculum developers and implementers and head of schools who are school Project planners and administrators and students who are the main education stakeholder. This targeted population was qualifying and suited to the study.

3.5 Sample size and sampling techniques

The study employed probability sampling by stratified and simple random sampling. Probability sampling is a method of selecting a sample of population for the study, it gives great freedom of bias and equal chance of population to be selected in a sample therefore enabling the researcher to collect precise and accurate information (Kumar, 2011). Stratified random sampling ensures that every stratum is adequately represented in a sample (Kothari, 2019). Simple random sampling is a type of sampling whereby the population has an equal chance of being selected in a sample (Kothari, 2019).

3.6 Sample size and sampling techniques

Sample	Respondents	Sampling method	Number
1	Teachers	Stratified sampling	30
2	Head of schools	Stratified sampling	05
3	Students	Stratified and simple random sampling	113
4	Education officers	Stratified sampling	02
Total			150

3.7 Primary data

Various data instruments and methods used to obtain information on strategies employed to maintain and increase school facilities, extent of availability of school facilities and how they influence academic achievement of the students. The methods used involve focus group discussion, questionnaire, observation and interview.

3.8 Secondary data

Secondary data refer to the data that are already collected and analyzed by someone else (Kothari, 2019). In this study secondary data obtained from website of National Examination Council of Tanzania on the results of form four students from 2017 to 2021.

3.9 Data analysis

The data from focus group discussion, structured observation and key informant interview analyzed through content analysis, whereby the scripts coded and classified into broad descriptive categories, exploring themes, meaning and issues that emerged from information gained. The data from survey questionnaires analyzed under descriptive statistics with the aid of SPSS. And the information that obtained from the documentary review analyzed and presented in tables.

4.0 FINDINGS AND DISCUSSION

The findings were obtained through a mixed approach which involves questionnaire, interview, focus group discussion, structured observation and documentary review. The findings presented, analyzed, and discussed according to the main objective and Research questions.

4.1 Extent of availability of school facilities in public secondary schools

The questions on this objective were appointed to education officers, heads of school through interview, teachers through focus group discussion, students through questionnaires and structured observation method on existing school facilities. The information collected from students described in the table below.

4.2 Extent of availability of school physical facilities in six selected public secondary schools in Mbeya City Council

	Yes %	No %	Total of percent
Percent on the availability of equipped libraries	62.1	37.9	100
Percent on the availability of equipped physics laboratory	64.5	35.5	100
Percent on the availability of equipped chemistry laboratory	73.5	26.5	100
Percent on the availability of equipped biology laboratory	85.3	14.7	100
Percent on the availability of sport and game	89.6	10.4	100
Percent on the availability of favorable infrastructure	81.1	18.9	100
Percent on the availability of electricity	77.7	22.3	100
Percent on the availability of dispensary	37.7	62.3	100
Percent on the availability of hostel	65.1	34.9	100

Availability of science subject teachers	64.2	35.8	100
Percent on the shortage of teachers	64.2	31.1	100
Availability of teaching materials	68.9	31.1	100
Availability of computer and internet rooms	62.3	37.7	100

Source: Field Data (2022)

From the table above, it indicates that basic school facilities were available in public secondary schools in different proportional rate. And it indicates that there was difference in extent of availability of school facilities.

Moreover, the data collected through structured observation revealed that most of schools have basic school facilities such as classroom, laboratories, and libraries, although in school B, D and E, the school facilities appear very good in term of appearance and structure it seemed that there were several maintenances of school facilities, these schools have almost everything such as equipped libraries and laboratories, hostels and availability of electricity services, internet and computer services. On the other hand, school, A and C miss some essential facilities such as equipped libraries and laboratories, no enough electricity services around, no computers and internet service, no hostels.

However, the report from education officers revealed that the government provides and distributes basic school physical facilities in public secondary schools, but not all schools have all basic facilities, this was noticed during the interview with one of the SLO. Also the information from teachers in school B, D E through focus group discussion indicated that essential school facilities are available in their schools such as classrooms, hostels, equipped libraries, laboratories, and electricity as well as internet and computer rooms. However, the information from other teachers in schools A and C show that not all essential facilities are available. There are few facilities missing in their schools, such as equipped libraries, laboratories, hostels, as well as computer and internet rooms.

The findings revealed that most public secondary schools have basic school physical facilities such as classrooms, libraries, laboratories as well as electricity services. But few schools miss equipped libraries and laboratories and hostels. The findings of this study on the extent of availability of school physical facilities is also established by Lyimo (2017) on the perception of teachers on availability of instructional materials and physical facilities in secondary schools. Inadequate number of teaching and learning materials in secondary schools led to difficulties in the learning process. Likewise, the study conducted by Ramli and Zain (2017) on the impact of facilities on student academic achievement in Malaysia, revealed that school facilities are the indicators of good academic achievements, and that academic institutions should enhance academic achievement by investing in school infrastructures.

4.3 Influence of available school physical facilities on student's academic achievement

In the second objective, the data obtained from National Examination Council of Tanzania (NECTA) from 2017 to 2021 and focus group discussion with teachers. the data from focus group discussion with teachers, indicated that, availability of school facilities influence academic achievement of students. Inadequate and poor school facilities disturb the interest and psychological mind of students which discourage them in the learning process hence result

in poor academic achievements. The data from National Examination Council from 2017 to 2021 described below.

4.4 Form four result of National Examination Council of Tanzania of selected public secondary schools in Mbeya City Council, from 2017, 2018, 2019, 2020 and 2021

Name of the school	year	Division I	Division II	Division III	Division IV	Division 0	Regional rank
A	2017	0	2	7	53	13	111/154
	2018	0	0	5	39	14	169/174
	2019	0	4	16	62	17	146/187
	2020	0	1	8	60	7	171/176
	2021	0	3	9	61	12	162/176
B	2017	19	61	57	55	14	16/154
	2018	24	45	70	81	13	24/174
	2019	17	52	60	92	25	39/187
	2020	52	53	41	74	10	26/176
	2021	57	62	39	74	15	24/188
C	2017	0	0	2	26	18	153/154
	2018	0	3	11	60	19	157/174
	2019	0	1	0	45	24	179/187
	2020	0	2	5	42	38	176/176
	2021	1	6	26	34	2	71/188
D	2017	32	44	29	18	8	10/154
	2018	26	45	24	29	11	16/174
	2019	35	34	26	20	7	15/187
	2020	66	33	32	25	4	15/176
	2021	53	39	36	29	4	18/188
E	2017	13	52	42	67	11	20/154
	2018	5	56	41	94	32	34/174
	2019	5	39	62	112	38	68/187
	2020	25	46	40	60	7	24/176
	2021	9	42	36	79	11	45/188

Source: NECTA results

From table above, data from School B, D and E, shows large number of students scored division I, II and III also the regional rank position of these schools are good compared to School A and C whereby large number of students scored division IV and 0 and also the regional rank of these are very poor. The study reveals that school facilities have great influence on a student's academic achievement. The result shows that in schools where there is availability and equipped school facilities academic achievement tend to be improved whereby a large number of students score division I, II and III. On the other hand, in schools which lack equipped school facilities, the results tend to be very poor, very few students score division I, II and III while a large number of students score division IV and 0.

The findings of this study on the influence of school physical facilities on student's academic achievement is also established by Kimaro (2020) when holding that physical facilities such as classroom, laboratories, libraries, table and chairs as well as teaching materials brought positive influence on student's academic achievement. Availability of school facilities enable learning to be smooth thus increasing interest and motivation students in the learning process.

4.5 Strategies employed by education administrators to increase and maintain school physical facilities

In this objective, from the interview with the head of schools, the study indicates that community effort and government effort together have been playing part on construction and maintenance of school physical facilities. Also, head of schools and school committees have been inviting community, political leaders and other stakeholders such as financial institutions. Moreover Capitation money enables construction and maintenance of school facilities in public secondary schools. Furthermore, the information from education officers observed that, funds have been provided to increase school facilities in public secondary schools through local and central government budgets.

The findings of this study are in agreement with the study conducted by Barrette and Treves (2018) in the U.S.A on the impact of school infrastructure on learning. In their study they revealed that, to achieve higher results and quality education, schools should be effective in investment on school infrastructure and facilities. Oyediran (2018) recommended that school facilities should be adequately provided and should be given appropriate attention.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The study found that school facilities play a great role in improving student's academic achievement. Most of secondary schools had availability of basic school facilities although some of schools miss essential facilities such as equipped libraries, laboratories and absence of hostels. Different strategies had been employed by government, heads of schools and community to improve and maintain school facilities.

5.1 Recommendations

From the findings the government should take following strategies; The government should ensure equal availability of school facilities to all public secondary schools so as to avoid difference in academic achievement of students. The government should establish computer and internet services to all public schools so as to facilitate learning through multimedia and learning materials from different sources via the internet. This will help to increase knowledge and understanding of the students.

5.2 Recommendations for further studies

Many similar studies should be done focusing on comparison of school facilities between special government schools versus community public secondary. Also more studies should be done on the challenges that cause unequal distribution of facilities to the public secondary schools

REFERENCES

Barrett, P., Treves, A., Shmis, T, Ambasz, D., & Ustinova, M. (2018). The impact of school infrastructure on learning, a synthesis of the evidence, International Development in Focus. Journal of International Bank for Reconstruction and Development, 123421201918. www.worldbank.org.

- Bowles, S. (1970). Education production function. NBER Publisher. <http://www.inber.org>
- Braziller, G. (1969). General system theory by Ludwing von Bertalanffy. New York, United States of America.
- Bureau of Statistics. (2022). Mbeya City Council, Socio Economic Profile.
- Cresswell, W. (2018). Research design; qualitative, quantitative and mixed methods and approaches. 4TH Ed. SAGE Publications.
- Godson, F. & Ngusa, B. M. (2020). Effect of school environment on student commitment towards Learning among secondary schools in moduli district. East Africa Journal of Education and Social Science, 3, 60-67. <http://eajes.ac.tz>.
- Ijeoma, O. M.& Ngozi, O. (2020). Impact of classroom size on academic performance of secondary schools in Enugu North Local Government area of Enugu State in Nigeria. Journal of Advanced Computer Science and Applications, 6. <http://ajemates.org>.
- Infrastructure Report Card (2021). A comprehensive assessment of American infrastructure.
- Kimaro, E. D. (2020). The Role of Learning Environment on Student Academic Performance in Public Secondary Schools: A Study of Shinyanga Municipal. Master Dissertation. The Open University of Tanzania.
- Kothari, C. R. (2004). Research Methodology, Methods and Techniques 2nd edition. New Age International, New Delhi. www.newgepublishers.com.
- Kumar, R. (2011). Research Methodology, Step by step guide for beginners 3rd edition. SAGE Publication, London City. www.sagepublications.com.
- Lyimo, N., Too, K., & Kipngetch, K. (2017). Perception of teachers on the availability of instructional materials and physical facilities in secondary schools in Arusha District in Tanzania. International journal of education policy Research and Review, 4(5), 103-112. <http://www.journalissues.org>.
- Maro, D. S. (2020). Contribution of School Physical Environment to student performance in Tanzania Government Secondary schools: A case of Ilala Municipal Council. Master Dissertation. The University of Dodoma.
- Martinez, E. & Garcia, B. (2020). Academic causes of school failure in secondary education in Spain. Journal of the voice of the protagonists. evaldivi@ujaen.es.
- Ministry of Education, Science and Technology (2018). Education Sector Development Plan (2016/17-2020/21), Tanzania Mainland.
- Nurabad, A., Bafadal, I, Priyatni, E. & Gunawan, I. (2020). Analysis of the Availability of School Facilities and Infrastructure as an Effort to Accelerate School Quality Improvement. Education Journal in Social Science, Education and humanities, 501. <http://creativecommons.org/licenses/by-nc/4.0/>.

- Omolo, H. O, Otara, A., & Atieno, B. (2020). School environment factors influencing academic performance in Secondary schools. *International Journal of Novel Research in Education and Learning*, 3, 35-45. www.noveltyjournals.com.
- Oyediran, W. O., Olufemi, O. T. & Adediran, A. A. (2018). Factors affecting student academic performance in colleges of Education in southwestNigeria. *British Journal of Education*, 10, 43-56. www.ejournals.org
- Ramli, A. & Zain, R. M. The impact of facilities on student academic achievement in Malaysia. 30(2). www.journal.com
- Santika, F., Pangestu, U.& Nurahlain, M. (2021). School facilities and infrastructure management in improving education. *International journal of research and innovation in social science*, 2454-6186. www.rsisinternational.org.
- Sheema, N. S &Kayani, A. I (2019). Investigation in the importance of physical facilities to improve teaching and learning process at college level in Kashmir. *Asian journal of contemporary education* 1, 1-14.www.aessweb.com.
- Wambua, M. M., Murungi, K. G. & Mutwiri, C. (2018). Physical facilities and strategies used by teachers to improve pupil's performance in social studies in Makuen County in Kenya. *International journal of pregnancy and childbirth*, 4(6), 241-245. <http://medcraveonline.com>.