

Effect of School Infrastructure on Pupil Enrolment in Universal Primary Education Schools: A Case of Mbarara City, Uganda

Gorette Nasuna

ORCID: <https://orcid.org/0000-0003-2398-6514>

Department of Foundations, Distance and Long Life Learning, Bishop Stuart University, Uganda

Email: nasunagorette5@gmail.com

Judith Arinaitwe

ORCID: <https://orcid.org/0000-0002-2582-6496>

Faculty of Education Arts and Media Studies, Bishop Stuart University, Uganda

Email: jarinaitwe@bsu.ac.ug

Enoch Barigye

ORCID: <https://orcid.org/0000-0002-2721-3271>

Faculty of Education Arts and Media Studies, Bishop Stuart University, Uganda

Email: enockbarigye@yahoo.com

Flora Kyayemagye

ORCID: <https://orcid.org/0000-0002-4360-3595>

Department of Foundations, Distance and Long Life Learning, Bishop Stuart University, Uganda

Email: kyayemagye@feams.bsu.ac.ug

Copyright resides with the author(s) in terms of the Creative Commons Attribution CC BY-NC 4.0.
The users may copy, distribute, transmit and adapt the work, but must recognize the author(s) and the
East African Journal of Education and Social Sciences

Abstract: This study investigated the relationship between school infrastructure and pupil enrolment among the universal primary education schools in Mbarara City, Uganda. School infrastructure was conceptualized in terms of physical, services and didactic aspects. The study adopted the cross-sectional research design with a sample of 230 from the population of 776 teachers. Data was collected using a self-administered questionnaire and was analysed quantitatively. The study established that much as the schools had adequate infrastructure including appropriate buildings, enough classrooms, desks that enabled comfortable writing, comfortable classroom chairs, appropriate blackboards and classrooms with attractive charts, the UPE schools did not attract the expected number of pupils. Services infrastructure was at a fair level as a lot was still desired in the schools with respect to electricity, provision of drinking water, toilets for boys and girls and school clinics. The libraries were to a less extent spacious. The schools had very limited working computers and other technologies such as television sets and projectors. While physical infrastructure and services infrastructure had a positive and significant relationship with pupils' enrolment, didactic infrastructure did not have a relationship. It was therefore recommended that leadership in schools under investigation should make effort to entice parents to take pupils to UPE schools. This could be accomplished by improving the quality of school infrastructure. Since the physical and service infrastructures had a significant relationship with the school enrolment, such factors should be improved in order to enable the schools attract the required number of pupils.

Keywords: Didactic; Enrolment; service; physical; infrastructure, Universal Primary Schools.

How to cite: Nasuna, G., Arinaitwe, J., Barigye, E. and Kyayemagye, F. (2022). Effect of School Infrastructure on Pupil Enrolment in Universal Primary Education Schools: A Case of Mbarara City, Uganda. East African Journal of Education and Social Sciences 3(2), 155-165. Doi: <https://doi.org/10.46606/eajess2022v03i02.0170>.

Introduction

Primary schools enrolment has been a matter of concern for stakeholders in the education (Smith & Benavot, 2019; Snyder, 1993). First global enrolment assessments were carried out in the second half of the 19th century. The assessments revealed that the percentage of the world's school-age population enrolled in school increased from 33 percent in 1870 to 41 percent in 1940. The rate of expansion of primary education was especially pronounced in Eastern Europe, Central America, Asia and to a lesser extent, South America, the Caribbean, the Middle East and North Africa (Roser & Ortiz-Ospina, 2013). In 1950, about 47 percent of the world's 540 million children aged 5-14 were enrolled at least in some sort of a school. This was a high figure as many western world nations had already attained universal primary schooling while others were just beginning to establish a system of mass education (Benavot & Riddle, 1988).

In Africa, increased enrolment was seen in the 1990s following the introduction of universal primary schools in most African countries such as Nigeria, Ghana, Ethiopia, Kenya, Tanzania and Malawi (Nishimura & Byamugisha, 2011). In Uganda, however, until the mid-1990s, the country experienced high rates of children not in school with around 60 percent of children out of school because of expensive direct schooling costs. The number increased when the Ugandan government introduced free and compulsory primary education starting in 1996 with the actual legislation put into effect in 1997. The no tuition program that eliminated monetary costs for all children attending public primary schools aimed at getting to school all children in the country (Tamusuza, 2011). Consequently, enrolment in primary schools rose dramatically from 2.5 million learners in 1996 to 8.3 million in 2015 (Omoeva & Moussa, 2018).

Ideally, an increase in enrolment of pupils in schools should be accompanied by equal investment in infrastructure (Barrett, Treves, Shmis, Ambasz & Ustinova, 2019). By school infrastructure, this study refers to any physical structure and auxiliary service that are tailored to develop and support the proper functioning of the learning environment for the primary education of the nation (Chakacha, Iwu & Dakora, 2014). School infrastructure includes physical infrastructure, services infrastructure and didactic

infrastructure (Cuesta, Glewwe & Krause, 2016; Murillo & Román (2011).

Following the introduction of Universal Primary Education in Uganda in 1997, the government intervened through infrastructure development by putting up school buildings in a number of schools through the Ministry of Education (Theunynck, 2009). In Mbarara City, a number of schools in the different divisions benefited from the infrastructure construction in terms of classrooms, latrines stances and supply of furniture to primary schools (Munono, 2013). However, despite the infrastructural development effort, statistics reveal that when the population of Ugandan children of the appropriate age is compared to actual enrolment in the corresponding grade, over-enrolment in Primary 1 is followed by a noticeable drop of pupils in Primary 2. The UNESCO Institute for Statistics 2016 revealed that ratio of enrolment to population of appropriate age in Uganda has been 1.4 in Primary 1 and 1.1 in Primary 2 (Weatherholt, Jordan, Crouch, Barnett, E., & Pressley, 2019).

Furthermore, there are variations in enrolment in schools with some schools having more than expected enrolment while others having less than expected enrolment. For instance, in Mbarara City, which was the context of this study, while in one school in 2021 the expected enrolment was 3,000, the enrolment was much higher at 4011. On the other hand, while in another school the expected number of pupils was 800 pupils, the school had only 268 pupils. In another school, while the expected number was 480 pupils, the school had 224 pupils (Nasuna, 2022). While some schools had good infrastructure, in some schools it was poor with schools having dilapidated classroom blocks (Bainomugisha, Kisuule, Matsiko & Kyankaaga, 2014). Some schools lacked library infrastructure but instead had book stores; others lacked water sources and in some schools the buildings were not connected to electricity. In a number of schools, facilities such as latrines, classrooms and water source were in a very sorry state (Nasuna, 2022). The variations in pupils' enrolment and infrastructure quality in terms of physical, services and didactic infrastructures attracted this study to investigate whether there was a relationship between schools infrastructure and pupils enrolment. Specifically, the following research questions guided the study;

1. What is the level enrolment of pupils in Universal Primary Education schools in Mbarara City?
2. What is the state of physical infrastructure in Universal Primary Education Schools in Mbarara City?
3. What is the state of services infrastructure in Universal Primary Education Schools in Mbarara City?
4. What is the state of didactic infrastructure and pupils' enrolment in Universal Primary Education Schools in Mbarara City?
5. Is there a significant relationship between schools infrastructure items namely physical, services and didactic on pupil enrolment?

Theoretical Underpinnings

The Social-Ecological Theory propounded by Bronfenbrenner in 1979 underpinned this study. The theory proposes that activities of a person are affected by everything in his or her surrounding environment including infrastructures (Eriksson, Ghazinour & Hammarström, 2018). The theory describes the dynamic relationships among individuals, groups and their environments, explaining how the environment and a person's development are connected (Orendorff, 2019). The theory posits that the surrounding has several layers with each layer contributing to the overall environment in which workers perform their jobs.

Specifically, the Social Ecological Theory indicates that the layers in which learners operate in the environment include the microsystem, meso-system and exo-system (Moore, 2012). Microsystem refers to the layer closest to the learners to which the learner has direct contact with his/ her immediate surroundings such as the school facilities. Meso-system (interpersonal) provides the relationship between the sub-systems of the learners' world. Exo-system (organisational) defines the larger social system such as the school structures (Shapira-Lishchinsky & Ben-Amram, 2018). Whereas the Social-Ecological Theory is a general theory not specifically focusing on schools infrastructure in schools, it suggests the need to give attention to the system as a whole, including school infrastructure (Mugizi, 2021). Therefore, basing on the Social-Ecological Theory, this study investigated how materials in Microsystem including infrastructure related to learners enrolment in schools.

Physical infrastructure and Pupils Enrolment

School physical infrastructure refers to the physical facilities of the school (Nepal & Maharjan, 2015). The school physical infrastructure includes classrooms and general school buildings (Cuesta et al., 2016). Branham (2004) in the study on school infrastructure and student attendance and drop-out rates in Houston Independent School District schools in the USA revealed that the quality of school infrastructure had a significant effect on school attendance and drop-out rates. Accordingly, pupils were less likely to attend schools in need of structural repair, schools that used temporary structures and schools that had understaffed janitorial services. In their study in the south-western region of the United State, Guardino and Antia (2012) indicated that physical modifications to the classroom environment led to student engagement, hence high enrolment. The study of Han et al. (2018) established that ambient conditions of the classroom, spatial layout and functionality significantly enhanced the cognitive evaluation and affective evaluation with the courses affecting enrolment.

Khan, Hussain, Suleman, Mehmood and Nawab (2017) explored the causes of pupils' dropout at elementary level in the southern districts of Khyber Pakhtunkhwa in Pakistan. The findings revealed that factors contributing to dropout and low enrolment include lack of proper physical and educational facilities and unfavourable school environment. In a study exploring the challenges in the education system in India, Limaye (2016) used pupils with disabilities. The findings indicated that poor infrastructure and lack of facilities led to drop out of children. In a study assessing the influence of university infrastructure quality on student engagement, Mugizi (2021) looked at the infrastructure of a private University in Bushenyi District, Uganda. The study reported that physical infrastructure including lecture rooms' was a significant positive predictor of students' engagement. In a correlational study, Elie and Andala (2021) examined the relationship between school physical infrastructures and pupils' enrolment in nursery schools in Ngororero District in Rwanda. The study revealed that school physical infrastructures such as classrooms were positively significantly related to pupils' enrolment. However, while the studies above indicated the existence of a relationship between

school physical infrastructure and enrolment in schools, none of the studies was carried out in UPE schools in which pupils do not pay school fees. This attracted this study to be carried in the context of UPE primary schools.

Services Infrastructure and Pupils' Enrolment

Services infrastructure consists of facilities and utilities which are provided to enhance standards of living (Egbu, 2015). Services infrastructure includes such infrastructure as water and sewage services, health and electricity infrastructure (Murillo & Román, 2011). Agol, Harvey and Maíllo (2018) in a study exploring the relationships between water, sanitation and hygiene in schools and enrolment in Zambian schools indicated that improved sanitation provision in schools was correlated with high female-to-male enrolment ratios. In their study, Alam and Kaneko (2019) studied the impact of access to electricity on school enrolment among Bangladesh children of ages ranging from 5 to 15 as units of analysis. The findings indicated that access to electricity was an important strategic indicator for increasing school enrolment in both primary and secondary schools. Looking at school health services, Kerns et al. (2011) sought to determine the association between use of school-based health centers and school dropout at an urban public for high school district in the USA. The results showed that school-based health centers had a positive significant association with reduction in dropout. Further, Squires (2015) examined the effect of access to electricity on school attendance and educational attainment in Honduras. The findings revealed that access to electricity reduced educational attainment as it was accompanied by an increase in childhood employment.

In their study on the effects of primary school quality on school dropout, Lloyd, Mensch and Clark (2000) used primary schools Kenyan. The findings showed that infrastructure and equipment including amenities such as toilets, electricity, and water while had profound implications for the comfort of pupils and the attractiveness of the school to parents. In the study at a private university, Mugizi (2021) reported that utilities including electricity, access to a source of water, toilet facilities and health services were significant positive predictors of students' engagement. On their part, Revilla and Ram (2021) assessed the impact of sanitation on child enrolment and gender parity. The study

established existence of positive causal relations between sanitation investments and school enrolment. Overall, reviewed literature shows that previous scholars largely established existence of a significant relationship between services infrastructure and enrolment of learners. However, except for the study by Mugizi (2021) done in the context of a university, none of the other studies captured the scenario in Uganda. Still, the study by Squires (2015) pointed to an empirical gap because contrary to all the other studies, it indicated that a service such as electricity access reduced school enrolment.

Didactic and Enrolment of Pupils

Didactic infrastructure refers to facilities dedicated to enhancing the teaching and learning process. Didactic infrastructure includes sports fields or courts, laboratories, school libraries and computer rooms (Murillo & Román, 2011). In a correlational study, Elie and Andala (2021) examined the relationship between school infrastructures and enrolment of pupils. The findings showed the existence of a high degree of positive correlation between those infrastructures and pupils' enrolment.

In a related study, Meadows (2020) studied the effect of athletic success on student enrolment at top universities in the United States. The findings indicated the existence of a significant increase in enrolment following the athletic success. This suggested that playgrounds had relationship with student enrolment.

The study of Mugizi (2021) reported that university-level infrastructure including spacious library, good playgrounds and decent eating facilities insignificantly predicted students' enrolment. On the contrary, Nepal and Maharjan (2015) conducted a study with secondary school students in Nepal. The findings indicated that multiple factors such as lack of sports facilities, technology laboratories, library and different forms of teaching and learning media reduced learning outcomes and affected the enrolment.

Methodology

This section covers the methodology that was used in carrying out this study.

Research Design

This study adopted the cross-sectional research design by which the whole population is studied by seeking information about a study problem on

what is going on at only one point in time. The cross-sectional design was adopted because cross sectional studies can be done using a questionnaire survey and generally be carried quickly and cheaply as limited time is spent in the field. Using the cross-sectional research design, the study was able to collect data on what was going on in the schools at the time in relation to the study variables.

Population and Sample

The sample that provided data was 230 out of the population of 776 teachers in Mbarara City in Uganda. The sample was determined using the table for sample determination by Krejcie and Morgan (1970).

Data collection instruments

Data was collected using a self-administered questionnaire which had three sections for demographic characteristics, enrolment (DV) and school infrastructure (IV).

Validity and Reliability

To ensure data quality, the questionnaire was subjected to content validity test using four

lecturer of education management who rated the items on the scale of relevance. CVI for each construct was attained at above 0.70 (Bolarinwa, 2015). Reliability of data was ascertained using Cronbach's alpha after data collection. The Cronbach's alphas (α) were as follows: pupil enrolment ($\alpha = 0.865$), physical infrastructure ($\alpha = 0.845$), services infrastructure ($\alpha = 0.777$) and didactic infrastructure ($\alpha = 0.830$). The results were reliable because their Chronbach's alphas were above the benchmark of $\alpha = 0.70$ (Taber, 2018) which is the recommended minimum level.

Statistical Treatment of Data

Data was processed using the Statistical Package for Social Sciences through descriptive and inferential statistics.

Results and Discussions

This section presents, interprets and analyses the findings on school infrastructure and pupil enrolment in universal primary education schools in Mbarara City, Uganda. The results include descriptive and inferential findings involving testing of hypotheses.

Table 1: Pupils' Background Characteristics

Item	Categories	Frequency	Percent
Gender	Male	127	55.2
	Female	103	44.8
	Total	230	100.0
Age Groups	Up to 30 years	21	9.1
	31-40 years	134	58.3
	41-50 years	64	27.8
	51 years and above	11	4.8
	Total	230	100.0
Highest level of education attained	Grade 111 Certificate	84	36.5
	Diploma	94	40.9
	Bachelor's Degree	41	17.8
	Postgraduate qualifications	11	4.8
	Total	230	100.0
Experience	Less than 5 years	31	13.5
	5 - 10 years	144	62.6
	10 years and above	55	23.9
	Total	230	100.0
Responsibility	Subject Teacher	21	9.1
	Class teacher	154	67.0
	Head of Department	42	18.3
	Deputy head teachers	13	5.7
	Total	230	100.0

Background Characteristics

Results in Table 1 indicate that males were 55% while females were 44.8%. Therefore, majority of

respondents were males as compared to females. In terms of age, the larger percentage (58.3%) was between 31-40 years, followed by those between

41-50 years (27.8%). Those 30 and below years were 9.1% and the least group were those that were 51 years and above (4.8%). With the respondents being of different age categories, the data collected was representative of views of people with diverse experiences.

The data on highest level of education attained by the respondents revealed that the larger percentage (40.9%) of teachers was of diplomas holders, 36.5% had grade III certificates, 17.8 had bachelors' degrees and 4.8% had postgraduate qualifications. The results show that the respondents had different qualification levels. Therefore, the data obtained represented opinions according to different levels of understanding. The results on number of years the teachers had been teaching in the schools show that the larger percentage (62.6%) had taught for 5 to 10 years, 23.9% had taught for 10 years and above with 13.5% having worked for less than five years in the schools.

The results suggested that most teachers had served for more than five years. With respect to responsibilities of the teachers, the majority percentage (67.0%) were class teachers, 18.3% were heads of departments, 9.1% were subject teachers and 5.7% were deputy head teachers. The results suggested that most of the respondents had responsibilities as compared to those who were just subject teachers.

Research Question 1: What is the level enrolment of pupils in Universal Primary Education schools in Mbarara City?

The results in table 2 showed that the count of pupil enrolments did not exceed the enrolment limit set by the schools (mean = 1.92), there were no pupils who had tried to join the schools but were not allowed because the schools could not accommodate the numbers (mean = 1.82), and to a less extent, schools created several streams because of the large numbers of pupils (mean = 2.74). In addition, the numbers of pupils were proportionately equal to the ratio of teachers in the schools (mean = 3.37) and schools did not need more infrastructures (mean = 2.29).

However, while the schools did not need more infrastructures because of overwhelming numbers (2.29), each year new more pupils joined the schools (mean = 3.87) but to a lesser extent, the numbers of pupils were moderately high from primary one to primary seven. Nonetheless, classes were not full, hence easy for the teachers to move about while teaching (mean = 1.97) and to a less extent, each class had the maximum number of pupils that could be enrolled in that particular class for a specific term. The overall mean = 2.57 means that enrolment in the schools was below average.

Table 2: Descriptive Results for Pupil Enrolments

Pupil Enrolments	Means	Interpretation
There are classes in which the count of pupil enrolments has exceeded the enrolment limit set by the school	1.92	Disagree
There are pupils who have tried to join the school but were not allowed to be enrolled because the school cannot accommodate the numbers	1.82	Disagree
The school has created several streams because of the large number of pupils	2.74	Disagree
The number of pupils is proportionately equal to the ratio of teachers in the school	3.37	Neutral
The number of pupils is higher compared to the ratio of teachers	2.27	Disagree
The school needs more infrastructures because of overwhelming numbers	2.29	Disagree
Each year new more pupils join the school	3.87	Agree
The number of pupils is consistently high from primary one to primary seven	2.67	Neutral
The classes are full that it is not easy for the teacher to move about while teaching	1.97	Disagree
Each class has the maximum number of pupils that can be enrolled in that particular class for a specific term	2.73	Neutral
Overall mean	2.57	Neutral

Research Question 2: What is the state of physical infrastructure in Universal Primary Education Schools in Mbarara City?

The results in table 3 showed that overall school infrastructures of the schools were beautiful (mean = 3.80), the schools had enough classrooms (mean = 3.72), fairly had assembly halls (mean = 2.58) and had desks in the classrooms that enabled learners to write comfortably (mean = 4.03). The results also revealed that chairs in the classroom were comfortable (mean = 4.13), the

blackboards in the classrooms were good (mean = 4.08) and in the classrooms there were charts written on reading materials (mean = 4.04) which were also good. Also, the results showed that teachers had sufficient chalk they used to write on the blackboards (mean = 4.54), the roofs of the classes were very good (mean = 4.18), and the walls of the classes were very clean and clear (mean = 3.72). The overall mean = 3.88 meant that physical infrastructure of the schools was good.

Table 3: Descriptive Results for Physical Infrastructure

Physical Infrastructure	Means	Interpretation
The overall school infrastructure of the school is beautiful	3.80	Good
The school has enough classrooms	3.73	Good
The school has an assembly hall	2.58	Fair
The desks in the classroom enable learners to write comfortably	4.03	Good
The chairs in the classroom are comfortable	4.13	Good
The blackboard in the class is good and it easy to read what is written on it	4.08	Good
In the classroom there are charts written on reading materials	4.04	Good
The teachers have sufficient chalk they use to write on the blackboards	4.54	Good
The roofs of the classes are very good	4.18	Good
The walls of the class are very clean and clear	3.72	Good
Overall Mean	3.88	Good

Table 4: Descriptive Results for Services Infrastructure

Services Infrastructure	Means	Interpretation
The school is connected to electricity	2.86	Fair
The school kitchen provides pupils drinking water	2.64	Fair
The school access to a source of water needed for different activities	3.66	Good
The toilet facilities of the school are good	3.60	Good
The toilets of the school have enough stances	3.04	Fair
There separate toilets for boys and girls in the school	3.43	Fair
The school has a clinic with a school nurse that attends to pupils	2.88	Fair
Overall mean	3.20	Fair

Table 5: Descriptive Results for Didactic Infrastructure

Didactic Infrastructure	Means	Interpretation
The school library is spacious	2.58	Fair
The library has the required materials	2.93	Fair
The computers of the school are working	2.22	Poor
The school has various technologies such as television sets and projectors among others used in teaching and learning	1.94	Poor
The school has good play grounds	3.55	Good
The school has a dining hall	2.50	Fair
Overall mean	2.62	Fair

Research Question 3: What is the state of services infrastructure in Universal Primary Education Schools in Mbarara City?

Results in table 4 revealed that schools were fairly connected to electricity (mean = 2.86), the schools kitchens fairly provided pupils drinking water

(mean = 2.64), schools had access to sources of water needed for different activities (mean = 3.66). The results indicated that toilets of the school had fairly enough stances (mean = 3.04) and there were fairly separate toilets for boys and girls in the school (mean = 3.43). Furthermore, the school had fairly clinic with school nurses that

attended pupils (2.88). The overall mean = 3.20 suggested means that services infrastructure was fair.

Research Question 4: What is the state of didactic infrastructure and pupils' enrolment in Universal Primary Education Schools in Mbarara City?

The results in table 5 showed that the schools libraries were fairly spacious (mean = 2.58), fairly, the libraries had the required materials (mean = 2.93) but the computers of the schools were largely not working (mean = 2.22). Further, the results indicated that schools did not have various technologies such as television sets and projectors among others used in teaching and learning (mean = 1.94). The schools had good play grounds

(mean = 3.55) but to a lesser extent had dining halls (means = 2.50). The overall mean = 2.62 suggested mean that to a lesser extent didactic infrastructure was fair.

Research Question 5: Is there a significant relationship between schools infrastructure items namely physical, services and didactic on pupil enrolment?

To establish whether schools infrastructure namely physical, services and didactic predicted pupils' enrolment, a regression analysis was carried out as seen in table 6. The null hypothesis stated: there is no significant relationship between schools infrastructure items namely physical, services and didactic on pupil enrolment.

Table 6: Regression of Pupils Enrolment of Teachers on Schools Infrastructure

Pupils Enrolment	Standardized Coefficients Beta (β)	Significance P
Physical infrastructure	0.218	0.000
Services infrastructure	0.497	0.000
Didactic infrastructure	0.048	0.415

$R^2 = 0.357$
Adjusted $R^2 = 0.349$
 $F = 41.855, p = 0.000$

a. Dependent Variable: Pupils Enrolment

Table 6 shows that schools infrastructure (physical, services and didactic infrastructure) explained 35.7% of the variation in pupils enrolment ($R^2 = 0.357$). This means that 64.3% of the variation in pupils' enrolment was accounted for by other factors not considered under this model. The significant factors explained 34.9% of the variation in pupils enrolment (Adjusted $R^2 = 0.349$). The two significant school infrastructure factors were physical infrastructure ($\beta = 0.218, p = 0.000 < 0.05$) and services infrastructure ($\beta = 0.497, p = 0.005 < 0.05$) which had a positive and significant relationship with pupils enrolment. Didactic infrastructure ($\beta = 0.048, p = 0.415 > 0.05$) had no insignificant relationship with pupils enrolment. Therefore, while physical infrastructure and services infrastructure had a positive and significant relationship with pupils' enrolment, didactic infrastructure did not have a relationship.

While the findings revealed that school physical infrastructure predicted pupils' enrolment in universal primary schools, this means that school

physical infrastructure is essential for sustainable enrolment of pupils. This finding concurs with those of previous scholars. For instance, Guardino and Antia (2012) established that ambient conditions of the classroom, spatial layout and functionality significantly enhanced the cognitive evaluation and the affective evaluation with the course affecting enrolment. Similarly, Khan et al. (2017) reported that proper physical and educational facilities and favorable school environment related to school enrolment. Limaye (2016) concurred that quality infrastructure and facilities led to children's stay in school. Also, Mugizi (2021) reported that physical infrastructure including lecture rooms was a significant positive predictor of students' engagement. In same vein, Elie and Andala (2021) revealed that school physical infrastructures such as classrooms were positively significantly related to pupils' enrolment.

Further, the findings showed that service infrastructure predicted pupils' enrolment in universal primary schools. This means that good infrastructure in schools is imperative for pupil

enrolment. This finding is consistent with findings of previous scholars. For example, Agol et al. (2018) reported that improved sanitation provision in schools was correlated with high female-to-male enrolment ratios. Relatedly, Alam and Kaneko, (2019) found out that access to electricity was an important strategic indicator for increasing school enrolment in both primary and secondary schools.

On the contrary, Squires (2015) revealed that access to electricity reduced educational attainment. Furthermore, consistent with the finding of the study, Kerns et al. (2011) revealed that school-based health centres had a positive significant association with reduction in dropout.

The findings indicated that didactic infrastructure was insignificant in predicting pupils' enrolment. This finding was in harmony with Mugizi (2021) who reported that university-level infrastructure including spacious library, good playgrounds and decent eating facilities insignificantly predicted student engagement. However, the finding was inconsistent with other previous scholars. For instance, Elie and Andala (2021) found existence of a high degree of positive correlation between those infrastructures and pupils' enrolment. Similarly, Meadows (2020) reported existence of a significant increase in enrolment following athletic success suggesting that playground infrastructure related to student enrolment. In the same vein, Nepal and Maharjan (2015) established that existence of multiple factors that sports facilities, technology laboratories, library and learning media increased learning outcomes, thus affecting the enrolment.

Conclusions and Recommendations

Conclusions

It is concluded that much as the schools had adequate infrastructure including appropriate buildings, enough classrooms, desks that enabled comfortable writing, comfortable classroom chairs, appropriate blackboards and classrooms with attractive charts, the UPE schools did not attract the expected number of pupils. Services infrastructure was at a fair level as a lot was still desired in the schools with respect to electricity, provision of drinking water, toilets for boys and girls and school clinics. The libraries were to a less extent spacious; the required materials were less sufficient and the schools had very limited working computers and other technologies such

as television sets and projectors. While physical infrastructure and services infrastructure had a positive and significant relationship with pupils' enrolment, didactic infrastructure did not have a relationship.

Recommendations

It is recommended that leadership in schools under investigation should make effort to entice parents to take pupils to UPE schools. This can be accomplished by improving the quality of school infrastructure. Since the physical and service infrastructures have a significant relationship with the school enrolment, such factors should be improved in order to enable the schools attract the required number of pupils.

References

- Agol, D., Harvey, P., & Maíllo, J. (2018). Sanitation and water supply in schools and girls' educational progression in Zambia. *Journal of Water, Sanitation and Hygiene for Development*, 8(1), 53-61. <https://doi.org/10.2166/washdev.2017.032>
- Alam, M. J., & Kaneko, S. (2019). The Effects of Electrification on School Enrollment in Bangladesh: Short-and Long-Run Perspectives. *Energies*, 12(4), 629. <https://doi.org/10.3390/en12040629>.
- Bainomugisha, A., Kisuule, Y. A., Matsiko, G., & Kyankaaga, R. (2014). Local government councils' performance and public service delivery in Uganda: Mbarara District Council Score-Card Report 2012/13. *ACODE Public Service Delivery and Accountability Report Series No.32*, 2014. Kampala.
- Barrett, P., Treves, A., Shmis, T., Ambasz, D., & Ustinova, M. (2019). The impact of school infrastructure on learning: A synthesis of the evidence. Washington, DC: The World Bank.
- Benavot, A., & Riddle, P. (1988). The expansion of primary education, 1870-1940: Trends and Issues. *Sociology of Education*, 191-210.
- Bolarinwa, O. A. (2015). Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Nigerian Postgraduate*

- Medical Journal, 22(4), 195-201. doi: 10.4103/1117-1936.173959.
- Branham, D. (2004). The wise man builds his house upon the rock: The effects of inadequate school building infrastructure on student attendance. *Social science quarterly*, 85(5), 1112-1128.
- Chakacha, R. E., Iwu, C. G., & Dakora, E. N. (2014). Determining the relationship between infrastructure and learner success: A comparative study of two primary schools in Zimbabwe. *Commonwealth Youth and Development*, 12(1), 15-32.
- Cuesta, A., Glewwe, P., & Krause, B. (2016). School infrastructure and educational outcomes: a literature review, with special reference to Latin America. *Economia*, 17(1), 95-130.
- Egbu, C. (2015). *Going north for sustainability: Leveraging knowledge and innovation for sustainable construction and development*. London: IBEA Publications.
- Elie, N., & Andala, H. O. (2021). School Physical Infrastructures and Pupils' Enrolment Rates in Nursery Schools in Rwanda. *Journal of Education*, 4(1), 127-142.
- Eriksson, M., Ghazinour, M., & Hammarström, A. (2018). Different uses of Bronfenbrenner's ecological theory in public mental health research: what is their value for guiding public mental health policy and practice? *Social Theory & Health*, 16(4), 414-433. <https://doi.org/10.1057/s41285-018-0065-6>.
- Guardino, C., & Antia, S. D. (2012). Modifying the classroom environment to increase engagement and decrease disruption with pupils who are deaf or hard of hearing. *Journal of Deaf Studies and Deaf Education*, 17(4), 518-533.
- Kerns, S. E., Pullmann, M. D., Walker, S. C., Lyon, A. R., Cosgrove, T. J., & Bruns, E. J. (2011). Adolescent use of school-based health centers and high school dropout. *Archives of Pediatrics & Adolescent Medicine*, 165(7), 617-623. doi:10.1001/archpediatrics.2011.10.
- Khan, A., Hussain, I., Suleman, Q., Mehmood, A., & Nawab, B. (2017). Causes of pupils' dropout at elementary level in Southern Districts of Khyber Pakhtunkhwa. *Research on Humanities and Social Sciences*, 7(23), 20-25.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610. <https://doi.org/10.1177/001316447003000308>.
- Limaye, S. (2016). Factors Influencing the Accessibility of Education for Children with Disabilities in India. *Global Education Review*, 3(3), 43-56.
- Lloyd, C. B., Mensch, B. S., & Clark, W. H. (2000). The effects of primary school quality on school dropout among Kenyan girls and boys. *Comparative education review*, 44(2), 113-147.
- Meadows, G. E. (2020). Athletic success and its influence on freshman enrollment (Senior Thesis, University of South Carolina – Columbia, USA). https://scholarcommons.sc.edu/senior_theses/327.
- Moore, C. M. (2012). The role of school environment in teacher dissatisfaction among US public school teachers. *Sage Open*, 2(1), 1-6. doi: 10.1177/2158244012438888.
- Mugizi, W. (2021). University infrastructure quality and students engagement in a South Western private university, Uganda. *Interdisciplinary Journal of Education Research*, 3(2), 98-107. <https://doi.org/10.51986/ijer-2021.vol3.02.10>
- Munono, J. B. (2013). Local government budget framework paper. Retrieved from: [Informationbudget.go.ug > sites > default files > MBARARA MC](http://Informationbudget.go.ug/sites/default/files/MBARARA%20MC).
- Murillo, F. J., & Román, M. (2011). School infrastructure and resources do matter: analysis of the incidence of school resources on the performance of Latin American pupils. *School effectiveness and*

- school improvement, 22(1), 29-50. doi: 10.1080/09243453.2010.543538
- Nasuna, G. (2022). School infrastructure and pupil enrolment in universal primary education schools in Mbarara City, Uganda (Masters Dissertation, Bishop University). Mbarara City, Uganda.
- Nepal, B., & Maharjan, R. (2015). Effect of school's physical facilities on learning and outcomes of students in Nepal. *Journal for Studies in Management and Planning*, 1(6), 266-279.
- Nishimura M., & Byamugisha A. (2011). The challenges of universal primary education policy in Sub-Saharan Africa. In: Hawkins J.N., Jacob W.J. (eds) *Policy debates in comparative, international, and development education*. International and Development Education. Palgrave Macmillan, New York.
- Omoeva, C., & Moussa, W. (2018). The long-term effects of universal primary education. EPDC Research Paper No. 18-02. Education Policy and Data Centre, Connecticut Avenue NW, Washington, D.C., USA.
- Orendorff, K. L. (2019). United States Principals' involvement in comprehensive school physical activity programs: A social-ecological perspective (Doctoral dissertation, University of South Carolina, USA). <https://scholarcommons.sc.edu/etd/5393>.
- Revilla, M. L. D., & Ram, K. S. (2021). Impacts of sanitation on child mortality and school enrollment: A country-level analysis. ADBI Policy Brief No. 2021-4 (July).
- Roser, M., & Ortiz-Ospina, E. (2013). Primary and secondary education. Retrieved from: <https://ourworldindata.org/primary-and-secondary-education>.
- Shapira-Lishchinsky, O., & Ben-Amram, M. (2018). Exploring the social ecological model based on national student achievements: extracting educational leaders' role. *International Journal of Leadership in Education*, 21(3), 380-398. <https://doi.org/10.1080/13603124.2017.1318956>.
- Smith, W. C., & Benavot, A. (2019). Improving accountability in education: The importance of structured democratic voice. *Asia Pacific Education Review*, 20(2), 193-205. <https://doi.org/10.1007/s12564-019-09599-9>.
- Snyder, T. D. (1993). 120 years of American education: A statistical portrait. US Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.
- Squires, T. (2015). The impact of access to electricity on education: evidence from Honduras. *Job Market Paper*, Brown University, 1-36.
- Tamusuza, A. (2011). Leaving school early: the quest for universal primary education in Uganda. *Journal of Statistique Africain*, 11, 110-151.
- Theunynck, S. (2009). Strategies for universal primary education in Africa: Should communities be empowered to build their schools? Washington, DC: World Bank.
- Weatherholt, T., Jordan, R., Crouch, L., Barnett, E., & Pressley, J. (2019). Challenge and Drivers of Over-Enrollment in the Early Years of Primary School in Uganda. *International Journal of Early Childhood*, 51(1), 23-40. <https://doi.org/10.1007/s13158-019-00238-3>.