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Article

Facilities Audit in the Kindergarten Schools in Yendi Municipality of Ghana

Peter Munyi Nigal

Department of Education, University of Development Studies, Tamale, Ghana

*Correspondence: Peter Munyi Nigal (pnigal@uds.edu.gh)

Abstract: This study aimed to examine the school facility quality on children's social achievement in Kindergarten in the Yendi Municipality of the Northern Region. The study adopted a mixed-method approach. The study population comprised twenty-five (25) teachers and five (5) head teachers from all kindergarten schools in five circuits in the Yendi municipality. A purposive sampling technique was used to select the study participants. The main instruments for data collection were structured questionnaires and observation checklists. The data were statistically analysed using simple frequencies and percentiles presented on a simple frequency table. The study reveals that inadequate access to essential resources, such as textbooks, teaching and learning materials, and proper classroom environments, adversely affects teacher effectiveness and student engagement. The findings indicate that while some facilities, such as restrooms and playgrounds, are available, many need to be updated or more to meet the needs of the children. To enhance the educational experience for young learners, stakeholders, including the government, educational authorities, and the community, must collaborate to improve the infrastructure and resources available in these schools.

Keywords: Assessment, Facilities, Kindergarten, Yendi

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1. Introduction

The primary purpose of the teaching and learning process is to bring a significant change in behaviour through active participation and critical thinking of the learner. This can only occur with the availability and proper use of school facilities and other needed resources. Regarding available school resources, a study emphasised that "the quality of education students receive depends on the availability of overall school facilities where teaching and learning occur. Quality, relevance and access to education can be attained if and only if educational materials are properly available and utilized in an educational institution" [1]. Resources are the only means to attain organisational activities, services, and satisfactory ends. Resources play a crucial role in the achievement of organizational objectives [2]. School facilities, which consist of all types of buildings and other equipment that are used for academic and non-academic purposes, classroom facilities, furniture, instructional materials, audio-visual aids, toilet, information Communication Technology (ICT), library and laboratory materials, among others, play a pivotal role in the teaching and learning process. A study opines, "School facilities enable the teacher to accomplish his/her task and help the learner learn and achieve effectively. They further emphasised that the availability and proper use of school facilities can affect the teacher's interest in teaching effectively, positively affecting students' academic achievement. Therefore, the school facilities need proper attention as they greatly support teachers' and students' morale; motivation plays a significant role in improving the quality of education" [3].

Before 2002, preschool education was not part of the formal system in Ghana. It was introduced due to part of the recommendations made by the President's Committee on

Review of Education Reforms in 2002 [4] Consequently, Early Childhood Development (ECD) was included in the formal education system. Under the auspices of the Ministry of Women and Children's Affairs, the Ghana National Commission on Children, with the support of the United Nations Children's Education Fund (UNICEF), conducted a study of all formal ECD centres to ascertain the number of children with access to these centres, the kind of structures being used, and the number and status of teachers and attendants at the centres. The policy document on ECD, which aims to address the problems of access and quality in ECD services, was finalised and launched in August 2004.

A study by UNICEF in East and North Ayawaso shows that schools face significant challenges in providing adequate facilities and materials for their students. All public schools surveyed needed more desks; at least two students shared a desk in most classrooms. Chalkboards/blackboards are essential to stimulating students and helping to summarise and remind them by reinforcing teachers' spoken words, especially in primary schools, where students are easily distracted. Only 17 per cent of schools needed more usable chalkboards in the classrooms. Besides the availability of desks, other factors jeopardising the quality of primary education in the East and North Ayawaso Sub-Metro communities are the need for textbooks, maps, and libraries. In Ghana, schools provide textbooks for the three core subjects, English, Math, and Science, free of charge. All schools in the reported not having sufficient textbooks for their students. On average, the ratio of textbooks to students is 1:2, and 43 per cent of schools reported providing their students with workbooks at no cost or markup. Only four schools have libraries, but the number of books in each library varies significantly. One school claiming to have a library reported that its "library" was an empty room without books or furniture. Many schools look as if no repairs have been made since they were built: the wall paint is peeling off, ceilings are leaking, windows and doors are broken, and they need major work. Some of the schools looked particularly unfavourable for learning [5].

The headmasters for six schools reported that they require significant renovations for all of their classrooms, and four schools reported requiring renovations for at least a quarter of the space in their buildings. In study-area schools, it is not uncommon for 3 to 4 students to share a desk, and teachers can have more than an expected number of students at a time in a regular-sized classroom. Quality preschool education enhances children's social, cognitive and language development. Children in an enriched environment are more likely to be emotionally secure, self-confident and proficient in language use [6]. Most parents and some stakeholders believe that inadequate school facilities are the leading cause of this social calamity. Alternatively, some other people, such as parents and civil society, are also blaming the doorstep of kindergarten teachers and several other factors, such as the age of the children and genetic and parental socioeconomic influence, among others.

It has been observed, that “Most kindergartens in Yendi municipality need to produce children with the requisite skills needed at the preschool before the children enter formal school at the Primary school level. This has inspired the researcher to investigate the quality of school facilities and their impact on children's social development”. This study aimed to examine the school facility quality on children's social achievement in Kindergarten in the Yendi Municipality of the Northern Region. The study sought to answer this research question: What school facilities are *available in Kindergartens in Yendi Municipality?*

1.1. Facilities and Student Achievement

Learning is a complex activity that tests students' motivation and physical condition [7]. It has been a long-held assumption that curriculum and teaching impact learning. However, it is becoming more apparent that the physical condition of schools can influence student achievement. For instance, a study found that 11th-grade students in above-standard buildings scored higher as measured by the Comprehensive Test of Basic

Skills than their counterparts attending class in substandard facilities [8]. Furthermore, in a Virginia study, a researcher examined the impact of various factors of building conditions on student achievement in a manner that controlled for the student's socioeconomic status. He found that when socioeconomic factors were constant, facility conditions significantly correlated with student achievement. Specifically, air conditioning, absence of graffiti, condition of science laboratories, locker accommodations, and condition of classroom furniture, wall colour and acoustic levels correlated with student achievement significantly when students' socioeconomic status is controlled for. Related to facilities is the age of facilities to academic achievement [9].

1.1.1. Building age and student achievement

In a review of Basic Education Quality in Ghana in the North Dayi (a peri-urban) district in the Volta Region of Ghana with school resources, including trained teachers, electricity and toilets, academic performance in English and Mathematics was found to be below the national average [10]. This study was based on information from five schools in the district that participated in the 2005 or 2007 National Education Assessment (NEA). Infrastructure and resources cannot fully explain the low academic performance of students in the district. Though textbooks in English and mathematics arrived late, they were sufficient to allow each student to have their books on these subjects. Textbook shortages, however, remain for other subjects. Both head teachers and teachers consistently complained about the inadequate teaching and learning materials to supplement textbooks. These materials include I charts, pictures, and "hands-on" materials for science and mathematics [11]. School infrastructure was not a significant concern, as three schools had well-roofed cement-floor classrooms. Classroom facilities were adequate, with a chalkboard and enough desks or tables for all students. However, the building facilities needed to be improved in the other two schools. There was no functional toilet, drinking water, or electricity, and the roofs of the building had holes in them. The classroom walls were short and made of mud. When it began to rain, the schools had to close. These schools were in higher-poverty communities and were more remote. It was also observed that in these two schools, achievement in the national assessments was lower than in the three schools with better facilities.

Such studies regarding differences in student performance based on building conditions have focused on many factors of facility quality. With the average school building maturing to 45 years old, facility age is a common discrepancy of building conditions studied in correlation with student achievement [12]. Researchers studied differences in achievement between secondary students in two buildings, one built in 1939 and 1 built-in 1983. In this study, all other building variables were consistent between the two schools. The study revealed, “The students in the modern building scored significantly higher in reading, language and mathematics than their counterparts in the older building” [13].

The age of a building can influence many of the individual factors used in evaluating the condition of an educational facility [14]. In each case of their study, the age of the building had a significant impact on student achievement and behaviour. Furthermore, the study indicated that age was a surrogate for other variables of building conditions such as Lighting, temperature control, proper Lighting, sound control, support facilities, laboratory conditions and aesthetic values [14].

Developing curriculum or instructional strategies can exaggerate the differences in building age. A study found that many buildings had become obsolete despite their structural soundness. However, the crucial conclusion was that “many of these facilities have become obsolete because they need to adjust to or accommodate innovations in curriculum development, instructional strategies, and content development” [15]. For instance, new instructional models call for accommodations such as modular furniture,

flexible floor plans, mobile technology, electronic chalkboards and expandable networking [16].

Cornell University joined forces with the Council of Educational Facility Planners International to study the renovation of Syracuse City Schools and how that renovation impacted student achievement [17]. Rather than the typical correlation study, the Cornell study provided a valuable before-and-after look at achievement in renovated schools. Student achievement significantly improved after facilities in these Syracuse schools were refurbished. Most significant was the improvement in mathematics scores of sixth-grade students [17]. The correlation between building age and student achievement is significant in Texas studies. A study reported, "Building age had the highest correlation with student achievement of all building factors investigated in a 1999 study of middle schools in Central Texas". The study indicated, that "the most vital relationship between building age and student achievement existed in the area of eighth-grade students passing reading" [18]. As school buildings age, they not only provide hurdles for teachers and students, but older buildings have been found to cause the loss of instructional time [19]. In his *Education Week* article, a researcher notes that a Florida study found that 96 teaching days were lost in Virginia schools in 1998 due to poor building conditions complicated by age [19, 20].

1.1.2. School size and student achievement

Knowing that building age can contribute to the deterioration of facility conditions does not, in itself, assist practitioners in the improvement of student achievement. Many other factors of facility design have been linked to students' academic success. As enrolment numbers climb, the issue of school size becomes relevant to the task of improving student performance. School size questions came to the forefront after the Columbine disaster, where two students designed and carried out a violent plan undetected by the adults in the school. Educators have been battling the disconnectedness that seems more prevalent at larger schools. Smaller schools have shown a greater capacity to develop personal connections among students and staff that tend to prevent violent or antisocial behaviour [21].

An issue related to school size is the ability of students and staff to establish personal links with one another and with the physical environment. School designers have adopted this notion as they design entire campuses or layout classroom plans, allowing small-group or individualised instruction [22]. A similar study noted that "students in smaller learning environments achieved higher levels than their cohorts in larger schools. Smaller high schools provided a safer environment than their large counterparts and promoted advanced academic achievement" [23]. In examining hundreds of such studies, the Educational Research Information Clearinghouse commissioned a report that supported the assumption that smaller schools provide more attention to and support individual student success [24].

Despite the wealth of research espousing the benefit of smaller schools, statistics indicate that districts continue to erect larger campuses [25]. *Education Week* reports that most of our nation's students attend schools with enrollments of 750 or more, while seven states report average high school sizes of more than 1,000 students [25]. Research reports that educational leaders continue to ignore the impact of school size on student achievement. Raywid (1999) suggests that policymakers and scholars have turned a deaf ear to the debate of school size, favouring a focus on curriculum and pedagogy. This trend follows suit with parents and teachers. A recent New York City survey indicates that less than half of teachers and parents would favour dividing large high schools into those with enrolments of less than 500 [25].

However, studies based on cost-per-graduate instead of cost-per-pupil indicate that smaller schools are as efficient financially as their larger counterparts [26]. School systems promoting smaller campuses have also found that sharing student-support facilities such

as libraries and gymnasiums has lowered the construction and operating costs of decreasing school size [26]. Arguments other than cost efficiency exist in reluctance to build smaller schools. Some of this resistance finds its roots in more affluent communities, where research indicates that the link between school size and student achievement is less intense [27]. Support for larger schools is also based upon the premise of student choice. Proponents of large schools, substantial-high schools, base their position upon the assumption that larger schools provide a wide range of curricular choices, such as advanced classes and fine arts [25]. The size and variety of course offerings also afford larger schools the luxury of employing more specialised and diverse staff members [28]. Similar arguments for larger schools espouse the ability of large schools to support extracurricular programs such as athletic teams, theatrical productions, student clubs and competitions [25].

The small-school movement is an issue that needs to be addressed by building more schools in an attempt to keep campus enrollment down. The high school setting, in particular, has provided several alternative design methods to establish smaller learning communities. One such method is the schools-within-schools, where larger campuses are divided into smaller groups of students and teachers assigned to interdisciplinary teams [24]. Architects are designing modern schools in an attempt to accommodate small groups such as "houses," "families," "clusters" and other small learning communities [22]. Some high schools allow students to attend schools with in-schools arranged to fit a particular curriculum theme. These smaller themed learning communities utilise the original campus layout with renovations allowing for specialised laboratories in each smaller sub-school [29].

As the research builds in support of smaller schools, states and local governments are carefully considering this issue to address educational reform and academic achievement. Private foundations and governmental entities provide financial incentives to construct smaller learning communities to offset any disadvantage of the economy of scale that may occur with smaller schools [30]. Some state governments are rescinding policies that had, in the past, encouraged or mandated the consolidation of smaller schools [31]. While policies and funding are assisting districts in creating smaller learning communities, educational leaders are still faced with identifying physical environmental factors that impact the academic achievement of their students. Within any size of school setting, students must be given clean and bright surroundings so that learning can take place in an optimal setting.

1.1.3. Lighting and student achievement

Just as empirical research exists, linking school size and age with student performance, a growing list of studies is finding a relationship between classroom lighting and academic achievement. Our reactions, motivations, moods and sense of well-being are significantly impacted by the illumination of our surrounding environment [32]. The illumination issue has driven building design for centuries, as evidenced by ancient architecture and its attention to natural Lighting. Different degrees of illumination, namely natural lighting, can stimulate productivity and increase creativity in offices and schools [32]. In Africa, a study showed a significant correlation between natural Lighting and student success [33]. The study also reports that “students in the Capistrano Unified School District with natural Lighting provided by windows or skylights scored 19 to 26 points higher on standardised tests than their cohorts with little or no natural Lighting in their classrooms”. This study does not assign whether the improvement in student performance was due to increased light, quality of light or the physiological effect of natural Lighting [33].

In a middle school study, student performance was compared across three campuses. The study found that students in classrooms with large or high amounts of windows and skylights outperformed other students by five to 14 points on end-of-course tests [34].

Windowless environments generate great tension, especially with restricted spaces, and monotonous tasks as well as contribute to negative attitudes of students and teachers [32, 35]. Natural Lighting, or daylight, has improved the quality and quantity of Lighting in instructional areas. Daylight is still the standard by which artificial light is measured and there was a positive correlation between daylighting and academic performance [36]. The Austin Independent School District initiated a lighting program that increased natural Lighting in instructional areas to increase student comfort, likely improving academic performance across all subject areas [37].

While the issue of Lighting cannot singularly address all academic success variables, it is essential to note that quality lighting increases students' comfort and often translates into higher scores and increased performance [38]. Design experts also promote the consideration of the developmental stages of students when establishing lighting systems [39]. This effort to establish comfort is more than an exercise in providing luxury to children. Design factors such as Lighting can create an atmosphere where students are physically supported to concentrate on academic endeavours. The focus on practical learning environments has recently shone on healthy physical surroundings.

1.1.4. Facility health and student achievement

Energy conservation became a vital goal four decades ago and profoundly impacted building design. Resulting in facilities that were increasingly "tightened" against outside air infiltration to make them more energy efficient [18]. This design approach has resulted in significant energy savings. However, it has been discovered that “tightening” buildings has led to higher levels of airborne gases from building materials and organic hazards such as bacteria and viruses. Designers have recently increased efforts to eliminate environmental problems such as noise, glare, mould, poor ventilation, and temperature extremes. Architects design healthy schools that address decreased distractions and allow students and staff to focus on the learning process. Buildings must not only be designed to be healthy [40]. Districts must also effectively maintain their facilities to provide a healthy learning environment [41]. For example, poorly maintained roofs may leak, allowing moisture to enter the building and increasing the growth conditions for mould. The mould could cause respiratory problems for students and teachers or even lead to the closure of the classroom or entire building [41].

Mould and other indoor air quality issues have become the most common concern of designers and administrators in dealing with building health. Issues regarding indoor air quality are increasingly challenging school board members and administrators nationwide. Older schools are more susceptible to mould and indoor air quality problems but warns that newer buildings are not immune from these effects [42]. In previous decades, the concern over building health was focused on antiquated building materials such as asbestos and lead-based paints. Laws and policies have now been established to protect students from exposure to these items. These laws have profoundly impacted how schools are built and maintained [43]. Schools have successfully eradicated asbestos, arsenic in drinking water, and lead in paint and mould. Their effects on indoor air quality have established a new challenge in maintaining a comfortable environment in which students can learn [42]. Studies have shown that schools with indoor air quality problems experience a higher rate of health problems with students. It then stands to reason that sick children will be less likely to succeed academically. The research linking specific airborne pathogens with specific student health problems is still in its infancy [44]. Schools are working under the consultation of the Environmental Protection Agency to establish maintenance practices and educational programs to assist schools in maintaining healthy buildings while informing parents of the risks linked to poor indoor air quality [44]. Schools adopting the Environmental Protection Agency's Tools for Schools program are beginning to see improved indoor air quality and a positive impact on student academic

performance [45]. As facility health improves, educators find that achievement increases due to improved attendance of healthy, attentive, motivated students.

2. Materials and Methods

The study adopted a mixed-method approach, enabling the researcher to concurrently build up results that are balanced with the two approaches, establishing rigorous and well-refined results and findings and providing reliable information about the phenomenon under study. The study population comprised twenty-five (25) teachers and five (5) head teachers from all kindergarten schools in five circuits in the Yendi municipality. A purposive sampling technique was used to select the study participants. Teachers and headteachers were purposively selected because the researcher considered their knowledge and professionalism regarding the area of interest. The main instruments for data collection were structured questionnaires and observation checklists. Data on this study was categorized and edited into the pattern in which the questions were asked. The questionnaires and observation checklists were serially numbered for effective statistical presentation and analysis to facilitate easy identification. Responses to the various items were then added, tabulated and statistically analyzed. After organizing, editing, and coding, the data were statistically analyzed using simple frequencies and percentiles presented on a simple frequency table.

3. Results and Discussions

This section presents results and discusses the research question: What school facilities are available for kindergartens in Yendi Municipality? To gather accurate and reliable data for the study, the researcher employed a 4-point Likert scale. The Likert scale was applied as one of the most fundamental and frequently used psychometric tools in educational and social sciences research. In this case, respondent teachers from selected early childhood schools were asked to rate their responses using Strongly Disagree (SD), Disagree (D), Agree (A) and Strongly Agree (SA). This means the scales were scored as (Strongly Disagree =1, Disagree =2, Agree= 3, Strongly Agree =4).

Table 1. School Facilities Available in Kindergartens in Yendi Municipality

Statement	SD	D	A	SA	TOTAL
	F %	F %	F %	F %	F %
Restroom comfortable for children to use	0(0)	3(10)	27(90)	0(0)	30(100)
The playground is equipped with the requisite equipment	1(3.3)	3(10)	26(86.7)	0(0)	30(100)
Lightening is provided to suit every child's nature and ability	10(33.3)	20(66.7)	0(0)	0(0)	30(100)
Indoor Air provides excellent ventilation for children according to kindergarten standards	13(43.3)	17(56.)	0(0)	0(0)	30(100)
Adequate textbooks, one per child	1(3.3)	4(13.3)	25(83.3)	0(0)	30(100)
Adequate furniture in classrooms.	2(6.7)	11(36.7)	17(56.7)	0(0)	30(100)
Toilet faculties adequate and suitable for children's use	4(13.3)	13(43.3)	13(43.3)	0(0)	30(100)
Teaching learning materials (TLMs)	1(3.3)	18(60)	11(36.7)	0(0)	30(100)

SD= Strongly Disagree, D=Disagree, A= Agree and SA= Strongly Agree; N=30

Table 1 presents the results of the research question, "What are the school facilities available in kindergartens in Yendi Municipality?" The researcher asked this question to determine respondents' views on the types of school facilities available in their schools. The "Restroom comfortable for children use" results showed that no respondent indicated

"Strongly Disagree"; 10.0% disagreed, and 90.0% agreed with the statement. The results on this variable showed that the majority (90%) of the respondents agreed, while those who disagreed were only 10.0%. The overall results on this item mean they agree that there is a restroom which is comfortable for children's use. What might have accounted for these high results is that children in their formative years (0-8 years) spend most of their time playing and sleeping; for that matter, most children sleep in the classroom and anywhere they find themselves and are tired. For this reason, the teachers at kindergarten schools in Yendi municipality have only one alternative: to provide a resting place for children. Even though it may not be the best, it solves the purpose of the restroom.

The "playground well equipped with the requisite equipment" results showed that 3.3% indicated Strongly Disagree, 10.0% rated Disagree, and 86.7% Agreed with non-rating Strongly Disagree. Overall results from this item suggest that respondents agree that the playground is well equipped with the requisite equipment, as 86.7% agreed that the facility is available. Only 13.3% rated Disagree. This result may be high because children naturally play throughout the day and mostly learn through play, which they cannot do without. This might be why most kindergarten schools in the municipality provide playgrounds for the children, though the playgrounds may be better.

The result of the following item was "lightening provided to suit every child's nature and ability". It was realized that 33.3% strongly disagreed, 66.7% disagreed, and none agreed or strongly disagreed. Here, the results showed that most respondents disagreed that Lighting should be provided to suit every child's nature and ability. These views could be actual because most school buildings use honeycomb windows with little ventilation for fresh air and natural light. Most schools did not also have electricity or a national grate to provide light from electricity.

Views on "Indoor air provides excellent ventilation for children according to kindergarten standards" showed that 100% disagreed while none agreed. The high disagreement is because most kindergarten school buildings in the municipality need a better design to produce good indoor air.

The results were "adequate textbooks, one per child." The majority, about 83.3%, agree that there are adequate textbooks, one per child; most respondents responded positively because, at the kindergarten level in the municipality, most parents take the responsibility of providing the books, mostly bought from the market or bookshop. In some parts of the municipality, some non-government organizations supply books to preschool children in remote villages free of charge.

Results on "Adequate furniture in the classroom" From the views expressed above, it could be understood that 43.4% disagree. In this case, the respondents disagree. There are some schools in towns and villages where children lie on the ground to write because there is no furniture, and in most cases where there are few dual desks, about three to four children share one dual desk. Meanwhile, about 56.7% agree that there is adequate furniture in classrooms in the municipality. This group of respondents decided to do so because some schools, Ghana Education Service, and non-governmental organizations provide adequate furniture for children's use. The provision of furniture by these agencies favours schools that have tiny enrolment. However, schools with high enrolments usually get fewer supplies than their enrolment because the furniture is usually insufficient.

Views on "Toilet facilities adequate and suitable for children's use" were realized. A close look at the results for this questionnaire item indicated that 56.6% disagree that there are adequate toilet facilities suitable for children's use; the reason for this response is that most kindergarten schools are in old school buildings with the design at the time, not include toilet facilities, so all kindergarten schools in these old buildings may lack toilets facilities. In some of these schools, parents have tried to provide toilet facilities several times but failed because they needed more funding to provide suitable materials. On the other hand, it could be observed that 43.3% agree that there are enough toilet facilities suitable for children's use. Their decision in that direction was influenced by the fact that

some schools, especially the newly built ones, have toilet facility designs as part of the building contract. Some non-governmental organisations in the municipality also provide toilet facilities for categories of preschools, e.g. schools in remote areas or religious affiliations.

Results on "Teaching learning materials" It is clear from the results that 63.3% indicated that there are no teaching-learning materials. This is very true because it has been a very long time since the government has been able to supply preschools with the recommended teaching and learning materials prescribed by the curriculum. What makes the issue worse is the fact that there is inadequate motivation for teachers, so they are unable to improvise teaching learning materials to supplement expensive ones in the market. It can be observed that 36.7% agree that there are teaching-learning materials. These may be from schools where philanthropies or some religious organisations supply the teaching materials; these organisations supply to specific categories of schools of interest. This group of respondents may also be experienced and self-motivated teachers who often improvise teaching-learning materials for lesson delivery.

To confirm the quantitative data analysis results, the researcher decided to observe teachers and children at Kindergarten schools where the study was conducted to see things for himself. The following information was obtained from the observation using the observation checklist;

Table 2. Observation Checklist.

Item	Totals		
	NA F (%)	A F (%)	Total F(%)
Restroom comfortable for children to use	3(10)	27(90)	30(100)
The playground is well-equipped with the requisite equipment	4(13.3)	26(86.7)	30(100)
Lighting is provided to suit every child's nature and ability	30(100)	0(0)	30(100)
Indoor Air provides excellent ventilation for children according to kindergarten standards	30(100)	0(0)	30(100)
Textbooks	5(16.3)	25(83.3)	30(100)
Tables, Chairs, cardboard, rulers.	13(43.4)	17(56.7)	30(100)
Toilet faculties	17(56.6)	13(43.3)	30(100)
TLMs	19(63.3)	11(36.7)	30(100)

KEY: NA= Not Available; A= Available; N=30

Table 2 above shows that six or more children often share outdated and worn-out textbooks in most kindergarten schools. In one of the schools, two kindergarten children had sole use of a reading textbook. In one school, there were 11 Kindergarten school children for every reading textbook and 13 children for every mathematics textbook. Workbooks, exercise sheets, readers, and other core materials were in short supply to help children learn their lessons. Teachers also needed materials to help prepare lessons, share with their children, and guide them.

The researcher also observed that “most school facilities were either not there or inadequate or needed more maintenance”. For example, seven of the ten schools observed that some schools had no toilet, playground, or restroom, and the lighting system was also poor. However, in another school, most of the facilities were available and functioning; the playground was well equipped, and there was a good toilet facility, adequate Lighting, furniture, teaching aids, and textbooks. In short, more schools did not have these facilities than those that did.

A similar study alluded that “a growing body of research has found that school facilities can profoundly impact both teacher and student outcomes”. Concerning teachers, school facilities affect teacher recruitment, retention, commitment, and effort. Concerning students, school facilities affect health, behaviour, engagement, learning, and growth in

achievement [46]. Thus, Researchers generally conclude that that "serving many children with complex needs is tough without adequate facilities and resources". A previous study also indicates that "besides general maintenance and construction issues, most schools lack 21st-century facilities in infrastructure, laboratories, and instructional space. More than half do not have sufficiently flexible instructional space for effective teaching". Thus, facility quality is an essential predictor of teacher retention and student learning. The physical and emotional health of students and teachers depends on the quality of the physical location, which makes establishing safe, healthy buildings essential.

Improving the quality of school facilities is an expensive undertaking. However, when the positive impacts of facility improvement on teachers and students are translated into dollar figures, the rewards of such investments far outstrip the cost of the investments. School facilities have five primary facets: acoustics/noise, air quality, Lighting, temperature, and space. These are addressed below [48]. Noise levels significantly affect teacher and student performance. Excessive noise causes dissatisfaction and stress in both teachers *and* students. Research has found that schools with less external noise are positively associated with greater student engagement and achievement than schools with noisier environments. Thus, building schools that buffer external noise from classrooms can improve student outcomes.

Indoor air quality is also a concern because poor air quality significantly contributes to absenteeism for students with asthma. Research also indicates that many schools suffer from "sick building syndrome", which affects the absenteeism and performance of all students. Moreover, bacteria, viruses, and allergens contributing to childhood diseases are commonly found in schools with poor ventilation systems. Indoor pollutants are also emitted from office equipment, flooring materials, paints, adhesives, cleaning products, pesticides, and insects. These environmental hazards can negatively affect children, particularly in schools with poor ventilation systems. Schools often relied on natural Lighting before the advent of cheap electricity. As electric power costs declined, the amount of artificial light used in schools increased. Research has shown that artificial Lighting negatively impacts those in schools, while natural Lighting has positive impacts [49]. Research has shown that not only does classroom lighting boost the morale of teachers and students, but appropriate amounts of natural Lighting also reduce off-task behaviour and improve test scores. One study found that students with the most exposure to natural daylight progressed 20% faster in mathematics and 26% faster in reading than those taught in environments with the least amount of natural light. Overcrowded classrooms—and schools—have consistently been linked to increased levels of aggression in students. Overcrowded classrooms are also associated with decreased levels of student engagement and, therefore, decreased levels of learning.

Alternatively, classrooms with ample space are more conducive to providing appropriate learning environments for students and are associated with increased student engagement and learning. Classroom space is particularly relevant with the current emphasis on 21st-century learning, such as ensuring students can work in teams, problem-solve, and communicate effectively. Classrooms with adequate space to reconfigure seating arrangements facilitate using different teaching methods aligned to 21st-century skills. Creating private study areas and smaller learning centres reduces visual and auditory interruptions and positively affects student development and achievement [50]. Accordingly, policymakers, educators, and business people are now focused on ensuring students learn 21st-century skills such as teamwork, collaboration, effective communication, and others. As noted above, older buildings are not conducive to teaching 21st-century skills. This is particularly true concerning reconfiguring seating arrangements to facilitate various modes of teaching and learning and using technology in the classroom as a mode of teaching and learning.

4. Conclusions and Recommendations

The assessment of facilities in kindergarten schools within the Yendi Municipality of Ghana reveals significant challenges that impact the quality of early childhood education. The study revealed that inadequate access to essential resources, such as textbooks, teaching and learning materials, and proper classroom environments, adversely affects teacher effectiveness and student engagement. The findings indicate that while some facilities, such as restrooms and playgrounds, are available, many need to be updated or more to meet the needs of the children. To enhance the educational experience for young learners, stakeholders, including the government, educational authorities, and the community, must collaborate to improve the infrastructure and resources available in these schools. This includes investing in modern teaching materials, ensuring adequate classroom space, and training teachers on effective resource utilisation. These will create a more conducive learning environment that fosters the development of critical skills and promotes academic achievement among kindergarten students. Ultimately, prioritising the enhancement of school facilities will contribute to the overall improvement of early childhood education in Ghana, laying a solid foundation for future learning.

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