

**The Impact of Educational Facilities on Academic Performance of Muslim Students in Public
Secondary Schools in Kanifing, The Gambia**

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DECLARATION

I, ABASS SANKOH, with student number 10220002, hereby declare that this thesis, entitled **"The Impact of Educational Facilities on the Academic Performance of Secondary School Muslim Students in The Gambia,"** is my original work and has not been submitted in part or whole for any other degree or diploma to any other university or institution of learning. All sources of information used have been acknowledged by means of reference.



20th February 2026

APPROVAL PAGE

I certify that Abass Sankoh, with Matriculation Number 10220002, in the Department of Education, Faculty of Education, International Open University, The Gambia, carried out this study under my supervision.

Dr. Ambreen Haqdad

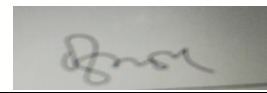
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DEDICATION

This work is fully dedicated to Almighty Allah for granting me the grace to complete this program successfully. I also dedicate it to my beloved father, the late Mr. David Markson Sankoh, and my entire family for their unwavering support and encouragement, and to the secondary school Muslim students in The Gambia, whose future depends on the quality of the learning environments provided to them.

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ABSTRACT

This study examined the impact of educational facilities on the academic performance of secondary school Muslim students in The Gambia. A quantitative, non-experimental correlational research design was adopted to determine the relationship between educational facilities and academic performance. The population of the study comprised Muslim students enrolled in twelve senior secondary schools in Kanifing, The Gambia. Using a multi-stage sampling technique, a total sample of 400 students was selected. Data were collected using a structured questionnaire with established reliability (Cronbach's Alpha ≥ 0.70) and content validity, and were analyzed using descriptive statistics, Pearson's correlation, and simple linear regression.

The findings revealed that basic facilities such as classrooms and sanitation were perceived as moderately adequate, while specialized academic facilities, particularly science laboratories and ICT laboratories, were rated as very poor. Library facilities were also perceived as inadequate. A significant positive relationship was found between overall educational facility quality and students' academic performance. Among the facility domains, science laboratories and library resources showed the strongest associations with academic achievement. Educational facilities were further found to significantly predict students' academic performance, accounting for approximately 50.4% of the variation in students' outcomes.

It was recommended that investment in science laboratories, ICT facilities, and library resources be prioritized, alongside improved maintenance of existing educational facilities.

Keywords: Educational Facilities; Academic Performance; Students' Perceptions; Kanifing; Muslim Student

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Education is widely acknowledged as a central driver of national development and socio-economic transformation. It plays a critical role in human capital formation, poverty reduction, technological advancement, and the promotion of social cohesion (UNESCO, 2015; World Bank, 2020). Through formal education systems, individuals acquire essential cognitive skills, professional competencies, moral values, and civic attitudes necessary for effective participation in contemporary societies. In developing countries, education assumes even greater significance because it serves as a strategic tool for addressing inequality, unemployment, and social exclusion while supporting sustainable development goals (United Nations, 2015). The Gambia, like many sub-Saharan African countries, regards education as a cornerstone of national development and has made considerable efforts to expand access to schooling at all levels.

Within the education system, secondary education occupies a critical transitional position between basic education and higher education or the labour market. At this stage, learners consolidate foundational academic skills, develop critical thinking abilities, and acquire subject-specific competencies that influence future educational and career trajectories (UNESCO, 2017). Secondary education also plays a crucial role in shaping learners' attitudes, values, and social behaviour, making it a key platform for national human resource development. Consequently, the quality of secondary education delivery directly affects students' academic performance and long-term socioeconomic outcomes.

The Gambia is a predominantly Muslim nation, with Islam deeply embedded in its social, cultural, and moral structures. According to national demographic estimates, over 90 percent of the population identifies as Muslim, and this demographic reality is reflected in secondary school enrolment patterns (Gambia Bureau of Statistics, 2019). Muslim students therefore constitute the majority of learners within the secondary education system. Their educational experiences are influenced not only by academic requirements but also by religious practices, cultural norms, and moral expectations. Islamic values emphasize discipline, knowledge acquisition, moral responsibility, and community service, all of which intersect with formal schooling processes (Al-Musawi, 2004). As a result, secondary education for Muslim students plays a dual role of fostering academic competence while reinforcing ethical

and social responsibility.

However, the effectiveness of secondary education in achieving these goals is shaped by multiple interrelated factors, among which the quality of the school learning environment is particularly significant. Educational facilities represent a central component of this environment and serve as foundational inputs in the teaching and learning process. Educational facilities encompass physical and material resources such as classrooms, libraries, science laboratories, computer laboratories, instructional materials, furniture, electricity supply, water access, sanitation facilities, and recreational spaces (Olori, 2014; Earthman, 2004). These facilities provide the physical infrastructure that supports curriculum implementation, pedagogical practices, and student engagement.

Empirical evidence suggests that adequate and well-maintained educational facilities enhance learning outcomes by providing safe, comfortable, and stimulating environments that promote concentration, motivation, and academic engagement (Lackney & Picus, 1999; Ajayi & Ogunyemi, 2010). Proper classroom ventilation and lighting reduce fatigue and improve attention span, while functional laboratories and libraries support experiential learning and independent study (Hofstein & Lunetta, 2004; Lance et al., 2005). Conversely, poorly maintained facilities, overcrowded classrooms, inadequate sanitation, and a lack of instructional resources have been linked to health challenges, absenteeism, reduced motivation, and low academic achievement (Cash, 1993; WHO & UNICEF, 2018). These findings emphasize that educational facilities are not merely supportive structures but critical determinants of educational quality and student performance.

However, the effectiveness of secondary education in achieving these goals is shaped by multiple interrelated factors, among which the quality of the school learning environment is particularly significant. Educational facilities represent a central component of this environment and serve as foundational inputs in the teaching and learning process. This study focuses on two primary variables: educational facilities as the independent variable and academic performance as the dependent variable. The independent variable, educational facilities, is operationalized through six distinct indicators that collectively represent the physical and material resources available in schools. The dependent variable, academic performance, is measured through students' grades in core academic subjects. The independent variable (educational facilities) comprises six key indicators, each representing a specific dimension of the school's physical infrastructure:

1. Classroom and Furniture Infrastructure: This indicator assesses the adequacy of physical learning spaces, including classroom size relative to student population, the

condition and ergonomic suitability of desks and chairs, availability of proper lighting and ventilation, cleanliness and maintenance standards, and the overall conduciveness of the classroom environment for instructional activities (Earthman, 2004; Lackney & Picus, 1999). These elements directly influence student comfort, concentration, and readiness to engage in learning.

2. **Library and Book Resources:** This indicator evaluates the availability of textbooks aligned with the curriculum, the currency and relevance of reference materials, the provision of quiet study spaces, accessibility of library services during school hours, and the availability of supplementary learning resources such as dictionaries, atlases, and periodicals (Lance, Rodney, & Hamilton-Pennell, 2005; IFLA, 2015). A functional library supports independent study, information literacy, and reading comprehension.
3. **Science Laboratory Facilities:** This indicator measures the presence and functionality of laboratories for Biology, Chemistry, and Physics; the availability of equipment, chemicals, and specimens for practical experiments; safety standards and organization of laboratory spaces; regularity of practical sessions; and the perceived contribution of laboratory experiences to understanding science subjects (Hofstein & Lunetta, 2004; Singer, Hilton, & Schweingruber, 2006). Science laboratories enable experiential learning essential for mastering scientific concepts.
4. **ICT and Computer Laboratory Facilities:** This indicator assesses the availability of functional computer laboratories, the condition and sufficiency of computers for student use, reliability of internet access for educational purposes, frequency of ICT integration in teaching and learning, and the role of ICT resources in developing digital literacy skills (Kozma, 2011; Warschauer & Matuchniak, 2010). ICT facilities prepare students for technology-driven global environments.
5. **Sanitation and Water Facilities:** This indicator evaluates the cleanliness and hygiene of toilets, adequacy and gender-separation of toilet facilities, reliability of clean drinking water supply, availability of handwashing facilities with soap, and the perceived role of sanitation in supporting student comfort and regular attendance (WHO & UNICEF, 2018; Freeman et al., 2014). Adequate WASH facilities are fundamental for student health, dignity, and consistent school participation.
6. **Sports Facilities:** This indicator measures the availability of sports grounds and play areas, the condition of sports equipment, maintenance standards for sports infrastructure, regularity of organized sports activities, and the contribution of sports to physical well-being and academic focus (Bailey, 2006; CDC, 2010). Sports facilities

support physical health, stress reduction, and psychosocial development.

The dependent variable—academic performance—is operationalized through students' achievement in core academic subjects. In this study, academic performance refers to the level of achievement attained by secondary school Muslim students as measured by their self-reported cumulative grades in three core subjects: English Language, Mathematics, and Integrated Science. These subjects were selected because they serve as key indicators of academic achievement and are central to national assessment standards (WAEC, 2020). Grades are measured using the Gambian grading system (A1, B2, B3, C4, C5, C6, D7, E8, and F9), providing a standardized metric for assessing learning outcomes across different schools.

Globally, numerous studies have established a strong association between the physical learning environment and academic achievement. Earthman (2004) demonstrated that students learning in well-designed and adequately resourced schools perform significantly better than those in deteriorating facilities. Similarly, Ajala and Ajala (2014) found that secondary school students exposed to modern classrooms and well-equipped laboratories showed higher academic outcomes than peers in poorly resourced schools. These trends have been observed across both developed and developing contexts, reinforcing the universal importance of school infrastructure in educational effectiveness.

In The Gambia, despite government initiatives aimed at expanding access to secondary education, persistent challenges remain regarding the adequacy and equitable distribution of educational facilities. Reports from the Ministry of Basic and Secondary Education and international development partners indicate that many public secondary schools, particularly in rural and peri-urban areas, continue to experience shortages of classrooms, limited laboratory equipment, insufficient ICT resources, and poorly maintained sanitation facilities (MoBSE, 2020; UNESCO, 2018). Rapid increases in student enrolment, driven by population growth and expanded basic education access, have further strained existing infrastructure. In many cases, school expansion has not been matched by proportional investment in facility development and maintenance.

For Muslim students, these infrastructural challenges may be further compounded by the need for learning environments that accommodate religious practices and cultural norms. Access to clean water for ablution (wudu), availability of prayer spaces, and provision of gender-sensitive sanitation facilities are important considerations that influence comfort, attendance, and concentration among Muslim learners (Khan, 2012; Syed & Ali, 2010). When these needs are not adequately addressed, students may experience psychological discomfort and reduced engagement, which can negatively affect academic performance.

Despite the recognized importance of educational facilities, limited empirical research has focused specifically on their impact on Muslim secondary school students in the Gambian context. Most existing studies have examined general student populations without considering the socio-religious dynamics that may shape learning experiences and educational outcomes. This gap highlights the need for context-specific research that examines how facility availability and quality influence academic performance within Muslim-majority educational environments.

Against this backdrop, the present study aims to investigate the impact of educational facilities on the academic performance of Muslim secondary school students in The Gambia. The study aims to inform educational planning, guide policy formulation, and support targeted infrastructural interventions that promote equity, improve learning outcomes, and strengthen the overall quality of secondary education in the country.

1.2 Statement of the Problem

Educational facilities are widely recognized as important determinants of effective teaching and learning because they provide the physical and material foundation necessary for curriculum delivery and student engagement (Earthman, 2004; Lackney & Picus, 1999). Adequate classrooms, functional laboratories, well-stocked libraries, ICT infrastructure, and proper sanitation facilities are essential for creating learning environments that support academic achievement and student well-being (Ajayi & Ogunyemi, 2010; WHO & UNICEF, 2018).

However, despite this established importance, many secondary schools in The Gambia continue to experience persistent infrastructural deficiencies. These challenges are commonly reflected in overcrowded classrooms, inadequate instructional materials, limited access to science and computer laboratories, unreliable electricity supply, and poorly maintained sanitation facilities, particularly in public and rural schools (MoBSE, 2020; UNESCO, 2018). Although the Gambian government has implemented policies aimed at improving access to secondary education, infrastructural development has not kept pace with increasing student enrolment and rising educational demands. Rapid population growth and expanded basic education completion rates have resulted in higher secondary school enrolment, thereby placing additional strain on existing school facilities (World Bank, 2020). These infrastructural constraints raise serious concerns regarding their potential impact on students' academic performance.

Muslim students constitute the majority of the secondary school population in The Gambia, given the country's predominantly Islamic demographic composition (Gambia Bureau of Statistics, 2019). Their educational experiences are shaped not only by academic requirements but also by religious and cultural expectations that intersect with the physical school environment. Facilities such as access to clean water for ablution, availability of prayer spaces, and provision of gender-sensitive sanitation facilities are important factors that influence comfort, attendance, and concentration among Muslim learners (Al-Musawi, 2004; Khan, 2012). However, many schools lack infrastructure that adequately accommodates these religious and cultural needs, which may create additional barriers to effective learning and academic engagement.

Existing local studies have largely focused on general educational challenges without disaggregating findings based on religious demographics or exploring facility-related factors in depth. Consequently, it remains unclear to what extent deficiencies in educational facilities directly or indirectly influence the academic performance of Muslim students at the secondary school level. There is insufficient empirical evidence identifying which specific facility components have the strongest influence on students' academic outcomes within the Gambian context. Without such evidence, educational planning and infrastructure investment decisions may lack precision, resulting in inefficient allocation of limited resources. This knowledge gap limits the ability of policymakers, school administrators, and development partners to design targeted interventions that effectively address facility-related constraints and improve learning outcomes.

Therefore, the central problem addressed in this study is the lack of context-specific empirical evidence on the relationship between educational facilities and the academic performance of secondary school Muslim students in The Gambia.

1.3 Purpose of the Study

The primary objective of this study is to investigate the impact of educational facilities on the academic performance of Muslim secondary school students in The Gambia. Specifically, the study seeks to determine the extent to which school facilities influence students' academic performance across selected secondary schools. To achieve this purpose, the study aims to:

1. Assess the adequacy of educational facilities in selected secondary schools in The Gambia.
2. Examine Muslim students' perceptions of how these facilities affect their learning.

3. Investigate whether a relationship exists between educational facilities and students' academic performance.

1.4 Research Questions

This study will be guided by the following research questions:

1. What is the level of adequacy of educational facilities in selected secondary schools in The Gambia?
2. How do Muslim students perceive the influence of educational facilities on their learning?
3. Is there a relationship between educational facilities and students' academic performance?

1.5 Significance of the Study

This study is significant because it provides empirical evidence on the relationship between educational facilities and academic performance among secondary school Muslim students in The Gambia, a population that has received limited focused scholarly attention. The findings are expected to contribute meaningfully to educational policy development, institutional planning, academic research, and stakeholder decision-making within the Gambian education sector. For policymakers and government agencies, particularly the Ministry of Basic and Secondary Education (MoBSE), the results of this study serve as an evidence-based resource for educational planning and infrastructure development. The study will provide data-driven insights into facility-related gaps across secondary schools, thereby supporting informed decision-making regarding budget allocation, policy formulation, and the prioritization of infrastructural investments.

For school administrators and educators, the findings offer practical insights into how the availability and quality of educational facilities affect students' academic engagement and achievement. This knowledge can support school leaders in developing effective facility management strategies, improving maintenance practices, and optimizing the use of existing resources. Teachers may also benefit from understanding how physical learning environments influence instructional effectiveness, student motivation, and classroom performance, thereby encouraging more strategic utilization of available facilities. For parents and students, the study increases awareness of the critical role that school infrastructure plays in academic success.

For researchers and academics, this study contributes to the growing body of literature

on educational infrastructure and student achievement. The study addresses a notable research gap by providing context-specific empirical evidence from The Gambia. It may serve as a reference point for future comparative studies, longitudinal research, and policy-oriented educational investigations. For non-governmental organizations (NGOs), development partners, and donor agencies, the findings offer valuable guidance for the design and implementation of educational support programs. The study can help ensure that donor-funded interventions are strategically targeted, cost-effective, and aligned with the most pressing educational needs of secondary schools.

1.6 Scope of the Study

This study aims to examine the relationship between educational facilities and the academic performance of secondary school Muslim students in The Gambia. The scope is defined by geographical coverage, content focus, target population, and measurement boundaries to ensure clarity, relevance, and feasibility of the research. Geographically, the study is confined to selected secondary schools across Kanifing Municipality. In terms of content focus, the study focuses on key educational facilities considered essential for effective teaching and learning at the secondary school level. These facilities include classroom infrastructure, library facilities, science laboratory facilities, ICT and computer facilities, and sanitation and water facilities. These facility components were selected because of their direct relevance to curriculum implementation, student engagement, and academic achievement.

The target population of the study consists of Muslim students enrolled in senior secondary schools in Kanifing Municipality. This population was selected due to its significant representation within the national education system and the relevance of religious and cultural considerations that may interact with school infrastructure and learning environments. Academic performance in this study is measured using students' self-reported cumulative academic records, with particular emphasis on performance in core subjects such as English Language, Mathematics, and Science. These subjects were selected because they serve as key indicators of academic achievement and are central to national assessment standards. While it is acknowledged that academic performance is influenced by multiple factors, including socioeconomic background, teacher quality, parental involvement, and school leadership, the present study limits its primary focus to educational facilities.

1.7 Operational Definition of Terms

Educational Facilities: The physical infrastructure and resources, such as classrooms, laboratories, libraries, and sanitation systems, which are provided to support the delivery of quality education and create a conducive learning environment. In this study, Educational facilities are operationalized as the physical infrastructure and material resources provided within secondary schools to support teaching and learning activities. In this study, educational facilities are classrooms and furniture, libraries and books, science laboratories, ICT and computer labs, sanitation and water, and sports facilities.

Academic Performance: This refers to the extent to which a student has achieved their educational goals as measured by standardized assessments, examinations, grades, or other formal evaluations of learning outcomes. In this study, academic performance refers to the level of achievement attained by secondary school Muslim students in their academic studies as measured by their self-reported cumulative examination scores and grades in core subjects, specifically English Language, Mathematics, and Science.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter provides a comprehensive review of the literature on the impact of educational facilities on academic performance, with a particular focus on the context of Muslim students in The Gambia. The review is structured into conceptual, theoretical, and empirical reviews, providing a robust foundation for the current research.

1.1 Conceptual Review

A conceptual review provides a systematic explanation of the key concepts underpinning a study and clarifies how these concepts are understood and applied within the research context. In educational research, conceptual clarity is essential for establishing meaningful relationships between variables and for ensuring consistency in interpretation. This study is anchored on two central concepts: educational facilities (independent variable) and academic performance (dependent variable). The review, therefore, examines these concepts in detail and explains their interrelationships within the school learning environment.

1.1.1 Educational Facilities

Educational facilities constitute a foundational component of any functional learning environment, fundamentally shaping the quality, accessibility, and effectiveness of education. Conceptually, educational facilities refer to the totality of physical infrastructure, material resources, and environmental provisions within an educational institution that are designed to facilitate and enhance the process of teaching and learning (Earthman, 2004; Olori, 2014). This concept transcends the simplistic notion of school buildings to encompass an integrated system of spaces and resources that collectively create the conditions necessary for pedagogical success

The importance of educational facilities is anchored in several educational and psychological frameworks. From an ecological perspective, as proposed by Bronfenbrenner (1979), the school facility represents a critical microsystem where students interact directly with their immediate physical environment. The quality of this environment, encompassing factors such as space, safety, comfort, and resource availability, profoundly influences cognitive engagement, behavioural patterns, and academic development. Furthermore, Bandura's (1986) Social Cognitive Theory, through its principle of reciprocal determinism,

posits that the environment interacts dynamically with personal and behavioural factors. A well-resourced and orderly facility can enhance students' self-efficacy and observational learning, while a dilapidated one can undermine motivation and model neglect (Bandura, 1997). These theories collectively underscore that educational facilities are not passive backdrops but active, dynamic agents in the educational process.

Delving into the specific components, classroom infrastructure serves as the primary arena for instruction. Its adequacy is measured by dimensions such as space-per-student ratio, ventilation, lighting, acoustics, and the condition of furniture (Earthman, 2002). Overcrowded, poorly lit, or inadequately ventilated classrooms have been consistently linked to decreased student attention, increased fatigue, and lower academic achievement (Cash, 1993). Libraries and learning resource centers represent another vital facility, acting as hubs for knowledge acquisition beyond the classroom. Their value lies not only in the collection of textbooks and reference materials but also in providing a quiet, structured space for independent study and research, which fosters critical thinking and a culture of reading (Lance et al., 2005). A lack of such resources severely limits students' ability to explore subjects in depth and cultivate autonomous learning skills.

For science education, laboratory facilities are indispensable. They provide the venue for experiential, hands-on learning, which is crucial for mastering scientific concepts and methodologies (Hofstein & Lunetta, 2004). A functional laboratory allows students to transition from abstract theory to practical application, thereby enhancing conceptual understanding, problem-solving skills, and scientific literacy. The absence or poor condition of laboratory equipment effectively reduces science education to a theoretical exercise, disadvantaging students in both examinations and future STEM-related pursuits. Similarly, in the contemporary digital era, Information and Communication Technology (ICT) facilities have become a core component of educational infrastructure. Computer laboratories with reliable internet access are essential for developing digital literacy, facilitating research, enabling technology-aided instruction, and preparing students for a globally connected world (Kozma, 2011). The digital divide, manifested through unequal access to ICT facilities, can exacerbate existing educational inequalities.

Often overlooked yet critical are ancillary facilities related to health and well-being. Sanitation facilities, including clean, accessible, and gender-separated toilets, and a reliable supply of potable water are fundamental to students' dignity, health, and regular attendance (WHO and UNICEF, 2018). Inadequate sanitation is a significant deterrent to school attendance, particularly for adolescent girls, and can lead to health issues that further disrupt

learning (UNICEF, 2005). Furthermore, a consistent electricity supply powers lights, fans, computers, and science equipment, making it an enabling utility without which other facilities cannot function optimally.

The condition and availability of these facilities are not uniform, especially in developing contexts like The Gambia. Research across Africa highlights a persistent gap between policy aspirations and the reality on the ground, with many schools suffering from inadequate infrastructure, overcrowding, and poor maintenance (Ajayi & Oyediran, 2007; MoBSE, 2018). This disparity often falls along geographical and administrative lines, with rural and public schools typically facing more severe resource constraints than their urban and private counterparts.

Classrooms and Furniture

Classrooms constitute the primary and most fundamental instructional environment within any educational institution, serving as the central arena where teacher-student interaction, pedagogical delivery, and the majority of academic engagement occur. Defined as designated physical spaces equipped for group instruction, the quality of a classroom is not merely a function of its existence but is critically determined by its size, design, environmental conditions, and the adequacy of its furnishings (Earthman, 2004). Scholarly consensus affirms that effective classrooms must provide sufficient space per student to prevent overcrowding, ensure proper ventilation and thermal comfort, supply adequate natural and artificial lighting, and maintain acceptable acoustic levels to minimize auditory distraction (Lackney & Picus, 1999). Furniture, specifically desks and chairs, is an integral extension of the classroom infrastructure. Ergonomically designed, age-appropriate furniture supports proper posture, reduces physical fatigue, and facilitates various instructional arrangements, from traditional rows to collaborative group clusters, thereby directly influencing student comfort and readiness to teach (Knight & Noyes, 2011). Conversely, dilapidated, mismatched, or insufficient furniture can create physical discomfort, hinder movement, and signal institutional neglect, all of which detract from the learning process.

The pedagogical significance of well-designed classrooms and furniture is strongly supported by environmental psychology and educational research. The theory of situated cognition posits that learning is deeply embedded in the physical and social context in which it occurs; therefore, the classroom environment directly shapes cognitive engagement and knowledge construction (Brown, Collins, & Duguid, 1989). A well-organized, aesthetically pleasing, and resource-rich classroom can foster a positive classroom climate, reduce

behavioural issues, and enhance students' sense of belonging and safety (Hoy & Miskel, 2012). From a practical standpoint, adequate space and flexible furniture are prerequisites for implementing diverse, student-centered pedagogical strategies such as collaborative learning, project-based activities, and differentiated instruction, which are central to 21st-century educational paradigms (OECD, 2013). When classrooms are overcrowded or poorly furnished, teachers are often constrained to didactic, lecture-based methods, limiting student interaction, practical application, and the development of higher-order thinking skills.

Studies consistently link classroom quality to measurable academic outcomes. Studies across varied contexts demonstrate that students in smaller, well-ventilated, and appropriately furnished classrooms exhibit higher levels of on-task behaviour, greater participation, and significantly better performance on standardized assessments compared to peers in substandard environments (Cash, 1993; Barrett, Zhang, Moffat, & Kobbacy, 2013). For instance, research by Earthman and Lemaster (1996) found a statistically significant correlation between classroom conditions, encompassing factors like lighting and furniture quality, and student achievement scores in mathematics and reading. In the context of developing nations, where resource constraints are acute, the challenge of overcrowded classrooms with inadequate furniture is pervasive and is frequently cited as a major impediment to educational quality and equity (UNESCO, 2015).

Libraries and Books

The school library, often termed the learning resource center, is a cornerstone of academic infrastructure that extends learning far beyond the confines of the classroom. It is defined as a curated collection of print and non-print materials, including textbooks, reference works, periodicals, and multimedia resources, housed in a dedicated, organized, and accessible space designed to support the curriculum and foster independent inquiry (IFLA, 2015). Its core functions are multi-faceted: to provide equitable access to information, to develop students' information literacy and research skills, to support literacy and promote a culture of reading for pleasure, and to offer a quiet, conducive environment for study and intellectual reflection (Lance, 2002). The availability, currency, diversity, and relevance of the book collection are critical metrics of library quality. A well-stocked library with up-to-date, curriculum-aligned, and culturally relevant materials is essential for supplementing classroom instruction, enabling differentiated learning, and catering to varied student interests and abilities.

The pedagogical and cognitive impact of functional library facilities is well-documented in the literature. Libraries are instrumental in bridging the resource gap that often

exists between students from different socioeconomic backgrounds, thereby acting as a powerful agent of educational equity (Krashen, 2004). Access to a wide range of books is strongly correlated with the development of reading comprehension, vocabulary, and general academic literacy, which are foundational skills for success across all subject areas (Allington & McGill-Franzen, 2013). Furthermore, the process of navigating a library catalogue, locating resources, and synthesizing information from various sources is a critical exercise in developing information literacy, a key 21st-century skill essential for lifelong learning in an information-saturated world (AASL, 2018). The library environment itself, when properly managed, provides a sanctuary for concentrated study, free from the distractions that may be present in other school or home environments, which is particularly vital for students who lack such spaces elsewhere.

Research provides robust evidence linking library quality to student achievement. Large-scale studies, such as those conducted by Lance and his colleagues in the United States, have consistently found that school libraries with certified librarians, larger and more current collections, and better-funded budgets are associated with higher standardized test scores, even when controlling for socioeconomic factors (Lance & Hofschire, 2012). In the African context, studies indicate that the absence or severe inadequacy of library facilities is a significant constraint on educational quality. Students without access to supplementary texts are often wholly reliant on teacher notes and a single, potentially outdated textbook, which severely limits their exposure to diverse perspectives and depth of understanding (Adeyemi, 2010).

Science Laboratories

Science laboratories are specialized instructional facilities designed to provide students with direct, hands-on experience of scientific inquiry, experimentation, and discovery. They are purpose-built spaces equipped with the apparatus, instruments, chemicals, specimens, and safety gear necessary to conduct practical investigations in subjects such as biology, chemistry, and physics (Hofstein & Lunetta, 2004). A functional laboratory moves science education beyond the abstract theoretical realm presented in textbooks, allowing students to engage in the authentic practices of scientists: making observations, formulating hypotheses, collecting and analyzing data, and drawing evidence-based conclusions. The quality of a science laboratory is therefore not judged solely by its existence but by the adequacy, modernity, and safety of its equipment, the availability of consumable materials, and the design of its workspace to facilitate both individual and collaborative work.

The imperative for laboratory-based learning is rooted in constructivist learning

theories, most notably the work of Jean Piaget and Lev Vygotsky. Constructivism posits that learners actively construct knowledge through experience and social interaction. Laboratories provide the quintessential environment for this knowledge construction, enabling concrete operational experiences that are critical for understanding abstract scientific concepts (Tobin, 1990). Practical work in labs helps to demystify science, making it tangible and relevant. It develops not only conceptual understanding but also essential scientific skills, often referred to as "science process skills", such as measurement, observation, manipulation of variables, and logical reasoning (Millar, 2004). Furthermore, laboratory activities foster problem-solving abilities, cultivate curiosity, and can significantly enhance student motivation and interest in pursuing STEM (Science, Technology, Engineering, and Mathematics) fields (Singer, Hilton, and Schweingruber, 2006).

International assessments, such as the Trends in International Mathematics and Science Study (TIMSS), consistently highlight that students from schools with well-equipped and regularly used laboratories achieve significantly higher scores in science literacy and application (Martin et al., 2012). Research by Hofstein and Mamlok-Naaman (2007) underscores that the frequency and quality of practical work are key predictors of student success in science examinations. In contrast, the absence of laboratories forces teachers to rely exclusively on "chalk-and-talk" methods or theoretical descriptions of experiments, which often leads to rote memorization, misconceptions, and a general disengagement from science subjects.

Computer Labs and Internet

Computer laboratories, increasingly conceptualized as ICT (Information and Communication Technology) hubs, represent a critical component of modern educational infrastructure, essential for preparing students for a digital world. These are designated spaces equipped with networked computers, relevant software applications, peripheral devices (such as printers and scanners), and, fundamentally, reliable internet connectivity (Kozma, 2011). Their primary function is to facilitate digital literacy, the ability to use technology effectively to find, evaluate, create, and communicate information, and to integrate technology as a tool for enhancing learning across the curriculum. The quality of an ICT facility is measured by the student-to-computer ratio, the functionality and modernity of the hardware and software, the speed and reliability of the internet connection, and the availability of technical support and digital learning resources.

The integration of ICT in education is supported by theories of learning that emphasize

connectivity and constructionism. Connectivist theory (Siemens, 2005) argues that learning in the digital age occurs within networks where information is abundant and the skill lies in navigating and synthesizing it. Computer labs with internet access provide the gateway to these global knowledge networks, enabling project-based learning, collaborative online work, and access to a vast repository of educational content, including simulations, tutorials, and scholarly databases. Furthermore, constructionism (Papert & Harel, 1991) posits that learning happens most effectively when students are engaged in constructing tangible products. ICT labs provide the tools for this construction, whether it be programming a simple animation, creating a multimedia presentation, analyzing data with spreadsheet software, or designing a digital model. This active use of technology promotes higher-order thinking, creativity, and problem-solving skills.

Research underscores a significant "digital divide" in educational outcomes linked to access to quality ICT facilities. Studies in both developed and developing contexts show that students with regular, pedagogically sound access to computers and the internet demonstrate improved performance in subjects ranging from mathematics and science to language arts, as technology aids in visualization, practice, and personalized learning (Warschauer & Matuchniak, 2010). A report by the World Bank (2016) emphasizes that ICT in education can improve management efficiency, teacher professional development, and student engagement. However, in resource-constrained settings like The Gambia, computer labs are often non-existent, under-equipped, or plagued by erratic power and internet connectivity. This absence not only limits the development of essential 21st-century skills but also reinforces socio-economic inequalities, as students from less affluent backgrounds are denied the digital fluency required for higher education and competitive job markets (UNESCO, 2011). Therefore, the status of computer labs and internet access is a key indicator of a school's capacity to deliver a contemporary, relevant education and directly influences students' academic preparedness and future opportunities.

Sports Facilities

Sports facilities, encompassing playgrounds, fields, courts, and gymnasiums, along with relevant sporting equipment, constitute an essential, though sometimes marginalized, component of a holistic educational environment. These facilities provide the venue for structured physical education (PE) classes, intramural sports, and recreational activities. Their purpose extends far beyond mere physical exertion; they are instrumental in promoting the physical health and motor skill development of students, which is a foundational aspect of

overall well-being (CDC, 2018). Regular physical activity is linked to improved cardiovascular health, muscular strength, coordination, and a reduced risk of obesity and related non-communicable diseases, establishing a critical connection between the school's physical environment and student health outcomes.

The educational and psycho-social value of quality sports facilities is strongly supported by developmental and motivational theories. From a developmental perspective, physical activity during adolescence is crucial for healthy growth and provides a constructive outlet for energy and stress (Bailey, 2006). Furthermore, sports participation is a powerful context for socio-emotional learning. It offers structured opportunities for students to develop teamwork, leadership, discipline, resilience, and sportsmanship—transferable life skills that contribute to character education (Hellison, 2011). Self-Determination Theory (Ryan & Deci, 2000) suggests that environments supporting autonomy, competence, and relatedness enhance intrinsic motivation. Well-organized sports programs in adequate facilities can fulfill these needs by allowing students to choose activities (autonomy), master skills (competence), and connect with peers (relatedness), thereby fostering greater overall school engagement.

Research increasingly demonstrates a positive correlation between physical activity, facilitated by adequate sports facilities, and cognitive and academic outcomes. Studies utilizing neuroimaging have shown that physical activity can stimulate brain function, improve attention, and enhance memory and information processing speed (Hillman et. al, 2008). Meta-analyses in educational research indicate that students who participate regularly in physical education and school sports often show better concentration, classroom behavior, and even higher grades and standardized test scores, particularly in mathematics and reading (CDC, 2010; Trudeau & Shephard, 2008). In contexts where resources are limited, sports facilities are often the first to be neglected or repurposed.

However, this neglect overlooks their integral role in student development. For Muslim students, the provision of appropriate sports facilities that respect cultural norms regarding modesty and gender (such as separate spaces or timing for girls) is also important for ensuring inclusive participation. Therefore, sports infrastructure should be viewed not as an extracurricular luxury but as a vital educational asset that supports the physical, social, emotional, and cognitive development of all students, indirectly but significantly contributing to a conducive learning ecosystem.

Sanitation and Water

Sanitation and water facilities in schools refer to the infrastructure that ensures access to safe

drinking water, gender-separated and hygienic toilets, hand washing stations with soap, and effective waste management systems. These are fundamental public health necessities and a basic human right, as recognized by the United Nations (WHO & UNICEF, 2018). Their provision is a non-negotiable prerequisite for a safe, healthy, and dignified learning environment. Adequate Water, Sanitation, and Hygiene (WASH) facilities are critical for preventing the spread of infectious diseases, reducing student and staff absenteeism due to illness, and promoting daily hygiene practices that have lifelong health benefits.

The link between WASH facilities and educational outcomes is both direct and indirect, grounded in health and psychosocial theory. From a health perspective, poor sanitation and contaminated water are primary vectors for diarrheal diseases, intestinal worms, and other infections that directly impair a child's nutritional status, energy levels, and cognitive function (Jasper, Le, & Bartram, 2012). Frequent illness leads to repeated school absences, disrupting the continuity of learning and causing students to fall behind academically. Psychosocially, the absence of safe, private, and clean sanitation facilities, especially for menstruating girls, is a major cause of school dropout and irregular attendance (Sommer et al, 2016). Fear, embarrassment, and discomfort associated with inadequate toilets create a significant barrier to school participation and full engagement in learning activities. A school environment that provides clean water and dignified sanitation supports students' sense of safety, privacy, and well-being, which are foundational to Maslow's hierarchy of needs and prerequisite for achieving higher-level cognitive and self-actualization goals, including academic success.

Studies confirm that investments in school WASH yield significant returns in educational metrics. Comprehensive studies, including systematic reviews, have documented that improving school water and sanitation infrastructure leads to measurable decreases in student absenteeism and reductions in diarrheal disease prevalence (Freeman et al, 2014). For example, a study in Kenya found that providing sanitary pads and improving sanitation facilities reduced girls' absenteeism significantly (Montgomery et al, 2012). In The Gambia and similar contexts, where water scarcity and infrastructure challenges are prevalent, deficiencies in school WASH facilities are acute, particularly in rural areas. These deficiencies disproportionately affect vulnerable groups and constitute a severe yet remediable obstacle to equitable access to education and academic achievement (MoBSE, 2018).

2.2.2 Academic Performance

Academic performance is a multidimensional construct that denotes the measurable

achievement of learners in relation to established educational objectives and curricular standards. It fundamentally represents the extent to which students have attained the knowledge, skills, and competencies outlined in the formal curriculum (Harlen, 2005). Operationally, academic performance is quantified through a range of evaluative instruments, including standardized examinations, continuous assessments, termly grades, cumulative grade point averages (CGPA), and results from national benchmark tests such as the West African Senior School Certificate Examination (WASSCE) (WAEC, 2020). However, contemporary scholarship posits that true academic performance transcends rote memorization or the mere reproduction of information. Instead, it reflects a deeper synthesis of cognitive abilities, encompassing comprehension, analysis, synthesis, application, and evaluation as well as the capacity to transfer and apply knowledge across varied contexts (Ololube, 2013).

Academic performance refers to the measurable demonstration of a student's knowledge, understanding, and mastery of subject content within the educational process. It reflects the extent to which learners achieve the educational objectives set by the curriculum, teachers, and institutions. Academic performance is not limited to rote memorization or the ability to reproduce information; rather, it encompasses a combination of cognitive, analytical, and problem-solving skills that enable students to apply knowledge effectively in different contexts (Harlen, 2005). It serves as a key indicator of educational effectiveness, both at the individual student level and at broader institutional and national levels.

The significance of academic performance within secondary education cannot be overstated, as it serves a dual gatekeeping and predictive function. It is the primary determinant of a student's eligibility for progression into higher education institutions and influences access to specific vocational and professional pathways (OECD, 2019). Consequently, performance at this educational level carries substantial weight in shaping an individual's future socioeconomic opportunities and lifelong learning trajectory. From an institutional and systemic perspective, aggregate academic performance data are used to evaluate school effectiveness, inform curriculum reforms, and guide national educational policy (Scheerens, 2016).

Understanding the determinants of academic performance requires a multifactorial framework. Student achievement is not the product of a single influence but arises from a complex interplay of endogenous and exogenous variables. Key endogenous factors include the learner's cognitive ability, motivation, self-efficacy, study habits, and psychological well-being (Zimmerman, 2000). Exogenously, performance is shaped by the quality of instruction, pedagogical approaches employed by teachers, levels of parental involvement and support,

school leadership efficacy, and the broader socio-economic context of the student's household and community (Sirin, 2005).

2.2.2.1 Key Indicators of Academic Performance

The measurement of academic performance relies on multiple indicators, including internal assessments, standardized examinations, and cumulative academic records. Internal assessments, such as class tests, assignments, and continuous assessment scores, provide a regular measure of students' understanding and progress throughout the academic year. Standardized national examinations, such as the West African Senior School Certificate Examination (WASSCE) in The Gambia, provide a broader benchmark for evaluating student performance relative to national educational standards. Additionally, cumulative grade point averages (CGPA) offer a holistic measure of students' performance over multiple subjects and academic periods, reflecting sustained learning outcomes and mastery of curriculum content.

2.3 Theoretical Review

This study is anchored within a multi-theoretical framework that integrates ecological, cognitive, and organizational perspectives to comprehensively explain the relationship between educational facilities and academic performance. The integration of Ecological Systems Theory, Social Cognitive Theory, and School Climate Theory provides a robust and multi-layered rationale for investigating how the physical school environment influences the academic outcomes of Muslim secondary school students in The Gambia. These theories collectively argue that academic achievement is not solely an individual endeavour but is profoundly shaped by environmental structures, psychological processes, and institutional climates that are directly and indirectly affected by material resources.

Ecological Systems Theory (Urie Bronfenbrenner)

Ecological Systems Theory, developed by Urie Bronfenbrenner (1979), provides a foundational framework for understanding human development as being embedded within a series of nested environmental systems, each with its own structures and processes that interact dynamically to shape individual outcomes. Bronfenbrenner proposed that a child's development is influenced by multiple layers of environment, ranging from the immediate settings of daily life to the broader cultural context. This theory is particularly valuable for educational research as it moves beyond a singular focus on the learner to examine how interconnected systems from classroom design to national policy- collectively facilitate or hinder educational success.

The theory delineates five primary systems. The microsystem represents the immediate environment where direct interactions occur, such as the school, classroom, and family. In this study, the quality of educational facilities, classrooms, libraries, laboratories, and sanitation constitutes a critical element of the school microsystem. Their condition directly impacts a student's daily experience, physical comfort, and cognitive capacity for learning (Bronfenbrenner, 1979). The mesosystem involves the interconnections between microsystems, such as the relationship between the school and the home. For instance, parental perception of a school's poor facilities may affect their engagement and support for their child's attendance and homework completion.

The ecosystem comprises external settings that indirectly influence the student, such as school board decisions, local government budgets for education, or the policies of the Ministry of Basic and Secondary Education (MoBSE). These exosystemic factors determine the funding and prioritization for infrastructural development, thereby controlling the resources that reach the microsystem. Lastly, the macro-system encompasses the overarching cultural values, economic conditions, and national laws that shape all other systems. In The Gambia, this includes the national commitment to education as reflected in policy documents like the Education Sector Strategic Plan, as well as societal attitudes toward hygiene and the value placed on science and technology education (MoBSE, 2018).

Applied to the present study, Ecological Systems Theory posits that deficiencies in educational facilities (a microsystem issue) cannot be fully understood in isolation. They are manifestations of failures or constraints within the ecosystem and the macro-system. This theoretical perspective justifies the study's focus on facilities as a proximal cause of academic performance while simultaneously necessitating an analysis that considers broader systemic challenges. It provides a powerful lens for explaining why infrastructural disparities persist between urban and rural schools, and between public and private institutions, thereby framing the research within a context of systemic educational equity.

Social Cognitive Theory (Albert Bandura)

Social Cognitive Theory (SCT), pioneered by Albert Bandura (1986), offers a comprehensive psychological framework for understanding how individuals acquire knowledge and regulate their behaviour through a dynamic, triadic interaction between personal factors, behaviour, and the environment a concept termed reciprocal determinism. Central to SCT is the assertion that individuals are not merely passive recipients of environmental stimuli but are active agents in their learning process, capable of self-regulation, forethought, and self-reflection. This agentic perspective is crucial for examining how students' cognitive and motivational states mediate

the relationship between their physical learning environment and their academic performance.

A core mechanism of SCT is observational learning or modelling, whereby individuals learn behaviours by observing others (Bandura, 1977). In the school context, students observe teachers demonstrating experiments in a laboratory or peers utilizing library resources. The availability and functionality of these facilities are, therefore, prerequisites for effective modelling to occur. A non-existent or poorly equipped laboratory denies students the opportunity to observe and internalize scientific procedures, thereby hindering skill acquisition. Closely tied to this is the construct of self-efficacy, defined as an individual's belief in their capability to organize and execute the courses of action required to produce given attainments (Bandura, 1997). Self-efficacy is a potent predictor of academic motivation, persistence, and resilience in the face of difficulty. A learning environment rich in resources, such as functional computers, well-stocked libraries, and clean, organized classrooms, empowers students, bolstering their confidence in their ability to complete assignments, conduct research, and master complex subjects (Zimmerman, 2000). Conversely, a resource-poor environment can erode self-efficacy, leading to learned helplessness, disengagement, and avoidance of academic challenges.

The principle of reciprocal determinism is particularly salient for this study. It posits that the environment influences behaviour and cognition, which in turn can alter the environment. For example, a school with excellent facilities (environment) enhances student self-efficacy and engagement (personal factors), leading to higher academic achievement and more diligent use of the facilities (behaviour). This positive cycle reinforces itself. Conversely, dilapidated facilities can foster low self-efficacy and disruptive behaviour, further degrading the environment and perpetuating poor outcomes.

Therefore, SCT provides a theoretical basis for hypothesizing a strong, interactive relationship between educational facilities and academic performance. It moves the analysis from a simple cause-and-effect model to a more nuanced understanding of how facilities shape the psychological landscape of learning, which directly drives academic behaviours and results. For Muslim students in The Gambia, a supportive and well-resourced environment that also respects their cultural and religious needs (e.g., through adequate sanitation for ablution) can be especially powerful in fostering a positive academic identity and high self-efficacy.

School Climate Theory (Hoy and Miskel)

School Climate Theory, as advanced by Hoy and Miskel (2001, 2012), conceptualizes the shared perceptions of the school's environment its "personality" by those who live and work within it. School climate is a multidimensional construct encompassing the physical

environment, social relationships, teaching and learning practices, and organizational structures. A positive school climate is characterized by safety, supportive relationships, respect, high expectations, and an engaging learning environment, and it is consistently correlated with improved student attendance, motivation, behaviour, and academic achievement (Thapa et al, 2013).

The physical dimension of school climate is of primary importance to this study. Hoy and Miskel (2012) argue that the condition and adequacy of a school's physical plant are foundational to perceptions of safety, order, and institutional care. Physical safety and comfort are baseline requirements; students cannot focus on learning if they feel unsafe, are too hot or cold, cannot see the board, or are avoiding unsanitary toilets (Cohen et al, 2009). Well-maintained facilities communicate that students are valued and that their education is a priority, directly contributing to a climate of respect and high expectations. Furthermore, the availability of resources, from textbooks to lab equipment, signals the school's commitment to providing meaningful learning opportunities. When resources are scarce or dysfunctional, it creates a climate of deprivation and frustration that can demoralize both students and teachers, undermining the teaching-learning process.

Beyond the physical, School Climate Theory emphasizes the psycho-social dimensions that facilities influence. A clean, attractive, and well-resourced school fosters a sense of belonging and school pride (Brookover et al., 1979). Students who take pride in their school are more likely to identify with its goals, adhere to its norms, and engage proactively in academic and extracurricular activities. This sense of community and shared purpose is a key component of a positive climate that promotes cooperation, reduces conflict, and channels energy toward learning. For Muslim students, a school climate that is physically comfortable and also culturally responsive, for example, by providing spaces for prayer, can significantly enhance this sense of belonging and inclusion.

In the context of Gambian secondary schools, School Climate Theory provides a powerful explanatory framework. Disparities in educational facilities between urban/rural and public/private schools are not just material inequalities; they represent profound differences in institutional climate. A school struggling with overcrowded classrooms, a lack of labs, and poor sanitation is likely to be perceived as chaotic, neglectful, and low-achieving, a negative climate that becomes self-reinforcing. This theory therefore, supports the central hypothesis of this study by positing that investments in educational facilities are investments in the very climate of the school. Improving facilities is a direct strategy for transforming the school's personality from one of neglect to one of care, from disorder to purpose, and ultimately, from

low performance to high achievement. It underscores that facilities are active agents in creating the conditions necessary for academic success, especially for populations like Muslim students in The Gambia, where a supportive and respectful climate is paramount.

2.3.1 Theoretical Framework of the Study

This study is anchored in Albert Bandura's Social Cognitive Theory (SCT), which serves as the core theoretical framework for examining the relationship between educational facilities and the academic performance of Muslim secondary school students in The Gambia. Social Cognitive Theory, as articulated by Bandura (1986), posits that learning and behaviour result from a dynamic, reciprocal interaction between personal cognitive factors, environmental influences, and individual behaviour, a concept termed triadic reciprocity or reciprocal determinism. Unlike earlier behaviourist models that emphasized passive conditioning, SCT positions learners as active agents who observe, interpret, and regulate their actions based on their beliefs, self-perceptions, and the contexts in which they operate. This agency-centered perspective is particularly relevant in educational research, as it explains how students' academic behaviours such as persistence, engagement, and study habits are shaped not only by instruction but also by their perceptions of the learning environment and their confidence in navigating it (Bandura, 1997; Zimmerman, 2000).

At the heart of SCT are several interconnected constructs that directly inform this study's focus on educational facilities. Observational learning (or modelling) suggests that students acquire knowledge and skills by observing others, including teachers and peers, within their environment (Bandura, 1977). In a school setting, this process is heavily mediated by the availability and functionality of facilities. For instance, a well-equipped science laboratory allows students to observe experiments conducted by teachers or peers, thereby internalizing scientific methods and building procedural confidence. Conversely, the absence of such a facility deprives students of these observational opportunities, limiting their exposure to practical applications of theoretical knowledge. Similarly, self-efficacy, defined as an individual's belief in their capability to organize and execute courses of action required to produce given attainments, is a central motivational mechanism in SCT (Bandura, 1997). Students with high academic self-efficacy are more likely to set challenging goals, exert sustained effort, and persevere through difficulties. Educational facilities play a crucial role in shaping this self-efficacy. Access to functional ICT labs, well-stocked libraries, and adequate classroom infrastructure provides students with the mastery experiences and vicarious experiences that Bandura identifies as key sources of efficacy beliefs. When students successfully use laboratory equipment or find relevant resources in a library, they reinforce

their belief in their academic abilities. On the other hand, poorly resourced environments can undermine self-efficacy by creating repeated experiences of frustration, helplessness, or failure, leading to disengagement and reduced academic effort.

The principle of reciprocal determinism is especially salient for this research. It posits that behavior, personal factors, and the environment continuously influence one another. In the context of this study, this means that the quality of educational facilities (environment) affects students' self-efficacy and attitudes toward learning (personal factors), which in turn influence their academic engagement and performance (behaviour). Improved facilities can initiate a positive cycle: better resources enhance self-efficacy, leading to more active participation and higher achievement, which may further encourage the school to maintain and invest in its infrastructure. Conversely, dilapidated facilities can trigger a negative spiral, where low self-efficacy and poor performance reinforce a climate of neglect. This dynamic framework allows the study to move beyond a simplistic cause-effect model and instead investigate how facilities operate as part of an interactive system that shapes student outcomes.

Furthermore, SCT provides a lens through which to interpret the perceptual data central to this study. Students' perceptions of facility adequacy and influence are not merely subjective opinions; they are cognitive appraisals that mediate how the environment affects their motivation and behaviour. If students perceive laboratories as non-functional or libraries as irrelevant, this perception directly impacts their self-efficacy and their decision to engage with these resources. Thus, measuring student perceptions aligns with SCT's emphasis on the individual's cognitive processing of environmental stimuli.

In applying SCT to the Gambian context, the study also considers cultural and religious dimensions. For Muslim students, facilities that accommodate religious practices, such as clean water for ablution or appropriate spaces for prayer, can enhance psychological comfort and belonging, which Bandura (1997) links to emotional and cognitive states that support self-efficacy. A school environment that respects and supports these needs can thus be seen as a form of social and affective support, another source of efficacy in SCT.

2.4 Empirical Review

2.4.1 Educational Facilities and Academic Performance

A substantial body of empirical research has established a compelling and often causal link between the quality of educational facilities and student academic performance, though the depth and context of this relationship vary significantly across developed and developing

nations. Early and influential work in the United States set a strong precedent for this field of inquiry. Cash's (1993) seminal study in Virginia was among the first to systematically isolate the variable of school facility condition from socioeconomic factors. Employing a quantitative, correlational design, Cash assessed the physical state of school buildings using a standardized instrument and analyzed achievement scores on standardized tests. The intent was to determine if building conditions had an independent effect on student outcomes. The findings were unequivocal: students in schools rated as being in "good" condition scored significantly higher in both mathematics and English assessments than those in schools rated as "poor," even when controlling for the socioeconomic status of the student body. This research was pivotal because it challenged the assumption that poor performance was solely attributable to student background, directing policy attention toward the material conditions of schooling itself.

Library and Books

The role of school libraries as a determinant of academic achievement has been rigorously documented, particularly in developed contexts. A series of state-wide studies in the United States by Lance, Rodney, and Hamilton-Pennell (2005) employed complex statistical modelling, controlling for variables such as school spending and student demographics, to quantify the impact of library programs and resources. Their consistent finding across multiple states was that schools with professionally staffed, well-funded, and resource-rich libraries reported significantly higher standardized test scores in reading and language arts. The mechanism, they argued, was not merely access to books but the instructional role of the librarian in fostering information literacy and collaborative learning with teachers.

In developing countries, the absence of such library infrastructure creates a stark educational deficit. A landmark study by Ajayi and Oyediran (2007) in Nigeria used a descriptive survey design to correlate facility inventories with school-wide examination results. They found that schools characterized by non-existent libraries, alongside overcrowded classrooms and dilapidated laboratories, consistently produced the poorest academic results. This pattern suggests that the library's function as a cornerstone for independent learning and reading comprehension is universal, yet its absence is most acutely punitive in resource-constrained settings. Despite this, the empirical record remains virtually silent on the specific condition of library facilities for Muslim-majority student populations in countries like The Gambia (MoBSE, 2018; Jallow, 2019).

Classrooms and Furniture

While often considered a basic provision, the quality of classroom spaces and furniture has been shown to have consistent, significant correlations with student achievement. Earthman and Lemaster (1996), in their meta-analytic review, consolidated findings from multiple observational and cross-sectional studies, concluding that specific facility factors, particularly classroom lighting, acoustic quality, and indoor air quality, showed robust empirical patterns in developed contexts. Their work established that superior classroom infrastructure correlates with superior outcomes, a finding that has shaped subsequent policy discussions in high-income nations.

The situation in developing countries transforms this correlation into a fundamental constraint on educational quality and equity. Ajayi and Oyediran (2007) documented that overcrowded classrooms were a primary feature of Nigerian secondary schools producing the worst academic results. Overcrowding directly undermines acoustic quality, limits individual workspace, and reduces the ability of teachers to provide differentiated instruction. Furthermore, the absence of functional furniture (desks, chairs) affects student posture, concentration, and ability to complete written work. Jallow (2019), in a rare Gambian study on determinants of academic performance, noted that teachers identified facility inadequacy, including poor classroom conditions, as a peripheral but persistent factor, though the study lacked a quantitative focus on this dimension. A critical gap remains concerning how the lack of gender-sensitive or culturally appropriate classroom arrangements affects Muslim students' engagement and sense of belonging (Khan, 2012; Al-Musawi, 2004).

Science Laboratories

Empirical evidence strongly supports the irreplaceable role of science laboratories in developing conceptual understanding and scientific reasoning skills. Hofstein and Lunetta (2004), in their review of international research incorporating both experimental and quasi-experimental designs, concluded that students who engaged in frequent, well-designed practical work outperformed those in purely lecture-based settings on assessments measuring application and analysis, not just recall. This finding transcends national boundaries, suggesting a causal link between laboratory quality and higher-order cognitive outcomes.

In developing countries, the lack of functional science laboratories is directly implicated in widespread academic failure. Ajayi and Oyediran (2007) identified the absence

of practical laboratory experience as a primary reason for poor performance in science subjects in Nigerian secondary schools. Their descriptive survey revealed that schools with dilapidated or non-existent laboratories consistently produced the lowest examination results. This empirical pattern is echoed across the region, yet the literature treats the student population as a monolithic whole (Adewale, 2009). Consequently, there is no published quantitative study examining how the lack of laboratory facilities specifically affects Gambian Muslim secondary school students, who may also face additional time pressures due to religious observances that could conflict with limited lab access (Jallow, 2019; MoBSE, 2018).

ICT and Computer Laboratories

As the digital age progressed, empirical focus shifted to Information and Communication Technology (ICT) facilities, revealing a nuanced relationship between infrastructure and outcomes. Kozma (2011) conducted a comprehensive macro-analytical analysis of international data, including from the OECD's PISA studies. He found that while the mere presence of computers showed a weak correlation, meaningful integration of ICT into teaching and learning, facilitated by reliable infrastructure, teacher training, and digital content, was associated with measurable gains in higher-order skills. Conversely, Warschauer and Matuchniak (2010) highlighted through mixed-methods case studies that without deliberate pedagogical integration and equitable access, investments in computer labs could exacerbate rather than alleviate achievement gaps.

In developing contexts, the presence of functional computer labs has demonstrated significant positive effects, though such infrastructure remains rare. Adewale (2009), using a quasi-experimental design comparing schools with and without functional computer labs in a Nigerian state, found that students with regular, curriculum-based access to ICT scored significantly higher in both science and language assessments. This improvement was attributed to enhanced research capabilities and engagement. However, a critical empirical gap persists for countries like The Gambia. National policy documents (MoBSE, 2018) acknowledge infrastructural deficits, but no published quantitative study has specifically investigated how the absence of ICT facilities intersects with the educational experiences of Gambian Muslim students. Furthermore, the potential for ICT to support religious or cultural learning (e.g., digital access to Arabic or Islamic studies resources) remains unexplored (Khan, 2012; Al-Musawi, 2004).

Sanitation and Water Facilities

The empirical evidence concerning Water, Sanitation, and Hygiene (WASH) facilities is particularly stark in its human and educational implications. The World Health Organization and UNICEF (2018) have compiled extensive global data showing a direct link between inadequate school sanitation, student health, and attendance. A rigorous systematic review and meta-analysis by Freeman et al. (2014), focusing on low- and middle-income countries, concluded that providing safe water, improved sanitation, and handwashing facilities in schools led to a significant reduction in diarrheal diseases and school absenteeism. This establishes a clear, causal pathway from WASH infrastructure to academic performance via improved health and attendance.

The gender and religious dimensions of WASH inadequacy have been powerfully documented, yet remain understudied in majority-Muslim developing nations. Sommer et al. (2016), through participatory qualitative research with adolescent girls in sub-Saharan Africa, found that the lack of private, clean, and safe sanitation facilities was a primary driver of school absenteeism and dropout among pubescent girls. Additionally, for Muslim students, the need for clean water for ablution (ritual washing before prayers) introduces a unique facility requirement. Al-Musawi (2004) argued conceptually that the absence of such features creates psychological dissonance that impedes learning. While Khan (2012) provided quantitative support from a UK minority context, showing that culturally sensitive facilities improved belonging and concentration, no empirical study has investigated this in a majority-Muslim, resource-constrained setting like The Gambia. The daily reality of a lack of clean water for ablution and unsanitary toilets (Freeman et al., 2014; WHO/UNICEF, 2018) remains an unexplored dimension in the Gambian empirical literature (Jallow, 2019; MoBSE, 2018).

Sports Facilities

Compared to classrooms, libraries, or WASH infrastructure, sports facilities have received less direct empirical attention in the educational achievement literature. However, their indirect role, through physical health, school belonging, and psychosocial development, is acknowledged. Khan (2012), in a mixed-methods study with Muslim students in the United Kingdom, found that schools demonstrating cultural sensitivity in facility planning, including the provision of gender-segregated sports facilities, reported higher levels of belonging, concentration, and academic motivation among Muslim students. This finding suggests that

sports facilities are not merely recreational but can serve as markers of an inclusive and respectful school environment.

In developing countries and Muslim-majority contexts, the empirical record on sports facilities is almost entirely absent. Studies from Nigeria (Ajayi & Oyediran, 2007; Adewale, 2009) did not include sports infrastructure as a variable in their facility inventories. Similarly, Gambian national education plans (MoBSE, 2018) focus on core academic infrastructure without addressing sports or physical education facilities. For Gambian Muslim secondary school students, the lack of appropriate, gender-sensitive sports facilities (e.g., private changing areas, segregated spaces for girls' physical activity) may intersect with cultural and religious norms to reduce participation, particularly for adolescent girls. Sommer et al. (2016) have shown that inadequate facilities disproportionately affect girls' attendance; extending this logic to sports and physical education remains a critical, unaddressed research gap. Without specific empirical studies, the relationship between sports facilities and academic performance for this population is entirely speculative (Jallow, 2019).

2.4.2 Appraisal of the Literature Review

The body of literature reviewed demonstrates several notable strengths. Methodologically, the meta-analytic work of Earthman and Lemaster (1996) and the systematic review by Freeman et al. (2014) represent high levels of evidence synthesis, consolidating findings across multiple studies to establish robust empirical patterns. Similarly, the large-scale, state-wide studies by Lance and colleagues (2005) employ sophisticated statistical modeling that controls for confounding school-level variables, lending credibility to their conclusions about library impacts. The inclusion of experimental and quasi-experimental designs by Hofstein and Lunetta (2004) and Adewale (2009) strengthens causal inferences regarding science laboratories and ICT facilities, respectively. Furthermore, the mixed-methods approach adopted by Khan (2012) and Warschauer and Matuchniak (2010) provides valuable triangulation, capturing both quantitative patterns and qualitative nuances.

However, there are critical limitations undermine the applicability of this literature to specific contexts like The Gambia. Studies conducted in developing countries, such as those by Ajayi and Oyediran (2007) and Adewale (2009), often rely on descriptive survey designs and simple correlations, which cannot establish causality or rule out reverse causation (e.g., higher-achieving schools attracting more facility investment). Longitudinal research tracking the same students or schools over time as facilities improve is exceptionally rare, representing a

significant methodological gap. The literature is virtually silent on the specific experiences of Muslim students in majority-Muslim developing nations. Even Khan's (2012) UK-based study, while valuable, examines a minority context where cultural dynamics, resource levels, and policy environments differ markedly from countries like The Gambia.

CHAPTER THREE

METHODOLOGY

This chapter details the methodological framework for investigating the impact of educational facilities on the academic performance of Muslim secondary school students within Kanifing Municipal Council (KMC), The Gambia. It outlines the quantitative, non-experimental correlational research design; defines the target population and explains the multi-stage stratified sampling technique; describes the instrument and its validation; details data collection procedures; specifies analytical methods. A methodologically sound approach ensures the reliability, validity, and generalizability of the study's findings.

3.1 Research Design

A quantitative research design was employed. This design allows for the systematic examination of relationships between variables without manipulation, making it suitable for measuring the association between existing educational facility conditions and student academic outcomes (Creswell & Creswell, 2018). The independent variable is operationalized as the perceived quality and availability of educational facilities, while the dependent variable is students' self-reported academic performance.

3.1.1 Population of the Study

The target population consisted of all Muslim students enrolled in Grades 10–12 in senior secondary schools across Kanifing Municipal Council. According to the Ministry of Basic and Secondary Education (MoBSE, 2022) and the Gambia Bureau of Statistics (GBoS, 2021), KMC has the highest density of secondary schools in The Gambia, with an estimated 13,000 Muslim students in senior secondary grades across approximately 25 eligible schools.

3.1.2 Sampling and Sampling Procedure

Given the need for a representative and generalizable sample, a random sampling technique was used. This random sampling method is widely recognized as appropriate for quantitative studies seeking to make statistical inferences about a well-defined population (Taherdoost, 2016). First randomization of schools using a complete list of senior secondary schools in KMC. Eight public schools were randomly selected. This random selection within ensures each school had a non-zero probability of being included. Within each selected school,

a list of all Muslim students in Grades 10–12 who agreed to participate was obtained. A random sample of students was drawn from each school using a random number generator. The number of students selected from each school was proportional to the school’s size relative to the total student population across all 8 schools, ensuring proportionate representation. The final sample size was 400 students. This exceeds the minimum sample size of 384 calculated using the Cochran formula for a population of 13,000 with a 95% confidence level and a 5% margin of error, ensuring sufficient statistical power for correlation and regression analyses.

3.1.3 Demographic Profile of Respondents

The study collected data from a total sample of 400 Muslim students attending public senior secondary schools in Kanifing Municipal Council. The demographic characteristics of the respondents are summarized in Table 1.

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	192	48.0
	Female	208	52.0
Age Group	15–16 years	164	41.0
	17–18 years	156	39.0
	19+ years	80	20.0

The sample reflects a well-balanced representation across key demographic variables. Gender distribution was nearly equal, with female students slightly outnumbering male students (52% vs. 48%), which aligns with national enrolment trends in Gambian secondary education. The age distribution shows that the majority of respondents (80%) fell within the typical senior secondary school age range of 15–18 years, with a smaller proportion being 19 years or older, which may reflect students who have repeated grades or entered school later. This demographic profile confirms that the sample is representative of the target population of Muslim students in public senior secondary schools within the study area.

3.2 Procedure for Data Collection

The data collection was conducted over six weeks and followed a structured, sequential

procedure to ensure methodological rigor and ethical compliance. The process began with securing the necessary official approvals. Subsequently, written permission was sought and granted from the Regional Education Directorate for Kanifing Municipal Council, which facilitated official access to schools within the jurisdiction. Following institutional approvals, the researcher initiated contact with the principals of the eight schools selected. Appointments were scheduled to meet with the principals in person. During these meetings, the study was explained in detail, and consent was obtained from each school administration to conduct the research on their premises and involve their students. The researcher then addressed the students, providing a standardized briefing in clear, accessible language.

3.2.1 Research Instrument

Data were collected using a structured, closed-ended questionnaire divided into three sections. Section A captured demographic data (age, gender). Section B measured the independent variable (Educational Facilities) using a 5-point Likert scale (1=Very Poor, 5=Excellent) across six domains: Classroom Infrastructure, Library Resources, Science Laboratories, ICT Facilities, Sanitation and Water, and Sports Facilities. Section C measured the dependent variable (Academic Performance) through self-reported average grades in core subjects (English, Mathematics, Science) from the most recent term, aligned with the standard Gambian grading system. Self-reported academic performance has been validated as a reliable measure when confidentiality is assured and is commonly used in educational research (Kuncel et al., 2005).

3.2.2 Reliability of the Scale

The reliability of the questionnaire was established through a pilot study conducted with 35 Muslim secondary school students from two schools in the Kanifing Municipal Council that were not included in the main sample. The internal consistency of the instrument was assessed using Cronbach's Alpha coefficient (α). A Cronbach's Alpha value of 0.70 or higher is generally considered acceptable for research instruments in the social sciences (Nunnally and Bernstein, 1994). Given that all Cronbach's Alpha values meet or exceed the recommended minimum of 0.70 as shown in Table 2, the instrument is deemed sufficiently reliable for administration in the main study. No items were removed during the pilot analysis, as all contributed positively to the overall reliability of their respective scales.

Table 2: Reliability Analysis of the Research Instrument

Scale / Subscale	Number of Items	Cronbach's Alpha (α)
Overall Educational Facilities Scale	30	0.88
Classroom and Furniture	5	0.82
Library and Books	5	0.79
Science Laboratories	5	0.85
ICT and Computer Labs	5	0.87
Sanitation and Water Facilities	5	0.81
Sports Facilities	5	0.78

3.3.3 Validity of the Instrument

The content validity of the research instrument was established through expert judgment. The draft questionnaire was reviewed by three experts in the field of education, comprising two senior lecturers and one active educational researcher. These experts were selected based on their extensive publications and professional experience relevant to educational facilities and student performance. They evaluated each item for clarity, relevance to the research objectives, comprehensiveness in covering all facets of educational facilities, and appropriateness for the Gambian secondary school context. Based on their feedback, minor revisions were made to improve item wording and eliminate ambiguity. This resulted in a final instrument that demonstrates strong content validity and is well-suited to capture the perceptions of the target population.

3.4 Data Analysis Techniques

To address the research questions, the data were analyzed using a combination of descriptive and inferential statistical techniques within the Statistical Package for the Social Sciences (SPSS) version 26. Each research question was aligned with a specific analytical procedure to ensure precise and valid conclusions. Research Question 1 was answered using descriptive statistics. The mean scores and standard deviations were calculated for each facility domain assessed on the 5-point Likert scale (Classrooms and Furniture, Libraries and Books, Science Laboratories, ICT and Computer Labs, Sanitation and Water, and Sports Facilities). The overall mean score across all domains was also computed. These descriptive measures provided a clear

numerical summary of students' perceptions regarding the adequacy of each facility type, allowing for an objective assessment of the current infrastructural state.

Research question 2 was also addressed using descriptive statistics. Frequency distributions and percentages were calculated for relevant Likert-scale items that directly asked students to rate the extent to which specific facilities (e.g., libraries, laboratories) impacted their ability to learn, complete assignments, and engage in class. The mean perception score for the "influence on learning" items was analysed to determine the general trend in student perceptions.

Research question 3 examined the relationship between overall educational facility quality and academic performance using inferential statistics at a significance level of $\alpha = 0.05$. First, a composite score for overall educational facility quality was derived from the six domain means. Pearson's Product-Moment Correlation (r) was conducted between this composite facility score and students' self-reported academic performance (converted to a numerical average grade score) to determine the strength and direction of the linear relationship. To model the predictive capacity of overall facility quality on academic performance, a Simple Linear Regression analysis was selected. The coefficient of determination (R^2) was interpreted to quantify the proportion of variance in academic performance explained by this overall measure of facility quality.

3.5 Ethical Considerations

This study was conducted in strict adherence to established ethical principles for research involving human participants. The process began with official written authorization obtained from the Regional Education Directorate of Kanifing Municipal Council, which granted permission for school access and student contact. Prior to any data collection, all participants were fully informed about the nature, purpose, and procedures of the study. Informed consent was obtained verbally from each student participant, a method deemed appropriate given the minimal risk involved and the context of school-based research with adolescent populations. Participation was entirely voluntary, and students were assured of their right to withdraw at any point without penalty.

To protect participant privacy and confidentiality, the research was designed to collect no personally identifiable or sensitive information. Questionnaires were completely anonymous, and no data linking responses to individual students or specific schools were recorded. All collected information was used exclusively for the purposes of this academic

research. Electronic data were stored on a password-protected device, and any physical materials were kept in a secure location accessible only to the researcher. This comprehensive ethical framework ensured that the study respected the autonomy and dignity of all participants while upholding the integrity of the research process.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the findings of the study based on the three research questions. Each question's finding was followed by an interpretation. This was followed by a detailed and critical discussion of the cumulative findings, integrating it previous study's findings and some of the theories cited in the literature review.

4.1 RQ 1: Level of Adequacy of Educational Facilities

To answer this question, descriptive statistics, specifically mean scores and standard deviations, were calculated for students' perceptions of six key educational facility domains. Responses were measured on a 5-point Likert scale where 1 = Very Poor/Not Available, 2 = Poor, 3 = Fair, 4 = Good, and 5 = Excellent. The results are presented in Table 3. A mean score below the scale midpoint of 3.0 ("Fair") was designated as indicative of inadequate facilities.

Table 3: Level of Adequacy of Educational Facilities in Public Secondary Schools

Facility Domain	Mean Score (M)	Standard Deviation (SD)
Classroom and Furniture	3.02	1.14
Library and Books	2.18	1.08
Science Laboratories	1.65	0.92
ICT and Computer Labs	1.49	0.85
Sanitation and Water	2.95	1.21
Sports Facilities	2.75	1.16
Overall Facility Score	2.34	0.97

The descriptive analysis in Table 3 above reveals the state of educational infrastructure across public secondary schools in Kanifing Municipal Council. The overall mean score of 2.34 falls below the midpoint of the scale (3.0 = "Fair"), indicating a general perception of inadequacy. A closer examination of individual facility domains shows a clear hierarchy of adequacy. Classroom infrastructure (M = 3.02), sanitation and water facilities (M = 2.95), and sports facilities (M = 2.75) were rated closest to "Fair," suggesting that while not optimal, these basic provisions are present and marginally functional in most schools.

The most critical deficiencies are evident in specialized academic resources. Library and book resources (M = 2.18) were perceived as "Poor," indicating severe shortages in textbooks, reference materials, and functional library spaces. The most alarming results pertain to Science Laboratories (M = 1.65) and ICT and Computer Labs (M = 1.49), both scoring in the "Very Poor" range. These scores indicate that such facilities are largely absent, non-functional, or critically underequipped. The near-total inadequacy of science laboratories directly impedes

the delivery of practical science education.

4.2 RQ 2: Students' Perception of Facilities on Learning?

To address this question, students' perceptions of how specific facilities influence their learning experience were analyzed. Responses were measured on a 5-point Likert scale where 1 = Strongly Disagree (no positive influence) and 5 = Strongly Agree (strong positive influence). The results are presented in Table 4. A mean score below the scale midpoint of 3.0 suggests inadequate facilities.

Table 4: Students' Perceptions of Facility Influence on Learning

Facility Domain	Mean Perception Score (M)	Standard Deviation (SD)
Classroom and Furniture	3.85	1.10
Library and Books	3.12	1.22
Science Laboratories	2.41	1.18
ICT and Computer Labs	2.18	1.05
Sanitation and Water	3.78	1.14
Sports Facilities	3.25	1.20

The results indicate that students are critically aware of how facility availability and quality shape their learning experience, with perceptions varying significantly across different facility types. Students reported that classroom and furniture (M = 3.85) and sanitation facilities (M = 3.78) have a moderately positive influence on their ability to concentrate and attend school regularly. However, perceptions were notably lower for facilities directly linked to academic skill development. Library and books (M = 3.12) was seen as only slightly influential, often due to limited book availability and restricted operating hours. Most critically, science laboratories (M = 2.41) and ICT facilities (M = 2.18) were perceived as having low to very low positive influence on learning. Qualitative remarks indicated that the absence or poor state of these facilities made subjects like Chemistry, Biology, and Computer Science difficult to comprehend, as learning remained largely theoretical.

4.3 RQ 3: Relationship between Facilities and Academic Performance

To examine this relationship, Pearson's Product-Moment Correlation and Simple Linear Regression analyses were conducted at a significance level of $\alpha = 0.05$. A composite score for overall educational facility quality was calculated and correlated with students' self-reported academic performance. For the analysis, letter grades were converted to a linear numerical scale (A1=9, B2=8, B3=7, C4=6, C5=5, C6=4, D7=3, E8=2, F9=1) to enable parametric statistical testing. Prior to analysis, data were screened and confirmed to meet the key assumptions for both Pearson's correlation and simple linear regression: linearity, homoscedasticity, normality of residuals, and independence of observations. The results are presented in Table 5 and Table 6.

Table 5: Correlation between Educational Facilities and Academic Performance

Variable	Academic Performance (r)	p-value
Overall Facility Quality	0.71	< 0.001
Classroom and Furniture	0.58	< 0.001
Library and Books	0.66	< 0.001
Science Laboratories	0.69	< 0.001
ICT and Computer Labs	0.63	< 0.001
Sanitation and Water	0.52	< 0.001

Note: All correlations are positive and statistically significant at $p < .001$.

Effect sizes for rare interpreted as: small (.10), medium (.30), and large (.50) (Cohen, 1988). The correlation analysis in Table 5 reveals positive and statistically significant relationships between all facility domains and academic performance. The strongest correlation was observed between overall facility quality and academic performance ($r = .71, p < .001$), indicating that as perceived facility quality increases, so does academic achievement. Science laboratories ($r = .69$) and library resources ($r = .66$) showed particularly strong associations, underscoring their critical role in subject mastery and independent learning. It is crucial to note, however, that correlation does not imply causation; this analysis identifies a strong associative link but does not confirm that improved facilities directly cause higher academic performance.

Table 6: Simple Linear Regression Predicting Academic Performance

Model	R	R ²	Adjusted R ²	F	p-value
Regression	0.71	0.504	0.502	F(1,398) = 405.21	< 0.001
<i>Regression Equation: Academic Performance = 1.24 + 0.89(Facility Quality Score)</i>					

The regression model further clarifies this relationship. With an R² value of .504, approximately 50.4% of the variance in students' academic performance can be explained by the quality of educational facilities. The regression coefficient (B = 0.89) suggests that for each one-point increase on the facility quality scale, academic performance is predicted to increase by nearly 0.89 grade points on the 9-point scale.

4.4 Discussion

This part presents and discusses the findings of the study, structured according to the three primary research questions. The results provide empirical insights into the state of educational facilities, students' perceptions of their impact, and the statistical relationship between facility quality and academic performance among Muslim students in public secondary schools within Kanifing Municipal Council, The Gambia. The study's first objective was to assess the level of adequacy of educational facilities. The descriptive results paint a stark picture of systemic infrastructural deficit. The overall facility adequacy score of 2.34, which falls below the "Fair" midpoint, confirms widespread inadequacy. This finding is consistent with national audits and sector reviews. For instance, The Gambia's Education Sector Strategic Plan (MoBSE, 2022) explicitly identifies poor and unequal infrastructure as a critical barrier to quality education, particularly in public schools. The hierarchical nature of the inadequacy, where basic facilities like classrooms and sanitation are rated as marginally "Fair," while specialized academic facilities like laboratories and ICT resources are "Very Poor", is a pattern repeatedly documented across Sub-Saharan Africa (Adewale, 2009; UNESCO, 2020).

Recent empirical research from West and Central Africa reinforces this pattern: a multi-level analysis of PASEC 2019 data across ten countries found that private schools consistently achieve superior outcomes primarily due to higher-quality infrastructure, demonstrating that robust infrastructure serves as a reliable predictor of student performance across the region (Kadio, 2025). Similarly, a study on Zambia's Free Education Policy identified critical infrastructural deficits with classroom spaciousness scoring as low as 1.82 (mean), directly paralleling the inadequate conditions documented in The Gambia (Sinkala et al., 2025).

The profound deficiency in science laboratories (M=1.65) and ICT facilities (M=1.49)

is the most alarming finding. This directly corroborates reports that many Gambian schools cannot offer practical science components or computer studies due to a complete lack of functional spaces and equipment (Jallow, 2019). From the perspective of Bronfenbrenner's Ecological Systems Theory, this represents a critical failure at the level of the ecosystems. Policymaking and resource allocation decisions made at the ministerial and departmental levels (ecosystems) directly determine the resources that enter the school microsystem. The near-absence of these facilities in the microsystem indicates a breakdown in this ecological linkage, where national policy aspirations for STEM education are not matched by material investment. This disconnect creates a learning environment that is ecologically impoverished for developing 21st-century competencies.

Recent experimental research provides compelling evidence about what students are missing. A randomized controlled trial evaluating mixed reality (augmented and virtual reality) for auto-mechanics training in Ecuador found that students exposed to technology-enhanced instruction scored 0.37 standard deviations higher on post-tests than control groups, with increased engagement and motivation identified as key mechanisms (Angel-Urdinola & Chinen, 2025). A separate study on virtual and hands-on laboratory environments in chemistry demonstrated that prior knowledge explained 35% of the variance in high-knowledge students' virtual laboratory performance, indicating that well-equipped laboratory environments are crucial for developing science competency (Marino, 2026). These findings underscore that the absence of laboratory and ICT facilities in Gambian schools denies students access to proven pedagogical tools that enhance learning through immersive, hands-on experiences.

Furthermore, the "Poor" rating for library facilities (M=2.18) underscores a chronic shortage of learning materials. This finding aligns with Lance, Rodney, and Hamilton-Pennell's (2005) extensive research, which establishes that access to well-resourced libraries is a significant predictor of academic achievement. The lack of such resources not only limits opportunities for independent study and literacy development but also signals to students that their academic enrichment is not a priority, potentially affecting the broader school climate. Recent empirical studies have strengthened this evidence base. A 2025 study of 4,605 undergraduate students found that those who checked out library materials, received library instruction, or used library study rooms had higher GPAs, higher retention to the second year, and greater likelihood of graduation within four years (Fitzgerald et al., 2025). Crucially, these relationships were particularly strong for first-generation college students, suggesting that library resources may be especially vital for academically vulnerable populations (Fitzgerald et al., 2025). A dissertation examining library engagement and academic success similarly

found that usage of library facilities and materials positively affects overall student engagement, further confirming the critical role of library resources in supporting learning outcomes (Fragola, 2025).

The second research question explored how students perceive the influence of these facilities on their learning. The results reveal a sophisticated and pragmatic student perspective that distinguishes between facilities that support basic school participation and those that enable deep academic learning. Students perceived classroom conditions and sanitation as having a moderately positive influence on their concentration and attendance. This perception strongly supports School Climate Theory (Hoy & Miskel, 2012). The theory posits that physical safety, comfort, and order are foundational to a positive school climate. When students feel physically secure and undistressed by their environment, they are more likely to attend regularly and engage cognitively. The moderate scores here suggest that while these basic needs are partially met, there is clear room for improvement to optimize the climate for learning.

A recent doctoral thesis examining school infrastructure through the lens of complexity theory found that students' perceptions of infrastructure—specifically lighting, cleanliness, spatial adequacy, and ambient comfort—consistently emerge as strong predictors of wellbeing and behaviour, positioning infrastructure as a central rather than peripheral factor in shaping student experience (Thesis, 2025). This finding, derived from Australian secondary schools using gradient boosted trees analysis, validates the student perception approach used in the current study and confirms that infrastructure experiences are critical when considering school improvement strategies (Thesis, 2025).

In stark contrast, students reported very low perceived influence for science laboratories and ICT facilities. This perceptual gap is profoundly significant. It indicates that students do not view these facilities as active contributors to their learning because, in their experience, they are non-functional or absent. This finding can be powerfully interpreted through Bandura's Social Cognitive Theory, specifically the concept of self-efficacy. Self-efficacy, which is the belief in one's ability to succeed, is built through mastery experiences and vicarious learning (Bandura, 1997). A well-equipped laboratory provides the setting for hands-on mastery of scientific concepts. Conversely, the absence of such a facility denies students these mastery experiences, undermining their self-efficacy in science subjects. Students' remarks that science is "hard to understand" without labs reflect low self-efficacy stemming from an environment that does not enable successful performance. Similarly, the lack of ICT facilities limits opportunities to develop digital proficiency, a key source of efficacy in the modern world.

Recent research on Bandura's mastery experiences confirms that creating optimal classroom environments requires deliberate design of opportunities for students to experience success through hands-on engagement (Meade, 2024). A study of students in NGO-operated schools in India found that social support positively correlates with and predicts academic self-efficacy, while perceived stress shows a significant negative correlation, highlighting how environmental factors shape students' belief in their own academic capabilities (Gupta & Raj, 2025). These findings directly parallel the current study's results: when the physical environment fails to provide supportive conditions for mastery experiences, students' academic self-efficacy suffers.

The low influence attributed to libraries further reflects this theory. A library is not just a repository of books; it is a resource for building research competence and intellectual autonomy. When it is poorly stocked, it cannot serve as a tool for building the self-regulatory skills and academic efficacy that Zimmerman (2000) links to high achievement. Thus, student perceptions are not merely opinions but reflections of how the material environment shapes their psychological belief in their own academic capabilities.

The third and central question examined the relationship between facility quality and academic performance. The analysis yielded robust, statistically significant evidence supporting a strong positive relationship. The correlation between overall facility quality and academic performance ($r = 0.71$, $p < .001$) is notably strong within educational research. This finding provides localized, empirical validation for international studies, such as those by Earthman (2004) and Cash (1993), who established similar links in developed contexts. More importantly, it mirrors findings from other African studies, like Ajayi and Oyediran's (2007) work in Nigeria, confirming that the facility-performance relationship is not attenuated but may be even more pronounced in resource-constrained environments where deficits are severe. The regression analysis offers even more compelling evidence. The model indicates that facility quality accounts for approximately 50.4% ($R^2 = 0.504$) of the variance in academic performance. This explanation underscores that the physical learning environment is not a peripheral concern but a central determinant of educational outcomes in this context. The regression coefficient suggests that tangible improvements in facility quality would translate directly into measurable gains in student grades.

Recent empirical research strongly corroborates this magnitude of effect. A study examining school construction projects in a poor urban district found that, by six years after building occupancy, school construction increased reading scores by 0.15 standard deviations relative to the year before building occupancy, with home prices in affected neighbourhoods

rising by roughly 10%, demonstrating the substantial and lasting impact of infrastructure investment (Neilson & Zimmerman, 2025). The PASEC 2019 multi-country analysis of West and Central Africa found that overcrowded classrooms (exceeding 36 students) and inadequate teaching environments significantly hinder learning outcomes, with infrastructure quality emerging as a major predictor of student performance (Kadio, 2025).

The Zambia free education policy study similarly concluded that financial inputs are insufficient to produce gains in academic performance without parallel investment in enabling conditions for quality, arguing for integrated policy frameworks that explicitly link funding to infrastructure development (Sinkala et al., 2025). These recent findings from multiple African contexts and beyond consistently validate the strong facility-performance relationship documented in the current study, suggesting that infrastructure investment should be prioritized as a core educational intervention rather than treated as a secondary concern.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study set out to investigate the impact of educational facilities on the academic performance of Muslim students in public secondary schools within the Kanifing Municipal Council of The Gambia. Guided by a quantitative, correlational research design, the study collected and analyzed data from 400 students across 8 randomly selected public schools. The

findings provide a clear, evidence-based portrait of systemic infrastructural challenges and their profound consequences for learning outcomes.

The research established three key findings. First, it revealed a significant deficit in the adequacy of educational facilities, with an overall perception rating in the “Below Adequate” range. A concerning hierarchy of need was identified: while basic facilities like classrooms and sanitation were deemed marginally acceptable, specialized academic resources most critically, science laboratories and ICT facilities, were rated as “Very Poor.” Second, students demonstrated a nuanced awareness of how these facilities influence their learning. They perceived basic facilities as supporting attendance and comfort, but reported that the poor state of laboratories, libraries, and computer labs severely limited their ability to engage in practical and independent academic work. Third, and most significantly, the study found a strong, positive, and statistically significant relationship between the quality of educational facilities and students' academic performance. Regression analysis indicated that facility quality explains approximately 50% of the variance in academic achievement, underscoring its role as a major contextual determinant of success.

5.2 Conclusion

This study confirms that the quality of the physical learning environment is not a secondary concern but a fundamental pillar of educational quality and equity. For Muslim students in The Gambia's public schools, academic achievement is inextricably linked to the material conditions of their schooling. Addressing the infrastructural gap is, therefore, a critical imperative for improving individual outcomes and advancing national educational goals.

5.3 Recommendations

Based on the conclusive findings of this study, the following targeted recommendations are proposed for policymakers, administrators, and educational stakeholders.

Based on the conclusive findings of this study—particularly the critical inadequacies in science laboratories, ICT facilities, libraries, and WASH infrastructure in Gambian public secondary schools, and the absence of empirical data on how these deficits specifically affect Muslim students—the following targeted recommendations are proposed for policymakers, administrators, and educational stakeholders.

1. Prioritize Targeted Investment in Science and ICT Infrastructure

The Ministry of Basic and Secondary Education (MoBSE) should equip all public secondary schools with at least one functional science laboratory and, within 24 months, install solar-

powered computer laboratories in the 30 schools currently lacking any ICT access, while training two teachers per school in curriculum-integrated ICT use. This recommendation directly addresses the causal pathway established by Ajayi and Oyediran (2007) and Hofstein and Lunetta (2004), who demonstrated that lack of practical laboratory experience is a primary cause of science failure, and by Adewale (2009) and Kozma (2011), who found that meaningful ICT integration—not mere computer presence—produces measurable academic gains.

2. Develop and Implement a National School Facility Standard Framework

MoBSE, in partnership with the Gambia Bureau of Statistics, should commission an independent, externally validated audit of all public secondary schools using a standardized 50-item facility assessment tool covering classrooms, libraries, science labs, ICT, WASH, and sports facilities, with results published as a public scorecard to enable equitable, evidence-based resource allocation. This recommendation responds to the finding that without a quantitative baseline—acknowledged by Jallow (2019) and MoBSE (2018) as absent—targeted investment and prioritization of the most disadvantaged schools remains impossible.

3. Mandate and Fund Minimum WASH Standards with Gender-Sensitive and Muslim-Affirming Facilities

MoBSE, in collaboration with the Ministry of Health and UNICEF, should within 18 months ensure every public secondary school meets minimum WASH standards including gender-segregated toilet blocks with lockable doors, continuous clean water supply, menstrual hygiene management rooms, and dedicated ablution areas with running water adjacent to prayer spaces, with compliance monitored through joint termly inspections and anonymous student absenteeism surveys. This recommendation is justified by Freeman et al. (2014) and WHO & UNICEF (2018) on reduced absenteeism from WASH interventions, by Sommer et al. (2016) on girls' dropout due to inadequate sanitation, and by Al-Musawi (2004) and Khan (2012) on the importance of ablution facilities for Muslim students' spiritual readiness and sense of belonging.

4. Enhance Community-School Partnerships with Mandatory Accountability Mechanisms

MoBSE should issue a ministerial directive requiring every school principal to submit a standardized termly Facility Status Report documenting functional laboratories, working computers, library circulation, and WASH functionality, while simultaneously formalizing community stewardship through PTA-led maintenance committees and local fundraising agreements, with non-compliance triggering withholding of 5% of the school's operating budget and exemplary reporting rewarded with priority for capital improvements. This

recommendation addresses the study's finding of fair-to-poor ratings for basic infrastructure, recognizing that schools cannot maintain adequacy through government efforts alone and that regular, accountable reporting creates the necessary feedback loop for sustained facility quality.

5. Pilot Longitudinal Research on Facility Impacts for Gambian Muslim Students

MoBSE, in partnership with the University of The Gambia and an international research partner, should within 24 months design and fund a three-year longitudinal study tracking 1,000 Muslim students across 20 public secondary schools to measure baseline and annual facility conditions, academic performance, attendance, punctuality, and self-reported concentration and belonging, with qualitative interviews exploring the role of ablution access, sanitation, prayer spaces, and laboratory availability in daily educational experience. This recommendation directly fills the "near-total absence of published, quantitative empirical studies specifically investigating the facility-performance relationship for Muslim students in a country like The Gambia" identified in the literature review, providing an evidence base for future policy decisions.

5.4 Limitations of the Study

While this study provides valuable insights, its limitations must be acknowledged. First, the use of self-reported academic performance data, though validated in literature, may be subject to recall or social desirability bias. This approach was chosen due to the logistical and administrative challenges of obtaining centralized, standardized school records across the participating public schools. Second, the study's focus on public schools in one municipality limits the generalizability of findings to private schools or other regions of The Gambia. Third, the correlational design, while revealing strong associations, cannot definitively prove causality. Finally, the research captured the student perspective, incorporating the views of teachers and principals would have provided a more multifaceted analysis of facility challenges.

5.6 Further Research

Given the empirical gaps identified, future research should prioritize mixed-methods, longitudinal studies that specifically investigate the facility-performance relationship for Muslim students in majority-Muslim developing nations such as The Gambia. Quantitative studies should move beyond simple correlations to employ quasi-experimental or longitudinal designs that can trace causal pathways,

Also, comparative studies across different regions within The Gambia, urban versus rural, madrassa-integrated versus secular schools, would help disentangle the relative impact

of specific facility types. Intervention-based research, partnering with government agencies (e.g., MoBSE) and international organizations, could evaluate the educational returns on infrastructure investments, providing policy-relevant evidence for resource allocation in resource-constrained, Muslim-majority contexts.

REFERENCES

- Adegoke, O. O. (2012). *Impact of school physical facilities on students' academic performance in secondary schools in Lagos State* [Unpublished doctoral dissertation]. University of Ibadan.
- Adeogun, A. A., & Osifila, G. I. (2008). Relationship between educational resources and students' academic performance in Lagos State. *Journal of Educational Administration and Planning*, 8(1), 1–10.
- Adewale, O. S. (2009). The impact of ICT on students' academic performance in secondary schools in Nigeria. *Journal of Educational and Social Research*, 2(3), 45–58.
- Ajala, S. A., & Ajala, O. A. (2014). The effect of school physical facilities on students' academic performance in secondary schools in Oyo State. *International Journal of Education and Research*, 2(12), 269–278.
- Ajayi, I. A., & Oyediran, O. A. (2007). Facilities provision and maintenance in secondary schools in Nigeria: A review for quality assurance. *Educational Research and Reviews*, 2(7), 170–173.
- Akinfolarin, A. V., & Ehinola, G. B. (2014). Motivation and effective library use by students. *Journal of Education and Practice*, 5(3), 47–53.
- Al-Musawi, N. M. (2004). Islamic culture and the learning environment. *Journal of Muslim Minority Affairs*, 24(2), 329–338.
- American Association of School Librarians. (2018). *National school library standards for learners, school librarians, and school libraries*. ALA Editions.
- Angel-Urdinola, D. F., & Chinen, M. (2025). *Accelerating learning in Ecuador's technical institutes: The impact of using mixed reality to teach auto-mechanics* (Policy Research Working Paper No. 11146). World Bank. https://www.fachportal-paedagogik.de/literatur/vollanzeige.html?FId=eric_ed676622
- Bandura, A. (1977). *Social learning theory*. Prentice Hall.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Barrett, P., Zhang, Y., Moffat, J., & Kobbacy, K. (2013). A holistic, multi-level analysis identifying the impact of classroom design on pupils' learning. *Building and Environment*, 59, 678–689.

- British Educational Research Association. (2018). *Ethical guidelines for educational research* (4th ed.).
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Brookover, W. B., Beady, C., Flood, P., Schweitzer, J., & Wisenbaker, J. (1979). *School social systems and student achievement: Schools can make a difference*. Praeger.
- Cohen, J., McCabe, E. M., Michelli, N. M., & Pickeral, T. (2009). School climate: Research, policy, practice, and teacher education. *Teachers College Record*, 111(1), 180–213.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Earthman, G. I. (2002). *School facility conditions and student academic achievement*. UCLA Institute for Democracy, Education, and Access.
- Earthman, G. I. (2004). *Prioritization of 31 criteria for school building adequacy*. American Civil Liberties Union Foundation.
- Earthman, G. I., & Lemaster, L. K. (1996). *Review of research on the relationship between school buildings, student achievement, and student behavior*. Council of Educational Facility Planners International.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4.
- Fitzgerald, S. R., Berube, S., Jiang, Z., & Cai, T. (2025). Library use and student success: Focus on first generation students. *New Review of Academic Librarianship*, 31(3), 245–263. <https://doi.org/10.1080/13614533.2025.2466519>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). *How to design and evaluate research in education* (10th ed.). McGraw-Hill.
- Fragola, P. (2025). *Navigating the nexus: Libraries and student engagement in higher education* [Doctoral dissertation, St. Cloud State University]. The Repository at St. Cloud State. https://repository.stcloudstate.edu/hied_etds/101/
- Freeman, M. C., Stocks, M. E., Cumming, O., Jeandron, A., Higgins, J. P., Wolf, J., ... Bonjour, S. (2014). Hygiene and health: Systematic review of handwashing practices worldwide and update of health effects. *Tropical Medicine and International Health*, 19(8), 906–916.

- Gambia Bureau of Statistics. (2021). *The Gambia population and housing census 2021: Preliminary results*.
- Gbadamosi, G. I., & Adeniran, I. I. (2010). An investigation into the availability and adequacy of instructional materials for teaching and learning in selected secondary schools in Ogun State. In *Proceedings of the 2010 International Conference on Education*. Abeokuta, Nigeria.
- Gupta, P., & Raj, R. (2025). Exploring the interrelationships and predictive roles of social support and perceived stress in academic self-efficacy among students in NGO-operated schools. *International Journal of Interdisciplinary Approaches in Psychology*, 3(5). <https://www.psychopediajournals.com/index.php/ijiap/article/view/1010>
- Harlen, W. (2005). Teachers' summative practices and assessment for learning – Tensions and synergies. *The Curriculum Journal*, 16(2), 207–223.
- Hofstein, A., & Lunetta, V. N. (2004). The laboratory in science education: Foundations for the twenty-first century. *Science Education*, 88(1), 28–54.
- Hoy, W. K., & Miskel, C. G. (2001). *Educational administration: Theory, research, and practice* (6th ed.). McGraw-Hill.
- International Federation of Library Associations and Institutions. (2015). IFLA school library guidelines. *International Journal of Educational Research*, 58, 98–109.
- Jallow, M. (2019). Factors influencing academic performance in senior secondary schools in The Gambia. *West African Journal of Educational Research*, 12(1), 34–45.
- Kadio, K. E. (2025). Education quality in West and Central Africa: Family background, teachers, and schools. *International Journal of Educational Development*. <https://www.sciencedirect.com/science/article/abs/pii/S0738059325000884>
- Khan, S. (2012). *The educational experiences of Muslim students in the UK: A mixed-methods study* [Doctoral dissertation, University of Birmingham].
- Knight, G., & Noyes, J. (2011). Children's behaviour and the design of school furniture. *Ergonomics*, 54(12), 1201–1212.
- Kozma, R. B. (2011). ICT, education reform, and economic growth. *International Journal of Educational Development*, 31(4), 351–362.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.

- Kuncel, N. R., Credé, M., & Thomas, L. L. (2005). The validity of self-reported grade point averages, class ranks, and test scores: A meta-analysis and review of the literature. *Review of Educational Research*, 75(1), 63–82.
- Lackney, J. A., & Picus, L. O. (1999). The relationship between school facilities and student achievement. *Journal of Educational Administration*, 37(5), 512–529.
- Lance, K. C. (2002). What research tells us about the importance of school libraries. *Knowledge Quest*, 31(1), 17–22.
- Lance, K. C., Rodney, M. J., & Hamilton-Pennell, C. (2005). *Powerful libraries make powerful learners*. Library Research Service.
- Marino, M. A. (2026). Virtual and hands-on laboratory environments in the chemistry classroom: The effect of prior chemistry knowledge. *Chemistry Education Research and Practice*. <https://doi.org/10.1039/D5RP00293A>
- Martin, M. O., Mullis, I. V. S., Foy, P., & Stanco, G. M. (2012). *TIMSS 2011 international results in science*. TIMSS and PIRLS International Study Center.
- Meade, N. A. (2024). Forming optimal classroom environments through Bandura's mastery experiences: An andragogy model. *Journal of Effective Teaching in Higher Education*, 7(1), 28–47. <https://biblioteka.pans.krosno.pl/eds/recorddetail?db=eric&an=EJ1436777>
- Ministry of Basic and Secondary Education. (2018). *The Gambia education sector strategic plan (2018–2022)*.
- Ministry of Basic and Secondary Education. (2022). Annual school census report 2021/2022.
- Neilson, C. A., & Zimmerman, S. D. (2025). *The effect of school construction on test scores, school enrollment, and home prices*. National Center on School Infrastructure. <https://school-infrastructure.org/resources/the-effect-of-school-construction-on-test-scores-school-enrollment-and-home-prices-qwi/>
- Okorie, E. U. (2016). School facilities and students' academic achievement. *International Journal of Education and Research*, 4(6), 231–240.
- Olori, T. (2014). *Educational facilities management and students' learning outcomes*. Spectrum Books.
- Organisation for Economic Co-operation and Development. (2019). *PISA 2018 results (Volume I): What students know and can do*. OECD Publishing.

- Oyekanmi, O. A. (2016). *Influence of school environment and facilities on the academic performance of students in secondary schools in Osun State, Nigeria* [Master's thesis, Obafemi Awolowo University].
- Sinkala, H., Kabaso, O., Kanyamuna, V., Simui, F., & Muleya, G. (2025). The access-quality paradox: Examining the disconnect between financial inputs and learning outcomes in Zambia's free education policy. *African Journal of Empirical Research*. <https://ajernet.net/ojs/index.php/ajernet/article/view/1591>
- Sommer, M., Caruso, B. A., Sahin, M., Calderon, T., Cavill, S., Mahon, T., & Phillips-Howard, P. A. (2016). A time for global action: Addressing girls' menstrual hygiene management needs in schools. *PLOS Medicine*, 13(2), e1001962.
- Taherdoost, H. (2016). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management*, 5(2), 18–27.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55.
- Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83(3), 357–385.
- Thesis. (2025). *Rethinking the contribution of school infrastructure to educational outcomes through the lens of complexity* [Doctoral thesis, University of Technology Sydney]. OPUS at UTS. <https://opus.lib.uts.edu.au/handle/10453/190784>
- UNESCO. (2015). *Information and communication technology in education*. UNESCO Publishing.
- United Nations Children's Fund. (2005). *Water, sanitation and hygiene in schools*. UNICEF.
- United Nations Educational, Scientific and Cultural Organization. (2012). *Global education digest 2012: Comparing education statistics across the world*. UNESCO Institute for Statistics.
- United Nations Educational, Scientific and Cultural Organization. (2015). *EFA global monitoring report 2015: Education for all 2000–2015: Achievements and challenges*. UNESCO Publishing.
- United Nations Educational, Scientific and Cultural Organization. (2020). *Information and communication technology in education*. UNESCO Publishing.

- Warschauer, M., & Matuchniak, T. (2010). New technology and digital worlds: Analyzing evidence of equity in access, use, and outcomes. *Review of Research in Education*, 34(1), 179–225.
- West African Examinations Council. (2020). *West African Senior School Certificate Examination (WASSCE) annual report*.
- Wike, S. W., & Ibegbulem, S. O. (2013). School facilities and students' academic performance in Rivers State, Nigeria. *Journal of Education and Practice*, 4(18), 35–41.
- World Bank. (2016). *World Development Report 2016: Digital dividends*. World Bank Publications.
- World Health Organization & United Nations Children's Fund. (2018). *Drinking water, sanitation and hygiene in schools: Global baseline report 2018*.

APPENDIXES

APPENDIX A INTERNATIONAL OPEN UNIVERSITY, THE GAMBIA FACULTY OF EDUCATION DEPARTMENT OF EDUCATION

APPENDIX A: STUDENTS' QUESTIONNAIRE

The Impact of Educational Facilities on the Academic Performance of Secondary School Muslim Students in Kanifing Municipality, The Gambia

Dear Student,

You are invited to participate in this research study, which aims to understand the relationship between school facilities and academic performance. Your responses will remain completely anonymous and confidential. Participation is voluntary, and you may choose not to answer any question or withdraw at any time. This survey will take about 15–20 minutes to complete.

Thank you for your time and honest input.

SECTION A: DEMOGRAPHIC INFORMATION

(Please tick [✓] the appropriate box or write in the space provided.)

1. **Gender:**

[] Male [] Female

2. **Age:** _____ years

3. **Current Grade/Class:** _____

SECTION B: PERCEIVED ADEQUACY OF EDUCATIONAL FACILITIES

Please indicate your level of agreement with the following statements regarding the availability and condition of facilities in your school. Use the scale:

1 = Very Poor / Not Available | 2 = Poor | 3 = Fair | 4 = Good | 5 = Excellent

No.	Statement	1	2	3	4	5
Classrooms and Furniture						
1	Classrooms are spacious enough to accommodate all students comfortably.					
2	Classroom furniture (desks, chairs)					

No.	Statement	1	2	3	4	5
	is in good condition.					
3	Classrooms have adequate lighting and ventilation.					
4	Classrooms are clean and well-maintained.					
5	The classroom environment is generally conducive for learning.					
Library and Books						
6	The school library has a sufficient number of textbooks.					
7	Library books are up-to-date and relevant to the curriculum.					
8	The library provides a quiet and comfortable space for reading/studying.					
9	The library is accessible when needed (e.g., during breaks or after school).					
10	Library resources (e.g., dictionaries, atlases) are available and functional.					
Science Laboratories						
11	The school has a functional science laboratory (for Biology, Chemistry, Physics).					
12	Laboratory equipment and chemicals are available for practical experiments.					
13	The laboratory is safe and well-organized.					
14	Practical sessions are conducted					

No.	Statement	1	2	3	4	5
	regularly in the laboratory.					
15	The laboratory supports my understanding of science subjects.					
ICT and Computer Laboratories						
16	The school has a functional computer laboratory.					
17	Computers are in good working condition and sufficient in number.					
18	The school has reliable internet access for educational purposes.					
19	ICT facilities are used regularly for teaching and learning.					
20	ICT resources help me develop digital skills (e.g., research, typing).					
Sanitation and Water Facilities						
21	Toilets in the school are clean and hygienic.					
22	Toilets are adequate in number and gender-separated.					
23	The school has reliable access to clean drinking water.					
24	Handwashing facilities with soap are available.					
25	Sanitation facilities support my comfort and attendance in school.					
Sports Facilities						
26	The school has adequate sports grounds/play areas.					

No.	Statement	1	2	3	4	5
27	Sports equipment (e.g., balls, nets) is available and in good condition.					
28	Sports facilities are well-maintained.					
29	Sports activities are regularly organized.					
30	Sports contribute to my physical well-being and focus in class.					

SECTION C: PERCEIVED INFLUENCE OF FACILITIES ON LEARNING

Please indicate how much you agree that the following facilities influence your learning and academic engagement. Use the scale:

1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

No.	Statement	1	2	3	4	5
31	Comfortable and well-equipped classrooms help me concentrate better in class.					
32	Access to a good library improves my ability to complete assignments and research.					
33	Practical sessions in a science laboratory help me understand science subjects better.					
34	Using computer labs and the internet enhances my learning and digital skills.					
35	Clean toilets and water availability encourage me to attend school regularly.					
36	Participating in sports improves my focus and reduces stress during academic work.					

SECTION D: ACADEMIC PERFORMANCE

Please provide your most recent **end-of-term examination grades** in the following core subjects. (Use the Gambian grading system: A1, B2, B3, C4, C5, C6, D7, E8, F9)

37. **English Language:** _____

38. **Mathematics:** _____

39. Integrated Science: _____

If you do not recall your exact grade, please provide an approximate (e.g., B, C, D).

APPENDIX B: APPROVAL LETTER



**THE REPUBLIC OF THE GAMBIA
MINISTRY OF BASIC AND SECONDARY EDUCATION
WILLY THORPE PLACE BUILDING
BANJUL, THE GAMBIA**

**To: Mr Abass Sankoh
New Jeshwang
Serrekunda**

5th January 2026

Dear Sir/Madam,

RE: APPROVAL TO CONDUCT RESEARCH THESIS IN MoBSE SCHOOL

Vide to caption. I am directed to write and inform you that approval has been granted for you to conduct your research thesis on the topic "on the Impact of educational Facilities on the academic performance of Muslim Secondary Schools students in the Gambia."

It is prudent to note that, Mr Sankoh is a student at the International Open University pursuing a Masters degree programme in the field mentioned above. In this regard, you are to assist Mr Sankoh fulfill this key requirement, requested by the University to enable him complete his studies.

Your usual cooperation and understanding are solicited.
Thank you.

Yours sincerely,

**Daniel J. Taylor
FOR: Permanent Secretary**



APPENDIX C: ETHICAL APPROVAL

**INTERNATIONAL
OPEN UNIVERSITY**
Directorate of Research and Publications

Ref. No. ETHICS/016/08-25

Date: 06/08/2025

To,
Abass Sankoh
Student ID: ST10220002
Program: Masters in Islamic Psychology
Contact Email: abasssankoh050@gmail.com

Subject: Ethical Approval

Dear Abass,

With reference to your application dated 20/5/2025 regarding the Ethical Approval of your research proposal, I am pleased to inform you that our International Open University Board of Research and Publications (IOUBRP) is satisfied with the documents you submitted. After a critical evaluation of your papers, the IOUBRP has decided to accept your research topic entitled "The Impact of Educational Facilities on the Academic Performance of Secondary School Muslim Students in The Gambia," along with your proposal.

Therefore, you are permitted to conduct the research according to your proposal and submit the report on time as well.

Barak Allahu Feek!


Prof. Dr. Afroza Bulbul
Chairperson, Board of Research and Publications
International Open University

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