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"THE IMPACT OF SCHOOL LEARNING ENVIRONMENT ON STUDENTS ACADEMIC PERFORMANCE IN SOME SECONDARY SCHOOLS OF YAOUNDE 7"

A dissertation submitted and defended on the 7th July of 2023 in fulfilment of the requirements for the award of a master's degree in education.

Option: ***Educational Management***

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by

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CERTIFICATION

This is to certify that the memoire entitled **"The Impact of School Learning Environment on Students' Academic Performance in some Secondary Schools of Yaoundé 7"** submitted to the Department of Curriculum and Evaluation, Faculty of Education in the University of Yaounde I is the original work of BONG **Chrispine Wiyla**, matricule **21V3143** and was carried out under our supervision. The work has been duly acknowledged and referenced.

Professor Maingari DAOUDA

Supervisor

Yaounde,……..

DEDICATION

To all the parents' would-be parents and those who deem the work useful

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I hereby humbly express immense gratitude to my supervisor Professor Maingari DAOUDA for his indefatigable efforts to supervise this work throughout. His co-operation, criticisms suggestions, patience and expertise have gone a long way to enrich this piece to give it the flavor it deserves.

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God bless you all

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LIST OF ABBREVIATIONS

ANOVA	Pearson moment correlation, analysis of variance
CFS	Child-Friendly Schools
CIPO	Context-Input-Process-Output
CLPF	Check-List for Learning Facilities
DSCE	Document de Stratégie pour la Croissance et l'Emploi
EFA	Education for all
EGMA	Early Grade Mathematics Assessment
EGRA	Early Grade Reading Assessment
ESSP	Education Sector Strategic Plan
GCE	General Certificate of Education
GPA	Grade Point Average
HEIs	Higher Education Institutions
ICT	Information and Communication Technology
ISC	Inventory of School Climate
NSCC	National School Climate Centre
OECD	Organisation for Economic Cooperation and Development
PRSP	Poverty Reduction Strategy Paper
SLT	Social Learning Theory
SPSS	Statistical Product for Service Solutions
UNESCO	United Nation Education Scientific And Cultural Organisation
UNICE	United Nations Children's Fund
WASH	Water Sanitation and Hygiene
WHO	World Health Organization

ABSTRACT

This study aimed to establish a prediction model about the influence of school learning environment indicators on students' academic performance. The research was a quantitative survey, and stratified random sampling was used to select 306 students from four secondary school schools in Yaounde 7. Data was collected using a questionnaire adapted from School Climate Measure and analysed using Statistical Product for Service Solution. Students' academic performance mean score in their second term average analysis was done at $p < 0.05$ using various tests including ANOVA, Kaiser-Mayer-Olkin measure Bartlett's Test of Sphericity, factor analysis, Cronbach's alpha measure, normality, auto-correlation, Pearson moment correlation coefficient and linear regression analysis. All indicators of school learning environment had a strong relationship with students' academic performance: student-teacher relationships ($r = 0.60$; $p < 0.01$), academic support ($r = 0.62$; $p < 0.01$), school physical environment ($r = 0.53$; $p < 0.01$) and school teaching environment ($r = 0.66$; $p < 0.05$). Linear regression coefficients were used to model a relationship between school learning environment indicators and students' academic performance. This study recommends that the government and development partners increase resource allocations to secondary schools to improve the school learning environment as a solution to address students' poor academic performance.

Keywords: learning environment, academic performance, student-teacher relationships, academic support, physical environment.

RESUME

Cette étude visait à établir un modèle de prédiction de l'influence des indicateurs de l'environnement d'apprentissage scolaire sur le rendement scolaire des élèves. La recherche était une enquête quantitative et un échantillonnage aléatoire stratifié a été utilisé pour sélectionner 306 élèves de quatre écoles secondaires de Yaoundé 7. Les données ont été recueillies à l'aide d'un questionnaire adapté de la mesure du climat de l'ecole et analysées à l'aide de produit statistique pour la Solution Service. Le score moyen des performances académiques des étudiants lors de leur analyse moyenne du deuxième trimestre a été effectué à $p < 0,05$ à l'aide de divers tests, notamment l'ANOVA, la mesure de Kaiser-Mayer-Olkin, le test de sphéricité de Bartlett, l'analyse factorielle, la mesure alpha de Cronbach, la normalité, l'auto-corrélation, le moment de Pearson coefficient de corrélation et analyse de régression linéaire. Tous les indicateurs de l'environnement d'apprentissage scolaire avaient une forte relation avec le rendement scolaire des élèves : relations élèves-enseignant ($r = 0,60$; $p < 0,01$), soutien scolaire ($r = 0,62$; $p < 0,01$), environnement physique de l'école ($r = 0,53$; $p < 0,01$) et environnement d'enseignement scolaire ($r = 0,66$; $p < 0,05$). Des coefficients de régression linéaire ont été utilisés pour modéliser une relation entre les indicateurs de l'environnement d'apprentissage scolaire et le rendement scolaire des élèves. Cette étude recommande que le gouvernement et les partenaires au développement augmentent les allocations de ressources aux écoles secondaires pour améliorer l'environnement d'apprentissage scolaire comme solution pour remédier aux mauvais résultats scolaires des élèves.

Mots-clés : environnement d'apprentissage, performance scolaire, relations élèves-enseignants, soutien scolaire, environnement physique.

CHAPTER ONE
INTRODUCTION

Education is an integral part of society that points to socio-economic development (Mine, Hiraishi, & Mizoguchi, 2001; Türkkahraman, 2012). It offers citizens opportunities to transform and improve knowledge, behaviour, attitude and skills that empower them to meet social needs and individual growth (UNESCO, 2018). Education involves teaching and learning and can occur in different contexts through formal, informal and non-formal approaches (Abidogun & Falola, 2020). Global initiatives in education have increasingly focused on access, inclusiveness, equity and quality education to facilitate social development (United Nations, 2016). The initiatives aim to ensure all children are enrolled in school and prepared to meet global labour demands (UNESCO, 2013).

Formal education occurs mainly in school systems where learning is organized in a structured environment (Nairobi, (2016). Learning is part of students' processes and experiences during structured interactions (Gauthier, 2014). Every student learns uniquely and demonstrates different levels of understanding, skills, and outcomes (Wilson & Peterson, 2006). Therefore, knowing the differences in students' abilities and interests is essential for teachers in selecting learning approaches (Mantiri, 2013). The learning context determines how teachers structure learning objectives to facilitate effective outcomes (Cameron & Harrison, 2012; Werquin, 2019).

Schools are complex, dynamic systems that influence students' academic, affective, social, and behavioural learning (Sinharoy, Pittluck & Clasen, 2019). Santos, (2022). demonstrated that classroom and school contexts and the operating environment within schools affect the quality and degree of students' learning and potential outcomes. School organizational and classroom practices can influence the amount and depth of students' opportunities to use the educational system as a stepping stone to further education, productive work experiences, and ultimately, a contributing factor toward meaningful and satisfying adult lives within a democratic society (Richardson & Mishra, 2018).

In a School environment, learning is structured according to educational needs and explicit curricula that clearly outline objectives and expectations (Ainsworth & Eaton, 2010). The process is facilitated by teachers who employ various approaches to achieve desired learning

outcomes measured systematically (Aslam et al., 2012; Werquin, 2010). Most research on students' academic performance focused on either school curriculum or classroom environment and academic performance (Dorman, 2001; Dorman & Adams, 2004). With the assertion that education is a fundamental right, it is important to ensure that the School Learning environment is regulated in such a way that it will promote academic performance and achievement by learners (Alemnge, 2015). This is because the academic performance of students in the school is largely tied to the School Learning environment al, factors and teaching styles (Revathi, Elavarasi, & Saravanan, 2019), student personnel management, the quality/quantity of teachers (Nwogu and Esobhawan, 2014; Maphoso and Mahlo, 2015; Aliyu and Ali, 2021) as well as the School Learning environment (Chukwuemeka, 2013; Nsa, Offiong, Udo and Ikot, 2014).

The school environment determines the educational institution's learning structural, personal, and functional factors, which provide distinctiveness to determine the learning. In other words, the School Learning environment determines the level of academic performance of students (Amaechina and Ezeh, 2019). However, it has been established that many factors, including the school learning environment, affect learning outcomes (Aslam et al., 2012; Werquin, 2010). The literature on psychosocial school learning environment shows that student perception of the School Learning environment accounts for greater variations in learning outcomes than other factors such as pre-test performance, general ability, or both (Ebot, 2015). The main focus of this study, therefore, is to ascertain the School Learning environment al factors that affect the academic performance of public secondary school students, judging from existing evidence that the success of students is measured chiefly by academic performance, which is linked to various environmental factors amongst others; student personal role performance and School Learning environment al factors (Sam-Kalagbor, 2021).

Background of the study

This research involved the School learning environment and students' academic performance. The background will consist of the historical, contextual, conceptual and theoretical background

Historically the construct School Learning environment can be traced back 100 years (Perry, 1908); the scientific study of the School Learning environment was not undertaken until the 1950s with the birth of organizational School Learning environment research. March and

Simon (1958) and Argyris (1958) began to analyze businesses and organizations in an attempt to correlate the influences of an organizational environment to such outcomes as morale, productivity and turnover. Research continued throughout the 1960s and early 1970s, examining socioeconomic and race differences to explain achievement with mixed success (Coleman et., 1966; Hauser, 1970; McDill, Meyers, &Riugsby, 1967). By the late 1970s, researchers attempted to associate School Learning environment with students' school outcomes. Brookover and colleagues (1978) examined the environment of the school, defined as the set of norms and expectations that were defined and perceived by individuals within the school, and determined that School Learning environment was positively linked to the difference in mean outcomes between schools, even when adjusting for race, and other demographics.

In the early and mid-1990s, studies focused on individual classes or teachers (Griffith, 1995; Stockard & Mayberry, 1992). Griffith (1995) argued that the relationship between the level of study depended on the level at which the students identified themselves in their School Learning environment. Thus, in an educational environment where classes are held in different classrooms with different teachers, it naturally follows that the unit of School Learning environment measure is the school as a whole, whereas the individual classroom would be the appropriate measurement unit where students spend all or most of their time with a single teacher. Since the end of the 1990s and continuing today, researchers have attempted to link School Learning environment to different outcomes, including school achievement (Hoy & Hannum, 1997); aggression victimization, bonding connectedness and engagement (Libbey, 2004); and health problem (Coker & Borders, 2001).

Throughout history, education has reflected the ideals of a school learning environment. It is viewed as the engine that drives social and economic prosperity (Sondzia, 2006). Educational quality emerges in the context of the obligation to establish and sustain the conditions under which children, irrespective of their regional location, study. In this light, the Dakar Framework for action reaffirmed the world Declaration's commitment to improve access to schooling with quality (Jomtien, 1990). Dakar framework (2000) stated that countries should Create safe, healthy, inclusive and equitably resourced educational environments conducive to excellence in learning, with clearly defined levels of achievement for all.

According to the Dakar framework, the quality of learning is and must be at the heart of EFA. To offer education of good quality, educational institutions and programmes should be adequately and equitably resourced, with the core requirements of safe, environmentally friendly and easily accessible facilities; well-motivated and professionally competent teachers; and books, other learning materials and technologies that are context-specific, cost-effective and available to all learners (Jomtien, 1990). Learning environments should also be healthy, safe and protective. All stakeholders' teachers and students, parents and community members, health workers and local government officials should work together to develop environments conducive to learning (Jomtien, 1990).

This should include: a) Adequate water and sanitation facilities b) Access to or linkages with health and nutrition services c) Policies and codes of conducts that enhance the learning, psycho-social and emotional health of teachers and learners d) Education content and practices leading to knowledge, attitudes, values, and life skills needed for self-esteem, good health, and personal safety. According to Jomtien (1990), the assessment of learning should include an evaluation of environments, processes and outcomes. Learning outcomes must be well-defined in both cognitive and non-cognitive domains and be continually assessed as an integral part of the teaching and learning process.

Contextual Background

Regional Conference on Education for All Sub-Saharan Africa (1999) focused on access and equity, quality, capacity building and partnership for sub-Saharan Africa. Improvement of the teaching and learning environment (Endeley, 2014). Urgent attention shall be devoted to the development of materials, methodologies and social learning environments that are feasible and sustainable in the local environment and relevant. According to Winneba (2007), learning outcomes being key indicators of educational quality, need to be carried out in an acceptable learning environment with good sanitation facilities. Quality School Learning environment provides a safe, dignified, healthy learning environment that promotes school attendance and high-performance achievement (UNESCO, 2015).

The Government of Cameroon laid out a primary goal of "spreading education to all the citizens" in its Poverty Reduction Strategy Paper (PRSP, 2003) and the Growth and Employment Strategy Document, also known as Document de Stratégie pour la Croissance et l'Emploi,

(DSCE, 2009) and has been aiming to achieve a primary education completion rate of 100% by 2020. Likewise, the Education Sector Strategic Plan (ESSP, 2006) focused on reducing disparities and achieving 100% enrollment and completion rates," as well as improving the efficiency and quality of educational services, as priority issues in education. And its Action Plan set targets in terms of constructing classrooms and toilets, providing desks and chairs, and renovating classrooms (Etomes & Molua, 2018). After primary education in Cameroon became free of charge in 2000, however, the construction of facilities could not catch up with a dramatic increase in the number of students. As of 2008/2009, the actual number of classrooms built remained at 47,926, as opposed to the government's target of 67,620 classrooms in public primary schools (target year: 2015), running short of about 20,000 classrooms. Moreover, because 16,381 classrooms, or 34% of the existing classrooms at public elementary schools, were semi-permanent or temporary buildings, there was high demand for rebuilding them as soon as possible.

At the time of planning, PRSP (2003) and DSCE (2009) Cameroon's national development policy documents– listed guaranteeing and universalizing primary education to all students and citizens as a priority goal in the field of education. In addition, the ESSP (2006–2013) –a strategic document of the education sector–, and its action plan stated that reducing disparities and achieving 100% enrollment and completion rates, as well as improving the efficiency and quality of educational services, as priority objectives in primary education, and developed specific plans on the construction of classrooms and the procurement of desks and chairs. At the time of ex-post evaluation, the strategic document (target years: 2013–2020), which was updated in 2013, and its action plan have succeeded to the same policy objectives, although their target figures have been downwardly revised (Mbake, 2019). In light of the above, this project is highly consistent with the development policy and education sector strategy of Cameroon (Wirba, 2015).

Conceptual background

School Learning Environment: This is defined as the setting where academic activities occur (Aslam et al., 2012; Shute et al., 2017; UNESCO, 2012a; Weinstein, 1979). School Learning environment refers to the learning learning environment and the distribution of the materials established in the study centre, which must be designed from an ergonomic, ecological, harmonic and aesthetically pleasing perspective to display the development of skills, fostering

creativity and curiosity to learn. Similarly, it is favourable to implement dynamic, colourful and vast places that promote noise regulation, lighting and appropriate ventilation. Likewise, establishing study corners inside and outside the classroom improves the academic process and positively influences the performance of the student (Ojuok & Ole, 2020).

The school Learning environment has been defined by various authors in various ways. Olajide and Adio (2017) defined the school learning environment as "factors within the school that influence the teaching and learning process. The school learning environment includes classrooms, library, technical workshops, teachers' quality, teaching methods, and peers, among others that can affect the teaching and learning process." This definition implies that there are various School Learning environment al variables, and these may differ from one school to another. Korir and Kipkemboi (2014) postulate that school learning environment al factors include school structure, school composition and school climate. In addition, the School Learning environment al factors may also include safety and order, teacher relationships and collaboration, academic expectations, leadership and teachers' professional development factors.

A healthy and attractive School Learning environment makes for conducive learning and promotes students' pride in their schools and their interest in staying in school (Mgbodile 2014). The school learning environment consists of both material and non-material resources in the school. It includes the teachers, peers, cohesiveness, the subjects and the method of teaching. Belanger (2006), writing on the importance of the learning environment, states that people's educational life histories are influenced not only by the environment where they live or learn. The author further states that learning is more than education provision and that the community in which learners live profoundly impacts their aspiration to learn, curiosity, and desire to develop their competency. Nwizu (2013) warned that the environment in which the learner acquires knowledge greatly influences the learner's cognitive achievement. It has also been generally agreed that environmental and organizational factors markedly influence the quality of learning.

Academic performance: Diverse definitions of the term academic performance have been propounded by scholars, though with similar connotations. For instance, a critical look at Narad and Abdullah (2016), Abid et al. (2016), and others' perspectives indicate that academic performance has to do with the extent to which one has gained knowledge or otherwise through assessment of performance by the evaluator with a certain level of grades. Whereas, in Zere

(2013); Olufunke and Olubunmi's (2016) earlier perspectives, academic performance is the educational objective set by students and teachers to be achieved over a time-frame, during which the students are expected to have worked assiduously towards achieving the set objectives. Academic performance refers to how well or badly a student does in his/her study as evaluated through various means such as quizzes, assessments, field work and examinations during the entire implementation of any education curriculum. Yet, in a more specific term, academic performance is how well a public secondary school student in Amassoma performs optimally in his or her academic work (Kapur, 2018).

According to Narad and Abdullah (2016), academic performance is the knowledge gained that is characterized by marks from a teacher and/or educational goals set by learners and teachers to be achieved over a specific period of time. They added that these goals are measured by using continuous assessment or examination results. Students' academic performance is a key feature in education and is considered the centre around which the whole educational system revolves. Narad et al. (2016) opined that the academic performance of learners determines the success or failure of any academic institution, and it has a direct impact on the socio-economic development of a country in the sense that students are bound to make informed decisions about their career when they performed well in school (Onye, 2017). Similarly, Otchere & Afara (2019) asserted that students' academic performance serves as the bedrock for knowledge acquisition and the development of skills, and the most priority of all educators is students' academic performance (Parnwell, 2015).

Theoretical background

This study is underpinned by selected theories that relate learning to the environment to establish the relationship between the school learning environment and students' academic performance. Ecological systems and social learning theories are deemed relevant for this investigation.

Urie Bronfenbrenner, Ecological Systems Theory (1979**)**

The Social-Ecological Theory propounded by Bronfenbrenner in 1979 encourages researchers to study the changing relations between children and the environment in which they live. Bronfenbrenner's theory deals with the ecology of child development or the environmental systems that affect the way children develop. He believes that the interactions between a child

and its environment are the main focus of human development. Bronfenbrenner proposed five major types of environmental systems and has increasingly given attention to the microsystem as an important environmental system that greatly impacts children's development. According to the ecological theory, if the relationships in the immediate micro system break down, the child will not have the tools to explore other parts of his environment. which underpinned this study.

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

Specifically, the Social Ecological Theory indicates that the layers in which learners operate in the environment include the microsystem, meso- system and exo-system (Qaiser & Ishtiaq, 2014). Microsystem refers to the layer closest to the learners to which the learner has direct contact with his/ her immediate surroundings, such as the school facilities. Meso-system (interpersonal) provides the relationship between the sub-systems of the learners' world. Exo-system (organisational) defines the larger social system, such as the school structures (Peng, & Kievit, 2020). Whereas the Social-Ecological Theory is a general theory not specifically focusing on the school's learning environment in schools, it suggests the need to give attention to the system as a whole, including the school learning environment (Ramli & Zain, 2021). Therefore, based on the Social-Ecological Theory, this study investigated how the Microsystem, which is the school learning environment influence students' academic performance.

Social Learning Theory (Albert Bandura, 1977)

Social learning theory developed by Albert Bandura explains the social context of learning as a consequence of interactions involving persons and the environment (Bandura, 1999). A student's immediate surroundings are essential because learning can occur through observation, imitation, and modelling (Lent et al., 1994; Zimmerman, 1989). The relevance of observation, modelling and imitating others' attitudes, behaviours, and emotional reactions were tested in Bandura's Bobo doll experiment. The investigation involved a group of children in pre-school

who watched adults physically and verbally abuse inflatable plastic toys called Bobo dolls. The children were assembled into three groups. The first experimental group observed aggressive adult behaviours, while the second experimental group observed non- aggressive adult behaviours. The third group, the control group, was not exposed to any experimental behaviour models. Over time, the children were observed in the presence of different toys regulated to show aggressive and non-aggressive stimuli. The results showed that children in the aggressive behaviour model displayed a significantly higher tendency of aggressive behaviours compared to children in the other two models. After eight months, 90% of children in the aggressive behaviour model exhibited aggressive adult behaviours compared to only 40% in the other groups (Hart & Kritsonis, 2006; Lansford, 2016). It can be inferred from the Bobo dolls experiment that environmental conditions influence learning behaviours that are acquired by observation and modelling.

Retention is another critical element of social learning theory and refers to students' ability to remember what they pay attention to, such as mental images, symbolic coding, motor rehearsal, and cognitive organisation (Fryling et al., 2011). Attention is vital in social interactions and revolves around factors such as prevalence, distinctiveness, functional value, and complexity (Rijn et al., 2019). Social learning theory can provide stakeholders with valuable information to improve students' learning outcomes (Hollis, 2019). The theory refers to learning as outcomes of a persons' social interactions in an environment such as the school (Bandura, 1999). There are ongoing debates among researchers on how to establish associations between school learning environment and academic performance. The debates have elicited global empirical studies to explore the effects of school learning environment on academic performance (Zullig et al., 2014). In this regard, our study investigated how some aspects of the school learning environment functioned independently or concurrently to cause variations in students' academic performance.

Statement of The Problem

In spite of the leading role played by formal education in human societies, we still observed that its quality is low especially at the level of secondary education. In secondary schools, student performances or output in diagnostic, formative and summative assessment is poor; especially for government secondary school institutions. Unlike private institutions, public school systems are highly characterized by a lot of repetition and premature drop out of students.

Looking at the general output of students in the Cameroon General Certificate of Education (GCE) Ordinary Level one will realize that the general repetition rate in the General Certificate of Education (GCE) has been high in the past years. In 2019 the national percentage pass was 74.24%. In 2020 the percentage dropped to 64.24. In 2021 the percentage dropped to 59.05 in 2022 the national mean rose to 67.0.

Table 1: Cameroon GCE Ordinary Level Result

Year	Overall Percentage
2019	74.24
2020	64.24
2021	59.05
2022	67.0

These success rates are too weak and easily portrays that something is wrong with the system. Students' failure, repetition and dropout are indicators of school inefficiency which does not only prevent the school system from attaining its objectives but leads resources wastage scenarios. Fonkeng (2019) opined that majority of students that are repeating classes, dropping out of school constitutes wastage of resources. This wastage experienced by the system reveals that the objectives of secondary education have not been fully met because students' desire for achievement and transition to tertiary institutions has become very low recently.

Higgins (2016) posits that one of the most important factors that enable us to determine high or low school efficiency is the organization and structure of the school; and that School based factors include school facilities such as school location, structure of the school, classroom size, availability of school libraries, laboratories and sanitary facilities and teacher characteristics. School management regulation and guidance and the classroom dynamic or the interaction of the student, teacher and the curriculum are the dominate factors.

In most sub Saharan African countries, the issue of School facilities is one of the challenges in schools. The study done by Lackney and Jacobs (2016) indicated that the extent to which learning could be committed depends on their location within the school compound, the structure of the classroom, the availability of instructional facilities and other related resources. Mojela, (2013), who conducted their study in South Africa, also revealed the existing strong relationship between the School facilities and the whole process of teaching and learning. The study further revealed that School facilities contributed to the learners' class activeness and general academic performance. The literature shows that the school learning environment

contributes significantly to students' academic performance (Pietarinen et al., 2014). A conducive learning environment is crucial to Dincer & Uysal students' academic performance (Ado, 2015; Xiong, 2019). Based on this backdrop, the following research questions were posed to guide the study.

Purpose of the study

The purpose of this study is to examine the effect of school learning environment on student's academic performance in secondary schools in Yaounde 7 sub division. The research was also to establish the associations between various indicators of school learning environment and students' academic performance. This was to determine how the indicators interplay to influence students' academic performance.

Objectives of the study

The following objectives were formulated:

- To determine the influence of student-teacher relationships on students' academic performance.
- To establish the influence of academic support on students' academic performance
- To establish the relationship between the school learning environment and students' academic performance.
- To determine the relationship between the school teaching environment and students' academic performance.

Research Questions

In line with the objectives, the following research questions were formulated:

1) How do student-teacher relationships influence students' academic performance?
2) How does academic support influence students' academic performance?
3) How does the school learning environment influence students' academic performance?
4) How does the school teaching environment influence students' academic performance?

Scope of the study

The study was conducted in Yaounde 7 and involved public and private secondary schools. Students who participated in the research were selected from secondary schools. Participants were secondary school students in forms four and five; participation was voluntary. The research focused on student-teacher relationships, academic support, school learning environment and school teaching environment as indicators of school learning environment that influence students' academic performance. However, the inquiry exempted extraneous factors that could manifestly influence academic performance but were out of the scope of this study. The extraneous variables include parental involvement.

Significant of the study

This research provides empirical evidence of how indicators of the School Learning environment interplay to influence students' academic performance. The findings demonstrate factors that affect academic performance and provide a framework for policy formulation to address the decline in academic performance in secondary school.

The study shows the significance of student-teacher relationships, academic support, school Learning environment and school teaching environment on learning outcomes in secondary school. The results of this study would help in disseminating knowledge to the teachers, administrators, and inspectors on the critical role the School Learning environment plays in students' academic success. The findings of the study will help parents and guardians in determining the choice of the type of school for their children and wards. This is because the children will enjoy a good school learning environment that allows for quality school products.

The study will inform teachers, headmasters (mistresses) and principals about their readiness and strong-will to improve school supervision and management methods to ensure quality teaching and learning. It will help them appreciate the fact that good school facilities and equipment stimulates students' academic performance. It will also assist the teachers in the areas of their classroom delivery, teaching effectiveness and increased productivity. The study results will help the government and policymakers formulate effective planning policies and programmes to foster schools' academic activities. It will also provide policymakers with the knowledge to identify and solve the needs of the schools in terms of building and facilities.

It is hoped that this study will provide information for parents, educators, school managers or administrators, governments, counsellors and society at large to reflect upon various factors that help students in achieving their academic achievements in schools. In addition, the fact that this study is conducted in public schools shares quite a lot of similarities with many other counterparts. In this connection, this study provides a valuable reference for other schools to reflect upon the School Learning environment as it affects students' academic performance in secondary schools. Lastly, it will aid researchers in future research undertakings in the School Learning environment, students' academic performance and psychosocial development.

Definition of terms

School: A school is an educational institution designed to provide learning spaces and learning environments for teaching students under teachers' direction.

Learning: This refers to the dynamic process that occurs in human beings through interactions (Brock et al., 2008). This study refers to learning as teaching processes that engage students to acquire knowledge, skills, and positive behaviour change. The process includes academic activities that take place in school.

School learning environment: This is defined as the setting where academic activities occur (Aslam et al., 2012; Shute et al., 2017; UNESCO, 2012a; Weinstein, 1979). In this study, the school learning environment refers to four constructs: student-teacher relationships, academic support, school learning environment, and school teaching environment.

Academic performance: In this study, academic performance refers to average grades or scores that students achieve in the core subjects in secondary school. The grade describes the quantum of learning that has taken place. Students' academic performance is measured by grade to determine the learning quality (Alade et al., 2017). Academic performance also describes students' grades in classwork and terminal examinations.

CHAPTER TWO
LITERATURE REVIEW

Learning theories are essential for understanding diverse processes that contribute to students' learning outcomes as well as academic performance. The discussion provides theoretical foundations to establish links between the learning environment and academic performance. The chapter presents the conceptual framework, looking at the school learning environment and students' academic performance. The chapter also explores indicators of the school learning environment and their relationships with students' academic performance. This chapter also presents the theoretical framework of this research by examining the ecological system theory and theories on learning and how the environment influences learning outcomes.

Conceptual Framework

School Learning Environment

School learning environment refers to an educational setting's overall atmosphere where academic activities occur (Aslam et al., 2012; Weinstein, 1979). UNESCO (2012) describes the school environment as the physical, social, psychological, and academic conditions that facilitate learning in school. Similarly, Organisation for Economic Cooperation and Development (OECD) describes the school as a learning environment that helps students to acquire educational experiences (Organisation for Economic Cooperation and Development [OECD], 2018a). The school environment comprises the school climate, parental involvement and school leadership where knowledge can be attained (OECD, 2018a). Some scholars also define the learning environment as the classroom's physical and social dimensions that influence learning (Guney & Al, 2012; Malik & Rizvi, 2018).

School learning environments form an integral part of the educational system and are a potent factor in qualitative and quantitative education. According to Ikegbusi (2019), learning can occur through one's interaction with the environment. The environment here refers to facilities that are available to facilitate students' learning outcomes. Such environment includes the library, laboratory, Information and Communication Technology (ICT) centre etc., adequately equipped and properly utilized for efficient and effective learning (Ikegbusi, Egwu & Iheanacho, 2021). According to Ikegbusi (2012), the environment constitutes a strategic factor in organizational functioning. This is so because they determined to a very large extent, the

smooth functioning of any social organization or system, including schools. She further stated that their availability, adequacy and relevance influence efficiency and high productivity.

Farombi (2018) opined that the wealth of a nation or society could determine the quality of education in that land, emphasizing that a society that is wealthy would establish good schools with quality teachers and learning environments, which such students may learn with ease, thus bringing about good academic achievement. Writing on the role of the environment in teaching and learning, Balos (2021) submitted that no effective science education programme could exist without the availability of necessary equipment. This is because the environment enables teachers and learners to develop problem-solving skills and scientific attitudes. Ajayi (2020) reiterated that when an environment is provided to meet the relative needs of a school system, students would not only have access to the reference materials mentioned by the teacher, but individual students would also learn at their own paces. The net effect of this is increased overall academic performance of the entire students.

The school learning environment can be described in relation to the school or classroom environment (Fisk et al., 2016). According to World Health Organization [WHO] (2004), the school Learning environment consists of the learning environment, classroom furniture and arrangement, and school safety. This environment has a strong influence on children's well-being and can directly influence learning and academic performance. The school School Learning environment consists of buildings, fittings, equipment, instructional materials, laboratories, libraries and playgrounds for effective teaching and learning (Debele, 2016). Other aspects that make the school's School Learning environment are machinery, decorative objects, swimming pools, audio-visual machines and playgrounds (Obong et al., 2010). Furthermore, extant literature reports that essential features in school buildings, such as temperature, lighting, acoustics, and aesthetics, influence students' learning outcomes (Barrett et al., 2015). The findings posit that the lack of these vital features in school buildings can hinder students' academic performance. Likewise, congested school buildings and classrooms have negatively affected students' academic performance (Huisman et al., 2012). The school School Learning environment factors affect teachers' instructional strategies and students' learning engagement, promoting student development and learning outcomes (Darling-Hammond et al., 2020).

School learning environment refers to both the learning and material resources available to the students and teachers in the school to facilitate the teaching and learning process. The

classrooms, the libraries and the laboratories and sanitary facilities are the four main areas of facilities identified in the school system or environment (Onyeji, 2017). Also, Gima (2020) asserted that a favourable school learning environment, like libraries, furniture, and a playground, is necessary for the educational process. Therefore, educational or School Learning environments have been defined by many educationalists to incorporate things or materials that will enhance teaching and learning (Titanji, 2017). According to Akinyemi, Lawal, and Owosoro (2021), School Learning environments are the instructional spaces and audio-visual aids, as well as other materials resources utilized in educational institutions to attain successful teaching and learning.

In addition, Baafi (2020) defined the learning school learning environment and equipment as the location, school buildings, and other material resources provided in the school to enhance teaching and learning processes. According to these authors, Abdullah (2016) and Nnokam (2018), School environment and equipment include the fixed and mobile structures and materials in the school, such as the classroom buildings, laboratories, laboratory apparatus equipment, playground, common room, hostel, canteen, school offices the audio and visual aids. To Alimi (2014), school learning environments are the material resources that learners and teachers use to aid the teaching and learning process. While to Neji and Nuoh (2015), the utilization of the school learning environment is the frequency with which the available school facilities, such as laboratory facilities, library facilities, textbooks, set books, and other reference materials, are used during respective class lessons.

Aspects of School Learning environment

School size*:* Evidence on the impact of school size on learning is mixed. Studies from the USA suggest that smaller schools may contribute to better student outcomes as learners, teachers, and parents see themselves as part of a community (Barrett et al., 2019), while in India, small schools with fewer facilities and a lack of specialist teachers may be resulting in lower outcomes (Ng'ang'a, 2019). Data from Senegal showed that school size had no effect on student performance in the early grades but that attending a large school had adverse effects on student performance by the fourth grade. This may be due to the fact that fourth graders have spent more time in the education system whereas, at the start of the learning process, schools have not yet left their mark on younger learners, whose learning is shaped more by family environment (Ndege, Enose & Simatwa 2021). Barrett et al. (2019) also point to the drawbacks

of large schools, citing higher transportation costs, higher administrative overheads, lower graduation rates, higher absenteeism, higher rates of vandalism, and lower teacher satisfaction.

School premises*:* An 'inviting school learning environment that ensures the safety and health of learners' helps to enhance the quality of learning (UIS, 2012: 38). Learning assessment data from Latin America shows a clear relationship between school learning environment and learning even after controlling the socioeconomic level of the families. The two categories that are most clearly associated with learning outcomes are pedagogical and academic spaces and connection to services (electricity, telephone, and Internet) (UNESCO Santiago Office and IDB, 2017).

The quality of the learning environment affects enrolment and completion rates, and it is an important aspect of parents' satisfaction with and perception of school quality (Morgan, Bowling, Bartram, Kayser, 2021). Evidence suggests that school construction projects can help raise motivation among students and teachers and improve parental engagement, subsequently leading to improved academic achievement (Mensah & Eric Koomson, 2020). Well-designed schools can increase the productivity of school staff and cut financial waste on unnecessary services and maintenance (RIBA, 2016).

Although the literature does not show a strong relationship between students' exam results and their satisfaction with the condition of school facilities, some studies have demonstrated convincing links between student outcomes and specific aspects of the classroom learning environment in OECD countries (Barrett et al., 2019). Table 1 summarizes the evidence gathered from the literature.

Water Sanitation and Hygiene (WASH) facilities: Schools are one of the most successful and cost-effective resources for targeting children and communities with key health and hygiene interventions (WHO, 2004). Basic services such as water, sanitation, waste disposal, electricity, and communications also help ensure that children and teachers attend school and remain healthy there (Barrett et al., 2019). Inadequate WASH facilities affect boys and girls differently, which may contribute to unequal learning opportunities. Specifically, a lack of sanitary facilities may mean that female students but also female teachers are absent from school during menstruation (WHO, 2019).

Classroom Learning Environment: The quality of the classroom setting is one characteristic of the School Learning environment that promotes positive student outcomes. The climate of the

classroom is seen as a major determinant of the behaviour and learning of students. It contributes to the academic success of students and predicts the degree to which they participate in learning, how consistently they attend school, how attentive they are in class, how carefully they complete assignments and how committed they are to stay in school and doing well (Malach, 2015).

Students' Academic performance

Educators have no consensus about the best way to measure students' academic performance, which they consider one of the most challenging tasks (Chiekem, 2015). The complexity of the challenge is that various approaches can be used to determine learning outcomes, including academic performance (Carini et al., 2006; Lamas, 2015). For instance, while some studies associate student academic performance with examination or assessment outcomes (Odeh et al., 2015), others relate it to success in completing planned learning goals (Bossaert et al., 2011). Some researchers have alluded to academic performance as an assessment indicator like learning aptitude, academic success achieved through mental abilities, and function of intelligence (Brown et al., 1989; Peng & Kievit, 2020; Yahaya et al., 2012). Other literature refers to student academic performance as the grade point average (GPA) of students' scores achieved in a course or feedback on mastery of content in a subject (Lumpkin, 2019). The diversities in assessment approaches to students' academic performance have exemplified challenges that confront educators in measuring academic performance.

According to (Ullah, 2020), performance is the outward demo of an individual's thoughtful notions, services, thoughts, and information that grades signify students' achievement scores. According to Lewinski (2015), academic performance represents the arithmetical scores of students' knowledge and the degree that he gains in schoolwork and the educational system. The achievement score of students may be achieved efficiently if all the factors affect students' educational presentation. Achievement outcome has been considered as a function of two characteristics, "skill" and "will ", and these must be considered "and these must be considered individually because keeping the will alone may not assure success if the skill is lacking.

In all educational systems, performance is considered a significant factor in students' learning. Koroye, (2016). assert that academic performance is not only about students' performance in school but should also include all aspects of their knowledge, competence and literacy development. In a narrow sense, academic performance refers to students' measured

performance through examinations at a certain study stage. In empirical studies of academic performance, a considerable number of researchers adopt such definitions of academic performance, especially in empirical studies of primary and secondary school students. Researchers often define academic performance as students' examination results. For example, Korir, Okwara and Okumbe (2018) define academic performance as a definition of a learner's performance of teaching and learning assessments, such as final examination results, achieved by the person in school.

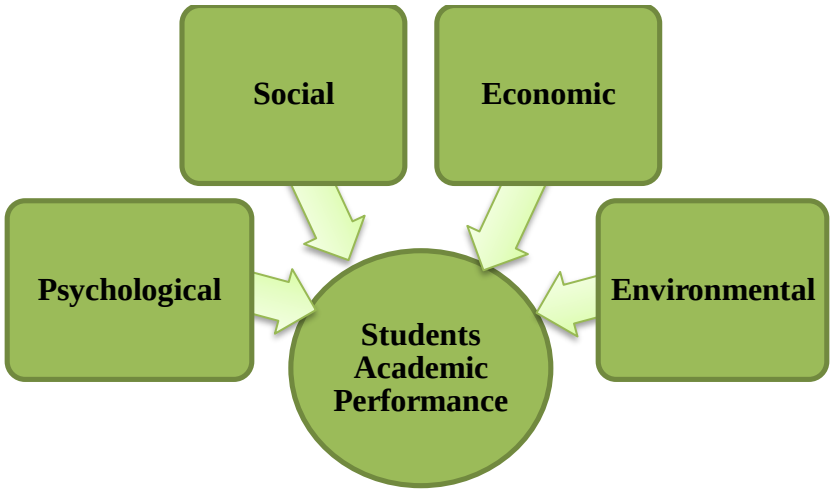
Khan, Begum and Imad (2019) believed that academic performance could be equated with academic achievement. In a study of secondary school students' personality traits and academic achievement (Jago & Tanner, 2012). measured academic achievement using students' midterm and final grades in language, mathematics, and foreign language subjects. Through an empirical study, Ikegbusi, Onwuasoanya, and Chigbo-Okeke (2016) found that preschool education can improve students' future academic achievement (in the case of mathematical literacy) and can also promote educational equity. Gilavand (2016) believes that academic performance contains values, analytical problem solving and social skills, and Bowie (2015) believes that academic performance value added is divided into three dimensions: core competencies, citizenship, and professionalism.

Factors Affecting the academic performance of students

Extensive research has been conducted to ascertain the factors which have been known to impact students' academic performance. For instance, the transition phase faced by students migrating from school to Higher Education Institutions (HEIs) is a stressful procedure as scholars now have to face a multifaceted atmosphere like never before, with the inability to cope with high demands and inappropriate study habits leading to an adversely hit academic performance. Further, Gima (2020) drew two categories of variables which are capable of explaining the academic performance of students- instructional attributes like social interface, assessment and feedback, clear information, extracurricular training programs, etc., and student-specific attributes like intelligence, prior academic performance, level of motivation, learning strategies, etc. Factors affecting students' academic performance are numerous and can vary from nation to nation as well as even from person to person (Nji, 2018). As such, it would be really inadequate to investigate students' academic performance through a single-factor perspective (De Clercq, Galand, Dupont, & Frenay, 2013).

There has been a mutual agreement among the researchers regarding understanding the academic performance of students as an aggregate of their cognitive as well as non-cognitive attributes Gichu, Kibaara & Njagi, (2017), taking into consideration the socio-cultural framework within which the process of learning takes place (Emaliana, 2017). Somewhat similar results have been fetched through the research conducted by Singh, Malik & Singh (2016), which basically made an effort to categorize the factors found to impact the academic performance of students into the following categories:

Figure 1:Factors Affecting Academic Performance of Students



Source: Singh, Malik & Singh (2016 p 24)

Measuring Academic Performance

Owing to the amorphous nature of "Academic Performance", a number of instruments can be used to measure the same, keeping in view the perspective that is being considered. A majorly used yardstick to measure academic performance is the "GPA" (Chepkonga, 2017) which applies the GPA (grade point average) to evaluate the performance of the students in a particular semester. Some researchers used test outcomes or earlier when considering performance for a particular subject (Ali, Masroor & Khan, 2020). The same measure was utilized by Alimi, Ehinola and Alabi (2012). Other researchers assessed the performance of the students through the previous year's result or the outcome of a particular subject (Chanimbe & Prah, 2020). Also, according to Narad and Abdullah (2016), academic performance, which is the knowledge gained and is assessed by marks by a teacher and/or educational goals set by students and teachers to be achieved over a specific period, is measured by using continuous assessment or

examination results. Grade Point Average (GPA) has been assumed to have a direct connection with the general acumen and career potential of individuals owing to which GPA is considered a standard measure of students' academic performance.

Models evaluation of School Learning environment and academic performance

There are models that evaluate the relationship between the School Learning environment and academic performance to determine variations in students' learning achievement (De Clercq et al., 2013). The frameworks provide a foundation for linking students' assessment processes to academic performance and explain the influence of the school learning environment on learning outcomes. The context-input-process-output (CIPO) model considers education as a process where inputs are processed into outputs (Alimi, Ehinola, & Alabi, 2012).

The context-input-process-output (CIPO) model is a basic systems model of school functioning, which can be applied to several levels within education, namely system level, school level and classroom level (Baafi, 2020).). The model also functions as an analytical framework for reviewing educational quality (Awan, 2018). According to this model, education can be seen as a production process whereby input by means of a process results in output. Input, process and output are all influenced by context (Aliyu & Ali, 2021). The context gives input, provides resources for the process and sets requirements for the output. In this way, all components of the CIPO model are interconnected to each other. The CIPO model is developed by Jaap Scheerens (1990).

Component of the CIPO Model on School Learning environment and student performance

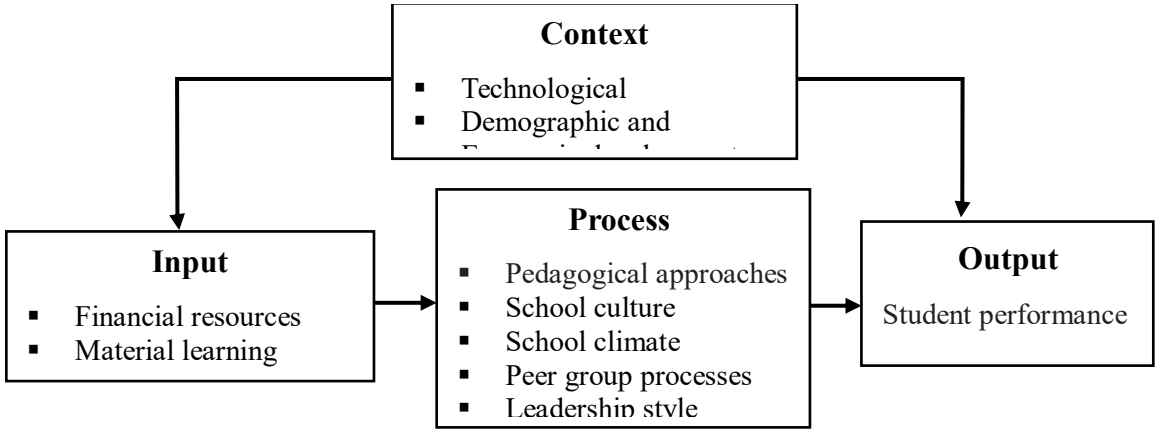
Context: Concerns developments that influence education, like technological, demographic and economic developments. National policies for education also provide an influential context by determining goals and standards. This has an important potential influence on the quality of education (UNESCO, 2005).

Input: Refers to the financial resources and the material learning environment, like the school buildings and textbooks. In addition to these resources and materials, input refers to the knowledge level of students at commencement, student and teacher characteristics (like gender and ethnicity) and teachers' qualifications.

Process: Includes initiatives to get (desirable) output, like activities. Other process features are didactical and pedagogical approaches, school culture and school climate, peer-group processes and leadership (style).

Output: Contains the results and revenues. Revenues in the short term are student achievements, like acquired knowledge of language and mathematics and social competencies. Revenue in the mid-long term is obtaining a diploma, and examples of revenue in the long term are getting a (paid) job (Akomolafe & Adesua, 2016).

Figure 2: Illustration of the CIPO model on School Learning environment and student performance



Source: CIPO model (Scheerens, 1990 p31).

The model comprises context, input, process, and output to offer an analytical basis for assessing the quality of the learning process (Chang & Lin, 2018)). Context refers to the policies, environment, and approaches that influence students' academic performance. The input entails resources and a learning environment that students need to excel, while the process includes initiatives to achieve learning objectives (Bhavana & Achchi, 2018). Output is the feedback that accounts for the learning. This model illustrates the school learning environment's vital role in learning processes and learning output (Bakadorova & Raufelder, 2018).

Educational productivity model: postulates that students' academic performance is the outcome of affective, behavioural, and cognitive activities that show students' learning abilities, including school social environment and instructional factors that affect students' learning (Baghdady & Zaki, 2019). The model highlights nine factors that affect students' academic performance, grouped into aptitude, instruction, and school social environment factors (Walberg et al., 2018).

- **Aptitude factors**: encompass ability, prior achievement, and motivation
- **Instructional aspects:** entail time students engage in learning and the quality of instructional interactions.
- **School social environment factors**: include home, classroom, peer groups, and out-of-school social contacts (Bada & Laraba, 2018). These factors can affect learning as well as students' academic performance.

The influence of Student-teacher relationships on Students' academic performance

The student-teacher relationship is an essential indicator of the learning environment and is critical to students' development and learning (Koca, 2016). Among the five systems in Bronfenbrenner's ecological theory that influence a student's development, student-teacher relationships fall within the microsystem (Taylor & Gebre, 2016). This system represents students' interactions with teachers and the immediate environment that impacts learning development (Bronfenbrenner & Morris, 1998; Rudasill et al., 2018). The significance of student-teacher relationships can also be connected to John Bowlby's attachment theory (Keller, 2013). The theory propounds that relationships between adults who are caregivers of children significantly influence children's learning development. The quality of attachment between teachers and their students is essential for learning outcomes (McGrath & Bergen, 2015).

Self-determination theory also demonstrates that student-teacher relationships significantly influence students' learning (Bakadorova & Raufelder, 2018). Teachers can help students set learning goals, connect with the environment, and actualise their potential. The theory postulates that students have three basic psychological needs: independence, relatedness, and competence, that affect learning motivation (Ryan & Deci, 2000). Thus, students are motivated to participate in classroom activities when teachers help them satisfy these psychological needs (Smit et al., 2014; Turner, 2019).

The social context of learning is grounded on student-teacher relationships and is among the factors that affect student-teacher interactions, school engagement and motivation among students (Spilt et al., 2011). Supportive and positive student-teacher relationships can enhance students' participation in learning engagement and a sense of belonging (Hughes & Chen, 2011). A constructive relationship with teachers enables students to work independently while teachers provide the needed support. Teachers facilitate the process of support by responding promptly to challenges faced by students. This collaboration motivates students to develop self-

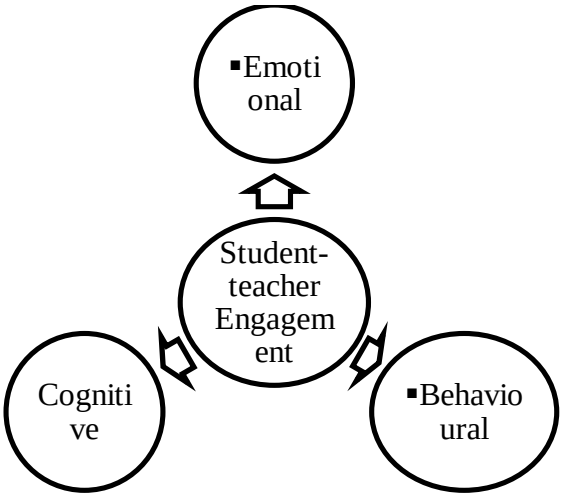
belief and promote learning. Likewise, quality student-teacher relationships stimulate students' motivation for higher academic performance (Cornelius-White, 2007; Nurmi, 2012; Roorda et al., 2011). For example, Ruzek et al. (2016) reported that emotionally supportive teacher-student interactions in classes enabled students to experience independence. Thus, cordial student-teacher engagements help students adjust to school environments with intrinsic motivation for learning (Forghani-Arani et al., 2019; Pianta & Hamre, 2009; Ryan & Patrick, 2001).

Types of students-teachers' engagement

According to Fredricks et al. (2004), student-teacher engagement types are:

- Emotional
- Behavioural
- Cognitive

Figure 3:students-teachers engagement



Source: Fredricks et al. (2004)

Emotional engagement refers to students' affective reactions to studies such as interest and attitude.

Students' behavioural engagement includes participation in academic and extra-curricular activities,

Cognitive engagement entails mastery of complex learning processes. When teachers show concern for students' wellbeing, it creates positive emotion that can drive students' motivation and behaviour to participate in learning activities (Skinner et al., 2008). While students can externally be motivated to please teachers by seeking attention and approval as a reward,

discordant student-teacher engagements characterised by conflict can potentially be detrimental to learning (Furrer & Skinner, 2003; Murray & Murray, 2004).

Positive student-teacher relationships can lead to job satisfaction, while negative student-teacher relationships may cause stress and burnout in teachers, especially when dealing with disruptive students (Chang, 2009; Spilt et al., 2011). The relationship is the emotional bond that binds teachers and students and is essential for teacher motivation, students' affective needs and learning outcomes (Chang, 2009; Koca, 2016; Omodan & Tsotetsi, 2018; Sabol & Pianta, 2012). Effective student-teacher relationships lead to low levels of conflict and increase student involvement in learning activities, school attendance, and academic performance (Hughes & Kwok, 2006). Students' perception of their relationships with teachers plays a significant role in students' interest in learning (Fan & Williams, 2010). Likewise, the student- teacher relationships provide the needed motivation and support to optimise students' academic performance (Crosnoe et al., 2004). Teachers, therefore, provide relevant structures that facilitate student-teacher relationships by showing concern for students beyond their subject areas and listening to students' challenges. Empirical studies have established that student-teacher relationships are essential factors that can predict students' academic performance (Akiri, 2013a; Skinner et al., 2008).

Liu and Cavanaugh (2012) explored factors that influenced students' academic performance in online algebra class in the United States of America. The research assessed the impact of teacher comments, students' demographic information and learning management system utilisation on students' scores. The study involved high school students in K–12 virtual learning environment. Academic performance entailed final scores achieved by students. Data was analysed using hierarchical linear modelling technique. The study found that several factors, including student-teacher interactions, positively impacted students' final scores.

Xu and Qi (2019) explored student-teacher relationships and students' academic performance in China. The objective of the study was to determine how students' relationships with their mathematics teachers affected their academic performance. The research was conducted in 104 districts of Z Province. Participants included 762 secondary schools and 42,643 students in eighth grade. The data was analysed using hierarchical regression. The findings showed that teacher-student relationships had a positive impact on students' academic performance. Thus,

the study concluded that positive student-teacher relationships are essential for predicting academic performance and can significantly improve students' academic performance.

Mensah and Koomson (2020) studied student-teacher relationships and academic performance in Ghana. The research which was conducted in Winneba involved 80 students in senior high schools. The research categorised student-teacher relationships into four groups consisting of connectedness, dependent, peaceful, and conflicting. Participants were divided into two strata. Data was qualitatively collected using semi-structured interviews. The study showed that positive relationships between students and teachers created conducive learning environments that promoted students' academic performance, while negative relationships impeded performance. The research recommended that teachers should show concern for both students' academic and non-academic activities.

Academic support and it influence on students' academic performance

According to Bronfenbrenner's theory, a child's relationships and interactions with the immediate environment are classified within the microsystem layer. The structures in this layer include parents, teachers, and students' peers (Rudasill et al., 2018). Among the components in this layer, parents invest the most in their children's education (Urdan et al., 2007). Parents provide the most significant academic support to students out of the immediate school environment (Fonkeng & Tamanjong 2009). The support includes providing necessary academic materials and intellectual stimulation, monitoring and time management of academic activities, supervising homework, and discussing school experiences (King & Ganotice, 2014).

The social learning theory posits that learning is a consequence of interactions between students and socialising agents such as teachers, parents, other students and the environment (Bandura, 1999). This theory highlights the importance of inter-relationships between students and socialising agents to support learning. Therefore, academic support involves contributions of the socialising agents in nurturing students' cognitive development. The support includes direct and indirect learning resources which the home and school environments avail to help students achieve their academic aspirations. These resources can be in the form of material or emotional support.

Supportive behaviours from parents significantly contributed to students' adjustment in their academic work. Moreover, emotional and informational support was the most vastly reported support from parents, while teachers mostly experienced informational support. Students' peers provided emotional and instrumental support to their colleagues. Teachers' informational support was an essential predictor of students' social skills and intellectual competence. Likewise, supportive behaviours from teachers also encouraged students to settle in for academic work, especially for students who are new to the school.

McCoy et al. (2014) investigated caregivers' values for education, students' motivation, school attendance, and academic performance in Ghana. The study aimed to inform teachers about specific ways to promote school attendance, students' motivation and academic performance. The results showed that most caregivers see education as valuable, while a subgroup exhibited relatively low endorsement of education worth. About half of the students reported being intrinsically motivated to learn than extrinsically. The finding suggests that some members of society have not fully embraced educational values. The study reinforces the need to examine parental influences on students' motivation to achieve academic goals.

Cheema and Ware (2014) assessed the impact of school environment and peer influences on students' academic performance. He stated that three factors of school environment significantly influenced academic performance. The factors were teachers as helpful and good instructors, teachers as promoters of active learning and diversity, and teachers as managers and organisers of classroom activities. Gyamfi and Pobbi (2016) explored parental monitoring activities and students' academic performance. This study opined that parents' active monitoring of their children's learning and leisure activities at home can enhance academic performance.

The influence of School Learning environment and academic performance

Schools are established for the purpose of teaching and learning. It is also more important that the teachers and learners are properly accommodated to facilitate the teaching and learning that go on there. Therefore, school facilities are the space interpretation and learning expression of the school curriculum (Ayaz, Ali, Khan, Ullah & Ullah, 2017). Aswathy (2015) stated that students are expected to perform brilliantly in their examinations as this determines the quality of the output of the school. This is one of the parameters used to measure the effectiveness of

a school system. According to Philas (2015), the better the performance of the students, the more effective the system is assumed to be (Arshad, Ahmad, Qamar & Gulzar, 2018) and asserted that there is a strong and positive relationship between the quality of School Learning environment and students' achievement in schools. In most developing countries, it is the general opinion of people that private schools are better in terms of the availability of human and learning facilities and, consequently, students' performance than public schools. This situation has made many parents enrol their children in private schools (Ikegbusi & Adindu, 2022).

Farombi (2018) opined that the wealth of a nation or society could determine the quality of education in that land, emphasizing that a society that is wealthy would establish good schools with quality teachers and learning environments, which such students may learn with ease, thus bringing about good academic achievement. Writing on the role of facilities in teaching and learning, Balos (2021) submitted that no effective science education programme could exist without the availability of necessary equipment. This is because facilities enable teachers and learners to develop problem-solving skills and scientific attitudes. Ajayi (2020) reiterated that when facilities are provided to meet the relative needs of a school system, students would not only have access to the reference materials mentioned by the teacher, but individual students would also learn at their own paces. The net effect of this is increased overall academic performance of the entire students.

Ikegbusi, Eziamaka and Iheanacho (2021) asserted that school facilities are needed to develop cognitive areas of knowledge, abilities and skills that are necessary for academic achievement. Moreover, the development of the affective and psychomotor domains is also facilitated by the presence of necessary and relevant school facilities (Hilary, 2017). The foregoing shows that school facilities play a crucial role in students' academic achievement. This problem of poor performance is more pronounced in ill-equipped schools (ARORA & SINGH, (2017) Mgbodile (2014) and Ikegbusi (2018) pointed out that for effective teaching and learning situations, school facilities and educational goals should be viewed as being interwoven.

School facilities such as buildings are essential to students' academic development. According to Limon (2016), facilities form one of the potent factors that contribute to academic achievement in the school system. Apart from protecting the pupils from the sun, rain, heat and cold, school building represents a learning environment which greatly impacts the children's comfort, safety and performance (Okechukwu & Oboshi, 2021).

The school Learning environment is of much importance in schools, and Owoeye and Yara, 2011) posited that facilities form an important pillar in students' academic achievement. The authors further noted availability, relevance, adequacy, and proper utilization of school facilities such as the entire school layout, playground and recreational equipment, buildings and accommodation, classrooms and furniture, libraries, laboratories, apparatus, and other instructional materials contribute to academic achievement. This is supported by Wunti (2014) that school facilities are the engines of growth, enhancer, and enablers, which support the teacher and the learner for effective and efficient teaching and learning for the attainment of goals and objectives of education. Baafi (2020), based on their empirical data, determined that adequate school facilities create an environment that is conducive to learning for students.

According to earlier research by Anlimachie (2019), there are substantial connections between the School Learning environment and students' views toward education. According to Alimi, Ehinola, and Alabi (2012), learning environments such as school buildings, classrooms, labs, libraries, and recreational equipment are the key to increasing academic attainment in the educational system. In contrast, Akomolafe and Adesua (2016) stated that experience shows that having good learning amenities available makes pupils have a greater interest in learning, which would results in higher performance. In their studies, Cheryan, Meltzoff, and Kim (2011) noted that facilities are essential to boosting student achievement and creating a competitive atmosphere among them.

The research by Bello (2012) found that the low academic performance of children would continue if instructors were not encouraged to make good use of the available school amenities. This is supported by Amoo, Adeyinka & Aderibigbe (2018) that lacking school facilities for teaching and learning is negatively affecting the academic achievement of secondary schools. Similarly, Simons, Hwang, Fitzgerald, Kielb, and Lin (2010) found that kids who attend schools with poor indoor air quality experience tiredness, lethargy, and difficulty focusing on class. Due to their medical issues, some students miss classes, and ineffective management and inadequate maintenance of school facilities have an impact on learning. This demonstrates the importance of facility management, including the management of buildings and technical systems, in ensuring the efficient and successful operation of facilities (Alimi, Ehinola & Alabi, 2012). Further, to ensure smooth operation and effective management of the upkeep of the facilities, the budget and maintenance costs must be distributed effectively. In conclusion,

appropriate system management of educational facilities is crucial to assisting the business in achieving its educational aims and objectives.

Ikegbusi, Eziamaka and Iheanacho (2021) asserted that School Learning environments are needed to develop cognitive areas of knowledge, abilities and skills that are necessary for academic achievement. Moreover, the development of the affective and psychomotor domains is also facilitated by the presence of necessary and relevant school facilities (Hilary, 2017). The foregoing shows that the School Learning environment plays a crucial role in students' academic achievement. This problem of poor performance is more pronounced in ill-equipped schools (Ikegbusi, Onwuasoanya & Chigbo-Okeke, 2016). Mgbodile (2014) and Ikegbusi (2018) pointed out that school facilities and educational goals should be interwoven for effective teaching and learning situations. School facilities such as buildings are essential to the academic development of students (Okechukwu & Oboshi, 2021). According to Limon (2016), facilities form one of the potent factors that contribute to academic achievement in the school system.

Classroom learning environment

Class environment refers to utilising available learning and instructional facilities and maintaining discipline in the classroom for effective teaching and better student learning (Befii–Nwile & Amie-Ogan (2021). It is an amalgamation of internal and external factors like curriculum, methods of teaching, teachers' behaviour and interaction with students, learning atmosphere, academic and social environment and support services used in the classroom for the teaching and learning process (Jawaid&Aly 2014). A wide variety of classroom techniques and skills enables teachers to keep students attentive, organized and actively participating in classroom activities to produce productive results (Gietz & McIntosh, 2014). It includes planning, organizing, communicating and mentoring. It also demands teachers' professionalism, taken of initiative, dedication, devotion, job commitment, and willingness to adjust themselves to students' socio-cultural and intellectual calibre (Abel, 2011).

The classroom environment has a positive impact on students' academic achievement, as by provision of learning facilities like furniture, electric supply, painted walls, models, charts, overhead projector and other ICT-related instructional material, students take much interest in classroom activities which help them to get high marks in examinations (Kausar, Kiyani & Suleman 2017). Providing learning facilities to schools, like well-equipped libraries, clean

drinking water, well-furnished classrooms, and laboratory with related appliances, are the main factors that play vital roles in better teaching and uplifting students' learning (Omae et al. 2017). School support facilities like I.T Lab, tablet, first aid box, classrooms with ventilation, store room, cooling and heating systems, staff room, and well-equipped library with adequate books play vital roles in providing quality teaching and learning (Arshad, Ahmed &Tayyab, 2019). It was found that the lack of a conducive classroom environment, non-supportive teachers' attitudes, lack of pedagogical skills and students' disruptive behaviour create hindrances to effective teaching and better students learning (Ahmed, Faizi& Akbar, 2020).

A Conducive classroom environment helps teachers teach effectively, and students easily learn and perform better academically. Using proper available teaching and learning resources in classrooms enhances students' learning outcomes. It positively impacts students' learning (Qamar et al., 2018). It comprises various components like room size, lighting, temperature, walls, ventilation, whiteboards, mats, seats, floor, PCs, and other materials that have fruitful effects on students' learning (Gilavand, 2016). School facilities like school buildings, electricity, natural/artificial lighting and ventilation in classrooms, drinking water, wash rooms and playground were the main attributes to improve students' learning (Awan, 2018). Students' academic achievement in well-furnished and small class size rooms with better facilities was found to be better than students having large class size classes (Olufemii& Olayinka, 2017).

Characteristics of a conducive classroom environment

The success of students is greatly influenced by their learning environment (Mauro, 2009). There are two aspects of a conducive classroom environment - good classroom organization and management and an appealing School Learning environment to promote effective learning (Sivalingam, 2009; Chitravelu, Sithamparam & Teh, 2005). There are several attributes of classroom School Learning environment, i.e., visual, acoustic, thermal, spatial, and time factors.

Visual factor: refers to the quality of lighting in different parts of the classroom. The level of natural and artificial light available in the classroom determines it. It also refers to the way by which the classroom environment is arranged, i.e. visually interesting, creating a favourable atmosphere and any unwanted disruptions, e.g. windows overlooking playgrounds etc. School Learning environment s must be designed to enhance visual stimuli. This includes body movements, environmental cues, objects, and written language (Sells, 2013). Sufficient

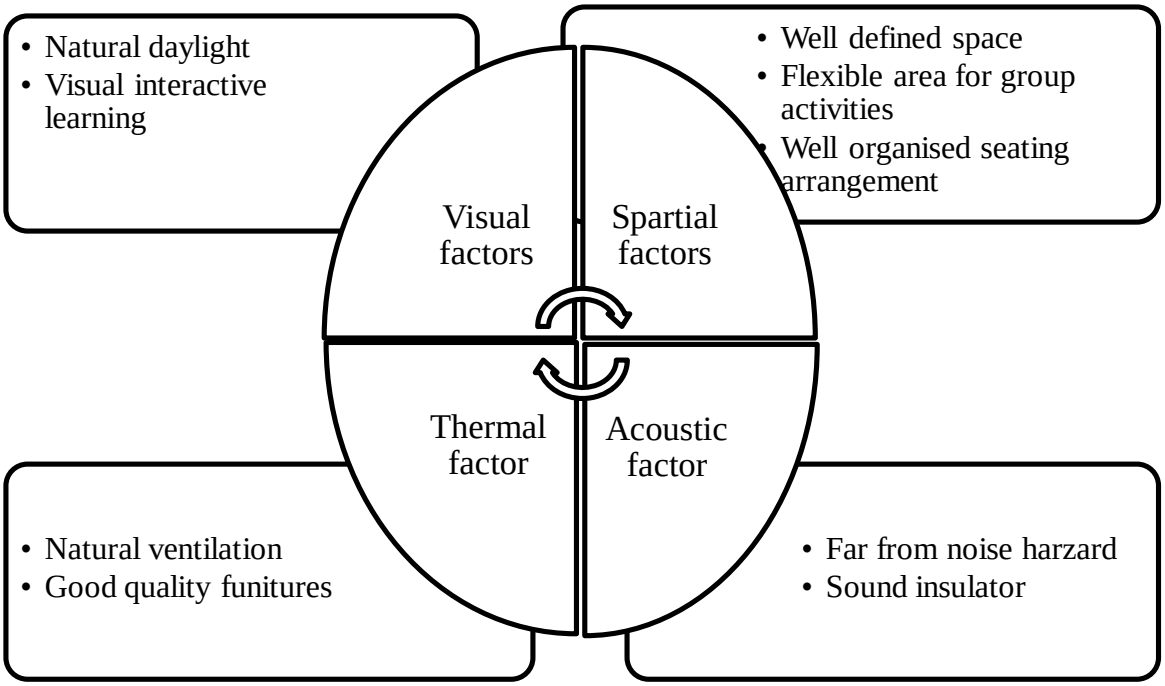
daylight in classrooms is important because it has been shown to improve study and health, awareness and feelings of well-being in classrooms. The lack of natural daylight reduces visual comfort and affects academic performance (Smith & Bradley, 1994).

Acoustic factor: this is important as we mostly depend upon verbal communication in our classroom. Noise level mainly depends upon school design, classroom organization and teaching methodologies applied during a lesson (Basit, 2005). Poor classroom acoustics can adversely affect the learning environment for many students. Constant noise exposure can damage cognitive performance and functioning (Fadeyi, Alkhaja, Sulayem & Abu-Hiljeh, 2014). By properly designing acoustics, a healthy learning setting will promote positive social behaviours and boost a child's interest in attending school consistently (Fadeyi et al., 2014).
Thermal factor: refers to the heating and ventilation of the classroom and are generally out of the teachers' control as they are climate variables (Godfrey, Wambugu, Parikh & Tunhuma, 2022). Classroom heating and ventilation play a fundamental role in making classroom atmosphere favourable and comfortable, affecting behaviour and performance (Fadeyi, Alkhaja, Sulayem & Abu-Hiljeh, 2014).

Spatial factor: relates to space management and has a great impact on behaviour, particularly on communication. Clearly defined spaces within the learning space used for different purposes ensure students know how to behave in each of these areas (Gomathi, Samitha, Kanaka Nishanth, Praveen Kumar & Sireesha, 2018). To promote attentiveness among students, seating arrangements in the classroom should be properly organised (Borah, 2013). The layout of tables and chairs in rows would facilitate task behaviour and academic learning, whereas more open arrangements, such as clusters and u-shaped, would encourage social interactions and eye contact among students (Gönen, Temiz & Akbaş 2015).

Time factor: refers to the amount of time a student is participating in the learning process, i.e., the number of minutes the student is actively participating in teacher-directed lessons and activities (Ibrahim, Wunti & Umar, Abdullahi & Clement, 2017). Therefore, it is concluded that the School Learning environment comprises classroom size and structure, furniture, seating arrangement, instructional technologies, room heater, ceiling fans, curtains, cupboard, equipment, lighting, ventilation etc.

Figure 4:Framework for the conducive learning environment



Source : Ahmad et al. (2015 p10)

School Library and students' academic performance

The importance and uses of the library cannot be underestimated. Libraries and books give great assistance to both teachers and learners (Ikegbusi, 2012). Library utilization entails the effective use of the vital services provided by the library. A library that is not being utilized is as good as dead, as it cannot justify its existence (Onanuga, Ilori, & Ogunwande 2017). The functionality of library services could be achieved if students use them correctly. As a result, services have no value to them until they are used (Hekoronye, 2020). It is expected for an academic library to be well equipped to make provision for quality services that will substantiate its presence as an essential component of any high-profile academic institution. Hiscock (1986) maintained that in order to justify its existence, the academic library needed to demonstrate a positive link between its use and educational performance.

According to Estabrook et al. (2016), Library usage varies between academic schools, and there are often pedagogic reasons for low usage, but it would appear that in some subjects, students who read more books achieve better grades (Befii–Nwile & Amie-Ogan, 2021). Students in schools with adequate library services learn more and perform better on standardized tests than students in schools with under-resourced libraries. Hence, the availability of resources from

libraries is an indispensable requisite in students' learning. Subsequently, students' usage of these services is a critical indicator of the significance of library services (Lance, 2021).

The ultimate goal of school libraries is to help students access information. The main point is how often students benefit from the libraries. Students may need to be encouraged in the effective use of libraries. Besides, it is also crucial that teachers guide the students at younger ages. Libraries may be required to be developed and designed for this purpose. In the current situation, it has been determined that libraries are not popular centres of interest frequently preferred by students (Akman and Akman, 2017) and that school libraries are far from international standards in most African countries (Alexander & Lewis, 2014).

Scientific evidence from past studies Ibrahim et al. (2017) demonstrated that poor academic performance among secondary school students is evident worldwide. According to Falmer et al. (2012), school library facilities in secondary schools must be accessible to all members of the community. In developed countries where a culture of reading has developed, the role of books and libraries for educational achievement highly relies on the role of library facilities to providing adequate and relevant evidence and supporting students to differentiate appropriate information related to socio-economic, scientific, technology and culture among community members (Campell, 2006).

In the developing world, where a culture of reading has not developed, the role of books and libraries for educational achievement is not highly relied on (Fakomogbon, Bada & Omiola, 2012). In these countries, the main challenge is to motivate pupils, to read for self-study and adults for lifelong learning as it is the continuing volunteering pursuit of skills, knowledge and experiences in order to advance in professionalism. In African countries, the formation of libraries has been associated with the purpose of achieving academic performance. According to Amaechina and Ezeh (2019), Most current programs on the provision and utilization of library in some African countries consider the vital role of library facilities in enhancing students' academic performance.

Accessibility and utilization of library information resources are key factors in the provision of quality services in different types of libraries. In addition to that, Amaechina and Ezeh (2019) point out that a library's usefulness depends upon its proper organization, including the

accessibility and availability of information resources, their arrangement and the situation of the library. Also, successful library services depend mainly on the satisfaction level of its users with the relevant library information resources, user-centric library services and the library staff's supportive attitude (Bhatt, 2013).

Availability of information is central to human development, but insufficient knowledge may create problems resulting in abject poverty, ignorance, hunger, illiteracy, and so on Akomolafe and Adesua (2016) noted that for any library to flourish in any society, the economy must be sufficiently vibrant. The author went further to say that; To succeed in any aspect of human endeavour, availability and accessibility to timely and up-to- date information materials are essential in the same line of thought. Amadi and Ezeugo (2019) confirm that the unavailability of library resources in most educational institutions negatively affects the use of library resources.

According to Ali et al. (2021), the gap in the availability of library resources relevant to users' needs perhaps made UNESCO in 2015 campaign for establishing national information systems in all countries with a view to meeting the information needs within a given country. In contribution to the concept of availability, Akpan (2020) perceives the availability of library resources as a sine-qua-non to effective library services. The author further asserts that the task of the library is that of collecting, sorting and organizing books and book materials and making them available to the users. This implies that the availability of books and book materials is central to information provided in school libraries and can be used as a measure of library performance.

Several studies have been conducted on the use of library information resources. Among others are Agyekum and Filson (2012), who noted that most students use library resources and services to supplement their class notes and assignments and help them in examination preparation. On the other hand, Akomolafe and Adesua (2016). revealed that students used school library information resources for recreational readings, reference purposes, doing their school homework, teacher requirements and reading news from newspapers. Akinyemi (2020), Agol and Harvey (2018) found out that pupils use school libraries for many reasons, such as preparing for examinations, leisure, recreation, academic work and seeing or meeting friends and people.

According to Ado (2015), the school library is a fundamental part of teaching and learning in secondary schools that afford resource accessibility which supports the curriculum. In secondary schools' pupils use the library to file their knowledge and to supplement what their teachers teach them. According to Amadi and Ezeugo (2019) failure to achieve an expected outcome for students in secondary schools is influenced by negative attitude of reading books Akomolafe and Adesua (2016) evidenced that children in middle schools who have library facilities had 18% of high performance compared to those who are studying where there are no library facilities. A study conducted by Abaidoo (2018) contended that the inability to attain expected results is caused by the lack of attaining the standard level of education outcomes.

Importance of school libraries for school efficiency

The library, especially the school library, has a major role in providing functional education at early stages of schooling. Guney (2012) posits that the significance of a library in School Learning environment is inestimable, most especially at the foundation stage of education. The development of reading habit in the life of people takes its root from early use of school libraries. Gietz and McIntosh (2014) points that school libraries are established to provide a range of learning opportunities for both large and small groups as well as individuals with a focus on intellectual content and information literacy to enhance and improve the intellectual content of school libraries, they must be subjected to sound policy formulation and effective implementation.

Chanimbe et al. (2020) notes that school library helps in encouraging the development of skills in reading, prompting readers to literary appreciation, providing a source of subject information and intellectual development as stimulating factor in education. Balos (2021) adds that school libraries are needed by pupils and students all over the world. It is upon this background that sound education will be built. With the assertions of these authors, the importance of school libraries in the life of secondary school children as it concerns school education cannot be discountenanced.

Benard and Dulle (2014) illustrate the importance of school library in attaining the educational objectives by: Developing in the entire citizenry a strong consciousness for education and strong commitment to its vigorous promotion, Catering for the learning needs of young persons,

their schooling through appropriate forms of complementary approaches to the provision and promotion of basic information resources, Ensuring the acquisition of appropriate level of literacy, numeracy, manipulative, communicative and life skills as well as the ethical, moral and civic values needed for laying a solid foundation for lifelong learning.

The collections of the school library must be adequate and relevant. Amadi and Ezeugo (2019) illustrates that school library collections are provided to achieve the following: provision of information sources required for school education, improving the reading skills and learning habits of pupils, providing pupils with the skills required to transform the gathered information into knowledge, assisting pupils to broaden their knowledge by reading fictions which form 75% at the library collections, helping pupils and secondary school students develop the habit of using libraries later in life.

School library being a part of an educational set-up, plays a key role for the development of young minds. School Library functions:

- It provides documents for pupils and teachers.
- It develops and promote reading.
- It encourages research and study from many information sources.
- It provides recreational and leisure time reading.
- It emphasizes the pedagogical principles of self-education for furthering individual.

School teaching environment and Students' academic performance

The primary purpose of teaching at any level of education is to cause a behaviour change and improve learning outcomes, including academic performance (Ambelu, 2011). Several factors that influence students' academic performance can be classified into individual characteristics, school-related and neighbourhood experiences. However, teachers are among the most significant school-related factors that enhance students' academic performance (Wenglinsky, 2002). School teaching engagement and teachers' influence on the learning process can be considered as school teaching environment. An effective teaching environment is characterised by teachers' organisational skills, subject and pedagogical mastery, and interactions with students, parents, and administrators (OECD, 2009). Teacher effectiveness is determined by teachers' performance on the job, including classroom instructional methods and students' academic performance (Opper, 2019).

Over the past decades, studies have confirmed that teachers substantially impact students' academic performance (Chetty et al., 2014). Moreover, students' basic psychological needs, including competence, autonomy, and belonging, are met in the classroom through interactions with the teaching environment (Brock et al., 2008). A suitable teaching environment consists of an effective instructional approach, students' active participation in learning activities, and articulate curriculum and assessment methods (Kember & Leung, 2005). By implication, the teaching environment is a crucial determinant enabling educators to apply suitable strategies to optimising learning outcomes. There have been debates on improving the school teaching environment that emphasises teacher quality to enable students to achieve their academic goals (Chowdhry et al., 2014).

Bonney et al. (2015) studied the influence of teacher quality and student's academic performance in the Western Region of Ghana. The survey involved teachers and students in junior high school randomly selected in five educational circuits. A questionnaire was used for data collection. Pearson moment correlation, analysis of variance (ANOVA), and descriptive statistics were used in the data analysis. The study found no strong correlation between teachers' high academic and professional qualifications and students' academic performance. This implies that students' academic performance variations can be attributed to other factors, including classroom teaching approaches.

Teaching approaches consist of beliefs, ideas about learning and classroom practices that can be grouped into teacher-centred and student-centred (Ganyaupfu, 2013; Richards & Rodgers, 2001). The approach adopted by teachers depends on factors such as educational viewpoint, classroom demographic, subject area, and school mission statement (Darling- Hammond et al., 2020; Stemler et al., 2011). Research on teaching approaches found that teacher-centred and student-centred approaches are effective instructional strategies that can be used to improve learning and students' academic performance (Naga & Iyappan, 2018).

Teacher-centred approaches are grounded in behaviourist learning theory and posit that learning is a response to stimuli and reinforcement (Peel, 2005). The approaches are also known as direct instruction, deductive, or expository teaching strategies (Gill & Kusum, 2017). Teacher-centred methods focus on the teacher as an instructor, and learning occurs in a highly

organised setting. The instructor takes decisions about the curriculum, teaching approaches, and students' assessment (Kassem, 2019). A teacher plans learning tasks, sets classroom objectives and develops learning activities which enable students to achieve intended learning outcomes (Hancock et al., 2002; Schreurs & Dumbraveanu, 2014). In a school learning environment where teacher-centred approaches are used, teachers' role is to provide information while students passively receive information (Emaliana, 2017). Instructional strategies are lectures and guided demonstrations while students listen and observe. Likewise, the classroom arrangement in such an environment is designed to portray teachers as central figures who impart knowledge (Garrett, 2008). Teacher-centred approaches rely on extrinsic motivation like rewards to influence students' academic performance (Garrett, 2008).

Learning environments that promote student-centred approaches empower students to demonstrate problem-solving skills, creativity, personal reflections, and knowledge application (Richardson & Mishra, 2018). In a student-centred learning environment, teaching is intertwined with assessment to provide feedback (Motschnig-Pitrik & Holzinger, 2002) continuously. Students' learning progress is assessed through formal and informal methods like tests, projects, and presentation The classroom set-up in this approach involves arranging students' desks and chairs in circles or small groups rather than rows of desks that face the teacher.

Empirical evidence has demonstrated that teaching and learning approaches affect students' learning outcomes and academic performance. Beausaert et al. (2013) investigated the relationship between teaching and learning approaches and students' learning outcomes in the Netherlands. The cross-sectional study explored students' perceptions of teaching approaches and their effect on students' learning approaches. The research involved 128 randomly selected students in secondary school and employed a questionnaire for data collection. The results showed that teaching approaches significantly influenced students' learning and academic performance. Ganyaupfu (2013b) assessed teaching approaches and students' academic performance in South Africa. The study involved 109 undergraduates and aimed at exploring the effect of teaching approaches on students' academic performance in college. The research found positive associations between teaching approaches and students' academic performance. Information Communication Technology (ICT) has become an essential tool for improving teaching approaches in a school learning environment (Lawrence & Tar, 2018). ICT integration

in the learning process provides a variety of teaching and learning tools that enable teachers and students to explore a rich repertoire of data beyond traditional learning platforms (Kassim & Ali, 2007). The integration of ICT in the learning process can improve learning outcomes and students' academic performance (Pradeep et al., 2016).

Rapid development in ICT has provided access to information that teachers can select to enhance teaching and learning approaches (Tang & Austin, 2009). The innovations in technology have increased access to information and can improve the quality of education. ICT in education contributes significantly to teaching and learning because it combines various digital tools to facilitate instructions (Ampofo et al., 2020). Integrating ICT into the school learning environment has been a priority intervention by many governments (Light, 2009). For this reason, most governments design a roadmap that aims to incorporate ICT in education (Pelgrum, 2001). However, ICT introduction at different learning levels in schools is a challenging mission (Ghavifekr et al., 2016).

UNESCO's initiative, ICT Transforming Education in Africa, was launched in 2015 to improve human and social development (UNESCO, 2018). The project's implementation was in stages, starting with Mozambique, Rwanda, and Zimbabwe between 2016 and 2019. The project is planned to be implemented in Côte d'Ivoire, Ghana, and Senegal between 2020 and 2023 (Farrell & Isaacs, 2007). Despite efforts by development partners to expand ICT in education, evidence shows that ICT has not significantly been integrated into secondary schools in most developing countries, including Cameroon(Agyei, 2013). Empirical studies found that successful integration of ICT into teaching and learning in secondary schools depends on teachers' competence, adequate infrastructure, and resources (Tondeur et al., 2010; Umar & Jalil, 2012). ICT in the school learning environment promotes students' participation and independence in the learning process (Fomunyam, 2019). Therefore, effective ICT integration in the school teaching environment is essential because it provides a bridge between subject matter, pedagogical competence, and learning activities (Arinze et al., 2012).

Theoretical framework

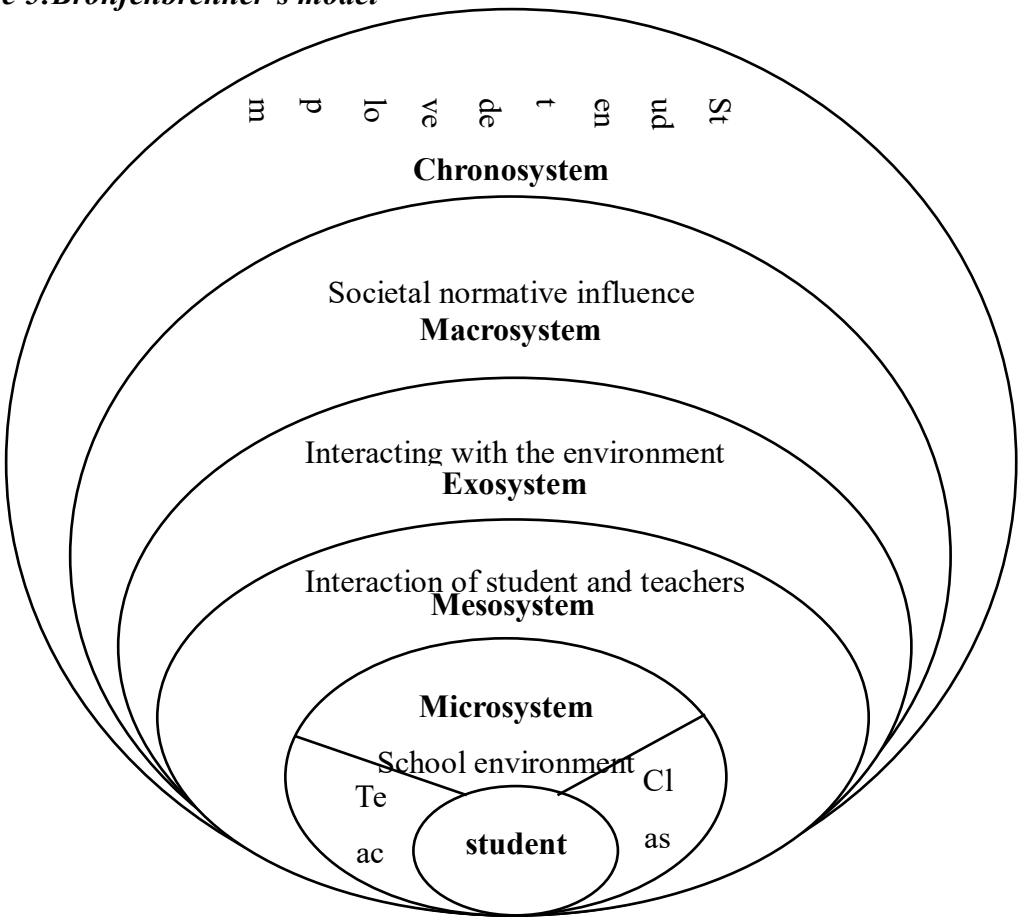
Bronfenbrenner's model

Bronfenbrenner's model was developed by the psychologist Urie Bronfenbrenner. This ecological system theory explains how different environmental systems influence human

development. Urie Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner & Morris, 1998), often called the bioecological model, depicts individuals' lifelong progressive accommodations regarding their changing environments. Bronfenbrenner's theory concerns the quality and context of individuals' life as viewed through the different developmental phases within complex systems. The individuals' environments and ecological realities influence their development, including behaviour. Positive, healthy, and safe social environments are important for the necessary prosperous development of the child. This model described that people are directly influenced by systems, such as family, school, and workplace, and indirectly by others' policies, resources, and expectations. Dynamic environments are important influences on developing individuals, and in turn, individuals are capable of influencing their environments.

The theory outlines the environment as complex layers of *microsystem*, *mesosystem*, *exosystem*, *macrosystem* and *chronosystem*, affecting students' development and academic performance.

Figure 5:Bronfenbrenner's model



Source: Urie Bronfenbrenner's Ecological Systems Theory, (1998)

The immediate environment encircling the student is a *microsystem*. It refers to relationships and interactions which students make with their direct setting. This system's structures include home, teachers, and classroom environments (Rudasill et al., 2018). The relationships between the students and these environments directly or indirectly influence learning progress. For example, student-parent interactions can impact a child's academic performance. However, the child can also influence parents' behaviour and belief in the child's academic progress.

Mesosystem refers to interactions in more than two microsystems, such as the interactions between students and teachers (Bouchard & Smith, 2017).

Exosystem describes the social system in which students do not participate directly but indirectly affects their development and academic performance. The structures in this layer include in-the-school and out-of-the-school resources that affect the student's academic performance through participation in the microsystem (Iruka et al., 2020).

The *macrosystem* denotes the outermost layer in the students' environment. Structures in this layer include principles controlled by values, policies, and beliefs. These principles define the macrosystem and have cascading effects that can influence interactions of all other layers. For example, male or female students' poor learning attitudes in English language class may be attributed to societal normative influences (Seginer, 2006).

The *chronosystem* involves the time-related dimension of a student's development and achievement. It includes changes in students' biological maturation, life events, and experiences, which affect students' academic performance (Lau & Ng, 2014).

The theory further posits that the environment contributes significantly to the conditioning of the learning process and eventual outcomes of targeted students' behaviour that can be observed and measured (Syomwene et al., 2013; Woollard, 2011). For instance, classroom interactions that motivate students' class participation can arouse positive learning behaviour and cause a change in students' attitudes towards learning (Banks et al., 2014).

Social Learning Theory (SLT) (Bandura (1977)

Social learning theory is about interacting with the environment and permanently changing knowledge or behaviour that improves human performance (Driscoll, 1994).

According to Bandura's Social learning theory, we learn from interacting with others in a social context. We observe, assimilate, and imitate others' behaviour when witnessing positive or rewarding experiences (Nabavi, 2012). Bandura (1977a) agreed with the behaviourist learning theories of classical conditioning and operant conditioning yet, crucially, added the following:

- Mediating processes take place between the stimuli and the response.
- Behaviour is learned through observation of the environment.

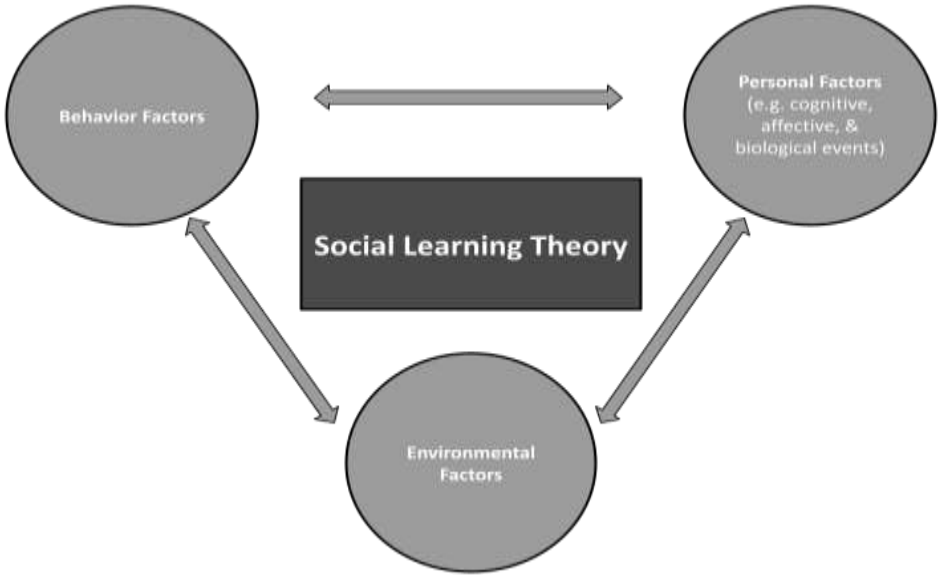
As a result, environmental and cognitive factors influence human learning and behaviour. The Social learning theory states that we acquire behaviours through a combination of reinforcement and imitation, where "imitation is the reproduction of learning through observation" (Gross, 2020).

Stages of Social Learning Theory

Bandura's social learning theory provides a helpful framework for understanding how an individual learns via observation and modelling (Horsburgh & Ippolito, 2018). Cognitive processes are central, as learners must make sense of and internalize what they see to reproduce the behaviour. Psychological processing is required to match cognition and behaviour between observation and performance (Horsburgh & Ippolito, 2018).

The following diagram represents the three interconnected underlying themes of the social learning theory: environmental, personal, and behavioural factors (modified from Bandura, 1977b).

Figure 6: The social learning theory(SLT) (BANDURA,1977)



Behaviours learned through modelling

Bandura proposed that modeling or learning is composed of four mediational processes or conditions that must be met (Horsburgh & Ippolito, 2018; Nabavi, 2012):

Attention: We must pay attention to the model. Our attention increases when behaviour is more striking, different, or prestigious, and when the model is more similar to ourselves.

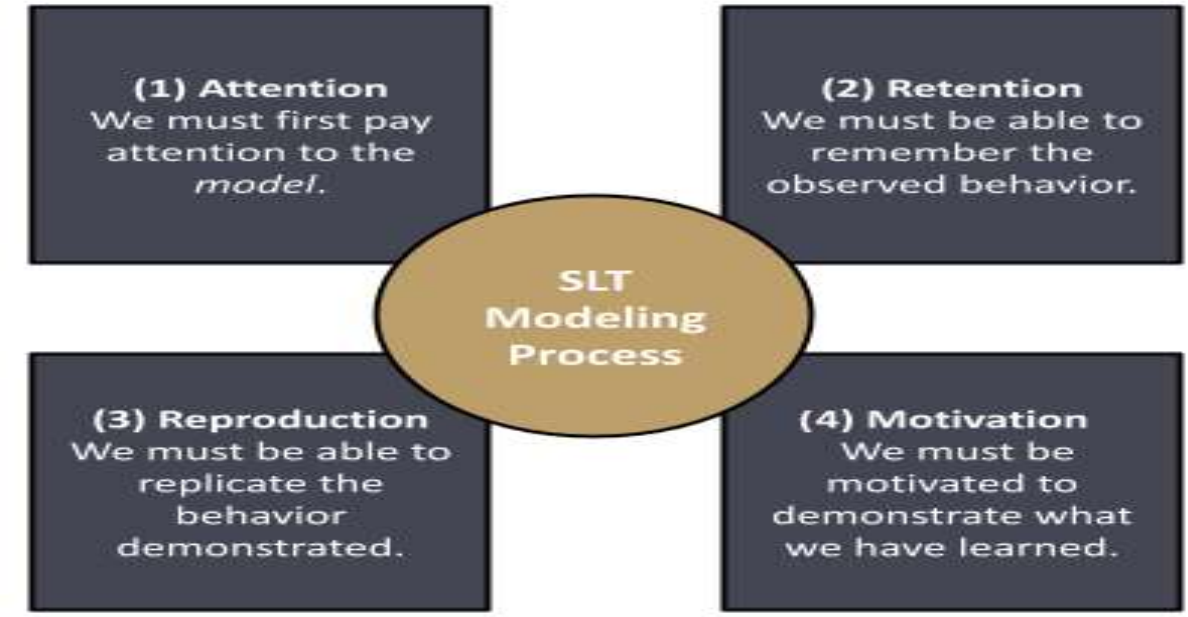
Retention: We must be able to remember the observed behaviour; this can be increased through rehearsal.

Reproduction: We must be capable of replicating the behaviour just observed. Note that a novice may not be developmentally ready to reproduce the action.

Motivation: We must be motivated to demonstrate what we have learned. This can be influenced by both reinforcement and punishment.

The following diagram shows the stages involved in the modeling process (modified from Nabavi, 2012):

Figure 7: behaviours learned through modeling



Source: (Horsburgh & Ippolito, 2018, p. 1).

The Impact of School and Teacher on Student's Behaviour

Social environment factors can influence and become a source of learning in the process of formulating on behaviour through various patterns of social learning (Azhar, 2006). This is because humans naturally mimic, whether imitating in a positive or negative direction (M. Umaruddin, 2003). The environment can affect the appreciation of the individual's moral values. Appreciation of moral values is the final stage of the social convergence process formed through social learning that incorporates elements of social learning fundamental elements such as stimulus, reaction, affirmation, compliance, identification, modelling and impersonation. The environment has an important role in the formation of individual identity and behaviour. This role involves significant individuals such as parents, family members, peers, teachers and mass media. It has a strong influence in the formation of each individual's identity (Zakaria, et al., 2012)

As an agent of transformation, teachers and school are responsible to expand the individual potential in a comprehensive and integrated manner. This is because in order to create a harmonious and intellectual, emotional, and physical person based on belief and obedience to

Allah s.w.t. (Zakaria, et. al., 2012). Besides, teachers and schools are also the most important influences in the development of students in terms of their physical, intellectual, emotional and social aspects. The conducive school climate and equipped with teaching and learning facilities will help the student's cognitive, effective and psychomotor development (Zakaria, et al., 2012). The Holt study (1970) reveals the attitude and teaching of teachers in the classroom as a source of failure to develop their potential. Holt criticized the educational system in the school as being less able to meet individual students' learning and developmental potential. While according to Willms (1992), schools with committed and satisfied teachers find that these teachers will work hard without feeling tired. Brookover, et. al., (1979) also emphasizes that school goals will be achieved if using appropriate educational strategies in teaching and school climate can further enhance student academic achievement.

Empirical Studies

Ramli, Zain, Zain, and Rahman (2021) analysed the School Learning environmental factors and how there influence academic performance. They used a questionnaire as the instrument for data collection and employed regression and correlation methods in carrying out the analysis. Their results indicated that environmental factors significantly impact students' academic performance. They further noted that environmental factors affect students' quality of life. In order for academic performance of students to be improved. They suggested that School Learning environment al factors be addressed and upgraded.

Lodhi et al. (2019) studied School Learning environment and students' academic performance in Pakistan. The research was conducted in Punjab province and involved students, teachers, and principals in public high schools. The research aimed at establishing associations between school learning environment and students' academic performance in English language. The study found that factors of school learning environment such as learning environment, facilities, teacher quality, teaching approaches, academic support, teacher-student, and school-parent relationships were predictors of students' academic performance. The investigation established that a favourable school learning environment enhances students' academic performance in high school. This finding corroborates United Nations Children's Fund (UNICEF) objectives of Child-Friendly Schools (CFS) (Osher et al., 2009). The CFS approach posits that whenever a conducive school learning environment is created, it enhances students' well-being, enabling them to achieve full potentials, including academic performance (Osher et al., 2009).

According to Ali, Masroor and Khan (2020) the recent competition for smaller classrooms with insufficient seats within the school buildings makes such environment unconducive for learning. This makes students congested in a heated room and subsequently become violent, rendering such buildings unsafe. It is critical to address facility designs in relation to student health and safety first. It was not certain as to whether secondary schools in Hoima District had modern building with sizeable classrooms to suit students‟ populations, overcome classroom congestion to enable them learn freely and to score significantly higher grades in reading, listening, language, and arithmetic than those in the older missionary buildings.

Akinyemi et al. (2021) found out that specific learning features such as space, equipment, Maintenance, appearance, comfort and general learning arrangement positively or negatively affected the school learning environments. School facilities problems however worsen as school facilities age to over forty years which is the time when rapid deterioration in the learning conditions typically begins thus becoming unconducive for inhabitation during lessons. To Hui & Cheng (2008), for learning to effectively take place, buildings must be of good standard and supportive for both the learners and teachers. They further argue that the School Learning environment plays a significant role in effective teaching. This means that teachers, as drivers in the teaching and learning environment need to conduct their business in a conducive environment as the facilities in which they teach can deter or 13 enhance the quality of their teaching. Thus, substandard facilities can have far reaching consequences on the teaching process and the consequent result is low student academic achievement. For this reason, the current student sought the opinions of the teachers and students on whether their schools‟ heads conduct school facilities‟ Maintenance to promote students‟ academic performance

Akpan (2020) examined the influence of school learning environment on the academic performance of Biology students in secondary schools in Ukanafun Local Government Area of Akwa Ibom State. He used variables such as class size, instructional facilities, peer relationship and School premises as well as students' academic performance in Biology. His findings revealed that there was significant influence of the variables related to school academic environment on the academic performance of students in Biology. Based on their findings, they recommended that schools should endeavour to create a conducive environment so as to promote students' academic performance and both government and private school administrators need to monitor the school learning environment in order to ensure improved

academic performance. Similar Almoslem et al. (2021). From the submission of the scholars it is clear that the School Learning environment influences academic performance of the students. However, the studies presented above have not given concern to the study area which implies that there is a gap in knowledge. Based on this observation, this study is necessary.

Lodhi et al. (2019) studied school learning environment and students' academic performance in Pakistan. The research was conducted in Punjab province and involved students, teachers, and principals in public high schools. The research aimed at establishing associations between school learning environment and students' academic performance in English language. The study found that factors of school learning environment such as learning environment, facilities, teacher quality, teaching approaches, academic support, teacher-student, and school-parent relationships were predictors of students' academic performance. The investigation established that a favourable school learning environment enhances students' academic performance in high school. This finding corroborates United Nations Children's Fund (UNICEF) objectives of Child-Friendly Schools (CFS) (Osher et al., 2009). The CFS approach posits that whenever a conducive school learning environment is created, it enhances students' well-being, enabling them to achieve full potentials, including academic performance (Osher et al., 2009b).

Kibriya and Jones (2020) explored the impact of safe School Learning environment on students' academic performance in Tanzania. The investigation involved students, teachers, and administrators in determining how a safe School Learning environment influences students' academic performance in primary schools. The study instruments included Early Grade Reading Assessment (EGRA), Early Grade Mathematics Assessment (EGMA) and Snapshot of School Management Effectiveness (SSME). The EGRA was used to assess students' literacy abilities by emphasizing orthography, fluency, reading and comprehension. Numeracy skills were also tested using EGMA to evaluate students' basic mathematical and problem-solving abilities. The SSME tool measured the school learning environment focusing on students' demographics, management, learning environment, teaching resources, safety, and management relationships with school community. Students' academic performance measurement entailed students' standardized test scores in English language and mathematics. The study established that school safety was an important indicator of school learning environment that contributed significantly to students' academic performance. It also found that students' demographic characteristics and home factors influenced students' learning. The

inquiry, thus, concluded that a congenial school learning environment could improve students' academic performance.

Pobbi et al. (2018) studied school climate and students' academic performance in 10 administrative regions in Ghana. The research involved students in senior high school and assessed key school climate factors that promoted academic performance using standardized test scores. School climate was defined as classroom environment, interpersonal relationships, and academic support. Academic performance measurement consisted of average scores in Mathematics, English, Integrated Science and Social Studies using WASSCE grading scale. Inventory of School Climate (ISC) and the National School Climate Centre (NSCC) tool was used to measure school climate. The research found that teaching and learning, interpersonal relationships, institutional environment, and school safety were vital school climate dimensions that significantly influenced students' academic performance. The study concluded that school climate plays a crucial role in enhancing students' academic performance.

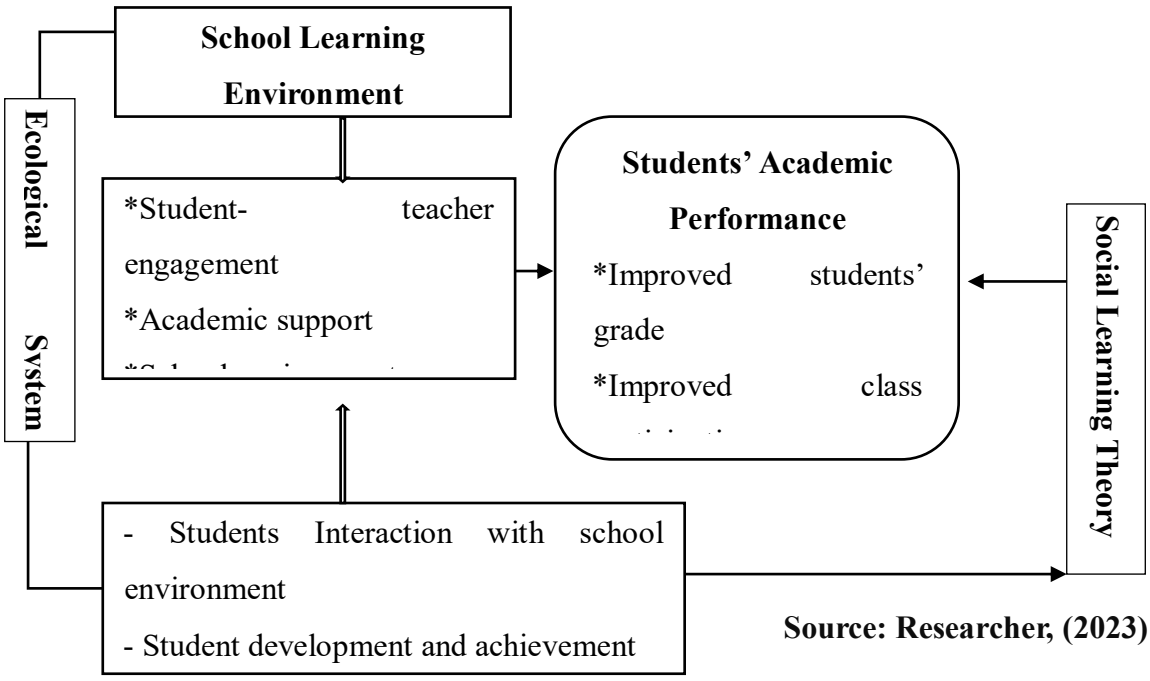
Arshad, Qamar, and Gulzar (2018) investigated the impact of learning school facilities on student achievement. The research was quantitative, and a survey method was used. The current study's sample was drawn from the Sahiwal district of Punjab, Pakistan, using a multi-stage random sampling procedure. Prior to data collection, the researcher created and validated a Check-List for Learning Facilities (CLPF). In the current study, data is examined using multiple regression analysis. The achievement of children is assessed using test scores from the eighth grade administered by the Punjab Examination Commission in 2017. Thus, the issues of ventilation, play grounds and first aid appear to have an influence of the level of student achievement. Besides, Tisia (2012) sought to establish the institutional factors influencing girl-child education in public primary schools in Tenges division, Baringo district, Kenya. Sanitation including use and disposal of sanitary towels influenced the participation of girl-child in education. Lack of water and good toilets influenced girl-child participation in education. In Uganda, a study by Kigongo (2018) examined the effect of school environment on students' academic performance in Girl-child among Secondary school students of Mubende District. The results suggested that adequacy of learning facilities improves students' academic performance.

Abreh et al. (2020) investigated School Learning environment and students' academic performance in public senior high schools in Ghana. The study was conducted in Kumasi metropolis and explored School Learning environment, teacher and student factors that caused students' poor academic performance in core mathematics in WASSCE. The survey involved students in senior high school and mathematics teachers and used questionnaire for data collection. Academic performance was assessed using standardized test scores in WASSCE. The research found that students' poor academic performance in public senior high schools was caused by teachers and teaching environment factors. The factors included insufficient teaching and learning materials, textbooks for teachers and students, and inadequate continuous teacher professional development programmes. The study also established that teaching methods, teacher subject content mastery, teacher-student relationships, academic support for students' learning and teacher punctuality were predictors of poor academic performance in mathematics. The factors impeded students' academic performance and were related to the school teaching environment. By inference, a school teaching environment is vital for achieving effective learning outcomes. The finding implies that a school with a well-resourced teaching environment can enhance teaching and learning and improve students' academic performance.

Conceptual frameworks

Conceptual framework was developed from the review of related literature, and theory on school learning environment and students' academic performance.

Figure 8: Conceptual Diagram



Source: Researcher, (2023)

The conceptual framework presented in the figure above shows, how school infrastructure is related with students' academic performance. School infrastructure was taken as independent variable (cause) and students' academic performance was taken as dependent variable (effect). Classrooms, libraries, sanitation and school location are taken as indicators of school infrastructures (independent variable) on the other hand student grade in class exam and students' promotion are taken as indicators of students' academic performance (dependent variable).

CHAPTER THREE: METHODOLOGY

This research aimed to investigate how indicators of school learning environment influence students' academic performance in secondary schools in Yaounde 7 subdivision. The chapter describes the research methodology used in this study and presents objectives, research design and setting of the study, sampling, instrumentation, and procedures involved in the data collection. The statistical approaches used in analysing the data are also described in this section.

Objectives of the study

The following objectives were formulated:

1. To determine the influence of student-teacher relationships on students' academic performance.
2. To establish the influence of academic support on students' academic performance
3. To establish the relationship between the school's physical environment and students' academic performance.
4. To determine the relationship between the school teaching environment and students' academic performance.

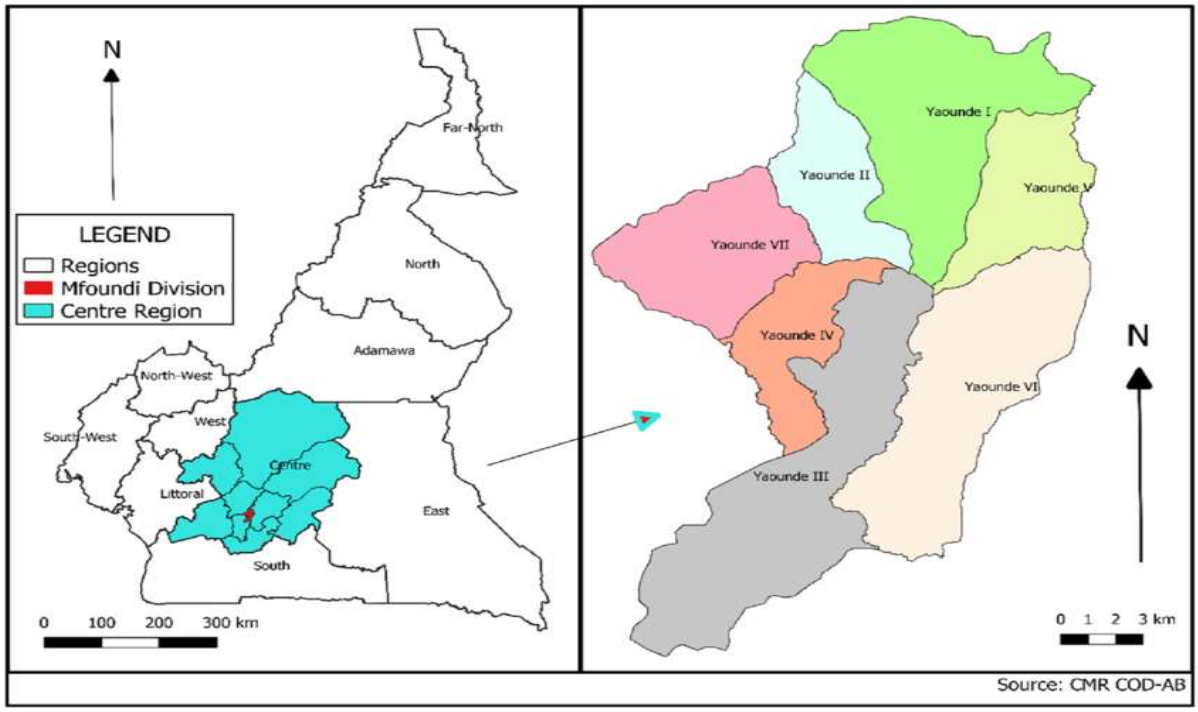
Research design

The study was quantitative survey research. This approach was used in this study because it is reliable, objective, and data can be obtained within a short time from a large group of respondents (Choy, 2014). The design also uses statistics to test hypotheses and to describe relationships between variables (Eyisi, 2016). This survey used a questionnaire because it was convenient and enabled participants to answer multiple questions during data collection (Roopa & Rani, 2012). The quantitative research design was adopted to establish how indicators of the school learning environment influence students' academic performance. Similarly, the design enabled the formulation of a predictive model to indicate the relationships between variables. The indicators investigated were student-teacher relationships, academic support, physical environment, and teaching environment.

Area of the study

Yaoundé VII (or Yaoundé 7th) is a district municipality of the urban community of Yaoundé, department of Mfoundi in the Center region of Cameroon. Its capital is the Nkolbisson district. Yaoundé VII was created in 2007 by dismembering its southwestern part of Yaoundé II. Geographically, it extends west of the city, west of Yaoundé II and Yaoundé VI. The town is drained from the south to the centre by the Afémé River. The town extends over Mounts Messa, Ebaminala and Minloua to the north and Mount Mbokdoum (953 m) to the south.

Figure 9:Map of Cameroon showing the various regions (left) and partition of Subdivisions in Yaounde (right) of the Centre Region



Population, sampling, and sample

The population of this study was secondary school students in Yaounde 7. In terms of location, the schools were categorised into municipal, while students' residential status involved public and private schools. Simple random sampling was used in this study to obtain a representation of all students in the population. The sampling technique was adopted to obtain accurate data from each group (Acharya et al., 2013). Sampling involved the selection of schools, followed by students' selection.

Simple random sampling was used to select schools that participated in the study. This was done to ensure that participating schools all have equal rights to be selected. Students were

selected using a stratified sampling technique. The sampling was based on students' type of school.

Table 2:Name of School and sample size

No.	Name of School	Population	Sample Size
1.	Government bilingual high school Ekorezock	1382	106
2.	Tsimi Evouna Bilingual Institute	1182	100
3.	Genius Trilingual College	1008	100
	Total	**3572**	**306**

The study gathered self-reported data to explore how indicators of the school learning environment influenced students' performance in all the subjects taught. Self-reported data were used for this study because it was the most feasible and convenient data collection approach. This research investigated core subjects since they are compulsory subjects for every student. Students' demographic characteristics included gender, age, school classification, and year of study.

Instrument for data collection

Data collection was done using self-reported questionnaire. Questionnaire was used to investigate how individual students perceived their school environment in secondary schools in Yaounde 7. Questionnaire was adapted for this study because it was relevant to the research context. Furthermore, the questionnaire had items that made the self-reporting questionnaire feasible. The questionnaire comprised of positive student-teacher relationships, academic support, order and physical environment constructs.

The 4-Likert scale of the constructs included strongly disagree (1), disagree (2), agree (3), and strongly agree (4).

Table 3:Questionnaire options and corresponding weights on the Likert scale

Option	Weight
Strongly Agree (SA)	4 Points
Agree (A)	3 Points
Disagree(D)	2 Points
Strongly Disagree (SD)	1 Point

Table 3 shows how the questionnaire will be weighted with the various options, from 4 points for SA to 1 point for SD.

Every construct in the tool consisted of items that it sought to explore. Thus, positive student-teacher relationships focus on teachers' understanding of students' problems, teachers' and staff's interest in students' future, and teachers' availability to attend to students' needs. Academic support constructs centred on teachers' expectations of students' academic work and their confidence in their school. The physical environment constructs focused on school cleanliness and its friendly set-up. This instrument was relevant because students involved in this research were adolescents in secondary schools.

Pilot study

A pilot study was conducted to test the instrument's reliability and assess students' interpretation of items in the questionnaire. Similarly, the testing was to find out how much time students needed to complete the questionnaire. The pilot study involved 20 students, comprising 12 females and eight males, randomly selected from secondary schools in Yaounde 7. Students' academic performance involved average English language, mathematics, integrated science, and social studies scores. The questionnaire had four constructs presented in sections A, B, C and D The constructs were measured on a 4-Likert scale.

The pilot data were analysed to examine the extent of reliability and consistency in different settings (Mohajan, 2017). Cronbach's alpha coefficient was used to confirm the constructs' reliability (Tavakol & Dennick, 2011). A construct is reliable when Cronbach's alpha coefficient is 0.70 and above but is considered very good when the value is 0.80 and above (Madan & Kensinger, 2017; Sim & Wright, 2005). The piloting results enabled the review of the tool. The reliability results of the pilot data are shown below.

Reliability measurement

Cronbach's alpha test measured the internal consistency of the data and how the variables were closely related. This was to establish the extent of reliability of school learning environment indicators to measure students' academic performance. The acceptable minimum value for Cronbach's alpha coefficient is 0.70 (Ercan et al., 2007). The computed results are presented in Table 4.

Table 4:Reliability test of constructs

Variable	Cronbach's alpha
Student-teacher relationships	0.783
Academic Support	0.700
School Physical Environment	0.723
School Teaching Environment	0.878

Source: Pilot data, 2023.

The reliability of the data collected using the classroom environment questionnaire was determined using Cronbach's alpha test, which had a coefficient of 0.76. Table 1 shows that the data collection tool used was reliable since all variables had a Cronbach's alpha coefficient value greater than 0.7. By inference, this study's data was reliable and suitable for further analysis to explore the influence of indicators of school learning environment on students' academic performance.

Data procedures and analysis

Careful recoding and new variables were created on every construct of the research to preserve vital details. The anonymity of the schools was enhanced to adhere to principles of confidentiality. The study referred to the schools by letters A, B, C, and D. The dependent variable was students' academic performance, which was the average of students' scores in the four core subjects. This was in line with multiple regression requirements, where only one continuous dependent variable can be regressed on several independent variables (Wampold & Freund, 1987).

Data analysis was done at 95% confidence level ($\alpha = 0.05$). The adequacy of the sample for principal component analysis was determined using the Kaiser-Meyer-Olkin Measure (KMO) and Bartlett's Test of Sphericity (Maskey et al., 2018). The principal component analysis was used to reduce the number of items of the various constructs and retain only those responsible for the highest variation. Factor analysis aims to regroup data into non-overlapping clusters to understand and interpret relationships and patterns easily (Yong & Pearce, 2013). Only those components with eigenvalues greater than 1 in the total variance explained were retained for further analysis. Factor analysis dropped constructs that were found to have no significant influence on indicator variables.

The data was subjected to the requirements of linear regression. This was the final stage of data preparation and evaluation, without which the validity of the results would be compromised. Linear regression requires that the data meets certain sets of conditions. One of the assumptions of a linear regression model is that the error term is normally distributed. To establish this, the Kolmogorov-Smirnov test of normality was conducted. The null hypothesis decision to be rejected was on the condition that the *p*-value is less than 0.05 (Drezner et al., 2010). Autocorrelation determines the degree of correlation between the same variables' values across different observations in the data. Autocorrelation of regression residuals (error terms) can occur if the model is incorrectly specified, leading to inefficient estimates, including insignificant results (Huitema & Laraway, 2016). Durbin-Watson test statistics were used to test for the absence of auto-correlation (King, 1995).

Another linear regression requirement is that any pair of independent variables should not have an exact correlation or near-perfect relationship. Multicollinearity in the data brings redundancy, makes analysis complicated, and hinders explicit identification of individual effects the independent variables have on the dependent variable (Tomaschek et al., 2018). Variance inflation factor (VIF) analysis was used to test for multi-collinearity (Taylor et al., 2007). The Pearson correlation coefficient was used to establish relationships among the variables (Mukaka, 2012a). A multiple linear regression model was fitted between the independent variables (school learning environment indicators) and the dependent variable (student academic performance). A normality test was done to confirm the suitability of the data for multiple regression analysis.

Non-normally distributed variables or skewed data distort relationships in regression analysis. Another assumption is the linearity of the variables. This assumption is argued to be fundamental in establishing the relationship between dependent and independent variables (Keith, 2019). A further assumption of concern is the multicollinearity test. This entails establishing whether the variables are highly or less correlated. The analysis of variance (ANOVA) was done to test the hypothesis. The null hypothesis was rejected for all the indicators of the school learning environment whose *p*-values of the test were less than 0.05. The regression coefficient analysis was done, and unstandardized coefficients were used to develop the predictive linear regression model.

Ethical considerations

This research received ethical approval from the University of Yaounde I. Application for ethical permission was submitted to the Ethical Committee of the Faculty of Education, providing details about the study. The request was granted clearance in September 2022, paving the way for field data collection. For administrative and ethical purposes, letters were written to school principals of the selected schools to seek their consent and approval to conduct the study in the participating schools. As a requirement, students who participated in the study signed a consent form to show that their participation was voluntary. The consent statement described the aim of the study and assured participants of confidentiality, anonymity, and respect for opinion. The consent also stated that participation was free without moral or legal obligations. Participants were free to withdraw their involvement in the study at any point. The data was appropriately managed to protect participants' identities in accordance with ethical principles. Therefore, names or codes traceable to students who took part in this research were not used.

CHAPTER FOUR
PRESENTATION AND DISCUSSION OF FINDINGS

This chapter presents the results of the analysed data. The overall purpose of this study was to determine how indicators of school learning environment influenced students' academic performance in secondary schools in Yaoundé 7. The indicators investigated included student-teacher relationships, academic support, school physical environment and school teaching environment as predictors of students' academic performance. Students' academic performance was the dependent variable, and indicators of the school learning environment were the independent variables. Pearson product-moment correlation analysis was done to provide statistical evidence of the degree(s) of relationships between the predictor variables and the dependent variable. ANOVA was done to test the null hypotheses. Additionally, multiple linear regression analysis was conducted to establish student academic performance variations attributed to the indicators. The analysis enabled the formulation of a model that can predict students' academic performance in secondary schools. Statistical Product for Service Solutions (SPSS) version 26 was used to analyse the data.

Data Screening

The data was screened for univariate outliers. Of the returned questionnaire, there were neither outliers nor missing values. Hence the analysis of the study will be based on a total of 284 questionnaires.

Demographic characteristics

Table 5:Gender Distribution of Respondents

Gender	Frequency	Percent
Male	111	39.1
Female	173	60.9
Total	**284**	**100.0**

The table represents the sex distribution of respondents. In the context of this study, we use a population of 283 respondents. From the table above, 111 of the respondents are male while 173 of the respondents are female, making a percentage of 39.1 and 60.9, respectively. This variation is due to the fact that there are more females than males in the sample schools. This indicates that most of the students in the sampled secondary schools in Yaoundé 7 are female.

Figure 10:Gender Distribution of Respondents

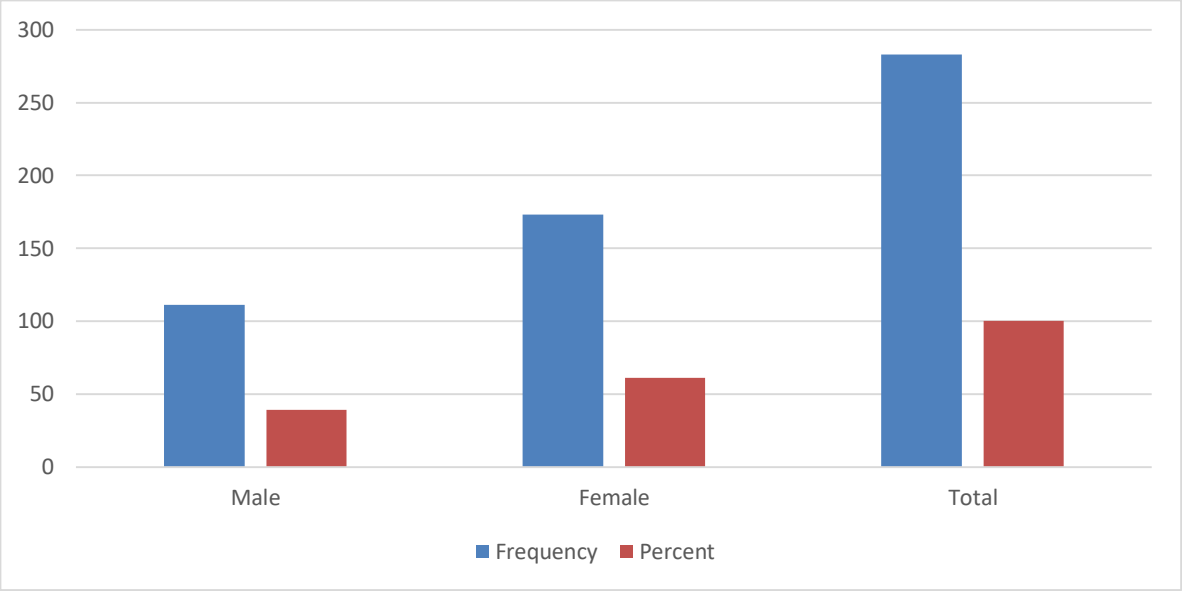


Table 6:Age Range of the respondents

Age Range	Frequency	Percent
19-21 yrs.	180	63.4
22-24 yrs.	58	20.4
25 yrs. and above	46	16.2
Total	**284**	**100.0**

The result shows that 63.4 % of the students are 19 to 21 years, 20.4% have ages between 22 to 24 years, only 16.2% of the students in the sampled schools are 25 years and above.

Figure 11:Distribution of respondents based on age group

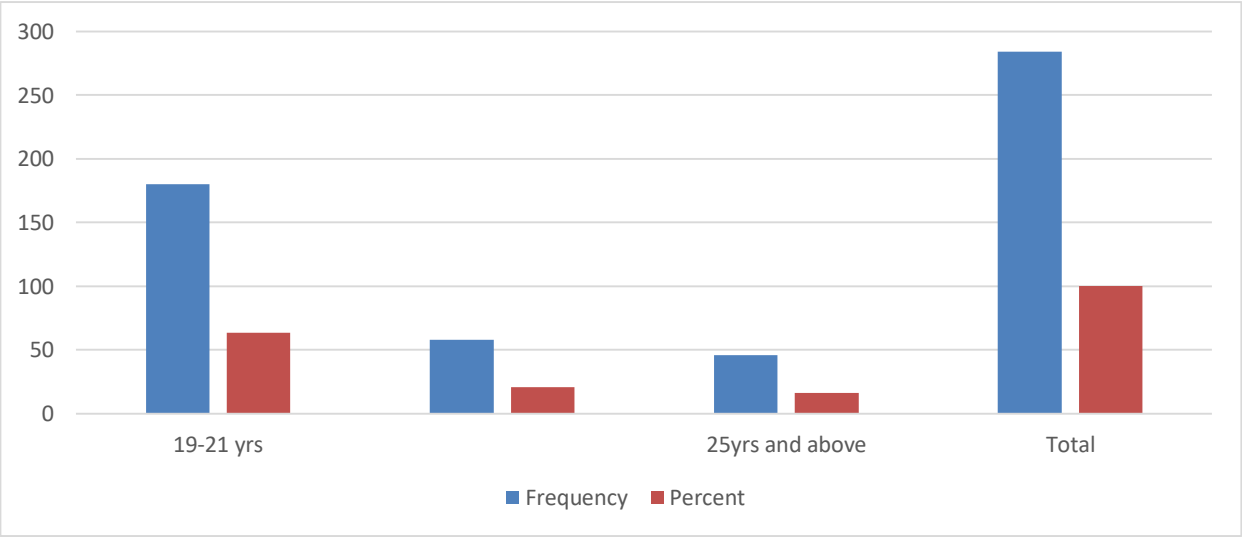
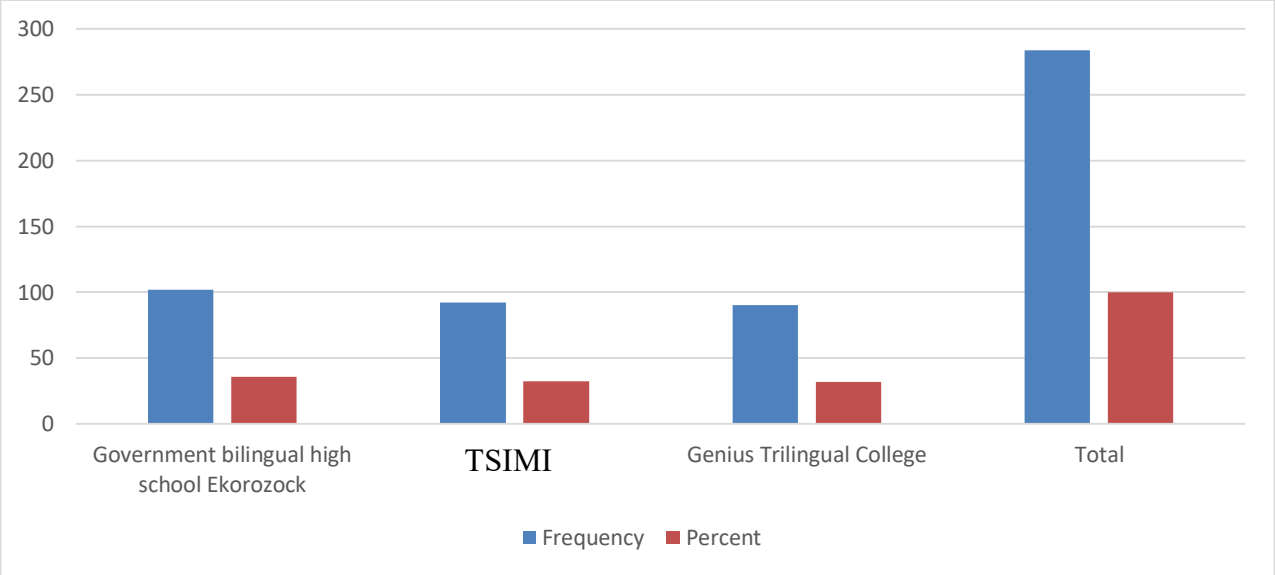


Table 7:Name of sampled School

Name of School	Frequency	Percent
Government bilingual high school Ekorezock	102	35.9
Tsimi Evouna Bilingual Institute	92	32.4
Genius Trilingual College	90	31.7
Total	**284**	**100.0**

The above table represents the three selected secondary schools in Yaoundé 7 sub-Division. Questionnaires were distributed in these schools. Government bilingual high school Ekorezock has the highest respondents, with a frequency of 102 respondents giving a percentage of 35.9; Tsimi Evouna Bilingual Institute, with a frequency of 92 respondents, giving a percentage of 32.4 and Genius Trilingual College with a frequency of 90 respondents giving a percentage of 31.7. This same result is represented in the figure below.

Figure 12:Distribution of Respondents based on school



Academic performance

The study used students' average scores in all subjects during the second term of the 2022-2023 academic year to measure academic performance. Students' average scores in each school were used to establish statistical relationships between indicators of the school learning environment and students' academic performance. The mean performance and standard deviations for each school were calculated to show disparities in performance among schools. The mean performance of the four schools is shown in Table 8.

Table 8/Mean performance of the schools

School	N	Mean	Std. Deviation
Government bilingual high school Ekorezock	102	2.44	.466
Tsimi Evouna Bilingual Institute	92	2.47	.517
Genius Trilingual College	90	2.57	.607
Total	284	2.49	.532

Table 8 shows that Government bilingual high school Ekorezock had a mean performance value of 2.44; Tsimi Evouna Bilingual Institute had a mean of 2.47, while Genius Trilingual College had 2.57. The deviation in students' academic performance of the Government bilingual high school Ekorezock was .466; Tsimi Evouna Bilingual Institute was .517; School and Genius Trilingual College was .607. The standard deviations showed that Government bilingual high school Ekorezock had the least deviation in students' academic performance. The mean performance of the schools illustrated that Genius Trilingual College had the best performance. This academic performance trend corroborates the recent categorisation of secondary schools by the Ministry of Secondary Education (MINSEC, 2021). Schools are categorised based on infrastructural development, resourcefulness, and excellence in academic performance. ANOVA was carried out to establish if the variations in the mean performance of students were significant. Table 9 presents the results of the analysis.

Table 9:Mean Variations in academic performance

Variation	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.910	2	.455	1.617	.200
Within Groups	79.088	281	.281		
Total	79.999	283			

Table 9 shows that the mean square of deviations among schools was .455, while the deviation of sample scores within students' academic performance was .281. The *p*-value is 0.200, which is greater than 0.05. This result demonstrates that there is no significant difference in the mean of students' academic performance in relation to the school category. The finding implies that the school category (type of school) is not essential to students' academic performance in Yaounde 7. The results pointed to no variations in students' academic performance based on the types of schools.

Factor Analysis

Factor analysis was done to regroup data into non-overlapping items to enable efficient interpretation of relationship patterns (Yong & Pearce, 2013). A sample adequacy measure was performed on school learning environment constructs to determine whether the data were suitable for factor analysis. Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity were done to establish the proportions of variance in the variables and whether the data were suitable for factor analysis. Data with a KMO value of more than 0.5 is considered ideal for factor analysis (Maskey et al., 2018). Bartlett's Test of Sphericity with *p*-value less than 0.05 indicates that the data is appropriate for factor analysis. Eigenvalues were used to condense the variance into the correlation matrix. Only variables with an eigenvalue greater than one were retained (Yong & Pearce, 2013). The rotated component matrix was done to demonstrate correlations between the retained variables and the estimated component. Factors with correlation values greater than 0.4 confirm that the variables strongly correlate with the investigated component (Che et al., 2013).

Student-teacher Relationships and Students' academic performance

Student-teacher relationships construct had six items that students used to measure their experience. Some of the items included *all teachers in my school are approachable; my teachers seem to take a real interest in my future*. Table 8 presents the results of KMO and Bartlett's Test of Sphericity for student-teacher relationships.

Table 10:KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.847
Approx. Chi-Square		686.656
Bartlett's Test of Sphericity	Df	24
	Sig.	0.0001

The data satisfied conditions for factor analysis. The items of student-teacher relationships construct were subjected to factor analysis. The results are shown in Table 10. Table 10 shows that the KMO value is 0.84 while p-value for Bartlett's Test Sphericity is 0.0001.

Table 11:Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.347	37.187	37.187	3.347	37.187	37.187
2	1.034	11.491	48.678	1.034	11.491	48.678
3	0.959	10.661	59.339			
4	0.788	8.757	68.096			
5	0.718	7.976	76.073			
6	0.618	6.871	82.943			

Table 11 illustrates the cumulative percentage of the component's contribution to the total variance. Two components accounted for 48.67% of the total variance. The first factor contributed 37.18%, while the second factor accounted for 11.49%. Factors with eigenvalues less than 1 were excluded from further analysis. Rotated component matrix was used to show factor loadings and their corresponding correlations in the factor analysis. The contribution of every factor to the two components is presented in Table 11.

Teachers play a vital role in nurturing and sustaining student-teacher relationships. For instance, teachers can talk to students about matters beyond the coursework to share life experiences. The interactions provide opportunities for students to learn life skills and values outside the curriculum. This supports Hughes and Chen (2011) findings on teacher-student relationship quality. The study found that *I enjoy being with this child*; *the child gives me many opportunities to paise him or her;* and *the child talks to me about things he or she does not want to tell other people* to be highly correlated to academic self-efficacy. The factors in their study had a correlation coefficient of 0.9. The study concluded that supportive and positive relationships between teachers and students promote a sense of belonging and cooperation in classroom activities.

Multicollinearity between student-teacher relationships and other constructs of the school learning environment was determined using Variance Inflation Factor (VIF). The result is

presented in Table 11. VIF for student-teacher relationships was 1.48. This implies that there is no multicollinearity between student-teacher relationships and the constructs (Craney & Surles, 2002). The finding agrees with Pérez-López and Ibarrondo-Dávila (2020) results, who studied the academic performance of accounting studies' students in Granada. The research investigated multicollinearity among the variables and reported VIF values of between 1.0 and 1.40. Based on the VIF values, the study concluded that the variables did not have multicollinearity. Pearson product moment correlation was used to determine correlation between student-teacher relationships and students' academic performance ($r = 0.60$; $p < 0.05$). The results show that student-teacher relationships have a strong positive influence on students' academic performance.

The findings imply that students who perceive that teachers are concerned about their academic work and general well-being in school are most likely to focus more on their studies, leading to better academic performance. By inference, positive student-teacher relationships create a conducive learning atmosphere where students feel free to consult teachers on challenging concepts. Teachers who are approachable motivate students to discuss their academic ambitions. Furthermore, this finding corroborates the results reported by Omodan and Tsotetsi (2018). The researchers observed a strong association between student-teacher relationships and academic performance. The analysis showed that the *r*-value was 0.61 while the *p*-value was lower than 0.05. The values of *r* in both studies were almost the same. Students who participated in both studies and adolescents who may have similar school experiences were in public schools.

Academic Support and Students' Academic Performance

Academic support construct had six items. Some of these included: *Teachers in my school gave homework after class*; *in my school, all teachers correct homework promptly*; *teachers expect students to learn hard*. Factor analysis was done to retain items that contributed significantly to academic support. Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity were carried out to establish the construct's suitability for factor analysis. The results are presented in Table 12.

Table 12:KMO and Bartlett's Test of Sphericity for academic support construct

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.790
Bartlett's Test of Sphericity	Approx. Chi-Square	572.320
	Df	24
	Sig.	0.0001

Table 12 shows that KMO value of the academic support construct is 0.79, while *p*-value of Bartlett's Test of Sphericity was less than 0.05. Muzenda (2013) reported similar results who explored the relationship between lecturers' competency and undergraduate students' academic performance in South Africa. The findings showed that KMO value was 0.77, while *p*-value of Bartlett's Test of Sphericity was less than 0.05 and concluded that the data were suitable for factor analysis. Factor analysis was conducted, and the results are illustrated in Table 11.

Table 13:Total variance explained

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.052	23.476	23.476	3.052	23.476	23.476
2	1.327	10.204	33.680	1.327	10.204	33.680
3	1.129	8.685	42.365	1.129	8.685	42.365
4	1.007	7.744	50.109	1.007	7.744	50.109
5	0.929	7.146	57.254			
6	0.883	6.791	64.046			

Table 13 shows that four factors accounted for 50.10% of variations in academic support. The first factor contributed 23.47% of total variations, while the second factor accounted for 10.20%. The third and fourth factors contributed 8.68% and 7.74%, respectively. The factors were that *Teachers in my school gave homework after class, all teachers correct homework promptly*,

and *teachers expected students to learn hard*. Factors that had Eigenvalues less than 1 were excluded from factor analysis.

Four factors accounted for 50.1% of the total variance in the extraction sums of squared loadings. Homework and assignments help students develop effective study habits and refresh their minds about concepts learnt in school. Subsequently, homework enables students to have a deeper understanding of their academic work. This helps students acquire independent problem-solving skills, autonomy, and time management skills. The role of parents in students' assignment management is essential. This research found that parents' involvement in students' assignment and time management can enhance academic performance. Apart from the material investment parents make in their children's education, they need to support children by involving in school and home activities. Teachers' feedback on students' homework and timely correction is vital in monitoring students' academic progress.

Multicollinearity between academic support and other constructs was measured using Variance Inflation Factor (VIF). VIF for academic support was 1.58. This indicated that there was no multicollinearity between academic support and other indicators of the school learning environment (Craney & Surles, 2002). Results are shown in Table 4.19. The results corroborate the findings of Santos et al. (2016) who investigated native and immigrant students' academic performance. The study established the relationship between academic performance, family support and control, school satisfaction, and learning environment among Spanish and Latin American primary and secondary schools. VIF of the study ranged between 1.06 and 2.85, which concluded that there was no collinearity between the factors affecting students' performance. The absence of collinearity between academic support and other learning environment indicators allows for linear modelling of the relationship between academic support and students' academic performance.

The strength of the relationship between academic support and students' academic performance was measured using Pearson product-moment correlation, and results showed in Table 4.20 ($r = 0.61$; $p < 0.05$). The results showed that academic support is positively and significantly related to student performance. Similar results were reported by Adeeb and Siddique (2018), who explored academic support and academic performance among university students in Southern Punjab in Pakistan. The study reported a strong correlation between academic support

and student academic achievement ($r = 0.66$; $p < 0.01$). Findings confirm that academic support significantly influences students' academic performance.

School physical environment and students' academic performance

School physical environment constructs encompassed aspects of buildings within the school as well as security measures. KMO and Bartlett's Test of Sphericity was conducted to explore the construct's suitability for factor analysis. Findings are presented in Table 14.

Table 14:KMO and Bartlett's Test of Sphericity for school physical environment construct

Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.720
Bartlett's Test of Sphericity	Approx. Chi-Square		605.599
	Df		24
	Sig.		0.0001

Table 14 shows that the KMO value for the construct was 0.72. KMO value exceeded the minimum requirement of 0.50 for sampling adequacy. The *p*-value for Bartlett's Test of Sphericity was 0.0001. This value was less than 0.05. This indicates that the data was suitable for principal component analysis. Consequently, factor analysis was done on the construct's items to eliminate factors that caused the least percentage variance in the construct. Results are presented in Table 15.

Table 15:Total variance explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.629	32.858	32.858	2.629	32.858	32.858
2	1.168	14.605	47.462	1.168	14.605	47.462
3	0.992	12.402	59.864			
4	0.921	11.511	71.375			
5	0.852	10.654	82.028			
6	0.780	9.750	91.778			

All classrooms in my school have furniture, and security men in my school are strict. Table 12 shows that two factors contributed 47.46% of the cumulative percentage variance in the dependent variable. The first factor accounted for 32.85% variance, while the second contributed 14.60%. The factors had eigenvalues greater than 1 and were retained for further analysis. Factors that had values less than 1 were excluded from further analysis.

Adequate learning facilities create a conducive atmosphere for students' learning. For example, subjects such as chemistry, biology and physics are practical based. Most topics that are taught in chemistry, biology and physics require specialised approaches and facilities like a laboratory and resource centres. Students enjoy lessons that are delivered with teaching and learning aids. Teaching aids can be used to demonstrate, experiment, and simulate, thereby making the lesson practical. Thus, school facilities promote effective learning and contribute to the retention of knowledge. A safe school learning environment enables students to develop emotionally, and socially and enhances students' ability to focus on their studies leading to improved academic performance.

The variance inflation factor (VIF) for the school's physical environment was 1.31. This indicated no multicollinearity between the school's physical environment and other school learning indicators confirming the suitability of the data for linear modelling (Craney & Surles, 2002). The strength of the relationship between the school's physical environment and students' academic performance was measured using Pearson product-moment correlation ($r = 0.53$; $p < 0.05$). The results showed that the school's physical environment is positively and significantly related to students' academic performance. School physical environment includes several aspects that directly influence academic performance, such as facilities required for learning. Classroom arrangement can also affect students' access to learning resources in class and academic performance. Similar results were reported by Iweka (2017), who assessed perceptions of the school learning environment as a correlate of students' academic performance in Integrated Science. The investigation was conducted in River State in Nigeria and involved five secondary schools. The research found that $r = 0.55$ and $p < 0.05$. The correlation was moderately high. These findings imply that a favourable school physical environment significantly influences students' academic performance.

School teaching environment and students' academic performance

The school's teaching environment comprised the school's technical and instructional environment. The construct had six items. Factor analysis was required to identify items in this construct that caused significant variation in students' academic performance. The KMO measure of sampling adequacy and Bartlett's Test of Sphericity were done to establish whether the factors were suitable for factor analysis. Results of KMO and Bartlett's Test are presented in Table 16.

Table 16:KMO and Bartlett Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.900
Bartlett's Test of Sphericity	Approx. Chi-Square	5345.464
	Df	24
	Sig.	0.0001

Table 16 shows that the KMO Measure of Sampling Adequacy for the set of variables analysed was 0.90. This value was higher than 0.50 required minimum value for the measure of sampling adequacy. The *p*-value of Bartlett's Test of Sphericity was less than 0.05. Results of KMO and Bartlett's Test of Sphericity implied that the data was suitable for factor analysis to establish factors in this construct that accounted for the highest variation. Total variance explained was used to establish the components' contributions.

Table 17:Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.680	23.048	23.048	7.376	17.562	17.562
2	2.880	6.857	29.905	2.561	6.097	23.658
3	2.065	4.916	34.821	2.354	5.604	29.262
4	1.650	3.927	38.748	1.832	4.362	33.625
5	1.552	3.694	42.442	1.798	4.280	37.905
6	1.385	3.298	45.741	1.704	4.057	41.961

Table 17 shows that all six factors in this construct accounted for the highest student academic performance variations. The school teaching environment contained six factors in the construct that contributed significantly to student academic performance variations. The items contributed 59.75% of the total variance. This implies that 11 items caused 59.75% of the variances in academic performance attributed to the school teaching environment. The factors included *all teachers encourage students to be attentive in class; all teachers in my school encourage students to ask questions in class; all teachers demonstrate in class how we are expected to solve questions; my teachers encourage me to participate in school competitions; all teachers in my school come to class on time; and my teachers help us develop an interest in their subject.*

Collinearity between school teaching environment and other indicators of school learning environment were investigated. VIF for the school teaching environment was 1. This implies no collinearity between school teaching environment and other indicators of the school learning environment. In the absence of collinearity, the data was considered suitable for linear modelling (Craney & Surles, 2002). The strength of the relationship between school teaching environment and students' academic performance was measured using Pearson product moment correlation. The results indicated that $r = 0.656$ and $p < 0.05$. This implies that school teaching environment is positively and significantly related to students' academic performance.

Among indicators of school learning environment investigated in this study, school teaching environment had the most significant correlation coefficient with students' academic performance. This finding confirms that teachers are central to students' academic success. Teachers adopt several teaching approaches to ensure that students receive adequate instructions that enable them to acquire knowledge.

Descriptive Statistics of school learning environment

The mean and standard deviation of the scale for indicators of the school learning environment were computed. This was done to show the extent to which the students agreed or disagreed with items that described the various school learning environment constructs. The results show that, on average, students who participated in this study agreed that indicators of school learning environment influenced their academic performance. The standard deviations indicate that there were no outliers in the data sets. This implies that students' observations were close to the mean. The descriptive are presented in table 18.

Table 18:Descriptive statistics of the scales

Variable	Mean	Std. Deviation
Student-teacher relationships	2.53	.53748
Academic support	2.27	.51615
School physical environment	2.37	.66109
School teaching environment	2.58	.49241

Table 18 shows that student-teacher relationships had a mean of 2.53, while academic support was 2.27. The mean values of the school physical environment and school teaching environment were 2.37 and 2.58, respectively. The findings illustrate that the school teaching environment and Student-teacher relationships had high mean values. The mean values directly influence students' perceptions about classroom furniture, school safety, and teachers' support on academic performance. Students spend most of the school time in classroom setting and are familiar with the facilities, infrastructure, and safety. The results support findings by Baidoo-Anu (2018) who reported that 36% of students perceived that school furniture, classroom facilities and buildings impacted on their academic performance.

Linear regression assumptions

Linear regression was used to measure the association between indicators of school learning environment and students' academic performance. This is a statistical approach to modelling the linear relationship between the dependent and independent variables; the dependent variable can be predicted based on this relationship (Kumari, 2018). Before modelling the linear relationship between indicators of school learning environment and students' academic performance, normality, autocorrelation, and multicollinearity tests were done to establish the suitability of the data for linear regression modelling.

Linearity measurements

Pearson moment correlation coefficient was used to establish the relationship between indicators of school learning environment and students' academic performance. Linearity is measured on a scale of -1 to +1 where -1 implies negative correlation and 0 represents no correlation, while +1 means positive association between dependent and independent variables (Mukaka, 2012b). Results of Pearson moment correlation are presented in Table 19.

Table 19:Pearson moment correlation coefficients

	STR	**AS**	**SPE**	**STE**	**AP**
Student-teacher relationships (STR)					
Academic support (AS)	.519**				
School physical environment (SPE)	.193**	.380**			
School teaching environment (STE)	.394**	.355**	263**		
Academic performance (AP)	.600**	.615**	.531**	.656**	
N	284	284	284	284	284

Results in Table 19 show strong positive relationships between indicators of school learning environment and students' academic performance. The relationship was much stronger between school teaching environment and academic performance with a coefficient of 0.65. This confirms that teachers contribute enormously to students' academic performance. Teacher practices and effectiveness are important factors for improving students' academic performance (Akiri, 2013b). School teaching environment is multidisciplinary and depends on how teachers prepare themselves to ensure that learning objectives are achieved. Teaching approaches and integration of ICT in the classroom are vital for sustaining students' interest in learning.

The results also demonstrated that academic support had a strong positive correlation with students' academic performance. Pearson moment correlation coefficient of academic support was 0.61. The construct included contributions of parents and teachers in supporting students to enhance learning outcomes. Teachers and parents are considered socialising agents and play critical roles in students' academic performance. Parents invest in their children's education with the hope that students will perform. Apart from the role parents play at home regarding supervision and follow-up of academic work, they are also involved in school management affairs through PTA activities. Parental collaboration with the school facilitates effective monitoring of teaching and learning, which are crucial for improving students' academic performance.

Pearson moment correlation coefficient between student-teacher relationships and students' academic performance was 0.60. The coefficient shows a strong positive association between student-teacher relationships and students' academic performance. This finding indicates that student-teacher relationships are important factors that influence students' academic performance. A positive relationship creates a bond that enables students to trust their teachers and share challenges. Effective interactions between students and teachers provide feedback on learning experiences which are important to address learning needs. Improved communication increases students' participation in learning activities that lead to better students' academic performance. School physical environment had a coefficient of 0.53 in relation to students' academic performance. This indicator significantly impacts students' academic performance, implying that school infrastructure is essential for effective learning outcomes.

Test for hypothesis

Analysis of variance (ANOVA) was done to test the null hypothesis that school learning environment indicators had no significant influence on students' academic performance. This was against the alternative hypothesis that at least one of the indicators significantly affected the students' academic performance. Results of ANOVA test are illustrated in Table 20.

Table 20:Analysis of variance test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	41.822	4	10.443	227.449	0.00[b]
	Residual	16.708	280	0.046		
	Total	58.530	284			

a. Dependent variable: Academic performance.
b. Predictors: (Constant), school teaching environment, school physical environment, student-teacher relationships, academic support.

Results of analysis of variance presented in Table 20 shows that *p*-value is less than 0.05. Based on the *p*-value the null hypothesis is rejected. This implies that at least one of the school learning environment indicators has a significant influence on students' academic performance. The results in Table 20 also showed that indicators of school learning environment had *p*-value less than 0.05. By inference, the analysis of variance demonstrated that school learning environment indicators had a significant influence on students' academic performance. The findings support the rejection of the null hypotheses under investigation in this study. The summary of the hypotheses is presented in Table 21.

Table 21:Summary of research hypotheses

Null Hypothesis	Results
1. There is no statistically significant influence of student-teacher relationships on students' academic performance.	Rejected
2. There is no statistically significant influence of academic support on students' academic performance.	Rejected
3. There is no statistically significant influence of school physical environment on students' academic performance.	Rejected
4. There is no statistically significant influence of school teaching environment on students' academic performance.	Rejected

Prediction of students' academic performance by indicators of school learning environment

Multiple linear regression analysis was done to establish a model of predicting students' academic performance. The model's accuracy is increased by the principal component analysis (Yang et al., 2018). The prediction model summary shows the extent to which indicators of school learning environment predict students' academic performance. Results of the model summary are shown in Table 22.

Table 22:Model summary

Model	R	R2	Adjusted R^2	Std. Error of the Estimate
1	0.845	0.715	0.711	0.21427

a. Dependent variable: students' academic performance.
b. Predictors: (Constant), student-teacher relationships, academic support, school physical environment, and student teaching environment.

Table 22 shows the results of multiple regression analysis. The finding established that the coefficient of multiple regression correlation was 0.845. The coefficient confirms a strong positive correlation between indicators of school learning environment (predictor variables) and students' academic performance (independent variable). The value of R^2 shows that 71.5% of variations in the regression model were accounted for by the predictor variables. The high value of adjusted R^2 (0.711) implies that the model is suitable for predicting students' academic performance. The values of R^2 (0.715) and adjusted R^2 (0.711) demonstrated that indicators of school learning environment accounted for significant variations in students' academic performance. By inference, students' academic performance in secondary school can improve when indicators of school learning environment are enhanced. Therefore, this study shows that factors that influence students' academic performance are associated with student-teacher relationships, academic support, and school physical and teaching environments. Other factors affecting performance but not incorporated in this model accounted for 28.9% of students' academic performance variations.

Linear regression modelling coefficients

Linear regression modelling coefficients of indicators of school learning environment were used to predict students' academic performance. The prediction modelling was possible because normality, autocorrelation, and multicollinearity tests confirmed the suitability of the data for linear. Table 23 presents coefficients of linear regression for indicators of school learning environment.

Table 23:Linear regression modelling

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.350	0.109		3.212	0.001
	Student-teacher relationships	0.159	0.020	0.274	8.046	0.001
	Academic support	0.174	0.027	0.224	6.374	0.001
	School physical environment	0.185	0.020	0.290	9.474	0.001
	School teaching environment	0.348	0.028	0.393	12.495	0.001

a. Dependent variable: students' academic performance.

Table 23 shows that indicators of the school learning environment had *p*-values less than 0.05. The coefficients demonstrated that indicators of school learning environment had a significant influence on students' academic performance. Unstandardized coefficients of school learning environment indicators were used to formulate the linear regression model while retaining the measurement for predictor and dependent variables. Thus, a unit increase in an indicator of school learning environment holding other independent variables constant had a unit increase on the dependent variable.

The results also showed that the constant term or *Y* intercept was 0.35. By implication, the model's contribution to the dependent variable is 0.35 when all predictor variables are zero. All constructs of school learning environment were positively correlated with students' academic performance. This implies that a unit increase in the constructs increases students' academic performance. School teaching environment accounted for 34.8% of the regression model. Similarly, school physical environment contributed 18.5% to the regression model, while 17.4% of the regression variance was attributed to academic support. Student-teacher relationships also contributed 15.9% to the regression model. Since *p*-values were less than 0.05, this study concluded that indicators of school learning environment significantly influenced students' academic performance. The linear regression model used to predict students' academic performance in secondary schools in the Yaounde 7.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND IMPLICATIONS

This chapter presents the discussion, conclusions and implications of the study. Findings on the influence of school learning environment indicators on academic performance among secondary school students in Yaounde 7. The conclusions are aligned with the study objectives, research questions and results. The implications of this research and recommendations are presented to add to existing knowledge in the field.

Discussion

Student-teacher Relationships and students' academic performance

This study investigated how student-teacher relationships influence students' academic performance. The hypothesis that there was no statistically significant association between student-teacher relationships and students' academic performance was rejected. Instead, the findings established that student-teacher relationships significantly influenced students' academic performance in secondary school students in Yaounde 7. In addition, the research showed that teachers who take time and listen to challenges that students encounter beyond the coursework positively impact students' performance.

Similarly, the findings of this study extrapolated that positive student-teacher interactions are developed when teachers take a keen interest in students' future aspirations. Students are motivated to study when teachers exhibit good interpersonal relationships with them. For a positive relationship to exist, teachers have a vital role to play by showing concern for students' work and being available to assist. Student-teacher relationships, therefore, represent the social context where learning occurs and is an essential factor for improving students' academic performance, as reported by Spilt et al. (2011). Existing empirical studies support the findings of this research.

Hughes and Chen (2011) found that supportive and positive relationships between teachers and students promote a sense of belonging. This relationship encourages students to be cooperative in classroom activities which can improve academic performance. Koca (2016) established that positive relationships between students and teachers are important for students' emotional needs, contributing significantly to positive learning outcomes. Likewise, Mensah and

Koomson (2020), who explored student-teacher relationships and students' academic performance in Cameroon, reported that positive relationships between students and teachers create environments that promote academic performance while negative relationships stifle performance. Equally, Hughes and Kwok (2006) found that positive student-teacher relationships increase students' participation in learning activities and reduce student-teacher conflicts. The study further established that positive student-teacher relationships influence academic performance significantly.

Findings of this investigation also showed that students' academic performance thrives on positive student-teacher relationships. School authorities can introduce activities that lead to an effective school learning environment. Interactive school activities enable teachers to appreciate students' dispositions and provide them with guidance. The activities can promote positive student-teacher interactions that can enhance learning outcomes. Students' diverse socio-economic characteristic in secondary school students in Yaounde 7 provides an opportunity for teachers to implement approaches that consider students' backgrounds.

Academic support and students' academic performance

This research explored how academic support influenced students' academic performance and hypothesised no statistically significant relationship between academic support and students' academic performance in secondary school students in Yaounde 7. However, the results showed that academic support substantially influences students' academic performance; hence the hypothesis was rejected. Academic support consists of direct and indirect resources necessary for promoting academic performance. This study found that academic support provided by teachers and parents influenced students' academic performance significantly.

This research demonstrated that teachers promote students' academic independence and learning culture through assignments and homework. Homework improves retention and problem-solving skills, including learning habits that promote academic performance, as reported by Bempechat (2004). The study found that when parents are involved in children's academic progress, it motivates them to improve their academic performance. The findings corroborate conclusions made by previous studies in the field. For instance, Chen (2005) found that teachers and parents' academic support reinforce positive behaviours like school attendance, which directly influence students' academic performance. Similarly, King and

Ganotice (2014) concluded that parents provide the most significant academic support to students among socialising agents. The support includes providing valuable learning resources, supervision, assistance in homework, and discussions on academic-related matters.

School physical environment and students' academic performance

This investigation was to establish how the school physical environment influence students' academic performance. The hypothesis that there is no statistically significant influence of school physical environment on students' academic performance was rejected. The research demonstrated that school physical environment positively impacts students' academic performance in secondary school students in Yaounde 7. In addition, the findings showed that school furniture and school safety were aspects of the school physical environment that significantly influenced students' academic performance.

School infrastructure provides a favourable atmosphere for learning and enables students to focus on learning activities. This finding supports related results in the field. Alimi et al. (2012), for instance, found that the quality of school facilities positively influenced students' academic performance. The study concluded that a conducive school physical environment fosters students' academic performance. Likewise, Suleman et al. (2014) established that students who studied in well-equipped classrooms achieved higher scores. The study concluded that a favourable and well-equipped classroom environment impacts positively on students' academic performance. Asiyai (2011) affirmed that a safe learning environment improves students' academic performance.

The findings demonstrate that infrastructure and safety are important dimensions of the school learning environment. This study provides data to stakeholders to emphasise the school physical environment's role in improving academic performance. The results established that when students learn in a safe school environment, they are motivated to attend school and regularly participate in learning activities. School safety promotes a sense of belonging and effective learning. A well-organised school physical environment facilitates effective teaching and learning and enhances students' academic performance. Therefore, this study concludes that resources should be mobilised to improve the school physical environment.

School teaching environment and students' academic performance

The study investigated how school teaching environment influences students' academic performance. The research rejected the hypothesis that there is no statistically significant influence of school teaching environment on students' academic performance. The study found that, among indicators of school learning environment, school teaching environment had the most significant influence on students' academic performance in secondary school students in Yaounde 7. School teaching environment consisted of school technical and instructional environment. Results showed that e-learning facilities enhanced students' academic performance. This research has established that integrating information and communication technology in teaching and learning is vital in achieving quality learning outcomes.

The findings of this investigation corroborate results from related studies. For example, Brock et al. (2008) found that the teaching environment was significant in achieving students' learning needs. Similarly, Kember and Leung (2005) established that a school teaching environment characterised by effective teaching, active students' participation, and coherent curriculum leads to improved students' academic performance.

Indicators of school learning environment and students' academic performance

The research explored the extent to which school learning environment predicts students' academic performance. The study found that indicators of school learning environment significantly influence students' academic performance. This finding was established by the adjusted R^2 value of linear regression analysis of this study. The analysis showed that school learning environment factors cumulatively contributed 71.1% of variations in students' academic performance. The study implied that students' academic performance in secondary schools in Yaounde 7 could be improved by enhancing the school learning environment. Poor academic performance in secondary schools in the Yaounde 7 can be attributed to indicators like student-teacher relationships, academic support, school physical environment, and school teaching environment.

The results provide insight into the overarching challenges of decline in students' academic performance in secondary school students in Yaounde 7. Similarly, reports by MINSEC(2017) and World Bank (2017b) indicated that school resources, funding, infrastructural development,

and teacher quality are critical for quality education outcomes. The government of Cameroon should increase funding to secondary education and upgrade school infrastructure to provide a favourable learning environment. Ministry of Secondary Education should improve teacher education and professional development to optimise students' academic performance.

Implications and policy proposals

This study demonstrated the importance of school learning environment on students' academic performance by establishing contributions of school learning environment indicators. The findings fill the existing gaps on the influence of school learning environment indicators on students' academic performance in secondary school in Yaounde 7. The predictive model of school learning environment and student academic performance showed that with other factors constant, every unit change in the school teaching environment causes the highest increase in student academic performance by 34.8%. The school teaching environment has the most significant influence on students' learning.

The study highlighted the interplay of the school learning environment indicators, which collectively influence 71.1% of students' academic performance. The model further illustrated that a unit change in the school physical environment can cause an increase of 18.5% in students' academic performance. Likewise, a unit increase in academic support and student-teacher relationships raises students' academic performance by 17.4% and 15.9%, respectively. This study implies that current trends of students' poor academic performance in the General Certificate of Education Examination can be attributed to the school learning environment's low quality.

This study provides evidence-based solutions in tackling the decline in Cameroonian students' academic performance in secondary school. The findings of this research are significant to stakeholders in education and the research community. In view of the empirical evidence shown by this study, some proposals to inform policy and education practices are suggested. These include:

The Ministry of Secondary Education should consider appointing academic advisors in schools. The academic advisors are to support students' learning needs and collaborate with teachers and parents to improve the school learning environment. This study demonstrated the central role of the school learning environment in improving students' academic performance.

Therefore, academic advisors can be teachers assigned to individual students or group of students to promote positive student-teacher relationships. The position of an academic advisor should be anchored in the school's management structure.

This study proposes that the establishment of a national education infrastructure policy for schools in Cameroon. The aim of the policy is to address current inequalities in school infrastructures. The government of Cameroon should allocate more resources to finance secondary schools' infrastructural development. For effective implementation, the policy should clearly state the government's commitment to providing appropriate school physical infrastructure such as classrooms, furniture, sanitation, and ICT facilities to improve teaching and learning processes. An independent body should manage the policy to ensure equity, fairness, accountability, and probity.

A policy that mandates Education Services to undertake a structured professional development programme for secondary school teachers should be instituted. This programme will ensure continuous professional training for teachers to update their pedagogical skills on various subject areas and issues affecting students' academic performance. The training should include effective teaching approaches that can enhance the school teaching environment and students' academic performance.

The various policy proposals are drawn from the findings of this investigation. Implementing these policies can significantly improve the school learning environment and teaching and learning in secondary school, including academic performance.

Suggestions for future research

This study explored the influence of indicators of the school learning environment on students' academic performance to provide solutions to the current trend of low academic performance in Cameroon. The model showed the contributions of the various indicators to academic performance and formed the basis for the following suggestions on future research direction.
The school teaching environment accounts for the highest variation in students' academic performance in secondary school, as shown by this study's linear regression model coefficients. Teachers play a crucial role in a school teaching environment. Chetty et al. (2014) found that teachers contribute substantially to students' academic performance in secondary school.

Teacher training processes are important for quality learning outcomes. Therefore, future research can investigate the effect of secondary school teacher training practices on students' academic performance.

CONCLUSION.

It can then be concluded that if the government and development partners could increase the allocation of resources to secondary schools, that can so much improve in the school learning environment issues.Such could help salvage or redress the problem of students'poor performance in secondary Schools.Parents equally need to remind themselves of their role play in supporting the children's edu cation.Children themselves need for be conscientised on preparing for their tomorrow today.On the other hand, the, quality of teachers cannot be over looked considering the major role they play to boost up the capacities of the learners.The more the government and private stakeholders motivate the teachers,the more feel encouraged to excel in their work of moulding the great minds of tomorrow other things being equal thus a unanimous effort is essential.

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Appendix

Questionnaire

School learning environment and student academic performance questionnaire

A. This section examines how you experience the learning environment in your school. Against each statement, kindly choose the best option about a statement which you think best describes how you feel by simply giving marks from 1 to 4 by encircling the right response:

1=Strongly Disagree (SD); 2=Disagree (D); 3= Somehow (S); 4=Agree(A); 5=Strongly Agree (SA)

	Student-Teacher Relationships.	**SD**	**D**	**A**	**SA**
1	All teachers in my school are approachable	1	2	3	4
2	My teachers seem to take a real interest in my future	1	2	3	4
3	Most teachers in my school care about the students	1	2	3	4
4	My teachers know my parents	1	2	3	4
5	It is easy for students to interact with teachers in my school.	1	2	3	4
6	My teachers know me by my name	1	2	3	4
	Academic Support	**SD**	**D**	**A**	**SA**
1.	Teachers in my school give homework after class	1	2	3	4
2.	In my school, all teachers correct homework promptly	1	2	3	4
3.	Teachers in my school expect students to learn hard	1	2	3	4
4.	I feel that I can do well in this school	1	2	3	4
5.	In my school, teachers check class attendance every day	1	2	3	4
6.	My school organizes extra classes for students during every vacation	1	2	3	4
	School Physical Environment	**SD**	**D**	**A**	**SA**
1.	All classrooms in my school have got furniture.	1	2	3	4
2.	In my school the security men are strict	1	2	3	4
3.	My school changes over to a generator plant always whenever the national electricity grid goes off	1	2	3	4
4.	In my school students can get access to the school library at any time.	1	2	3	4

5.	Different kinds of foods are sold in my school's canteen	1	2	3	4
6.	My school has an entertainment hall.	1	2	3	4
	School Technical Environment	**SD**	**D**	**A**	**SA**
1.	In my school, every classroom has whiteboard.	1	2	3	4
2.	My school has an Information Communication Technology (ICT) laboratory.	1	2	3	4
3.	My school has internet connectivity.	1	2	3	4
4.	There are enough computers in the ICT laboratory for all students.	1	2	3	4
5.	In my school most security men are strict.	1	2	3	4
6.	In my school, students' academic results can be accessed online.	1	2	3	4

Second Term Average: _____

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DEPARTEMENT DE CURRICULA ET EVALUATION

REPUBLIC OF CAMEROON
Peace – Work – Fatherland
***

THE UNIVERSITY OF YAOUNDE I
***

THE FACULTY OF EDUCATION
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DEPARTMENT OF CURRICULUM AND EVALUATION

The Dean

N° 620 bis/23/UYI/FSE/VDSSE

AUTORISATION FOR RESEARCH

I the undersigned, **Professor BELA Cyrille Bienvenu**, Dean of the Faculty of Education of the University of Yaounde I, hereby certify that **BONG Chrispine WIYLA**, Matricule **21V3143**, is a student in Masters II in the Faculty of Education, Department *CURRICULUM AND EVALUATION*, Specialty *CONCEPTION*.

The concerned is carrying out a research work in view of preparing a Master's Degree, under the supervision of **Pr. MAINGARI Daouda**. Her work is titled « ***Entrepreneurship Education and sustainable community development*** ».

I will be very grateful if you provide her all the information that can be helpful in the realization of her research work.

This Authorization is to serve the concerned for whatever purpose it is intended for.

Done in Yaounde, le 3 2 0 1 2 3