Chapter One

Introduction

1.1 Background to the Study

The significance of learning, particularly among students, cannot be overstated, as it forms the core foundation of their personal and academic growth. Learning is a complex and multifaceted process through which an individual acquires knowledge, skills, understanding, or competence in various subjects, activities, or domains. It involves the absorption, processing, retention, and application of information or experiences, leading to a change in behaviour, thinking, or capabilities[1]. Learning transpires through formal schooling, informal experiences, observation, instruction, practice, or experimentation, and it is a crucial element of human development and adaptation[1]. The concept of students' attitude towards learning has been a prominent focus among educational stakeholders. Over the years, it has continually evolved and gained importance as a key factor in the academic success of students. Students' attitude towards learning is a complex blend of motivation, curiosity, and emotional disposition that profoundly influences their educational journey[2]. It encompasses their eagerness to explore new concepts, their willingness to embrace challenges, and their belief in their own abilities.

Students with positive attitudes towards learning exhibit several interconnected characteristics that contribute to their academic success and overall well-being. These students are intrinsically motivated, driven by a genuine thirst for knowledge, and they approach challenges with resilience, viewing setbacks as opportunities for growth[3]. Their growth mindset allows them to embrace the belief that effort and learning can develop their abilities and intelligence. They maintain an optimistic outlook, recognizing their own potential for success. Engaged and goal-oriented, they actively participate in the learning process, set clear objectives, and exhibit self-discipline in managing their time

effectively. Their adaptability leads them to explore various learning methods, and they are empathetic collaborators who understand the value of collective learning[3]. However, research shows that over time, students' attitude towards learning is deteriorating.

In Tanzania, findings indicate that students initially display a favourable outlook on mathematics; however, this positivity diminishes as they progress through higher levels of education[4]. Another study in Libya shows that students exhibit a negative attitude towards learning English Language[5]. A study conducted in Nigeria indicated that students at the University of Uyo in Akwa Ibom State exhibit a negative attitude towards learning, influenced by factors such as social media usage, gambling participation, peer group interactions, and frequent music listening, resulting in suboptimal learning outcomes[6]. However, a critical examination of secondary schools in Southwest, Nigeria, highlights a concerning decline in students' attitudes towards learning. It has been observed that the academic performance of students seems to be declining. This decline is accompanied by increased absenteeism, reduced class participation, and a lack of enthusiasm for completing homework assignments among students. Negative feelings towards school and a rise in distracted behaviours further highlights this troubling trend. Additionally, students' curiosity, self-efficacy, and involvement in extracurricular activities have diminished, contributing to the overall shift in attitude.

Moreover, the persistently negative attitude towards learning among students can trigger a series of adverse consequences with far-reaching implications. Firstly, it often leads to diminished motivation, sapping the enthusiasm required for active engagement in educational activities[7]. Consequently, students may invest less effort in assignments, class participation, and study, ultimately resulting in subpar academic performance. Additionally, such attitudes can limit their ability to persevere through challenges, hindering their capacity to overcome obstacles and achieve their educational goals.

Moreover, negative attitudes can corrode students' self-esteem, fostering a belief in their incapability and inadequacy, which can have long-lasting impacts on their self-confidence. This attitude may also manifest in disruptive behaviour in the classroom, causing tensions and disruptions in the learning environment and straining teacher-student relationships[8]. As a result, academic underachievement becomes evident, limiting future prospects. These consequences extend beyond academics, affecting personal growth and development and potentially leaving enduring marks on individuals as they navigate adulthood, emphasising the crucial need to nurture a positive and growth-oriented mindset among students for their overall success and well-being. Hence, while other studies have considered gender, interest, home environment, teachers' classroom management, socio-economic status, as a measure of students' attitude towards learning in other states, there is a dearth in literature of indices such as class participation, class attendance, and enthusiasm as indices to measure students' attitudes towards learning in Southwest Nigeria, which this study intends to fill.

Class participation is an essential component of students' involvement in the educational process. It denotes the active participation of students in classroom debates, activities, and interactions[9]. A student's readiness to offer ideas, respond to enquiries, and cooperate with classmates during class reflects their degree of involvement with the subject matter. Class participation promotes individual comprehension and cultivates a dynamic learning environment that facilitates the exchange of varied perspectives, resulting in a more thorough understanding of the content[10].

Class attendance, another significant indicator of students' attitude towards learning, reflects the commitment and responsibility a student exhibits by regularly attending scheduled classes. Attending classes provides students with the opportunity to receive direct instruction from the teacher, engage in real-time discussions, and stay updated on

course content[11]. Regular attendance is often linked to better academic performance, as students who attend classes consistently are more likely to stay informed, participate actively, and develop a stronger connection with the learning material[12].

Enthusiasm on the other hand refers to the level of interest, passion, and eagerness a student demonstrates for the subject matter[13]. A student who approaches learning with enthusiasm is more likely to be motivated, curious, and open to exploring new concepts[14]. Enthusiastic learners tend to go beyond the basic requirements, seeking additional resources, participating voluntarily in extracurricular activities related to the subject, and fostering a positive attitude that can contribute to a vibrant and supportive learning community. Enthusiasm not only enhances individual learning experiences but also has a positive impact on the overall classroom atmosphere.

Researchers have identified a number of factors that may be responsible for the observed low level of secondary school students' attitude towards learning in Southwest Nigeria; these include distractions, anxiety, lack of self-confidence, social factors, and poor physical learning environment, among others[6,15,16]. To the researcher's knowledge, limited studies have investigated the impact of Information and Communication Technology usage and teacher-student relationships on senior secondary school students' attitudes towards learning in Southwest Nigeria, thereby creating a gap in the literature. Thus, to contribute to existing literature, this study will discuss Information and Communication Technology use and teacher-student relationships as independent variables to be considered in this study.

Information and Communication Technology (ICT) has become the lifeblood of our interconnected world, permeating every sector and aspect of our lives[17]. In education, it has opened doors to online learning, making knowledge accessible to anyone with an

internet connection. Healthcare has been revolutionised through telemedicine and electronic health records, improving patient care and accessibility. Businesses have harnessed the power of ICT for automation, data analytics, and efficient communication, while governments offer services online and manage data more effectively. ICT is the foundation of our digital social fabric, enabling us to communicate globally, collaborate seamlessly, and access entertainment and information at our fingertips[17]. It shapes smart cities, enhances accessibility and inclusivity, but also raises complex ethical and security concerns. As technology continues to advance, responsible and innovative ICT use remains paramount in shaping a better, more connected future.

ICT use has profoundly reshaped education, ushering in a new era of dynamic and personalised learning. Students now have access to a wealth of digital resources, from e-books to interactive simulations that cater to diverse learning styles[18]. ICT's transformative power extends beyond the classroom, enabling remote learning through online platforms and video conferencing tools. It connects students globally, fostering cross-cultural understanding while also equipping them with essential digital literacy skills. The widespread use of ICT in education positively influences students' attitudes towards learning by providing interactive and engaging learning experiences and fostering curiosity and self-directed learning[19]. Additionally, ICT enables access to a vast array of educational resources, promoting collaborative learning and enhancing students' overall enthusiasm for acquiring knowledge. There are studies that have considered ICT tools, ICT access, ICT skills as measures of ICT use in different states, but there is a dearth in literature of indices such as mastery experience, vicarious experience, and cybersecurity awareness and practices measuring ICT use in Southwest Nigeria. Hence, to fill this gap, this study will discuss mastery experience, vicarious experience, and cybersecurity awareness and practices as indices to measure ICT use.

Mastery experience is the dynamic process of skill acquisition and personal development through the tangible achievements and successful application of one's efforts[20]. It entails learning by doing, with individuals actively engaging in a chosen domain, be it a skill or area of knowledge, and steadily progressing towards proficiency. This journey often involves overcoming obstacles and setbacks, but the sense of accomplishment and self-efficacy gained from these triumphs serves as a powerful motivator. Mastery experience fosters a growth mindset, where individuals believe in their capacity to grow and improve through dedication, learning, and persistence[21]. In the technology realm of education, mastery experience in ICT plays a fundamental role in shaping students' attitudes towards learning and technology. It involves students gaining expertise in using digital tools for educational purposes and successfully navigating the world of technology[22]. As they accumulate positive experiences, such as mastering software, troubleshooting technical issues, and creating impressive digital projects, students develop confidence and self-efficacy in their technological abilities.

Moreover, vicarious experience encompasses diverse methods of learning through indirect experiences or observations. It involves acquiring knowledge and skills by witnessing the experiences, actions, or outcomes of others rather than through direct personal involvement[23]. This concept is pervasive in education, as students often learn by observing teachers' instructions, the performance of their peers, or role models who exemplify specific behaviours or values. Additionally, vicarious education extends to experiential learning through proxy experiences, such as gaining historical insights from books or films[23]. In today's digital age, it includes virtual learning through simulations and online resources. Vicarious experiences profoundly influence students' attitudes towards learning with technology by allowing them to witness and engage in real-world scenarios, increasing their sense of relevance and motivation[24]. These immersive

experiences foster a deeper understanding and enthusiasm for the subject matter, positively shaping students' perspectives on the learning process.

Furthermore, cybersecurity awareness and practices encompass a wide range of concepts and activities. Cybersecurity awareness involves understanding potential cyber threats, recognising their importance in daily life, and comprehending their impact on personal and organisational security[25]. It represents a collective consciousness within an organisation or community regarding digital vulnerabilities. In contrast, cybersecurity practices refer to the specific strategies, policies, and actions taken to safeguard computer systems, data, and networks[26]. These practices include installing security software, applying regular updates, using strong passwords, and encrypting sensitive information. Together, cybersecurity awareness and practices form a holistic approach to digital security, informing individuals and organisations about threats and guiding them in concrete steps to mitigate these risks. By illustrating the real-life relevance of cybersecurity, students are more likely to engage with the subject, knowing that it directly safeguards their online safety and privacy[27]. This empowerment seeps into other aspects of education, nurturing proactive learners who develop critical thinking and problem-solving skills essential not only for cybersecurity but also for tackling complex issues across subjects.

The second independent variable in this study teacher-student relationship is a dynamic and multifaceted connection that forms the bedrock of the educational experience. It encompasses the intricate interplay of emotions, behaviours, and cognitive interactions within the classroom context. It is a reciprocal partnership characterised by mutual respect, trust, and open communication. This connection shapes the learning environment, influencing not only academic outcomes but also socio-emotional development[28]. It thrives on emotional closeness, empathy, and instructional support, all of which foster a

sense of belonging and motivation among students. Furthermore, the teacher-student relationship is a developmental partnership, influencing students' growth in terms of both knowledge and character[29]. It is the central axis upon which the success of pedagogy and the holistic development of learners pivot, making it a fundamental focus in the field of education.

The teacher-student interaction significantly influences a student's attitude towards learning. It possesses the power to either kindle or dampen a student's enthusiasm for acquiring knowledge. When this connection is nurturing and positive, it becomes a wellspring of motivation, encouraging students to actively participate in class, complete assignments with zeal, and seek out opportunities to expand their knowledge. In such an environment, curiosity flourishes as students are inspired by teachers who make them feel respected and valued. Confidence grows, too, as teachers who believe in their students' abilities and offer constructive feedback foster a sense of self-assurance. This support also emboldens students to take academic risks and approach challenges with a growth mindset. There are different indices to measure teacher-student relationship such as disciplinarian, supportive, mentorship, transactional, symbiotic, authoritarian, and collaborative among others. However, this study will focus on authoritarian, collaborative and transactional teacher-student relationship as indices of teacher-student relationship.

An authoritarian teacher-student relationship is a dynamic marked by a significant power imbalance where the teacher wields strict control and dominance over the students[30]. In this context, the teacher assumes an autocratic role, emphasising their absolute authority, demanding unwavering obedience, and enforcing conformity to a set of rules and directives. Such relationships often lack open dialogue and discourage independent thinking and decision-making on the part of the students. The classroom environment tends to be rigid, with the teacher making unilateral decisions and setting inflexible

boundaries. This style of teaching can stifle students' autonomy, creativity, and critical thinking, potentially hindering their overall engagement and intrinsic motivation in the learning process[31]. Essentially, authoritarian teacher-student relationships prioritise control and adherence to rules, often at the expense of nurturing students' independence and personal growth.

On the other hand, collaborative teacher-student relationship embodies a cooperative and engaging approach to education, where teachers and students work together as partners in the learning process[32]. It is characterised by shared responsibility, open communication, and mutual respect. In this dynamic, teachers and students collaborate on various aspects of the educational journey, including setting goals, designing curriculum, planning lessons, and assessing progress. This collaboration cultivates a sense of collective ownership in the educational process, wherein students are actively involved in their learning and motivated to participate in decision-making. Teachers serve as facilitators, guiding students and encouraging dialogue to jointly shape the learning process. This collaborative approach not only promotes meaningful learning but also creates a positive, inclusive, and student-centred classroom environment where the unique contributions of each individual are recognised and valued[33]. Whether in traditional or online learning environments, the essence of collaborative teacher-student relationships lies in empowering students and co-creating knowledge, making education a truly enriching and participatory experience.

Furthermore, transactional teacher-student relationship is a mutual exchange-oriented approach in the educational context. In this dynamic, teachers take on the role of instructors and guides, delivering instruction, setting expectations, and providing structure within the classroom[34]. Students, in turn, respond by demonstrating the desired behaviours, adhering to classroom rules, and achieving the academic and behavioural

outcomes expected of them[34]. It's essentially a give-and-take arrangement, where teachers provide knowledge, direction, and standards, and students reciprocate with compliance and performance. This transactional nature of the relationship places the teacher as the authority figure responsible for imparting knowledge and managing the classroom environment while expecting students to engage in the reciprocal behaviours necessary for a productive learning experience. It often emphasises the importance of clear expectations and compliance with established norms to maintain order and facilitate learning.

An additional critical component to consider in this study is gender, as the researcher aims to determine whether there are any gender differences in students' attitudes towards learning. The relationship between gender and students' attitudes towards learning has long intrigued educational researchers. Individual attitudes towards learning are influenced by various factors, including personal experiences, cultural backgrounds, and instructional approaches; nonetheless, a significant body of scholarship examines the impact of gender on these attitudes. One key finding in the existing literature suggests that there are variations in the subjects or topics that male and female students tend to gravitate toward[35,36]. This phenomenon can significantly impact their attitudes towards learning, as students tend to be more engaged and motivated when studying subjects they are passionate about. For instance, studies have indicated that males often show greater interest in science, technology, engineering and mathematics fields, whereas females may exhibit a stronger inclination towards the humanities and social sciences[37].

Moreover, gender can influence students' self-perceived competence and self-efficacy in specific subjects[38]. Gender stereotypes can come into play, affecting students' confidence levels. Boys may express more confidence in math and science, while girls might display greater confidence in language and communication subjects. These disparities in self-

efficacy can significantly affect their attitudes and motivation to learn. Therefore, this study investigates influence of Information and Communication Technology use and teacher-student relationships on senior secondary school students' attitudes towards learning in Southwest Nigeria.

1.2 Statement of the Problem

In Southwest Nigeria, there seems to be a growing concern regarding the attitude of senior secondary school students towards learning among educational stakeholders. From experience and observation by the researcher, it appears that some senior secondary school students in Southwest Nigeria exhibit negative attitudes towards learning. These observed phenomena may be attributed to various factors, such as the teaching methods employed by teachers, poor motivation, poor parental involvement, subpar instructional materials, learning disabilities, peer pressure, poor teacher-student relationship, inadequate utilisation of ICT and more. This is evident in poor academic performance, poor engagement, examination malpractice, truancy, skipping classes, and low participation in class and extracurricular activities as indicated by researchers[16,39]. If this issue is not addressed, it may lead to various negative consequences, including limited career opportunities, a high dropout rate, decreased motivation, a negative school culture, social and emotional issues, and poor economic growth, among others. Studies have examined the causes of the aforementioned problem in other states, focusing on parental involvement, teacher's efficacy, school climate[40.] However, much work has not been done on Information and Communication Technology use, teacher-student relationships and senior secondary school students' attitudes towards learning in Southwest Nigeria. This study aims to examine the impact of Information and Communication Technology utilisation and teacher-student relationships on the attitudes of senior secondary school students towards learning in Southwest Nigeria.

1.3 Aim and Objectives of the Study

The aim of the study is to examine the influence of Information and Communication Technology utilisation and teacher-student relationships on the attitudes of senior secondary school students towards learning in Southwest Nigeria. The study's objectives are to:

i. identify the level of public senior secondary school students' attitudes towards learning (class participation, class attendance, enthusiasm) in Southwest Nigeria.
ii. examine the level of Information and Communication Technology use (mastery experience, vicarious experience and cybersecurity awareness and practices) in public senior secondary schools in Southwest Nigeria.
iii. identify the most prominent teacher-student relationship (authoritarian, collaborative, and transactional) in public secondary schools in Southwest Nigeria.
iv. determine the combined influence of Information and Communication Technology use (mastery experience, vicarious experience and cybersecurity awareness and practices) and teacher-student relationships (authoritarian, collaborative, and transactional) on public senior secondary school students' attitudes towards learning in secondary schools in Southwest Nigeria.
v. ascertain the relative influence of Information and Communication Technology use (mastery experience, vicarious experience and cybersecurity awareness and practices) and teacher-student relationships (authoritarian, collaborative, and transactional) on public senior secondary school students' attitudes towards learning in public senior secondary schools in Southwest Nigeria.

vi. determine the gender difference in public senior secondary school students' attitude towards learning in Southwest Nigeria.

1.4 Research Questions

1. What is the level of public senior secondary school students' attitudes towards learning (class participation, class attendance, enthusiasm) in Southwest Nigeria?
2. What is the level of Information and Communication Technology use (mastery experience, vicarious experience and cybersecurity awareness and practices) in public senior secondary schools in Southwest Nigeria?
3. What is the most prominent teacher-student relationship (authoritarian, collaborative, and transactional) in public senior secondary schools in Southwest Nigeria?

1.5 Hypotheses

$H_0$1: There will be no significant combined influence of Information and Communication Technology use and teacher-student relationships on senior secondary school students' attitudes towards learning in public senior secondary schools in Southwest Nigeria.

$H_0$2: There will be no significant relative influence of Information and Communication Technology use and teacher-student relationships on public senior secondary school students' attitudes towards learning in secondary schools in Southwest Nigeria.

$H_0$3: There will be no significant gender difference in public senior secondary school students' attitude towards learning in Southwest Nigeria.

1.6 Significance of the Study

The research will be published in a well-regarded journal, and the results will be made accessible to individuals involved in education. This will provide policymakers with comprehensive insights into the extent of Information and Communication Technology (ICT) utilisation and teacher-student relationships. Thus, it will aid policymakers in formulating effective strategies to enhance and maintain a favourable disposition towards learning among secondary school students in the Southwest region of Nigeria.

Additionally, school administrators in the Southwest region of Nigeria will benefit from the study's findings. They will gain valuable information regarding the potential factors contributing to the observed low levels of attitude towards learning of secondary school students. This knowledge will help them allocate resources effectively to promote students' positive attitudes towards learning while maintaining high academic performance.

Furthermore, students themselves will also reap the benefits of this study. It will enlighten them about the importance of cultivating a positive attitude towards learning.

The broader society will also experience substantial advantages if the study's findings are put into practice. They will provide guidance on how to foster and sustain a positive learning attitude, ultimately contributing to national development and growth.

Moreover, the study will become part of the empirical literature, serving as a reference point for future researchers interested in investigating other variables related to ICT use, teacher-student relationships, and the attitudes of senior secondary school students towards learning. This will greatly enhance the body of knowledge available to future researchers, adding to the existing literature on this topic.

1.7 Scope of the Study

This study is delimited contextually and geographically. Contextually, this study would be limited to secondary school students' attitude towards learning and how it is influenced by Information and Communication Technology use and teacher-student relationships. Information and Communication Technology use indices considered in this study are mastery experience, vicarious experience and cybersecurity awareness and practices. Also, teacher-student relationships indices are authoritarian, collaborative, and transactional teacher-student relationships while secondary school students' attitude towards learning indices are class participation, class attendance, enthusiasm.

The scope of the study was confined to secondary schools located in Southwest Nigeria. Southwest Nigeria, located in the southwestern region of the country, consists of six states: Lagos, Ogun, Oyo, Osun, Ekiti, and Ondo. At the time of this analysis, there exist two thousand, two hundred and sixty-two (2,262) public secondary schools across the six states of Southwestern Nigeria. In these schools, there are a total of two hundred and eight thousand eight hundred and four (208,804) students enrolled in public secondary schools across Southwest Nigeria.

1.8 Limitation of the Study

Throughout this study, several limitations were encountered. One major issue was the delay in receiving completed questionnaires from some of the schools included in the sample. Furthermore, some schools were reluctant to provide access to their students, which added complications to the data collection process. Additionally, travel was hindered by fuel shortages and increasing prices, making it difficult to reach all the targeted locations. Despite these obstacles, the study's findings are deemed valid and reliable within the context of the research.

1.9 Operational Definition of Terms

The following terms are defined as they are used in the study.

Senior Secondary School Students: They are individuals who are enrolled in public senior secondary schools that provide education beyond primary or elementary school and before higher education (college or university) in Southwest, Nigeria.

Students' Attitude towards Learning: It refers to the overall disposition, beliefs, and feelings about the process of acquiring knowledge and skills of public senior secondary school students in Southwest Nigeria. It encompasses a range of attitudes and emotions that can significantly influence their approach to education. The indicators of students' attitude towards learning to be considered in this study are class participation, class attendance, and enthusiasm.

Class Participation: It refers to the active involvement of students in public senior secondary school students in Southwest Nigeria in classroom discussions, activities, and interactions.

Class Attendance: It reflects the commitment and responsibility of students in public senior secondary school in Southwest Nigeria exhibits by regularly attending scheduled classes.

Enthusiasm: It refers to the level of interest, passion, and eagerness students in public senior secondary school in Southwest Nigeria demonstrates for the subject matter

Information and Communication Technology Use: It refers to the incorporation of Information and Communication Technology (ICT) tools and resources in the educational process and how it influences students' dispositions, motivations, and behaviors related to learning in Southwest, Nigeria. The indices considered in this study are mastery experience, vicarious experience and cybersecurity awareness and practices

Mastery Experience: It entails learning by doing, with secondary school students in Southwest Nigeria actively engaging in a chosen domain, be it a skill or area of knowledge, and steadily progressing towards proficiency.

Vicarious Experience: It involves secondary school students in Southwest Nigeria acquiring knowledge and skills by witnessing the experiences, actions, or outcomes of others rather than through direct personal involvement.

Cybersecurity Awareness and Practices: It refers to the efforts and strategies implemented to educate secondary school students in Southwest Nigeria about cybersecurity risks and to establish proactive measures for protecting digital systems, data, and information in the educational context.

Teacher-Student Relationship: It encompasses the intricate interplay of emotions, behaviours, and cognitive interactions within the classroom context. It is the interaction between an educator (teacher or instructor) and students in Southwest, Nigeria. The indicators in this study are authoritarian, collaborative and transactional teacher-student relationship.

Authoritarian Teacher-Student Relationship: It involves the teacher assuming an autocratic role, emphasising absolute authority, demanding unwavering obedience, and enforcing conformity to a set of rules and directives in Southwest, Nigeria.

Collaborative Teacher-Student Relationship: It embodies a cooperative and engaging approach to education, where teachers and students work together as partners in the learning process in Southwest, Nigeria.

Transactional Teacher-Student Relationship: It's essentially a give-and-take arrangement, where teachers provide knowledge, direction, and standards, and students reciprocate with compliance and performance in Southwest, Nigeria.

Gender: Male or female senior secondary school students in Southwest, Nigeria.

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Chapter Two

Literature Review

This chapter contains review of related literatures. It was presented in the following subheadings:

2.1 Conceptual Review

2.1.1 Learning

2.1.2 Senior Secondary School Students' Attitude towards Learning

2.1.2.1 Class Participation

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2.1.3 Information and Communication Technology Use

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2.1.4 Teacher-Student Relationship

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2.3.2 Teacher-Student Relationship and Students' Attitude towards Learning

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2.3.5 Teachers Efficacy and Students' Attitude towards Learning

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2.3.8 Emotional Intelligence and Students' Attitude towards Learning

2.3.9 School Environment and Students' Attitude towards Learning

2.3.10 Gender and Students' Attitude towards Learning

2.3.11 School Facilities and Students' Attitude towards Learning

2.3.12 Teacher Competence and Students' Attitude towards Learning

2.4 Conceptual Model

2.5 Summary of Gap in Literature Reviewed

2.1 Conceptual Review

2.1.1 Learning

Learning is the dynamic process through which individuals acquire new knowledge, skills, behaviours, or attitudes by engaging with their environment[1]. It involves the acquisition and assimilation of knowledge, skills, and understanding. It is a cognitive endeavour where individuals actively engage with new information or experiences, expanding their mental frameworks and refining their abilities[2]. This acquisition often takes place through various mechanisms, such as direct experience, observation, and instruction. Learning is not confined to formal educational settings; it occurs throughout life, shaping an individual's thoughts, behaviours, and responses to the environment[3].

A central aspect of learning is the adaptability it offers. Individuals learn to adjust their behaviours, thoughts, and problem-solving approaches based on past experiences and new information. This adaptive quality allows for the continuous development of skills and knowledge, enabling individuals to navigate a dynamic and ever-changing world. Moreover, learning involves not only the accumulation of facts but also the construction of meaning[4]. Through this cognitive process, individuals organise and connect information, creating a coherent understanding of the world around them.

Social interactions play a vital role in learning, as individuals often learn through collaboration, communication, and shared experiences. Learning is not merely an individual pursuit; it is shaped by cultural, social, and environmental influences[5]. The exchange of ideas, perspectives, and knowledge within a community contributes to the collective learning experience, enriching individuals with diverse insights and fostering a

sense of interconnectedness. Moreover, learning is linked to neuroplasticity, which denotes the brain's capacity to adapt and reorganise in response to novel learning events. This highlights the biological basis of learning and highlights its significance in shaping cognitive function.

Learning takes place through a multitude of avenues, reflecting the dynamic nature of human cognition and adaptation. Formal education, with its structured curriculum and expert guidance, is a foundational method where individuals systematically acquire knowledge and skills[6]. Informal learning, on the other hand, occurs organically in everyday life through experiences such as observation, trial and error, and casual interactions[7]. In contrast, experiential learning emphasises hands-on activities and real-world applications, providing a practical understanding of concepts. Meanwhile, observational learning involves acquiring behaviours by watching others, particularly evident in early childhood development. Also, collaborative learning leverages group dynamics for knowledge exchange, while self-directed learning empowers individuals to take charge of their educational journey[8]. Furthermore, technology-mediated learning, through online courses and virtual experiences, has become increasingly prevalent, offering interactive and engaging platforms. Peer learning, mentorship, and apprenticeships involve social interactions, fostering community, and knowledge transfer[9]. Similarly, cultural transmission ensures the continuity of values and practices across generations, and simulations and gaming provide immersive environments for skill development.

Moreover, neurobiological learning, as reflected in neuroplasticity, underlines the biological basis of learning[10]. It entails modifications in synaptic connections and neuronal pathways, demonstrating the brain's capacity to adapt and reorganise in response to experience. These diverse learning approaches are not mutually exclusive; they often

overlap and complement each other, creating a holistic and adaptable learning experience that aligns with individual preferences, contexts, and goals. In essence, the ways in which learning takes place are interconnected and multifaceted, reflecting the complexity of the human capacity to acquire, process, and apply knowledge throughout life.

Learning is a complex phenomenon that can be examined from various perspectives, each offering unique insights into the processes and outcomes of acquiring knowledge and skills. From a psychological standpoint, behaviourism emphasises observable behaviours and the influence of external stimuli on learning[11]. This perspective views learning as a result of reinforcement, punishment, and environmental cues. It focuses on measurable outcomes and emphasises the importance of conditioning and repetition in shaping behaviour.

Cognitive perspectives, on the other hand, delve into the internal mental processes involved in learning[12]. Cognitive theorists highlight the role of memory, attention, and problem-solving in the acquisition of knowledge. They underscore the significance of mental frameworks and cognitive advancement, contending that learning is an active endeavour in which learners derive meaning from their interactions with the environment. This perspective shows the significance of understanding individual differences in cognitive abilities and the role of metacognition in fostering effective learning strategies.

A sociocultural perspective broadens the scope to consider the social and cultural context in which learning occurs. Scholars underscore the significance of social interactions, cultural instruments, and language in influencing cognitive development. This perspective posits that learning is a social endeavour, occurring not alone through formal education but also via relationships within one's society[13]. It shows the importance of social collaboration, cultural influences, and the transmission of knowledge within a broader

societal context. This viewpoint emphasises that learning is not merely an individual pursuit but is profoundly connected to the social and cultural context of one's environment.

Learners exhibit diverse cognitive abilities, learning styles, and prior experiences, contributing to distinct approaches to acquiring knowledge. Intrinsic motivation, stemming from personal interest and enjoyment, often leads to more profound and sustained learning[14]. Conversely, external motivators, such as rewards or punishments, may influence short-term engagement. Additionally, cultural and societal influences play a crucial role in shaping learners' perspectives and values. The cultural context, encompassing communication styles and societal norms, significantly impacts the relevance and assimilation of educational content. For instance, learners from different cultural backgrounds may bring unique perspectives to the learning process, enriching the overall educational experience.

The educational environment itself is a critical factor affecting learning outcomes[15]. The physical and social aspects, including classroom design, available resources, and teacher-student relationships, collectively contribute to the learning experience. Effective pedagogy aligns with learners' needs, encouraging active engagement through methods like collaborative learning and the integration of technology. Furthermore, the health and well-being of learners directly impact their cognitive functioning. Adequate nutrition, sufficient sleep, and mental well-being contribute to an optimal learning environment. Conversely, stress and anxiety can hinder attention and memory, underscoring the interconnectedness of physical and mental health with the learning process.

Parental involvement and support also play a significant role in shaping the learning trajectory[16]. The level of support and encouragement from parents or carers, along with

access to learning resources, greatly influences a child's educational success. Positive home environments that foster a love for learning and provide additional educational opportunities contribute to a more robust foundation for academic achievement. In conclusion, acknowledging and addressing these complex aspects collectively fosters the development of inclusive and effective learning environments that meet the different requirements of learners.

2.1.2 Secondary School Students' Attitude towards Learning

Secondary school, commonly referred to as high school in certain areas, is an educational establishment that generally succeeds primary or elementary education and precedes tertiary education. Secondary education serves as a bridge between the foundational skills acquired in primary school and the specialised knowledge required for tertiary education or entry into the workforce[17]. It is a critical phase in a student's academic journey, providing a more in-depth and specialised curriculum compared to the broad and general subjects taught in primary school. The objective of secondary education is to convey academic knowledge while simultaneously cultivating critical thinking abilities, encouraging personal growth, and equipping students for the demands of higher education or the workforce. Thus, secondary school students' attitudes toward learning are shaped by a complex interplay of individual, social, and educational factors[18]. Understanding these attitudes is crucial for teachers and policymakers to create an environment that fosters positive learning experiences.

Individual factors such as motivation and self-perception significantly influence students' attitudes towards learning[19]. Intrinsic motivation, driven by a genuine interest in the subject matter, tends to result in a more positive attitude. Conversely, extrinsic motivation, tied to external rewards or punishments, may lead to a more transactional approach to

learning. The self-efficacy of students, or their confidence in their capacity to succeed, is also pivotal. Individuals possessing elevated self-efficacy are more inclined to engage with learning tasks positively and confront problems with determination.

Social factors, including peer relationships and family support, contribute to the overall attitude towards learning. Positive peer interactions can create a supportive learning environment, while negative social experiences may lead to disengagement[20]. Similarly, parental involvement and encouragement significantly impact students' attitudes. A supportive home environment where education is valued can foster a positive attitude towards learning. On the other hand, challenges such as socioeconomic disparities may affect students' access to resources and extracurricular opportunities, influencing their overall engagement with education.

Educational factors, such as teaching methods and the curriculum, also shape students' attitudes towards learning[21]. Engaging and interactive teaching methods that cater to diverse learning styles are more likely to garner positive responses. A relevant and interesting curriculum that aligns with students' interests and future goals can contribute to a more favourable attitude. Additionally, the school's overall climate, including the availability of resources, the quality of relationships with teachers, and the presence of a safe and supportive learning environment, plays a crucial role in shaping students' attitudes.

2.1.2.1 Class Participation

Class participation is a multifaceted concept, incorporating both verbal and non-verbal elements[22]. Students engage in active discussions, express critical thinking, and contribute to a dynamic learning environment. Through the exchange of ideas and perspectives, they foster a collaborative atmosphere, which enhances the overall educational experience.

Verbal involvement, such as asking questions and providing thoughtful responses, is complemented by non-verbal cues like attentive listening and supportive body language. This combination of communication modalities creates a rich and inclusive classroom dynamic. Verbal participation is perhaps the most recognisable form, involving spoken communication in the classroom[23]. Students who verbally engage with the material not only demonstrate their understanding but also contribute to the overall intellectual discourse of the class. Verbal participation is not limited to spontaneous interactions; it also encompasses prepared contributions, such as presentations, reports, or leading group discussions. Effective verbal participation fosters a dynamic and collaborative learning environment[23,24].

While verbal communication is a crucial aspect of class participation, the concept also encompasses individual preparedness and active involvement in various learning activities. Being prepared for class by completing assigned readings, homework, and other required tasks demonstrates a student's commitment to the learning process. In addition, participating in group projects and team-based activities emphasises the importance of collaborative learning[25].

On the other hand non-verbal participation is equally crucial, encompassing various actions and behaviours that contribute to the class atmosphere[26]. Active listening is a fundamental aspect where students show attentiveness and respect to both the instructor and their peers. Non-verbal cues like nodding, facial expressions, and gestures can convey agreement, disagreement, or understanding without verbalising thoughts. In addition, non-verbal participation extends to written communication, such as by contributing to online forums, submitting written reflections, or engaging in collaborative documents. Non-verbal participation ensures that students who may be less inclined to

speak out verbally still have avenues to express themselves and actively participate in the learning process[26,27].

Beyond verbal and non-verbal communication, class participation also takes the form of active engagement in various learning activities. This includes participating in group projects, collaborating with peers on assignments, and contributing to hands-on exercises. Interactive learning methods, such as simulations, case studies, or role-playing, provide opportunities for students to actively apply and reinforce their understanding of the material. Active participation in these activities not only enhances individual learning but also promotes teamwork, critical thinking, and problem-solving skills[25,26,27].

Furthermore, class participation extends beyond the boundaries of the physical classroom. In the digital age, technology plays a pivotal role in fostering engagement. Tech-savvy participation involves utilising online platforms for discussions, virtual collaboration, and multimedia presentations. This integration of technology enables students to connect, share ideas, and actively participate in the learning process, irrespective of their physical location. The conjunction "furthermore" emphasises the evolving nature of class participation in contemporary educational settings.

Class participation yields a multitude of benefits, fostering an interactive and dynamic learning environment[28]. Active engagement enhances students' comprehension of the subject and fosters critical thinking abilities. As students participate in discussions, ask questions, and share insights, they are prompted to analyse information critically, leading to a more profound comprehension of the material. Moreover, the cultivation of communication skills is a fundamental outcome of consistent class participation. By expressing thoughts, ideas, and arguments in a public forum, students refine their verbal articulation and enhance their ability to communicate effectively. The confidence gained

through active participation empowers students to present their viewpoints coherently, an invaluable skill in any academic or professional setting. In addition to individual growth, class participation contributes to the establishment of a positive and collaborative classroom culture. Through respectful exchanges of ideas and active listening, a sense of community is fostered, creating a space where diverse perspectives are valued. This positive environment, in turn, encourages continued participation and engagement, forming a reinforcing cycle that benefits both individual students and the class as a whole.

2.1.2.2 Class Attendance

Class attendance is a fundamental aspect of the educational experience, representing the physical and mental presence of students in designated learning environments[29]. It serves as a tangible expression of students' commitment to their academic journey, demonstrating their willingness to engage in the instructional process. The act of attending classes is not merely a procedural requirement; it is a vital component of the learning ecosystem, facilitating the exchange of knowledge between teachers and learners. In this context, class attendance becomes a shared responsibility, with students contributing to the vibrancy and dynamism of the educational atmosphere through their active participation.

Academic institutions use class attendance as a metric for assessing student involvement and commitment to their studies[30]. Regular attendance is often associated with increased opportunities for interaction with instructors, fellow students, and course materials. This interaction fosters a sense of community and collaboration, enriching the learning experience by allowing for real-time clarification of concepts, peer-to-peer discussions, and the opportunity to benefit from diverse perspectives. In essence, class attendance is a

cornerstone of the educational process, laying the foundation for effective communication, comprehension, and the overall success of students.

Moreover, class attendance transcends a simple procedural requirement; it is integral to cultivating students' habits and attitudes towards learning. Consistent attendance establishes a routine that reinforces the discipline necessary for academic achievement. It instills a sense of responsibility and accountability as students recognise the impact of their presence on their own educational progress and that of their peers.

Class attendance manifests in various forms, ranging from the foundational physical presence in the classroom during scheduled sessions to more nuanced and involved types[31]. Recorded presence is the formal documentation of a student's attendance, a tangible record that serves administrative and academic purposes. However, the essence of class attendance extends beyond the spatial dimension, delving into active engagement. This involves participating in classroom activities such as discussions, questions, and collaborative projects, reflecting a more dynamic connection with the learning process[31,32]. Completion takes it a step further, emphasising not just being present but fulfilling assigned tasks and readings, reinforcing the idea that attendance involves a comprehensive commitment to academic responsibilities. Habitual participation highlights the significance of consistent attendance over time, showcasing a sustained dedication to the course. Timeliness and punctuality highlight the importance of arriving on time and staying for the entire class session, respecting the structured nature of the learning environment[33]. Preparedness involves coming to class equipped with completed assignments and a receptive mindset, while contribution focuses on the quality of engagement, encouraging students to add value through thoughtful questions and collaboration. Lastly, the concept of investment urges students to see class attendance as a long-term commitment, recognising the enduring benefits of active participation in their

own educational journey. These various dimensions collectively shape the multifaceted nature of class attendance, enriching the overall educational experience.

The benefits of class attendance extend far beyond the mere act of physically being present in a classroom. Attending classes provides students with direct access to the instructor's guidance, fostering a real-time exchange of knowledge and clarification of concepts. The interactive nature of classroom settings allows for dynamic discussions, collaborative learning experiences, and the opportunity to seek immediate feedback, all of which contribute to a deeper understanding of the subject matter. Active participation in class also cultivates essential interpersonal skills, such as effective communication, teamwork, and critical thinking, which are valuable both academically and in future professional endeavors. Moreover, consistent attendance establishes a routine that promotes discipline and time management, crucial skills for success in any educational or professional setting. Ultimately, class attendance not only improves academic performance but also fosters a comprehensive learning environment that equips students for the problems and responsibilities they will face beyond the classroom.

2.1.2.3 Enthusiasm

Enthusiasm refers to a vibrant and contagious eagerness or passion that individuals exhibit towards a particular activity, idea, or pursuit[34]. It is an emotional state characterised by intense interest, excitement, and positive energy. When someone is enthusiastic, they demonstrate a genuine and fervent commitment, often radiating enthusiasm to those around them. Enthusiasm is a powerful motivator that propels individuals to engage wholeheartedly in their endeavours, fueling creativity, perseverance, and a proactive approach[35]. It is not only a personal mindset but also a contagious force capable of inspiring and energising others within a group or community. Enthusiasm is a

key driver of motivation and can significantly contribute to success, fulfilment, and a sense of accomplishment in various aspects of life.

In the context of secondary school students, enthusiasm serves as a vital indicator of their attitude towards learning. When students approach their studies with enthusiasm, it signifies a positive and eager mindset towards acquiring knowledge and skills. Enthusiastic students are actively engaged in the learning process, displaying genuine interest in the subjects they study. This positive attitude often translates into a willingness to participate in class discussions, ask questions, and take on additional academic challenges. Enthusiasm can also be reflected in a student's commitment to completing assignments, exploring extracurricular activities, and seeking opportunities for further learning[35,36]. A high level of enthusiasm in secondary school students is indicative of a healthy and constructive approach to education, fostering a conducive environment for academic achievement, personal growth, and a lifelong love for learning. Conversely, a lack of enthusiasm may suggest disinterest or potential challenges that teachers and parents may need to address to enhance the overall learning experience for the student.

Enthusiasm significantly influences secondary school students' attitudes towards learning, promoting various good results. Its impact extends beyond mere excitement, influencing motivation, focus, and participation in the academic environment. Enthusiastic students contribute to the creation of a positive and dynamic classroom atmosphere, influencing their peers and teachers alike. This positive energy enhances concentration and participation, leading to improved understanding and retention of information. Furthermore, enthusiastic learners tend to exhibit resilience in the face of challenges, approaching difficulties with a growth mindset. This positive mindset not only contributes to better academic performance but also cultivates lifelong learning skills. The enthusiasm-driven pursuit of knowledge fosters a genuine interest in the subject matter,

encouraging students to invest time and effort in their studies. Additionally, the development of strong social skills and positive relationships with teachers further enriches the learning experience. The enthusiasm developed in secondary school establishes a foundation for a lifelong passion for learning, providing students with the skills and mindset necessary to tackle future difficulties in further education and the workforce.

2.1.3 Information and Communication Technology Use

Information and Communication Technology (ICT) use is pervasive in contemporary society, influencing how individuals, businesses, and institutions interact with information[37]. ICT involves the application of technology to handle, process, and communicate information[37,38]. Communication technologies, such as email and social media, have revolutionised the way people connect globally. The internet serves as a foundation, enabling a myriad of ICT applications, from online collaboration tools to cloud computing, which facilitates efficient information storage and access.

In the business realm, ICT is instrumental in enhancing productivity and streamlining operations. Organisations leverage information technologies like databases and enterprise software for efficient data management and decision-making processes. The interconnectedness of devices through networks, both local and global, ensures seamless communication and collaboration among employees and partners[39]. Moreover, e-commerce platforms utilise ICT to facilitate online transactions, expanding market reach and providing consumers with convenient access to goods and services.

In education, ICT has ushered in a new era of learning with the advent of EdTech. Online learning platforms, educational software, and digital resources enable flexible and interactive learning experiences[40,41]. ICT's role in education extends beyond traditional classrooms, providing access to educational materials and opportunities globally. The integration of ICT in education has ushered in a paradigm shift, revolutionising traditional teaching methods and enhancing learning experiences. Through interactive content creation, such as multimedia presentations and simulations, teachers can captivate students' attention, making lessons more engaging and dynamic. Online platforms and learning management systems (LMS) provide centralised hubs for educational resources, assignments, and communication, offering a flexible, anytime, anywhere learning environment. This is particularly transformative for global access to education, as e-learning and Massive Open Online Courses (MOOCs) break down geographical barriers, providing individuals with remote access to quality educational resources and courses from institutions worldwide.

Moreover, ICT plays a significant role in efficient education administration, automating tasks like student enrollment, grading, and resource management[42]. Communication between teachers, students, and parents is streamlined through digital channels, fostering a more connected educational community. For teachers, professional development opportunities abound in the digital realm, with online courses, webinars, and collaborative platforms offering continuous learning and resource sharing. The inclusive nature of ICT is evident in assistive technologies that cater to diverse learning needs, promoting an environment where every student can thrive. Overall, ICT not only equips students with essential 21st-century skills and digital literacy but also transforms education into a dynamic, inclusive, and globally accessible endeavour.

ICT tools have transformed the education sector, offering creative methods to improve teaching and learning experiences[43]. These tools comprise a diverse array of technologies, including computers, tablets, interactive whiteboards, educational software, and online resources. In contemporary classrooms, educators utilise ICT tools to provide engaging and interactive lessons that accommodate various learning styles. Students benefit from access to extensive material, interactive multimedia resources, and collaborative online platforms. ICT solutions enable customised learning experiences, permitting students to advance at their own speed and connect with educational material in a more engaging and immersive way. Moreover, internet communication platforms and learning management systems facilitate effortless cooperation between students and educators, cultivating a more interconnected and internationally conscious learning community.

Moreover, ICT tools in education extend beyond the traditional classroom setting, supporting distance learning and providing access to education for individuals in remote or underserved areas[44]. E-learning platforms, video conferencing, and online resources enable a flexible and inclusive approach to education. This adaptability becomes especially crucial during unforeseen circumstances, such as the global COVID-19 pandemic, where ICT tools have played a fundamental role in ensuring the continuity of education. The ongoing advancement of technology enables the incorporation of artificial intelligence, virtual reality, and augmented reality in education, which has the potential to significantly enhance the learning experience by making it more engaging, adaptive, and customised to individual requirements. Embracing ICT tools in education is not only about incorporating technology into classrooms but also about fostering a culture of digital literacy, critical thinking, and innovation among students to prepare them for the challenges of the 21st century.

2.1.3.1 Mastery Experience

Mastery experience refers to a learning concept that centres on the idea of gaining proficiency and confidence through successfully overcoming challenges and mastering specific skills or knowledge areas[45]. It is based on the premise that individuals learn most effectively when they actively participate in tasks that challenge their capabilities, resulting in a sense of achievement and proficiency. Mastery experiences are essential in multiple domains, such as education, personal development, and professional advancement[46].

In the domain of personal and professional growth, mastery experiences are frequently seen as essential factors in skill acquisition and career progression[47]. Individuals who actively seek out challenges, learn from their experiences, and achieve mastery in their respective domains are likely to build a strong sense of self-efficacy and resilience. These experiences can be transformative, shaping one's identity and providing the motivation to continually pursue excellence. Mastery experiences are not solely about achieving perfection but rather about embracing the process of learning, overcoming obstacles, and continuously refining one's skills and knowledge[48].

In education, the concept of mastery experience is often applied in competency-based learning models[49]. Students are encouraged to progress at their own pace, focusing on mastering specific skills before moving on to more advanced concepts. This method enables learners to establish a robust foundation of knowledge and abilities, promoting a more profound comprehension of the subject matter. As students effectively overcome problems, they cultivate self-efficacy and confidence in their capabilities, thus augmenting their drive and readiness to engage in more intricate tasks.

Mastery experiences, marked by the successful acquisition of skills or the overcoming of challenges, yield a cascade of benefits across personal, academic, and professional

domains[50]. These experiences foster a profound sense of self-efficacy, instilling in individuals the belief that they possess the capability to navigate and conquer various situations. This heightened self-confidence becomes a powerful motivator, propelling individuals to actively engage in the learning process. The intrinsic motivation derived from mastery experiences cultivates a lifelong commitment to personal and professional development, driving individuals to seek out new challenges with enthusiasm[51].

Beyond bolstering self-esteem, mastery experiences deepen the learning process[52]. By prioritising a comprehensive understanding of concepts over mere task completion, individuals internalise knowledge more effectively. This depth of understanding not only enhances academic achievement but also equips individuals with a resilient mindset. The journey of mastery inherently involves facing setbacks and failures, teaching individuals valuable lessons in resilience and persistence. This adaptability, cultivated through mastery experiences, becomes a cornerstone for success in dynamic and evolving environments, fostering positive identity formation and laying the groundwork for a fulfilling and impactful life journey[53].

Mastery experience, within the context of ICT (Information and Communication Technology) use, refers to an individual's firsthand success and proficiency in utilizing technological tools and systems[54]. It helps in the understanding and assessing an individual's competence and confidence in employing ICT. When users interact with technology and achieve tasks well, they develop a sense of mastery that enhances their self-efficacy—the conviction in their capability to excel in future technology-related activities. This positive reinforcement creates a feedback loop, fostering a more favorable attitude towards ICT and encouraging further exploration and utilization.

In the field of ICT, mastery experience significantly influences an individual's adaptation and resilience in response to advancing technologies[54,55]. As users continuously master new features, applications, or tools, they develop a mindset that embraces change and innovation. This adaptability is crucial in the dynamic landscape of technology, where advancements occur rapidly. Individuals with a strong history of mastery experiences are more likely to proactively seek and adopt new ICT solutions, contributing to their overall effectiveness and efficiency in both personal and professional settings[56].

2.1.3.2 Vicarious Experience

Vicarious experience denotes the acquisition of knowledge or learning through the observation of others' experiences and consequences, rather than through direct personal engagement[57]. In this context, individuals learn from the successes, failures, or actions of others, and these observations shape their understanding, behaviour, and decision-making. The term "vicarious" implies that the learning occurs indirectly through the experiences of others, allowing individuals to benefit from the knowledge and insights gained by someone else in a particular situation[57,58,59].One of the key mechanisms through which vicarious experiences operate is social learning theory, which emphasised the importance of observational learning, suggesting that individuals can acquire new behaviours and information by observing and modelling the behaviours of others[60]. This process entails observing others' experiences, retaining the information, replicating observed behaviours, and being driven to copy based on the observed results[61].

Vicarious experiences are prevalent in various aspects of life, including education, professional development, and personal growth[62]. For example, a student may learn problem-solving strategies by observing a peer successfully navigate a challenging task. Professionals frequently acquire knowledge from the experiences of colleagues or

mentors, obtaining insights into effective techniques, best practices, and potential dangers without directly encountering the same circumstances[63]. Vicarious experiences play a significant role in shaping social behaviour, fostering empathy, and contributing to the accumulation of knowledge within communities and societies.

Vicarious experiences, rooted in the observation of others' successes, failures, and actions, bring about a plethora of benefits that permeate personal, educational, and professional spheres[64]. By accelerating the learning process, individuals can glean insights and knowledge from the triumphs and challenges faced by others, bypassing the need for extensive personal experimentation[65]. This not only expedites the acquisition of skills but also minimises the risks associated with trial and error, creating an environment where individuals can make informed decisions based on the wealth of experiences witnessed in the actions of others. The efficiency of vicarious learning lies in its ability to offer a nuanced understanding of diverse situations, allowing individuals to navigate complexities more adeptly and fostering an environment of continuous learning and improvement.

Moreover, vicarious experiences contribute to the development of a well-rounded perspective and enhanced problem-solving abilities[66]. Exposure to a variety of scenarios through the lens of others broadens individuals' worldviews, promoting cultural competence and empathy. Witnessing effective problem-solving strategies in action equips individuals with a versatile toolkit to approach challenges in their own lives or professional endeavors. Additionally, the confidence instilled by observing others succeed enhances one's self-efficacy, motivating individuals to take on challenges with a belief in their capacity to overcome obstacles. The social nature of vicarious learning further facilitates knowledge transfer within communities, fostering collaboration and creating a collective reservoir of insights that benefits individuals and societies alike[67].

In the context of ICT, individuals often learn by watching peers, colleagues, or experts navigate technological tools and systems[68]. This observational learning process allows individuals to witness how others overcome challenges, utilise features effectively, and achieve desired outcomes, thereby shaping their own attitudes and behaviours towards ICT. Vicarious experiences in ICT play a crucial role in social learning theory, where individuals emulate the actions and behaviours of those they observe[69]. When individuals witness others successfully utilising technology to solve problems or accomplish tasks, they not only gain insights into different approaches and techniques but also develop a sense of efficacy in their own abilities to replicate similar actions. This vicarious reinforcement strengthens individuals' beliefs in their capacity to use ICT effectively, thereby motivating them to engage more confidently with technology[70]. Additionally, observing others' experiences can provide valuable insights into potential pitfalls or best practices, enabling individuals to approach their own ICT use with greater awareness and skill.

2.1.3.3 Cybersecurity Awareness and Practices

Cybersecurity awareness encompasses a comprehensive understanding of the potential risks and threats in the digital landscape[71,72,73]. It involves recognising the various tactics employed by cyber adversaries, such as phishing attempts and social engineering, and understanding the importance of safeguarding sensitive information[74]. This awareness extends to recognising the significance of strong password management, multi-factor authentication, and the implementation of security measures like firewalls and antivirus software. Individuals and organisations with cybersecurity awareness are equipped to identify and respond to potential risks proactively[75]. Education and training programmes play a crucial role in disseminating this awareness, ensuring that users are informed about the evolving nature of cyber threats and the best practices to mitigate them.

Cybersecurity practices refer to the tangible steps and measures taken to secure digital assets and mitigate potential risks[76]. This includes the routine implementation of security protocols like patch management to address vulnerabilities, regular data backups to prepare for potential data loss or breaches, and the establishment of incident response plans to minimise the impact of cyber incidents[77]. Furthermore, compliance with industry standards and regulations, coupled with continuous monitoring and the integration of threat intelligence, contributes to a robust cybersecurity posture. Effective cybersecurity practices are not only individual responsibilities but also organisational imperatives, requiring a holistic approach that combines technical solutions, policy enforcement, and a proactive security culture[78].

In the contemporary networked landscape, cybersecurity awareness is an essential element of individual and organisational protection against a continually growing spectrum of cyber threats[79]. Educational and training programs are essential for providing personnel with the knowledge and skills necessary to detect and reduce risks. Consistent training programs, workshops, and awareness initiatives underscore the significance of identifying phishing attempts, employing robust passwords, and maintaining vigilance against advancing cyber threats[80]. By cultivating a culture of cybersecurity knowledge, individuals are more effectively equipped to safeguard themselves and their organisations against possible attacks.

Practical cybersecurity practices focus on implementing robust measures to fortify digital defenses[81]. This includes emphasising the importance of strong password management, multi-factor authentication, and regular software updates[81,82]. Encouraging individuals to back up their data regularly provides a safety net in case of a cyber incident, such as ransomware attacks[82,83]. Utilising firewalls, antivirus software, and secure Wi-Fi networks adds additional layers of protection, creating barriers against unauthorised

access and potential malware infections. These techniques jointly enhance cybersecurity resilience, diminishing the probability of successful cyberattacks.

Organisations need to go beyond individual practices and develop comprehensive cybersecurity strategies. This involves creating and enforcing security policies, complying with industry regulations, and establishing incident response plans[84]. Security policies set the foundation for a secure environment, while compliance ensures adherence to established standards. Implementing an incident response strategy allows companies to respond efficiently to cyber incidents, reducing the impact and promoting rapid recovery. Additionally, fostering collaboration and information sharing within the cybersecurity community helps create a collective defence against evolving threats, ensuring that organisations stay ahead of cyber adversaries[85]. Overall, a holistic approach that combines awareness, individual practices, and organisational strategies is essential for effective cybersecurity in the digital age.

Cybersecurity practices encompass a diverse array of strategies and measures aimed at protecting digital assets and mitigating cyber threats[85,86]. These practices can be broadly categorised into technical, procedural, and organisational initiatives. Technical practices encompass the deployment of security measures, including firewalls, antivirus software, encryption, and intrusion detection systems, to protect against diverse threats. Procedural practices focus on establishing policies, guidelines, and protocols for managing access, conducting regular security assessments, and responding to incidents effectively. Organisational practices involve fostering a culture of cybersecurity awareness, ensuring that security is integrated into all aspects of the business, and promoting collaboration and information sharing both internally and externally[87].

Effective cybersecurity practices also involve a proactive approach to risk management and resilience-building. This includes conducting regular vulnerability assessments, staying informed about emerging threats and vulnerabilities, and prioritising security measures based on risk assessments. Moreover, companies must to allocate resources for continuous training and education of personnel to maintain vigilance against advancing cyber risks and comply with security best practices. By adopting a comprehensive approach that combines technical solutions, procedural controls, and organisational initiatives, businesses can enhance their cybersecurity posture and better protect themselves against the increasingly sophisticated tactics employed by cyber adversaries.

2.1.4 Teacher-Student Relationship

The teacher-student relationship is a dynamic educational partnership characterised by mutual respect, collaboration, and shared goals[88]. In this connection, the teacher assumes the role of a mentor, guiding students through their academic journey and offering not only knowledge but also valuable insights and advice[89]. This mentorship extends beyond the confines of the classroom, influencing students' personal development by serving as a role model and fostering essential life skills[90]. The relationship forms a crucial feedback loop, with teachers tailoring their approaches to meet individual learning needs, thereby creating an environment that empowers students to take ownership of their learning[91].

The teacher-student relationship is a platform for effective communication and emotional support[92]. Students feel encouraged to express their thoughts, concerns, and questions, creating a safe space where their voices are heard. Teachers provide not only academic guidance but also emotional support, recognising the importance of addressing the holistic well-being of their students[93]. This emotional connection contributes to the development of trust, a fundamental element that underpins the entire educational

experience. Trust enables students to feel secure in their learning environment, fostering a sense of confidence and openness that enhances their overall educational journey[94].

Furthermore, the teacher-student relationship is not confined to the mere transfer of information; it is a catalyst for inspiration and motivation[95]. Teachers have the power to ignite curiosity, passion for learning, and a desire for continuous improvement. Through collaborative learning experiences, cultural exchange, and an emphasis on adaptability, this relationship equips students with the skills and mindset necessary for lifelong learning[96]. By fostering accountability and establishing elevated standards, educators equip students for both academic achievement and the problems they will encounter in their future pursuits. In essence, the teacher-student relationship transcends traditional educational boundaries, shaping the foundation for a well-rounded and empowered individual.

Teacher-student relationships can manifest in various ways, ranging from traditional authoritative dynamics to more modern and collaborative approaches[97]. In authoritative relationships, teachers maintain a formal role as authority figures, guiding students through structured instruction[98]. Conversely, friendly and supportive relationships prioritise approachability and encouragement, fostering an environment where students feel comfortable expressing themselves and seeking guidance. Additionally, mentorship relationships extend beyond academics, with teachers offering personal and professional advice to help students navigate challenges and make informed decisions[99]. Collaborative partnerships involve shared decision-making and value student contributions, promoting a more inclusive and participatory learning environment[100]. Transactional relationships revolve around the exchange of academic achievements for recognition, while nurturing relationships may involve teachers adopting a parental role and providing emotional support alongside academic guidance[101]. Inspirational teacher-student relationships

motivate students by showcasing passion for the subject matter or sharing personal stories[102]. On the other hand, distant and reserved dynamics prioritise a more professional and formal classroom atmosphere. Adversarial relationships, though rare, may arise with conflicts and disagreements hindering the learning process and creating a negative atmosphere[103]. In reality, a teacher may embody characteristics of multiple types, adapting their approach based on the context and individual students involved, ultimately aiming for a balance of support, guidance, and mutual respect.

Teacher-student relationships stand as a cornerstone in education, holding profound implications for both academic achievement and the emotional well-being of students[104]. A positive rapport acts as a catalyst for improved academic success. Students who establish a rapport with their teachers are more likely to engage actively in class, request assistance, and dedicate effort to their academic pursuits[105]. This emotional connection not only fosters a supportive learning environment but also contributes to increased motivation and engagement. Students are inspired to excel when they sense genuine interest from their teachers, receive constructive feedback, and acknowledge their individual strengths. This motivation, in turn, influences their overall attitude towards education, promoting perseverance and a sense of purpose.

Beyond the academic realm, teacher-student relationships play a fundamental role in shaping the personal development of students[106]. Teachers, assuming roles as mentors and role models, extend their influence beyond subject-matter expertise. They contribute to the social and emotional growth of students by providing crucial support during challenging times and fostering a sense of belonging. This holistic approach to education contributes not only to the students' current well-being but also equips them with essential life skills and values that extend beyond the classroom. Positive teacher-student relationships further create a conducive classroom climate, influencing behaviour and

peer interactions[107]. In essence, these connections transcend the transactional nature of education, forming a dynamic and symbiotic partnership that is fundamental to a comprehensive and effective learning experience.

2.1.4.1 Authoritarian Teacher-student Relationship

An authoritarian teacher-student relationship is characterised by a pronounced power dynamic where the teacher wields considerable control and authority over the students[108]. In this setting, strict adherence to rules and regulations is paramount, often leaving little room for flexibility or understanding. Communication tends to be one-sided, with the teacher delivering information and expecting compliance, discouraging open dialogue and discussion[109]. The teacher employs fear-based control mechanisms, resorting to intimidation or threats to maintain discipline. Such an approach fosters a lack of empathy towards students' individual needs and circumstances. The teaching style is authoritarian, with decisions made unilaterally and students having minimal autonomy in their learning process[110]. The environment is marked by a strict hierarchy, emphasizing punishment over positive reinforcement and stifling creativity and critical thinking. The closed decision-making process, limited personal connection, and an emphasis on conformity contribute to a rigid and potentially stressful educational atmosphere.

In an authoritarian teacher-student relationship, there is a notable absence of the principles of inclusivity, collaboration, and student empowerment[111]. The educational environment is defined by a top-down communication approach, where information predominantly flows from the teacher to the students[112]. This dynamic often results in a lack of personal connection between the teacher and students, hindering the establishment of a supportive and understanding learning environment. The curriculum is inflexible, focusing on rote memorization and strict adherence to predetermined content, with

minimal consideration for adapting to students' individual interests or real-world applications. This rigid structure can lead to a disconnect between the educational experience and students' practical needs and aspirations. Overall, an authoritarian teacher-student relationship may impede the development of well-rounded individuals by placing undue emphasis on compliance and control rather than nurturing critical thinking, creativity, and a holistic approach to education[112,113].

Proponents of an authoritarian teacher-student relationship argue that it offers benefits such as maintaining discipline and efficient classroom management[114]. The structured nature of this approach ensures a focused learning environment, with clear expectations and consistent learning standards. Advocates suggest that exposure to authority figures in the classroom prepares students for hierarchical environments they may encounter later in life, fostering a sense of respect for authority. Additionally, they contend that the approach may instill a sense of order and adherence to rules, discouraging disruptive behavior[115]. While these perceived benefits focus on creating a controlled and organised learning environment, critics argue that the potential drawbacks, including limited creativity and a lack of emphasis on holistic development, outweigh these advantages in contemporary educational settings that prioritise student-centred and collaborative approaches.

2.1.4.2 Collaborative Teacher-student Relationship

A collaborative teacher-student relationship is fundamentally rooted in mutual respect and open communication[116]. This means creating an environment where the teacher values the unique perspectives and contributions of each student while also fostering a culture where students feel comfortable expressing their thoughts and concerns. In this dynamic, both parties actively engage in the learning process, sharing common educational goals and

establishing a strong feedback loop[117]. The teacher provides constructive feedback to guide the students' development, and the students, in turn, offer insights that contribute to the continuous improvement of teaching methods.

Adaptability is a key aspect of a collaborative teacher-student relationship[118]. Educators must exhibit adaptability in their methodologies, modifying their instructional strategies to accommodate the varied learning requirements of students. Simultaneously, students need to adapt to different teaching methods, recognising that teachers may employ various strategies to enhance the learning experience. Trust plays a crucial role, with teachers trusting students to responsibly engage in the learning process and students trusting teachers to provide guidance and support. This trust cultivates an atmosphere in which students are empowered to assume responsibility for their educational journey, enhancing the significance of their learning experience.

Moreover, a cooperative teacher-student relationship fosters inclusivity, guaranteeing that all students, irrespective of their background, abilities, or learning preferences, feel esteemed and integrated[119]. Educators diligently strive to cultivate a nurturing and supportive atmosphere, exhibiting authentic concern for the welfare and achievement of their students. This involves not only academic support but also emotional and social support, recognising that education extends beyond the mere transfer of knowledge. Together, teachers and students co-create knowledge, engage in reflective practices, and celebrate successes, fostering a positive and motivating learning environment that extends beyond the classroom and into lifelong learning pursuits[120].

Collaborative teacher-student relationships are essential for fostering a positive and effective learning environment[121]. When teachers and students collaborate, there is a mutual exchange of ideas and perspectives, creating an atmosphere where students feel

valued and empowered. This engagement leads to increased motivation and active participation in the learning process, ultimately enhancing academic outcomes[122]. Moreover, collaborative connections enable educators to customise their methods to accommodate the varied demands of students, offering personalised assistance that tackles distinct learning styles and obstacles. Consequently, students are more inclined to cultivate a profound comprehension of the subject matter alongside essential abilities such as communication, collaboration, and problem-solving.

Beyond academic benefits, collaborative teacher-student relationships contribute to the holistic development of students[122,123]. The positive learning environment created through collaboration supports the social and emotional growth of students, helping them navigate interpersonal relationships and build a sense of belonging. The trust and positive teacher-student bonds established in these relationships are foundational to effective communication and the development of a growth mindset. Ultimately, these collaborative experiences equip students for both academic achievement and a lifelong pursuit of learning and adaptability in a dynamic environment.

2.1.4.3 Transactional Teacher-student Relationship

A transactional teacher-student relationship embodies a dynamic and reciprocal connection within the educational realm[124]. This relationship is built on the premise of constant interaction, where teachers and students engage in a continuous exchange of ideas, knowledge, and feedback. In this context, communication serves as the key player, forming the basis for effective collaboration. Unlike traditional models where knowledge transfer is unidirectional, the transactional approach recognises the importance of bidirectional information flow, creating a more interactive and engaging learning

environment[125]. This relationship fosters a sense of partnership, with both teachers and students actively contributing to the educational journey.

This educational partnership is characterised by a mutual development alliance. Both teachers and students benefit from the relationship, experiencing intellectual, social, and emotional growth. Teachers guide and facilitate learning, providing expertise and support, while students actively participate in the learning process, contributing their perspectives and experiences[126]. The transactional nature of this relationship means that it adapts and evolves, responding to the changing needs and progress of the learners. It's not a static interaction but a dynamic interplay that recognises the fluidity of the educational experience.

Within the transactional teacher-student relationship, there exists a collaborative pedagogical exchange where responsibilities are shared[127]. It goes beyond the conventional roles of the teacher as the provider of information and the student as the recipient. Instead, there is a joint effort to co-create knowledge, fostering an environment where both teachers and learners are active participants in the educational journey. This collaborative approach creates a more engaging, supportive, and enriching learning experience for all involved[128].

2.2 Theoretical Framework

2.2.1 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) offers a robust theoretical foundation for investigating the dynamics of ICT use and its impact on senior secondary school students' attitudes towards learning in Southwest, Nigeria[129]. The Technology Acceptance Model (TAM) posits that two primary elements influence individuals' acceptance and adoption

of technology: perceived usefulness (PU) and perceived ease of use (PEOU). In the context of this study, examining how students perceive the usefulness of ICT in their learning experiences and the ease or difficulty they associate with mastering ICT skills can shed light on their acceptance and engagement with technology[130]. Positive mastery experiences, such as successfully using ICT tools for academic purposes, can enhance perceived usefulness, while collaborative teacher-student relationships may positively influence perceived ease of use by providing a supportive environment for learning and ICT integration[131].

Moreover, TAM incorporates social factors, such as subjective norms and social influence, which are particularly relevant to the teacher-student relationship dynamics explored in your study[132]. The collaborative and transactional dimensions of teacher-student relationships can impact students' subjective norms regarding the use of ICT. Positive relationships, characterised by collaboration and mutual understanding, may create a social environment that encourages students to adopt and utilise technology for learning[133,134]. Conversely, the authoritarian dimension may influence perceived behavioural control, affecting students' confidence in using ICT and adhering to cybersecurity practices.

The ultimate outcome in the TAM framework is behavioural intention (BI), which directly influences actual use. In the educational context, this translates into students' attitudes towards learning—observable through class participation, attendance, and enthusiasm. This comprehensive approach allows for a nuanced understanding of the interrelated factors influencing students' attitudes towards learning in senior secondary schools in Southwest, Nigeria.

2.2.2 Vygotsky's Sociocultural Theory

Vygotsky's Sociocultural Theory offers a robust theoretical framework for studying the intricate dynamics between Information and Communication Technology (ICT) use, teacher-student relationships, and senior secondary school students' attitudes towards learning in Southwest Nigeria. This idea underscores the significance of social interactions, cultural environment, and historical background in influencing cognitive development and learning processes[135].

Firstly, within the context of ICT use, Vygotsky's theory highlights the significance of the social environment in which learning occurs[136]. In the modern digital era, ICT plays a crucial role in shaping educational experiences. Vygotsky posited that learning is a social activity, and the use of ICT in education can facilitate collaborative learning experiences among students and between students and teachers. By leveraging ICT tools such as online forums, collaborative documents, and educational apps, students can engage in shared problem-solving activities, thereby enhancing their understanding of complex concepts. Additionally, ICT provides access to vast repositories of information, enabling students to explore diverse perspectives and develop critical thinking skills. Thus, within Vygotsky's framework, ICT serves as a mediational tool that extends students' cognitive abilities and fosters socio-cultural interactions necessary for learning[137].

Secondly, Vygotsky emphasised the importance of the teacher-student relationship in scaffolding learning experiences[138]. In the Nigerian context, where traditional pedagogical approaches often prioritise rote memorization and teacher-centred instruction, cultivating positive teacher-student relationships becomes crucial. Vygotsky introduced the notion of the Zone of Proximal Development (ZPD), denoting the disparity between a learner's autonomous capabilities and their potential achievements with assistance from a more educated individual, such as an educator[139]. In this study, examining how ICT can

facilitate communication and collaboration between teachers and students within the ZPD is essential. For instance, through online platforms and virtual classrooms, teachers can provide timely feedback, tailor instruction to individual student needs, and create a supportive learning environment conducive to academic growth. By nurturing positive teacher-student relationships mediated by ICT, teachers can enhance students' motivation, engagement, and overall attitudes towards learning.

Lastly, Vygotsky's sociocultural theory underscores the influence of cultural factors on learning and cognition[140]. In the context of Southwest Nigeria, where cultural norms, values, and beliefs shape educational practices, understanding the socio-cultural dynamics is imperative. Vygotsky argued that learning is embedded within socio-cultural contexts, and individuals construct knowledge through interactions with others within their cultural milieu[141]. Therefore, in investigating students' attitudes towards learning, it is essential to consider the cultural significance attributed to education, the role of family and community support, as well as societal expectations regarding academic achievement[140]. Additionally, ICT adoption and integration must align with local cultural norms and values to ensure relevance and acceptance within the educational landscape.

In conclusion, Vygotsky's sociocultural theory provides a comprehensive framework for examining the interplay between ICT use, teacher-student relationships, and senior secondary school students' attitudes towards learning in Southwest Nigeria. By emphasizing the social nature of learning, the importance of scaffolding within the ZPD, and the influence of cultural factors, this theoretical lens enriches our understanding of how educational practices can be enhanced to promote positive learning outcomes in a digitally mediated world.

2.2.3 Self-efficacy Theory

The self-efficacy theory asserts that an individual's confidence in their capacity to execute particular activities profoundly impacts their behaviour, motivation, and overall success[142]. Self-efficacy is intricately associated with students' attitudes towards learning, encompassing class participation, attendance, and excitement. Students possessing elevated self-efficacy are more inclined to participate actively in learning endeavours and uphold regular attendance.

At the heart of self-efficacy theory are several core principles that highlight how students' beliefs in their abilities can shape their learning experiences. Mastery experiences are the most influential source of self-efficacy[143,144]. When students successfully complete tasks, such as effectively using Information and Communication Technology (ICT) for educational purposes, they build confidence in their abilities. For example, if a student engages in a project using ICT and succeeds, this accomplishment reinforces their belief that they can handle similar tasks in the future, positively affecting their class participation and attendance.

Vicarious experiences also play a critical role in shaping self-efficacy[145,146]. When students observe their peers or teachers successfully utilizing technology, they may feel more capable of doing the same. For instance, if a student sees a classmate excel at using a specific software application, this observation can enhance their belief in their own abilities, leading them to participate more actively in class discussions and activities. This aspect of the theory is particularly relevant in collaborative teacher-student relationships, where modeling and peer learning can significantly impact students' self-efficacy[147].

Another significant aspect is social persuasion, which denotes the support and feedback students obtain from educators and peers[148]. The nature of the teacher-student relationship—whether authoritarian, collaborative, or transactional—can influence the

extent of social persuasion. Collaborative relationships are likely to provide more constructive feedback and encouragement, thus enhancing students' self-efficacy. Conversely, authoritarian relationships might limit open communication and support, potentially hindering the development of self-efficacy and diminishing students' attitudes toward learning.

Additionally, students' emotional and physiological states significantly affect their self-efficacy beliefs[149]. For example, anxiety surrounding the use of technology or concerns about cybersecurity can impact how students approach learning tasks. However, when students feel secure and knowledgeable about using technology safely, their emotional state becomes more positive, which can enhance their self-efficacy and overall attitudes toward learning.

Applying Self-Efficacy Theory to the study provides valuable insights into how mastery and vicarious experiences with ICT can influence students' self-efficacy. Positive mastery experiences, such as successfully completing technology-related projects, can significantly affect students' beliefs in their abilities. Similarly, vicarious experiences from peers or teachers who demonstrate effective ICT usage can further boost self-efficacy, leading to increased class participation and enthusiasm. The type of teacher-student relationship also plays a crucial role in shaping self-efficacy beliefs. Collaborative relationships characterised by support, encouragement, and positive feedback can enhance self-efficacy. In contrast, authoritarian relationships may create an environment of fear or disengagement, which can reduce students' confidence in their abilities. By examining these dynamics, the study can identify how different teacher-student interactions influence students' self-efficacy and, consequently, their attitudes toward learning.

2.3 Review of Empirical Studies

2.3.1 Information and Communication Technology Use and Students' Attitude towards Learning

A study sought to investigate students' views on the use of ICT in teaching and learning in public secondary schools in Kieni East Subcounty, Nyeri County, Kenya[150]. The objectives encompassed evaluating the preparedness of the educational environment for ICT integration, analysing the acquisition of computer skills, and measuring students' access to ICT resources during their education[150]. The sample comprised 14 female students and 28 male students who were questioned using questionnaires. Findings revealed that 67% of female students and 81% of male students were without internet access. Furthermore, 80% of female students exhibited proficiency in opening and creating documents, whereas 57.1% of male students indicated a preference for computer studies compared to other courses[150]. Notwithstanding the difficulties in incorporating ICT into public secondary schools in Kieni East Subcounty, students exhibited a favourable disposition towards ICT in education. The report advises that schools tackle these difficulties by supplying adequate computers and developing network infrastructure for student utilisation.

A separate study aimed to examine the significant association between ICT usage, learning attitudes, and academic paragraph writing[151]. Seventy-one students from the English Education investigation Programme participated in this correlational investigation. Data were gathered using a 15-item ICT usage questionnaire, a 20-item learning attitude questionnaire, and recording of students' writing[151]. The results demonstrated a statistically significant association among the three variables, indicated by a p-value of 0.006 (below 0.05). The corrected r^2 value of 0.114 suggested that ICT usage and learning

attitude combined accounted for 11.4% of the variance in students' English academic paragraph writing[151].

Furthermore, another study examines the varied effects of ICT on pedagogy and its correlation with student learning outcomes in higher education institutions[152]. This study investigates the impact of ICT on conventional teaching methods and student outcomes through a comprehensive review of relevant literature, empirical research, and case studies[152]. The research begins its investigation by examining the incorporation of digital learning platforms, blended learning models, and online assessment tools inside higher education settings[152]. It further examines the role of ICT in facilitating customised and interactive learning experiences, augmenting student engagement, and fostering critical thinking abilities[152]. This contribution enhances the current discussion on the evolution of higher education in the digital age and provides significant recommendations for educators, administrators, and policymakers seeking to optimise the integration of ICT in the classroom[152].

Additionally, another study seeks to examine the influence of ICT on students' perspectives. The research methodology utilises a systematic document analysis approach to investigate the impact of ICT on student attitudes and its effect on the behaviour of both teachers and students[153]. The SAMR model is employed to demonstrate the many levels of ICT integration that educators might implement in the classroom. The findings indicate that the integration of ICT in the classroom enhances student performance, motivation, and efficiency[153]. The student and classroom environment transforms into a dynamic space that promotes active listening, collaborative learning, interactivity, and communication. By optimising the capabilities of ICT, learning can be developed and improved more efficiently, shifting from a teacher-centered to a student-centered educational model in accordance with 21st-century educational objectives[153].

A study examined the views of students and instructors towards the usage of ICT tools in management education[154]. Subsequent to workshops that presented 11 ICT tools intended for educational environments, questionnaires were disseminated to students and teachers at three public institutions in Taiwan[154]. The responses of 242 students and 46 instructors were evaluated to assess their opinions on ICT usage across five domains: feedback, classroom mobility, publishing, cooperation, and social media[154]. The results demonstrated that students saw collaborative and social media technologies as advantageous for education and for improving their future employability. Instructors similarly deemed these ICT tools to be beneficial[154]. Thus, including collaboration and social media into pedagogical strategies and course architecture may enhance student engagement and forge significant links between students' educational experiences and their future career opportunities.

2.3.2 Teacher-Student Relationship and Students' Attitude towards Learning

This study sought to address the multiple deficiencies identified in prior research, which concentrated solely on a single issue[155]. Additionally, it assesses the influence of three independent variables: teacher values, classroom environment, and the student-teacher interaction on student attitude[155]. This quantitative study employs hypothesis analysis with 72 teachers and 72 students from three junior high schools in Belitung Regency. The acquired data was analysed using multivariate techniques[155]. Nevertheless, the results indicated that among the three variables, only the classroom atmosphere exerted a substantial influence on student attitude. The concurrent regression analysis indicated that the interactions among X1 and X2, X1 and X3, and X1, X2, and X3 influenced their attitudes. This discovery necessitates additional research to identify elements that emerge in the classroom environment, as it is the sole component that significantly influences student attitudes[155]. Furthermore, analogous studies including a larger sample size of

participants, such as educators or learners, must be undertaken to ascertain the reasons for the divergence in outcomes compared to prior research.

A further study examined the association between the quality of teacher-student interactions, as assessed by both parties, and students' engagement in prosocial behaviours[156]. Furthermore, it examined the possible mediating effects of students' attitudes towards school and their perceived academic competence in this relationship. The study included 459 Italian primary pupils (ages 4–9, mean age = 7.05, standard deviation = 1.37) and 47 teachers (ages 26–60, mean age = 48.35, standard deviation = 8.13), all of whom participated in many questionnaires and scales[156]. Multiple regression analysis and bootstrapping approaches were employed to investigate the direct relationships and mediation effects between the quality of teacher-student relationships and students' prosocial behaviours[156]. The findings indicated that (1) a positive correlation exists between teacher-student relationships and students' engagement in prosocial behaviours, and (2) students' attitudes towards school significantly mediated the relationship between perceived quality of teacher-student relationships and students' prosocial behaviours[156]. These findings enhance our comprehension of the role teacher-student connections play in fostering prosocial behaviours among students and may guide the creation of intervention programs designed to improve such behaviours[156].

A further study examined the influence of the teacher-student relationship on the learning motivation of primary school kids, utilising the Teacher-Student Relationship Questionnaire and the Learning Self-Regulation Scale[157]. The research encompassed third- and fourth-grade pupils from four elementary institutions in Hangzhou, chosen via multi-stage sampling[157]. The data reveal that: (1) The teacher-student connection strongly impacts students' learning motivation, demonstrating a positive predictive effect. (2) In the context of intermediate primary school pupils, gender does not significantly influence

teacher-student connections and motivation, although age does have a strong beneficial effect on both[157]. Interviews indicated that educators' teaching philosophies and attitudes influence students' impressions of teacher-student relationships and their drive to study. Moreover, students' academic circumstances positively affect their motivation to learn.

2.3.3 Motivation and Students' Attitude towards Learning

The aim of the research was to examine the relationship between university students' attitudes towards learning and their academic motivations[158]. The research used a relational survey paradigm, with the population comprising university students enrolled at a public university. The sample is chosen by a stratified sampling procedure from the university student population. The study employs the "Attitude Towards Learning Scale" and the "Academic Motivation Scale[158]. The study's findings reveal gender-based disparities in students' attitudes and motives for studying, favouring females. A relatively positive and significant correlation exists between attitudes towards learning and academic motivation. Moreover, there is no significant disparity in academic motivation or attitudes towards learning across children, irrespective of school style[158]. The study indicates a robust positive link between intrinsic and extrinsic motivation and academic motivation, although a slight negative correlation exists between motivation and academic motivation.

The objective of an additional study was to evaluate attitudes and motivation levels about student-centered learning methodologies, with particular emphasis on gender disparities[159]. The sample comprised 299 engineering students (civil, electrical, and mechanical engineering) from a higher education institution in southern Peninsular Malaysia[159]. Data were gathered with a questionnaire consisting of three sections: Part A addressed demographic information, Part B examined students' views towards student-

centered learning, and Part C investigated students' motivation for learning in a student-centered environment[159]. The analysis encompassed frequency, mean score, standard deviation, and t-test. The findings indicated elevated scores for both attitude (M = 3.95; SD = 0.49) and motivation (M = 4.16; SD = 0.46) for participation in student-centered learning activities[159]. Moreover, there was no substantial disparity between genders regarding students' attitudes and motivation to participate in student-centered learning activities[159]. The consequence is that student-centered learning events can be customised to prioritise attitude and motivation elements, independent of gender, to foster active engagement and effective learning.

Additionally, another study sought to investigate the impact of social media on students' motivation and attitudes on English learning at Sumbawa University of Technology[160]. The research, executed in a descriptive-quantitative format, had 120 participants from the management department who filled out a Likert-scale questionnaire[160]. The data gathering followed a quantitative methodology, and the study utilised descriptive analysis for interpretation. The results demonstrated a beneficial effect of social media on students' willingness to study English, with participants articulating positive sentiments towards the integration of social media in language education[160]. Thus, it can be deduced that social media significantly influences language acquisition according to these findings. Consequently, it is essential to promote the use of social media platforms among students for language acquisition[160]. Future research could investigate particular social media platforms that are most efficacious for language acquisition and evaluate whether the study program affects students' perspectives of utilising social media in language learning, as this study concentrated exclusively on one program.

Furthermore, the principal aim of an additional study is to investigate the motivations and attitudes of Thai EFL secondary school students towards English language acquisition[161].

The research has 640 individuals from several secondary schools around Thailand. The data collection utilised a revised 34-item motivational survey based on Gardner's (2004) international edition of the Attitude/Motivation Test Battery (AMTB) [161]. The collected data was analysed by descriptive statistics and content analysis. The findings revealed that Thai EFL students demonstrate elevated motivation and a robust aspiration to improve their English skills[161]. A considerable percentage voiced discontent with English language training in classrooms, viewing it as insufficient for addressing their practical demands and obstructing the enhancement of English abilities pertinent to real-life scenarios[161]. The study's implications indicate possible modifications in pedagogy to tackle these issues. It seeks to offer helpful insights for English educators in Thailand and comparable EFL environments, aiding them in comprehending how to bolster and improve students' motivation and attitudes towards English studying[161].

2.3.4 Parental Involvement and Students' Attitude towards Learning

The primary goal of a study was to ascertain the impact of parental involvement on students' learning motivation[162]. Employing a quantitative method, the research utilised an ex-post facto approach. The participants consisted of 136 fourth-grade students from an elementary school, and data collection relied on a questionnaire[162]. Regression analysis was employed as the technique for data analysis. The findings revealed that parental involvement accounted for 39.7% of the variance in learning motivation among fourth-grade students[162]. It can be inferred that parental involvement plays a significantly positive role in influencing the learning motivation of these students. This research emphasises the significance of parental engagement in fostering students' motivation for learning[162]. The outcomes are anticipated to enhance the awareness of school committees, emphasising the importance of parental support in their children's educational journey.

Consequently, there is a call for collaboration among all stakeholders to contribute to the continual improvement of the quality of children's education[162].

A separate study examines the determinants affecting students' academic performance in English at the secondary school level[163]. The research concentrated on 50 students from SMK Sultan Abdul Samad in Banting as participants. The evaluation of students' perceptions on familial assistance was conducted utilising a four-point Likert scale[163]. A correlation coefficient analysis was utilised to determine the relationship between parental roles and students' academic performance[163]. The results demonstrated that alone parental education showed a significant ($p = 0.05$) correlation with students' academic achievement. Considering the significance of English language ability for a nation's educational, economic, and developmental progress, the article proposes various recommendations[163].

Another study employs the Hoover-Dempsey and Sandler parental participation model to examine parents' choices regarding their engagement in their children's K–12 education, particularly in relation to the shift towards digital and online learning[164]. The emphasis is on the model's adaptation to technological innovations and parental support in digital environments[164]. The study presents targeted enquiries that contest conventional perceptions of parental roles, effectiveness, and engagement in the context of students' digital education[164]. The discourse examines the importance of engagement strategies that emphasise substantial digital learning opportunities, parental concerns about the transition to digital environments, parental proficiency with technology, and the utilisation of technology to enable reciprocal communication in addressing parental apprehensions while aiding their children's digital education[164].

Additionally, the aim of another study was to evaluate the extent of parental participation, students' motivation in learning English, and the correlation between parental involvement and students' motivation in learning English[165]. The study utilised a quantitative design, employing questionnaires to assess parental engagement. An altered questionnaire from the Attitude/Motivation Test Battery was utilised to assess students' motivation[165]. The research involved 52 science students in grades 10 to 12 at a private school in Balikpapan during the first semester of the 2021–2022 academic year[165]. The results indicated that parental involvement was moderate (M = 3.38), with parents acting as motivators showing high involvement (M = 3.55), but parents as educators (M = 3.34) and parents as facilitators (M = 3.12) shown moderate involvement[165]. The results demonstrated that students had a high degree of motivation in learning English (M = 3.82), characterised by elevated intrinsic motivation (M = 4.17) and moderate extrinsic motivation (M = 3.40). A substantial link was observed between parental participation and students' motivation to study English, with $p < 0.005$ and $r = 0.537$[165]. This indicates that greater parental engagement correlates with enhanced student motivation to learn English. Therefore, it is advisable for parents to augment their engagement to further elevate students' motivation in English acquisition[165].

A separate research reports the results of a meta-analysis examining the role of parental expectations in parental participation and its relationship with the academic performance of urban students[166]. The report notably highlights parental expectations, which have frequently been the most significant element in prior research on parental engagement. The meta-analysis includes 54 quantitative studies examining the correlation between parental expectations and adolescents' academic attainment[166]. The findings demonstrated statistically significant benefits among students of diverse age groups, ethnicities, genders, and nations[166]. The influence of parental expectations on academic achievement remained

significant, even when accounting for the most rigorous studies. This underscores the significance of parental expectations in shaping student results and indicates that this facet of parental participation is crucial across various student demographics and research approaches[166].

2.3.5 Teachers Efficacy and Students' Attitude towards Learning

The objective of the study was to investigate the relationship between students' evaluations of their professors' efficacy and their attitudes towards the educational process[167]. The research encompassed 348 academic members and 646 students from four distinct universities. Data collection was executed via a tailored questionnaire, administered both online and in person[167]. Teacher efficacy was measured by a survey questionnaire, while students' perceptions of educational value were examined using a Likert scale. The results indicated elevated self-efficacy among educators in all instructional components, while students typically demonstrated favourable attitudes towards learning[167]. Nevertheless, specific elements of students' beliefs differed according to variables such as age, gender, regional dialect, and internet accessibility[167]. The study provides recommendations for educational leaders, institutions, educators, and prospective scholars to contemplate when formulating policies regarding learning and self-efficacy in the future[167].

The aim of another study is to investigate the impact of teachers' self-efficacy on enhancing the learning process among intermediate college students in Karachi, Pakistan[168]. The study employed a causal research design, utilising purposive sampling as the sample methodology and questionnaires as the major data collection method[168]. Data were gathered from chosen intermediate colleges in Karachi, comprising 312 sample cases, and subsequently analysed via Partial Least Squares Structural Equation Modelling

(PLS-SEM) via SmartPLS[168]. The study's findings indicated a substantial and affirmative influence of instructors' self-efficacy on goal attainment, active learning, and the educational environment[168]. Moreover, teachers' self-efficacy was recognised as significantly enhancing performance goals and the perceived importance of science education. The research indicates that augmenting instructors' self-efficacy by suitable training and cultivating a feeling of self-efficacy can enhance students' enthusiasm to learn science[168]. Experts advocate for the establishment of professional courses and teacher education programs to foster and improve teachers' self-efficacy, hence benefiting student motivation and science learning.

2.3.6 School Climate and Students' Attitude towards Learning

A study examined the influence of classroom atmosphere on students' attitudes towards studying in public senior secondary schools within the Port Harcourt metropolitan[169]. The research was directed by three primary aims, resulting in the development of three research questions and their associated hypotheses. The research utilised a descriptive survey design, involving a population of 27,082 individuals, comprising 25,077 students and 2,005 teachers from 37 public senior secondary schools in the Port Harcourt and Obio/Akpor Local Government Areas of Rivers State[169]. The sample consisted of 728 participants, comprising 394 students and 334 teachers from public senior high schools in Port Harcourt Metropolis, calculated using Taro Yamene's technique[169]. The multi-stage sampling method was utilised in the selection of the sample[169]. Data were gathered with a self-constructed questionnaire entitled "Influence of Classroom Climate on Students' Attitude to Learning in Public Senior Secondary Schools Questionnaire," which was validated by two specialists in measurement and assessment[169]. The instrument's reliability was evaluated by internal consistency testing employing the Cronbach Alpha technique, resulting in reliability coefficients of 0.79, 0.81, and 0.83 for various clusters.

The study topics were analysed using mean and standard deviation statistics, while hypotheses were evaluated with z-test statistics at a 0.05 significance level[169]. The study's findings revealed that social, physical, and psychological classroom environments greatly impacted students' attitudes towards learning in public senior secondary schools in the Port Harcourt metropolitan to a considerable degree[169]. The study's findings suggest organising regular training for educators to mitigate the adverse impacts of anti-social behaviour, ensuring that students receive care, fairness, and consistency to cultivate a supportive social environment that encourages positive attitudes towards learning.

A separate study examined the perceived impact of school climate on students' academic performance in private junior secondary schools within Port Harcourt Metropolis, Rivers State[170]. Three research questions and corresponding hypotheses were developed. The study utilised a descriptive research design, focussing on a population of 2,412 teachers from 223 private junior secondary schools in Port Harcourt Metropolis[170]. The population comprised 237 qualified teachers from Port Harcourt Local Government Area, 97 qualified teachers from Obio/Akpor Local Government Area, 1,183 unqualified teachers from Port Harcourt Local Government Area, and 895 unqualified teachers from Obio/Akpor Local Government Area in Rivers State[170]. The study's sample size, obtained by multi-stage and purposive sampling methods, was 517, comprising 182 qualified teachers and 323 untrained teachers from the Obio/Akpor and Port Harcourt Local Government Areas[170]. The data collection instrument was a self-developed questionnaire entitled "Perceived Influence of School Climate on Students' Learning Outcomes," organised on a 4-point rating scale. The instrument was verified by specialists in the Department of Measurement, Evaluation, and Educational Management, achieving reliability indices of .943, .942, and .904, respectively, by Cronbach's Alpha[170]. The mean and standard deviation were utilised to examine the study topics, and the z-test was

applied to evaluate the null hypotheses at a 0.05 significant level. The results demonstrated that open school environment, paternal school climate, and familiar school climate favourably affected students' learning outcomes at private junior secondary schools within the Port Harcourt Metropolis of Rivers State[170]. In light of these findings, solutions were proposed, including the idea that administrators should investigate the implementation of an open climate to augment teacher job satisfaction and promote student learning outcomes[170].

2.3.7 Peer Influence and Students' Attitude towards Learning

A study examined the effects of alcohol intake, peer impact, and secondary school students' attitudes towards education in specific secondary schools in Katsit, Kafanchan, and Kaduna State[171]. The study utilised a correlational research design, with a population of 200 senior students from four of the 18 government secondary schools in Katsit, Kafanchan, selected using simple random sampling. Spearman's rank order correlation was utilised to evaluate the hypotheses, and the data collecting tools comprised the Rutgers Alcohol Problem Index (RAPI), the Feeling About School Instrument (FASI), and the Peer Pressure Inventory (PPI)[171]. The results demonstrated no significant correlation between peer group influence and students' attitudes towards school ($P = .178$, $\alpha = .100$). A positive and substantial correlation was identified between alcohol use and students' views towards school ($P = .001$; $r = .339$)[171]. The study advocated for enhanced engagement of parents, school officials, and the Ministry of Education, who are essential partners and stakeholders in adolescent education, in school matters. This engagement is posited to enhance students' attitudes towards school, particularly in light of the recognised impact of alcohol intake.

Comparable research sought to examine the influence of the familial environment, peer dynamics, and learning interest on academic performance among class X students enrolled in basic accounting courses within the accounting and financial skills program at East Jakarta State Vocational School[172]. The accessible and inexpensive population for this study consisted of 178 students from diverse classes across 46 state vocational schools in Jakarta. A sample of 122 students was selected via the proportional random sampling method, computed in accordance with the Isaac and Michael formula, allowing for a 5% margin of error[172]. Data were gathered using a questionnaire for the independent factors, while secondary data comprising Odd Semester End Assessment results were utilised for the dependent variable. The data analysis encompassed several regression equations, data requirement assessments, classical assumption evaluations, model viability examinations, and hypothesis testing[172]. The analytical results demonstrated a positive and substantial impact of the family environment on learning outcomes, a positive and significant impact of the peer environment on learning outcomes, and a positive and significant impact of learning interest on learning outcomes[172]. The coefficient of determination in this study was 23.8%, signifying the extent of diversity in learning outcomes elucidated by the collective impact of the familial environment, peer environment, and learning interest.

The primary purpose of another study is to evaluate the influence of rewards and the peer environment on student motivation at SMKN 2 Cikarang Barat, specifically targeting students specialising in governance and office automation[173]. The survey method was utilised, employing proportional random sampling as directed by Isaac and Michael's tables to pick respondents[173]. The accessible population comprised 316 students, from which a sample of 161 students was derived using this procedure. The participants were students from grades X, XI, and XII from SMKN 2 Cikarang Barat specialising in

governance and office automation[173]. Data were gathered with a Likert-scale questionnaire. The research findings demonstrated that rewards exert a favourable and considerable influence on learning motivation, hence validating the research hypothesis[173]. Likewise, the peer environment demonstrated a favourable and significant influence on learning motivation, according with the research hypothesis[173]. The findings indicate that both incentives and the peer environment significantly impact student motivation at SMKN 2 Cikarang Barat, especially among those specialising in governance and office automation.

2.3.8 Emotional Intelligence and Students' Attitude towards Learning

A study aimed to explore the impact of emotional intelligence on the learning outcomes of high school students through a qualitative case study approach[174]. The participants included 48 high school students in Pekanbaru, and data were collected through the administration of a questionnaire. Qualitative analysis was conducted to interpret the data[174]. The findings of the study revealed that students' emotional intelligence significantly influenced their learning outcomes[174]. Specifically, it was observed that emotional intelligence played a crucial role in fostering enthusiasm for learning and enabling students to effectively manage their emotions to achieve their learning goals. These findings emphasise the importance of emotional intelligence for academic success[174]. However, the study acknowledges the complexity of factors that affect learning outcomes, which were not fully explored in this research[174]. Therefore, it recommends further studies to delve deeper into these factors to gain a comprehensive understanding of their impact on students' academic performance.

A separate study aims to investigate the influence of emotional intelligence on the academic performance of upper-grade kids, employing a quantitative methodology[175].

The variables being examined are emotional intelligence and academic performance. The research concentrates on pupils in the fourth, fifth, and sixth grades[175]. The data collection process include utilising an emotional intelligence scale and recording average student report card grades. The analysis employs a straightforward linear regression method, yielding a R squared (coefficient of determination) of 0.103175[175]. This signifies that emotional intelligence accounts for 10.3% of learning achievement, with 89.6% attributable to other internal or external factors[175]. The results indicate that emotional intelligence by itself may not substantially influence student academic performance. The regression equation Y=123.13+(16.555X) indicates that each incremental unit of emotional intelligence correlates with a decrease of 16.555 in the learning accomplishment score. The findings indicate that emotional intelligence does not significantly impact learning achievement in this scenario[175].

Comparable research is motivated by the necessity of promoting student success, assessed via academic performance, especially in the realm of Islamic education courses where present results are very deficient[176]. This study specifically examines the influence of emotional intelligence on learning outcomes, acknowledging the numerous contributing components[176]. The aim is to determine the impact of emotional intelligence on students' academic performance in Islamic education areas. The research utilises a quantitative methodology via a survey, concentrating on the fifth-grade students at Sekolah Indonesia Johor Bahru, Malaysia, encompassing a total population of 40 students[176]. The study utilises a complete sample method for participant selection. The study tools comprise an emotional intelligence questionnaire and an assessment of learning outcomes. The application of a simple linear regression analysis indicates a substantial link between emotional intelligence and student learning results in Islamic education disciplines[176]. This underscores the significance of cultivating emotional intelligence from a young age,

as it becomes a crucial factor in determining individual success in multiple aspects of life. The findings support the integration of techniques to improve emotional intelligence in educational curriculum, acknowledging its significance as a crucial factor in academic success[176].

The primary objective of another study is to evaluate the degree and effects of emotional intelligence in students while simultaneously examining the correlation between emotional intelligence and their academic performance at MA Bahrul 'Ulum Tambakberas Jombang[177]. This research used a descriptive and inferential quantitative methodology, encompassing 92 participants. Data gathering is conducted via questionnaires and documentation forms. The study indicates that 76.1% of the respondents demonstrate a high level of emotional intelligence[177]. The learning achievements of these children are classified as good, with a significant percentage of 97.8%. The principal finding of importance is the formation of a significant correlation between emotional intelligence and students' academic performance at MA Bahrul 'Ulum Tambakberas Jombang[177]. This underscores the significance of emotional intelligence in impacting and enhancing students' academic achievement within this specific educational context[177]. The findings of this study yield significant insights into the relationship between emotional intelligence and academic performance, suggesting implications for educational techniques and treatments.

2.3.9 School Environment and Students' Attitude towards Learning

A study sought to analyse Tanzanian students' attitudes towards mathematics, analyse the factors influencing their preferences or aversions to the subject, and assess the relationship between attitude and academic performance[178]. Employing the ABC Model and Walberg's Theory of Productivity, we administered a survey to 419 primary school

students, 318 secondary school students, and 132 college students from 17 schools and 6 colleges throughout mainland Tanzania[178]. Quantitative and qualitative data were collected and evaluated utilising diverse statistical approaches, including percentages, means, standard deviations, ANOVA, correlation, regression, and thematic analysis. Research findings revealed that students initially display a favourable disposition towards mathematics, which tends to decline as they advance to higher educational tiers[178]. A significant positive and modest association was observed between students' attitudes and their academic achievement. The research indicated that the enjoyment of mathematics and attitude substantially impacted students' performance[178]. Factors affecting students' affinity for or aversion to mathematics included their aptitude, teaching methodologies, and socio-psychological contextual influences[178]. Moreover, failures in examinations were associated with pedagogical tactics employed by teachers, institutional resources, insufficient learning and assessment methods, and challenges in comprehending instructions. The findings of this study provide significant insights for future research and propose prospective modifications in pedagogical techniques to augment students' pleasure of mathematics and, consequently, boost their performance in the discipline[178].

A separate study examined the relationship between the educational environment and students' attitudes and performance in the English language[179]. The elements of the educational environment examined encompassed infrastructure, including classrooms, libraries, labs, fields, playgrounds, and diverse furnishings and instructional resources such as seats, desks, tables, computers, overhead projectors, and audio-visual equipment[179]. The assessment of the educational environment indicated that many schools in Nigeria are plagued by decaying structures, fissured walls, and leaking roofs, rendering their infrastructural amenities markedly inadequate[179]. An analysis of students' attitudes and accomplishments in the English language underscored the need of a supportive

learning environment. It was noted that an unfavourable learning environment predisposes students to a negative attitude towards the subject, leading to subpar academic achievement[179]. The research highlighted that dilapidated school facilities and unappealing physical environments may foster a detrimental mindset among students, hence impacting their academic achievement[179]. Therefore, one of the suggested measures was the immediate refurbishment and repainting of deteriorated and aged school buildings nationwide to cultivate a more favourable environment, enhance student attitudes, and elevate their performance in the English language[179].

An alternative article seeks to elucidate the results of a study that examined both advantageous and disadvantageous elements related to the use of online learning environments (OLE) as a digital educational technique for advancing sustainable development[180]. The advancement of technology has converted conventional face-to-face classrooms into hybrid learning environments, and this study examines individual experiences and anticipations within these hybrid educational frameworks. Favourable learner dispositions towards online sessions are deemed essential for the efficacy of hybrid learning and overall student contentment[180]. The study, conducted as a quasi-experiment, evaluated students' views towards both beneficial and adverse aspects of utilising OLE in the educational process[180]. Five cohorts of students engaged in a semester-long investigation employing the flipped classroom methodology. The sample consisted of 106 secondary school students, chosen via non-probability sampling. Pre-test and post-test questionnaires were distributed at the commencement and conclusion of the semester[180]. Students initially highlighted advantageous elements of utilising OLE across five categories: material resources, instructor characteristics, student traits, knowledge delivery, and enhanced institutional accessibility. As students acquired proficiency in

OLE, technical challenges and computer literacy diminished in importance, but the attitudes of both students and educators, coupled with the ambition to enhance and learn, became paramount[180]. At the project's completion, participants emphasised supplementary advantageous elements, such as ongoing content uploads, user-friendliness, and the facilitation of online learning settings for studies across all disciplines[180]. The teacher's responsibility in leveraging an online learning environment was underscored. This research enhances teacher pedagogical ability and fosters conditions for improved student satisfaction[180].

2.3.10 Gender and Students' Attitude towards Learning

A study examines the influence of gender and grade level on secondary school students' attitudes towards chemistry instruction[181]. The study involved 446 students aged 16–19 who were administered the Attitude towards Chemistry Lessons Scale (ATCLS). The ATCLS consists of four subcategories: preference for theoretical chemistry lessons, appreciation of laboratory work in chemistry, evaluative beliefs towards school chemistry, and behavioural inclinations in learning chemistry[181]. The results obtained from the ATCLS survey were analysed using a two-way MANOVA to determine the effects of gender and grade level on students' attitudes towards learning chemistry[181]. The findings demonstrate that both gender and grade level substantially influence attitudes towards learning chemistry. Additionally, a significant interaction effect exists between gender and grade level (Wilks' lambda = 0.933, $F(15, 1198) = 2.032$, $p < 0.05$) regarding secondary school students' opinions towards chemistry[181].

Additionally, the research investigated students' attitudes towards science, specifically analysing the influence of gender on these attitudes[182]. Seventy-seven randomly selected secondary school students from several institutions in Bandung, Indonesia, participated in

the study. The attitude questionnaire consisted of 23 items pertaining to four dimensions: enjoyment, self-confidence, value, and motivation[182]. The gathered questionnaire data were converted into an interval scale employing the Method of Successive Interval (MSI) and analysed with the Statistical Package for Social Sciences (SPSS). The application of MSI in the analysis of questionnaire data is a comparatively novel method[182]. The results indicated that students demonstrated a fairly positive disposition towards science, with no significant disparity in opinions between female and male students[182]. This study is significant for science educators, highlighting the necessity of eliminating gender bias in science teaching.

2.3.11 School Facilities and Students' Attitude towards Learning

A study explained that school facilities play a crucial role in supporting the teaching and learning process, providing essential resources for both teachers and students[183]. Well-equipped facilities can boost students' motivation to learn and enhance teachers' effectiveness in delivering lessons[183]. This study aims to examine the facilities at MTS Ali Imron and assess how inadequate resources, particularly in English classes, may impact student learning[183]. Conducted as a case study at MTS Ali Imron Medan, the research uses a qualitative approach, including school observations and interviews with English teachers at MTS Ali Imron Medan.

A related study suggests that student learning outcomes are affected by multiple factors, including student motivation and school infrastructure[184]. This paper delineates the data on the influence of these elements on learning outcomes in the Archival subject at Bina Wisata Lembang Vocational High School[184]. Data were acquired using a survey method through questionnaires delivered to 82 first-year students in the Office Administration Expertise Program. The findings indicated that student motivation and school amenities

exert a favourable and significant influence on learning outcomes, both alone and in conjunction. The article underscores the vital importance of these aspects in improving student learning outcomes[184].

A further study seeks to evaluate the influence of instructional quality and campus amenities on student motivation[185]. Teaching quality and campus facilities are seen as key factors that can affect students' motivation to learn. Data were collected via questionnaires completed by 93 students from diverse programs at Bina Mandiri University, Gorontalo[185]. Statistical analysis was utilised to ascertain the impact of these variables[185]. Research demonstrated a substantial favourable impact of teaching quality on student learning motivation, while campus facilities also had a noteworthy effect on student motivation[185].

Moreover, an additional study confirmed that competent educators are crucial for improving the educational experience in schools[186]. Educators who adeptly employ school facilities as educational resources can significantly enhance student achievement. The more extensive the school amenities, the higher the students' motivation in the learning process[186]. This study sought to assess the influence of facilities and motivation on student learning outcomes at SMA PGRI Gelumbang[186]. The study was quantitative, with data collected using questionnaires and analysed using SPSS for Windows. Research indicated that both educational institutions and motivation greatly influence student learning results, both collectively and individually. This article underscores the significance of prioritising facilities and motivation to get quality learning results[186].

Another study examines the influence of educational facilities and infrastructure on elementary school learning results[187]. Data from the Education Data Centre (Dapodik) for the 2017/2018 academic year indicates significant damage to educational infrastructure,

particularly classrooms, alongside elevated grade retention rates, which imply inferior student learning results[187]. This quantitative study employed logistic regression for data analysis. The dependent variable was student learning results, whereas the independent factors encompassed classroom conditions, teacher and student restrooms, library facilities, school-based management, and the double shift system[187]. The research population consisted of 599 primary schools in Sumedang as recorded in the 2017 District Dapodik. The findings indicated that classroom conditions, school-based management, and the double shift system significantly affected student learning outcomes, whereas library and lavatory facilities for instructors and students did not[187].

2.3.12 Teacher Competence and Students' Attitude towards Learning

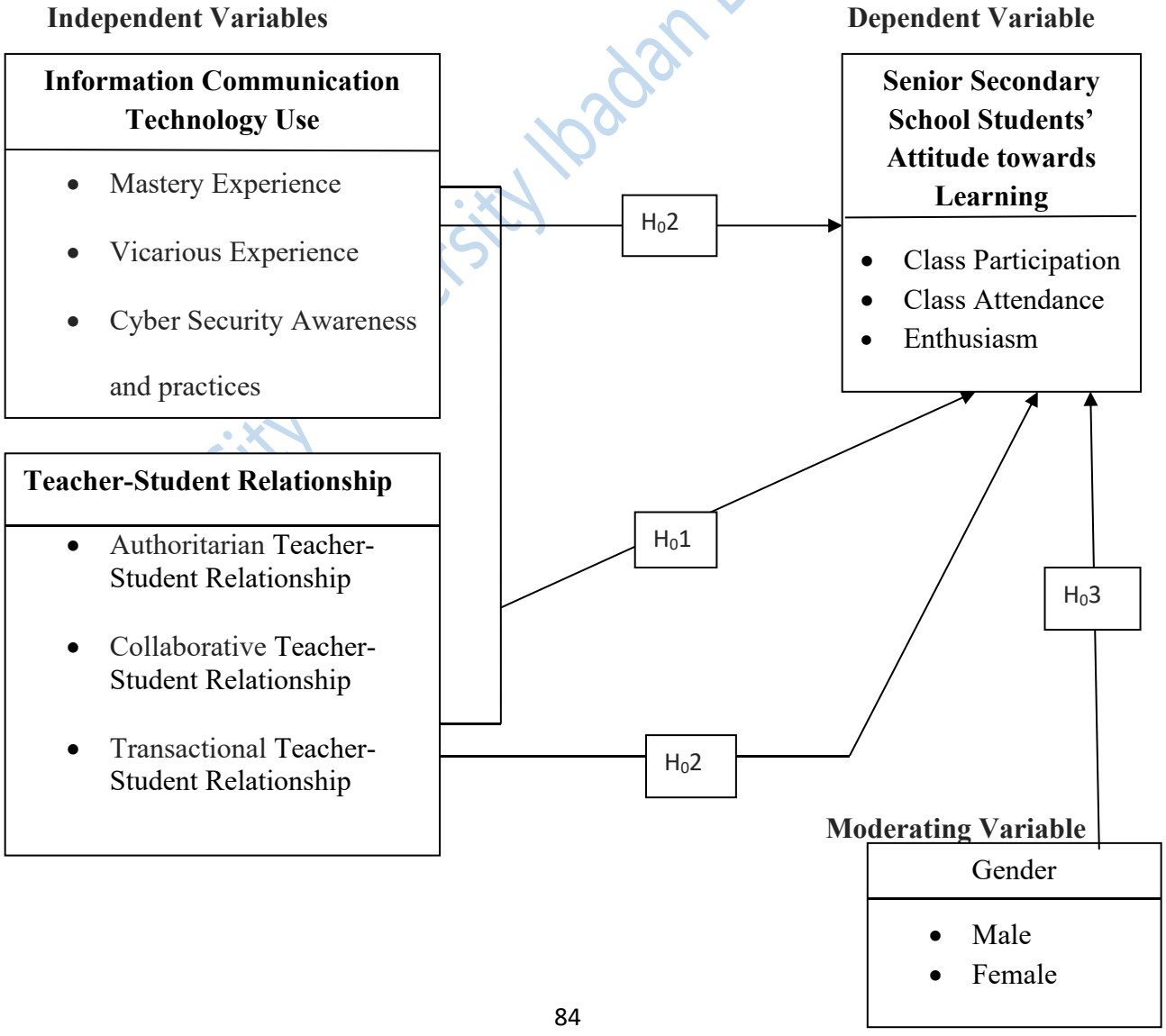
A study involving 167 students from class XII IPS at SMA Negeri 3 Kota Sukabumi analysed a sample of 25 students (15% of the population) to investigate the influence of teacher professional competency on student motivation in Islamic Religious Education and Morals[188]. Data were collected using a quantitative survey model employing a random sampling technique, utilising a Likert scale questionnaire consisting of 15 items for each variable X and Y[188]. Regression analysis revealed a coefficient of 0.489, signifying a significant correlation, further corroborated by tcount exceeding ttable (2.407 > 2.069) at a 0.05 significance level. The findings indicate that teacher professional competency positively and significantly influences student motivation at SMA Negeri 3 Kota Sukabumi[188].

Another pertinent study elucidated that instructor professional competency is essential for student learning achievement[189]. This study sought to investigate the impact of teacher professional competence and student learning styles on the academic performance of fourth-grade elementary pupils[189]. The study utilised a quantitative ex post facto

methodology, examining a population of 130 pupils from seven elementary schools in the Tembarak sub-district of Temanggung district, with a random sample of 98 participants. Regression tests were performed in SPSS for data analysis[189]. The data indicated that teacher professional competency substantially influences student accomplishment, as do the unique learning styles of pupils[189]. Moreover, instructor competence and student learning styles jointly affect student accomplishment. The study indicates that teacher professionalism alone may not improve student accomplishment without recognising and comprehending each student's learning style, underscoring the necessity for teachers to be cognisant of their students' distinct learning preferences[189].

Moreover, prior research have demonstrated uneven or negligible predictive impacts of teacher expertise on student achievement[190]. This study examined the correlations among instructors' content knowledge, pedagogical content knowledge, perceptions, interpretations, decision-making abilities, instructional quality, and students' progress in mathematics, utilising data from Germany[190]. Instead of anticipating direct impacts of teacher knowledge on students, the study suggested a sequence of effects incorporating several mediation processes, considering school style and student history[190]. Multi-level modelling using 3,496 students across 154 classes demonstrated that instructors' competencies and instructional quality moderate the correlation between teacher knowledge and student advancement. Effect sizes ranged from mild to strong, accounting for a substantial part of variance; nevertheless, no direct impact of teacher expertise on student achievement was detected[190]. The results are analysed in relation to the teacher-competence-as-a-continuum paradigm, highlighting implications for further research.

2.4 Conceptual Model



Source: The Researcher, 2024

Figure 2.1: Conceptual model showing the interconnectedness and interdependence of Information and Communication Technology Use and Teacher-Student Relationship on Senior Secondary School Students' Attitude towards Learning in Southwest, Nigeria

The model above demonstrates the interconnection and interdependence of Information and Communication Technology use and teacher-student relationship on senior secondary school students' attitude towards learning in Southwest, Nigeria. The model displayed a combined and relative influence of Information and Communication Technology use (mastery experience, vicarious experience and cybersecurity awareness and practices) and teacher-student relationship (authoritarian, collaborative and transactional) on senior secondary school students' attitude towards learning (class participation, class attendance and enthusiasm) in Southwest, Nigeria. Also, the model showed that gender can also determine the difference in senior secondary school students' attitude towards learning.

2.5 Summary of Gap in Literature Reviewed

The review of literature in this study investigates various factors influencing senior secondary school students' attitudes towards learning in Southwest Nigeria. The review is organised into three main sections: conceptual review, theoretical framework, and review of empirical research. In the conceptual review, the study explores the key concepts related to learning, including senior secondary school students' attitude towards learning, which is further broken down into class participation, class attendance, and enthusiasm. The use of Information and Communication Technology (ICT) in education is also examined, focusing on mastery experience, vicarious experience, and cybersecurity

awareness and practices. Additionally, the teacher-student relationship is explored, differentiating between authoritarian, collaborative, and transactional approaches.

The Theoretical Framework section introduces three theoretical models that guide the research: the Technology Acceptance Model (TAM), which helps understand students' acceptance of technology; the Vygotsky's sociocultural Theory, which explores how social interaction, cultural context and historical background influence learning; and the self-efficacy theory. The Review of Empirical Research delves into previous studies to establish connections between various factors and students' attitudes towards learning. The relationships between ICT use and students' attitude towards learning, teacher-student relationship and students' attitude towards learning, motivation, parental involvement, teacher efficacy, school climate, peer influence, emotional intelligence, school environment, gender, school facilities, and teacher competence are thoroughly examined.

Finally, the conceptual model is proposed based on the insights gained from the literature review. This model shows the interconnectedness and interdependence of Information and Communication Technology use and teacher-student relationship on senior secondary school students' attitude towards learning in Southwest, Nigeria. The model serves as a foundation for the subsequent empirical investigation of the research, providing a structured framework for analysis and interpretation of the collected data.

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Chapter Three

Methodology

This chapter delineates the methodologies and approaches employed in this study. This chapter presents the adopted research design, study population, sampling methodologies, data collection instruments, instrument validity and reliability, data collection methods, and data analysis methods.

3.1 Research Design

A survey-based descriptive research design was employed for the investigation. This study design involves gathering data from a representative sample of a community to yield results that can be generalised to the entire population. The study is deemed suitable as it focuses on data collection for descriptive and interpretative purposes without any manipulation of variables. Due to the extensive population, the study will utilise samples from chosen secondary schools in Southwest Nigeria, as it is not feasible to reach all students in these institutions. The sample will be chosen to ensure that the results may be generalised to the whole population.

3.2 Population of the Study

The research population comprises all students enrolled in public senior secondary schools in Southwest Nigeria. At the time of this study, there are 2,262 public secondary schools in the six states of Southwestern Nigeria. In Southwest Nigeria, there are two hundred eight thousand eight hundred four (208,804) students enrolled in public secondary schools. The characteristics of the study population are delineated in Table 3.1 below:

Table 3.1: Population of the Study

S/N	Southwest States	Senatorial Districts	No. of Public Sec. Schs	No. of Public Sec. sch. Students
1.	**Lagos**	Lagos Central	74	18,360
		Lagos East	88	17,890
		Lagos West	160	14,850
		Sub-Total	**322**	**51,100**
2.	**Ogun**	Ogun Central	100	17,213
		Ogun East	134	15,940
		Ogun West	108	10,053
		Sub-Total	**342**	**43,206**

3.	**Oyo**	Oyo Central	244	17,993
		Oyo North	171	10,520
		Oyo South	210	19,846
		Sub-Total	**625**	**48,359**
4.	**Osun**	Osun Central	112	14,716
		Osun East	159	11,000
		Osun West	123	9,856
		Sub-Total	**394**	**35,582**
5.	**Ekiti**	Ekiti Central	159	789
		Ekiti East	57	841
		Ekiti North	64	565
		Sub-Total	**280**	**2,195**
6.	**Ondo**	Ondo Central	103	14,716
		Ondo North	89	6,823
		Ondo South	107	6,833
		Sub-Total	**299**	**28,372**
		Grand Total	**2,262**	**208,804**

Source[1]

3.3 Sample and Sampling Techniques

A multi-stage sampling approach was adopted for this study, involving different techniques at each phase. In the first stage, Southwest Nigeria was grouped into three clusters based on geographical closeness and similar characteristics: the first cluster included Ogun and Lagos States, the second comprised Ondo and Ekiti States, while the third contained Oyo and Osun States. From each cluster, one state was randomly selected using a simple random sampling method, resulting in the selection of Ogun, Ondo, and Oyo States. Each of these states is divided into three senatorial districts.

At the second stage, schools within these senatorial districts were selected based on two criteria: they must have been established for at least forty years and must have at least 100 students in Senior Secondary School 2 (SS2). These criteria were based on the assumption that long-established schools are more likely to have solid educational

systems and a deep understanding of student needs. Moreover, schools with a larger student population were chosen to ensure the inclusion of a broad and diverse range of student experiences and well-developed academic structures.

In the third stage, proportionate stratified random sampling was used to determine the number of schools and students from each senatorial district, based on the size of their student population relative to the total SS2 population in the selected states. This method ensured that districts with larger student numbers had a greater representation in the sample. Within each chosen school, SS2 students were randomly selected, giving every student an equal chance of participation. The number of students to be sampled from each district was calculated using the formula:

$ni = (Ni / N) \times n,$

where:

- ni = sample size for stratum i,
- Ni = population of stratum i,
- N = total population across all strata, and
- n = total sample size.

Thus, the sample for each district was determined by: (Number of SS2 students in the district / Total number of SS2 students in the selected states) × 1,187, as shown in the table below.

Table 3.2: Sample Frame

S/N	States	Senatorial Districts	No. of Sampled School	No. of SS2 Students in the Sampled School	No. of Sampled Students
1.	Ogun	Ogun Central	54	5,737	170
		Ogun East	72	5,313	158
		Ogun West	58	3,351	99
		Sub-Total	**184**	**14,401**	**427**
2.	Ondo	Ondo Central	59	4,905	145

		Ondo North	51	2,274	67
		Ondo South	61	2,277	68
		Sub-Total	**171**	**9,456**	**280**
3.	Oyo	Oyo Central	95	5,997	178
		Oyo North	67	3,506	104
		Oyo South	82	6,615	196
		Sub-Total	**244**	**16,118**	**478**
		Ground Total	**599**	**39,975**	**1,185**

Source[1]

3.4 Description of the Research Instrument

A self-developed four likert scaled instrument titled "Senior Secondary School Students' Attitudes towards Learning Questionnaire (SSSSALQ)" was used to collect data for the study. The instrument contains five (5) sections namely; section A, B, C, D and E. Section A contain items on demographic characteristics of respondents such as gender, age range and class size. Section B contains 15 items carefully structured to identify the level of senior secondary school students' attitudes towards learning in Southwest Nigeria, such that items 1-5 measures class participation, 6-10 measures class attendance, and 11-15 measures enthusiasm. Similarly, Section C contains 15 items carefully structured to measure the level of Information and Communication Technology use in secondary schools in Southwest Nigeria, such that items 1-5 describes mastery experience, 6-10 the vicarious experience, and 11-15 the cybersecurity awareness and practices. Furthermore, Section D contains 15 items carefully structured to identify the most prominent teacher-student relationship in secondary schools in Southwest Nigeria, such that items 1-5 measures authoritarian teacher-student relationship, 6-10 measures collaborative teacher-student relationship, 11-15 measures transactional teacher-student relationship. Lastly, section E contains 10 items to examine the influence of Information and Communication Technology use and

teacher-student relationship on senior secondary school students' attitudes towards learning in Southwest Nigeria.

3.5 Validity of Research Instrument

The survey employed in this study received evaluations for both face and content validity. The supervisor meticulously assessed the research instrument, scrutinising its structure, sufficiency, and content. Furthermore, specialists in research item development from the Faculty of Education at Lead City University were contacted. All requisite corrections were implemented prior to the administration of the survey.

3.6 Reliability of Research Instrument

An instrument is considered dependable when it produces consistent results across diverse times, locations, or populations. A pilot study was done to establish the instrument's reliability by distributing questionnaires to thirty (30) students from five schools in Ibadan, who were intentionally excluded from the main study. The instrument's reliability was evaluated using the Cronbach alpha method, yielding $\alpha = 0.789$ to determine the internal consistency and stability of the responses to the instrument's items.

3.7 Administration of Research Instrument

The researcher obtained a letter of introduction from the Head of Department, which served as a means to seek the necessary permission from the selected respondents. Also, the researcher oversees the administration of research instruments to selected respondents, aided by nine (9) trained research assistants. Each of the sampled states was assigned three research assistants to facilitate the process. This methodology aimed

at minimising missing data and ensure that the respondents attend to the instruments themselves.

3.8 Method of Data Collection

The method of data collection for this study was primarily quantitative, employing the use of a structured questionnaire as the main instrument for gathering data. The questionnaire was designed to obtain information from senior secondary school students regarding their use of ICT, their relationships with teachers, and their attitudes toward learning.

3.9 Method of Data Analysis

The data acquired from the study underwent analysis using both descriptive and inferential statistical techniques. Descriptive statistics, comprising frequency counts, simple percentages, and means, were utilised to assess participants' replies to all research questions. Inferential statistics, specifically multiple regression, were employed to evaluate hypotheses 1 and 2, whereas a t-test was utilised for hypothesis 3, adhering to a significance level of 0.05.

3.10 Ethical Approval

Ethical approval for this study was obtained to ensure that the research was conducted in accordance with recognized ethical standards and to protect the rights and welfare of the participants involved. Prior to the commencement of data collection, a formal application was submitted to the Research Ethics Committee of the institution. Upon

review, the Ethics Committee granted approval, confirming that the study met the required ethical standards. An approval letter was issued, and this was presented to school authorities to gain access for fieldwork.

In addition to institutional approval, informed consent was obtained from all participants. For students under the age of 18, assent was sought from the students, and consent was obtained from their school principals or guardians where necessary. Participants were informed about the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses. No form of coercion or inducement was used. All collected data were handled with strict confidentiality and were used solely for academic research purposes.

Endnote

1. FME, *Federal Ministry of Education, Nigeria*, Population of Public Secondary Schools and Students in Southwest Nigeria, 2024 2024.

Chapter Four

Results and Discussion of Findings

4.1 Questionnaire Return Rate

One thousand, one hundred and eighty-seven (1,187) copies of the questionnaire were distributed to SS2 students in the field. Out of these, one thousand one hundred (1100) copies were successfully retrieved, accounting for 92.7% of the total. Among the retrieved questionnaires, one thousand and twenty-one (1021) copies were found useful for the analysis, accounting for 80.05% of the total.

4.2 Demographic Data Analysis

This section presents demographic information of respondents

Table 4.1: Demographic Data of Respondents

Gender	**Frequency**	**Percent**
Male	582	57.0
Female	439	43.0
Total	**1021**	**100**
Age Range	**Frequency**	**Percent**
Less than 15 Years	466	45.6
15-17 Years	504	49.4
Above 17 Years	51	5.0
Total	**1021**	**100**
Class Size	**Frequency**	**Percent**
Less than 30	232	22.7
31-50	452	44.3
51-70	198	19.4
Above 71	139	13.6
Total	**1021**	**100**

Source: Researcher's Field Survey, 2024

Table 4.1 presents the demographic characteristics of the 1,021 respondents who participated in the study. In terms of gender, the data shows that 582 respondents, representing 57% of the sample, were male, while 439 respondents, accounting for 43%, were female. This indicates a slight predominance of male participants in the study.

Regarding age distribution, the majority of respondents (504 or 49.4%) fell within the 15 to 17 years age range. This was closely followed by those under the age of 15, who constituted 45.6% (466 respondents). Only a small proportion of the participants, 51

individuals or 5%, were above 17 years. These figures suggest that the respondents were predominantly early to mid-adolescents, which aligns with the typical age range of secondary school students.

In terms of class size, the most commonly reported range was 31 to 50 students per class, accounting for 44.3% of the total responses. Additionally, 22.7% of the students reported being in classes with fewer than 30 students. However, a considerable number of respondents were in larger classes, with 19.4% in classes of 51 to 70 students and 13.6% in classes with more than 71 students. This distribution indicates that while some students benefit from relatively small class sizes, a significant portion are exposed to moderately to very large classes, which may have implications for the quality of teaching and learning experiences.

4.3 Presentation of Answers to Research Questions

This sub-section contains tables showing analysis of responses to answer formulated research questions.

Research Question One: What is the identified level of public senior secondary school students' attitudes towards learning (class participation, class attendance, enthusiasm) in Southwest Nigeria?

Table 4.2.1: Public Senior Secondary School Students' Attitudes towards Learning (Class Participation) in Southwest Nigeria

S/N	Item: I;	AL	S	R	N	Mean	SD
1	actively contribute to class discussions	155(15.2%)	151(14.8%)	473(46.3%)	242(23.7%)	2.21	0.973

	by sharing my thoughts and ideas.						
2	frequently ask questions during class to seek clarification or additional information.	151(14.8%)	188(18.4%)	305(29.9%)	377(36.9%)	2.11	1.065
3	participate in group activities and collaborative projects during class.	187(18.3%)	130(12.7%)	358(4.4%)	346(33.9%)	2.15	1.084
4	engage in class activities, such as volunteering for demonstrations or presentations.	171(16.7%)	207(20.3%)	497(48.7%)	146(14.3%)	2.39	0.928
5	willingly share relevant experiences or examples related to the topic being discussed in class.	186(18.2%)	169(16.6%)	233(22.8%)	433(42.4%)	2.11	1.144
Weighted Mean = 2.19 Low							

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.2.1 assesses the attitudes of public senior secondary school students in Southwest Nigeria toward learning, specifically focusing on their class participation. In terms of contributing to class discussions, the mean score is 2.21, suggesting that students rarely share their thoughts and ideas. While a small portion of students sometimes participate, the majority either rarely or never contributes to discussions. Similarly, when it comes to asking questions for clarification or additional information, the mean score is 2.11,

indicating that students generally hesitate to ask questions, with most rarely or never doing so.

The students' participation in group activities and collaborative projects also scores low, with a mean of 2.15. This implies that although some students engage in group work, most students rarely participate. When looking at their willingness to engage in class activities like volunteering for demonstrations or presentations, the mean score is slightly higher at 2.39. Still, the majority of students rarely or only sometimes get involved in these activities. Finally, the willingness to share personal experiences or examples relevant to the topics discussed in class has a mean score of 2.11. This indicates that students are generally reluctant to bring their own experiences into class discussions, with most rarely doing so.

Overall, the weighted mean score of 2.19 suggests a low level of participation across all activities. This points to a significant lack of student engagement in class, with students rarely taking an active role in learning. This could signal challenges in the classroom environment, teaching approaches, or student motivation, which may require further exploration to address the underlying causes of this disengagement.

Table 4.2.2: Public Senior Secondary School Students' Attitudes towards Learning (Class Attendance) in Southwest Nigeria

S/N	Item: I;	AL	S	R	N	Mean	SD
6	attend class regularly	288(28.2%)	129(12.6%)	206(20.2%)	398(39.0%)	2.30	1.247
7	make a conscious effort to arrive on time for each class.	182(17.8%)	238(23.3%)	94(9.2%)	507(49.7%)	2.09	1.198
8	rarely find myself absent from class without a valid reason.	405(39.7%)	252(24.7%)	179(17.5%)	185(18.1%)	2.86	1.131
9	find it challenging to focus on the subject when I miss classes.	121(11.9%)	284(27.8%)	217(21.3%)	399(39.1%)	2.12	1.062
10	attend make-up sessions or extra classes provided by the instructor when available	346(33.9%)	302(29.6%)	210(20.6%)	163(16.0%)	2.81	1.072
Weighted Mean = 2.44 Low							

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.2.2 assesses the attitudes of public senior secondary school students in Southwest Nigeria towards class attendance. Starting with class attendance, the mean score is 2.30, indicating that students generally do not attend classes regularly. A significant portion of students either rarely or never attend class, suggesting a low commitment to regular attendance. When it comes to arriving on time for each class, the mean score is even lower at 2.09, implying that many students frequently arrive late. Nearly half of the students report never making a conscious effort to be punctual, reflecting poor time management or low motivation to attend classes promptly.

The item measuring whether students rarely find themselves absent without a valid reason has a higher mean score of 2.86. This suggests that while some students may miss classes, they often do so for legitimate reasons, showing some level of responsibility regarding attendance. The ability to focus on the subject after missing classes yields a mean score of 2.12, indicating that students struggle with staying focused when they miss lessons. Many students report challenges in catching up after absences, which could contribute to a cycle of disengagement. Interestingly, attendance at make-up sessions or extra classes scores relatively higher with a mean of 2.81. This suggests that while regular class attendance may be low, students show a stronger commitment to attending additional sessions, possibly reflecting their recognition of the importance of catching up on missed material.

Overall, the weighted mean score of 2.44 indicates a low level of commitment to class attendance among students in public senior secondary schools. Although some students attend make-up sessions and are absent for valid reasons, the overall pattern reflects poor attendance habits and punctuality. This low level of attendance could affect students' academic performance and engagement, suggesting a need for strategies to improve attendance and time management.

Table 4.2.3: Public Senior Secondary School Students' Attitudes Towards Learning (Enthusiasm) in Southwest Nigeria

S/N	Item: I;	AL	S	R	N	Mean	SD
11	approach each day of	353(34.6%)	245(24.0%)	216(21.2%)	207(20.3%)	2.73	1.138

	school with a positive and eager attitude.						
12	find joy in learning new things and exploring different subjects.	331(32.4%)	290(28.4%)	223(21.8%)	177(17.3%)	2.76	1.086
13	am motivated to excel in my studies because of my passion for learning.	378(37.0%)	205(20.1%)	231(22.6%)	207(20.3%)	2.74	1.158
14	willingly take on additional academic challenges because I enjoy the learning process.	243(23.8%)	280(27.4%)	215(21.1%)	283(27.7%)	2.47	1.132
15	am excited about the subjects and topics covered in my classes.	190(18.6%)	267(26.2%)	89(8.7%)	475(46.5%)	2.17	1.202
Weighted Mean = 2.57 Moderate							

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.2.3 illustrates the attitudes of public senior secondary school students in Southwest Nigeria towards learning, specifically in terms of their enthusiasm for school and learning. The first item, approaching each school day with a positive and eager attitude, has a mean score of 2.73, indicating a moderate level of enthusiasm. This

suggests that while a significant portion of students may have a positive attitude toward school, there are still many who do not consistently approach their day with eagerness. The second item, finding joy in learning new things and exploring different subjects, also has a mean score of 2.76, placing it in the moderate range. This suggests that a fair number of students enjoy learning and are curious about different subjects, though some students do not share this enthusiasm.

When it comes to being motivated to excel in studies due to a passion for learning, the mean score is 2.74, again reflecting a moderate level of motivation. Many students are driven by their love for learning, but a sizable portion lacks this internal motivation. In contrast, the item on willingly taking on additional academic challenges due to enjoyment of the learning process has a lower mean score of 2.47, placing it in the low range. This suggests that while some students are open to additional academic challenges, many are not willing to take on extra work purely for the sake of learning, indicating a lower level of enthusiasm for academic challenges. Finally, students' excitement about the subjects and topics covered in their classes has the lowest mean score of 2.17, categorised as low. A significant portion of students report rarely or never being excited about their class topics, which could reflect disengagement or lack of interest in the curriculum.

Overall, the weighted mean score of 2.57 suggests a moderate level of enthusiasm toward learning among public senior secondary school students in Southwest Nigeria. While many students show some level of excitement, curiosity, and motivation for learning, there are notable portions of the student population who lack this enthusiasm, especially when it comes to academic challenges and class content.

Table 4.2.4: Level of Public Senior Secondary School Students' Attitudes towards Learning (Class Participation, Class Attendance, and Enthusiasm) in Southwest Nigeria

Items	AL	S	R	N	Weighted Mean
Class Participation	170(16.7%)	169(16.6%)	373(36.5%)	309(30.2%)	2.19
Class Attendance	268(26.3%)	241(23.6%)	181(17.7%)	331(32.4%)	2.44
Enthusiasm	299(29.3%)	257(25.2%)	195(19.1%)	270(26.4%)	2.57
Overall Weighted Mean= 2.4 Low					

Source: Researcher's Field Survey, 2024
KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1)
Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.2.4 provides a comprehensive overview of public senior secondary school students' attitudes towards learning in Southwest Nigeria, focusing on three key aspects: class participation, class attendance, and enthusiasm. The students' level of class participation is found to be low, with a weighted mean score of 2.19. A significant portion of students rarely or never actively engage in class discussions, group activities, or other forms of participation. The data on class attendance also shows a low level of engagement, with a weighted mean score of 2.44. This suggests that while some students do make an effort to be present in class, a substantial number do not, which can hinder their ability to keep up with lessons and assignments. In contrast to the other two categories, students' enthusiasm for learning shows a moderate level of engagement, with a weighted mean score of 2.57. While there is some level of passion for learning among students, there is still a notable group that lacks enthusiasm, which could affect their overall academic experience.

The overall weighted mean score across the three categories is 2.4, placing the students' attitudes towards learning in the low category. This suggests that, on average, students

exhibit low levels of class participation, attendance, and enthusiasm. The general disengagement observed across these areas could point to underlying challenges such as a lack of motivation, interest in the curriculum, or external factors influencing students' attitudes toward their education.

Research Question Two: What is the level of Information and Communication Technology use (mastery experience, vicarious experience and cybersecurity awareness and practices) in public senior secondary schools in Southwest Nigeria?

Table 4.3.1: Information and Communication Technology Use (Mastery Experience) in Public Senior Secondary Schools in Southwest Nigeria

S/N	Item: I;	AL	S	R	N	Mean	SD
1	feel confident in my ability to	39(3.8%)	93(9.1%)	227(22.2%)	662(64.8%)	1.52	0.813

	navigate and use various digital devices.						
2	can effectively use ICT tools to complete assignments and projects.	200(19.6%)	169(16.6%)	252(24.7%)	400(39.2%)	2.17	1.147
3	can independently research and apply ICT solutions to solve problems or challenges.	85(8.3%)	170(16.7%)	279(27.3%)	487(47.7%)	1.86	0.978
4	believe my proficiency in using ICT positively influences my academic performance.	190(18.6%)	244(23.9%)	295(28.9%)	292(28.6%)	2.33	1.079
5	seek out opportunities to expand my knowledge and skills in ICT beyond what is taught in class.	96(9.4%)	197(19.3%)	284(27.8%)	444(43.5%)	1.95	1.001
Weighted Mean = 1.96 Low							

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.3.1 reveals the level of mastery experience with Information and Communication Technology (ICT) among public senior secondary school students in Southwest Nigeria. The mean score for students' confidence in navigating and using digital devices is 1.52, indicating a generally low level of confidence. Most students are not comfortable with basic digital tools, suggesting a significant gap in their digital

literacy. When it comes to using ICT for completing assignments and projects, the mean score is 2.17, reflecting low proficiency. Many students struggle to effectively use ICT tools in their academic work, limiting their ability to leverage technology for learning.

Students' ability to independently research and solve problems using ICT has a mean score of 1.86, also falling into the low range. This suggests that most students lack the skills to apply ICT solutions to academic or real-world challenges on their own. The belief that proficiency in ICT positively impacts academic performance has a mean score of 2.33. While some students feel that their ICT skills help their academic achievements, the overall score is still low, indicating that many students do not see a clear benefit of ICT in their studies. Finally, the mean score for students actively seeking opportunities to improve their ICT skills is 1.95, showing that most students rarely take the initiative to expand their knowledge or abilities beyond what is taught in class.

The overall weighted mean score is 1.96, indicating a low level of ICT mastery among students. This suggests that students lack the necessary skills and confidence to effectively use ICT for their academic activities, pointing to the need for greater emphasis on ICT education and support to enhance their digital proficiency.

Table 4.3.2: Information and Communication Technology Use (Vicarious Experience) in Public Senior Secondary Schools in Southwest Nigeria

S/N	Item: I;	AL	S	R	N	Mean	SD
6	learn from observing how my peers effectively use ICT tools for	203(19.9%)	261(25.6%)	269(26.3%)	288(28.2%)	2.37	1.094

	academic tasks.						
7	am influenced by the successful experiences of others in integrating ICT into their learning.	160(15.7%)	255(25.0%)	233(22.8%)	373(36.5%)	2.20	1.097
8	am motivated to enhance my ICT proficiency when I see my friends achieving academic success through technology use.	53(5.2%)	196(19.2%)	304(29.8%)	468(45.8%)	1.84	0.912
9	value the shared experiences of classmates who have successfully utilised ICT for creative and innovative class work and projects.	267(26.2%)	303(29.7%)	316(31.0%)	135(13.2%)	2.69	1.002
10	am more likely to try new ICT tools if I witness positive outcomes among my peers.	172(16.8%)	225(22.0%)	219(21.4%)	405(39.7%)	2.16	1.125
	Weighted Mean = 2.25 Low						

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.3.2 reveals the level of vicarious experience with Information and Communication Technology (ICT) among public senior secondary school students in Southwest Nigeria. The mean score for learning from observing peers using ICT tools for academic tasks is 2.37, which falls into the low range. This indicates that while some students may benefit from watching their peers use ICT effectively, the majority are not significantly influenced by this observation. With a mean score of 2.20, the influence of

others' successful experiences in integrating ICT into learning is also low. Most students do not seem to be strongly motivated by the success of their peers in using technology for academic improvement.

The mean score of 1.84 suggests that students are generally not motivated to enhance their own ICT skills based on their friends' success in using technology. A large portion of students are rarely or never driven to improve their ICT proficiency when they see others excelling. The highest mean score in the table, 2.69, reflects a moderate level of appreciation for the shared experiences of classmates who have successfully used ICT for creative and innovative work. Some students value these experiences and learn from them, but the overall influence remains moderate. The mean score of 2.16 indicates that students are generally not likely to try new ICT tools even after witnessing positive outcomes among their peers. This suggests that peer success does not significantly encourage students to explore new technologies.

The overall weighted mean score of 2.25 places students' vicarious experiences with ICT use in the low category. This means that students in public senior secondary schools in Southwest Nigeria are not strongly influenced by their peers' successful ICT use when it comes to their own engagement with technology. While there is some recognition of the value of shared experiences, particularly in creative projects, the overall impact of peer learning and observation on ICT mastery is minimal. This suggests a need for more structured opportunities for students to learn from one another and to be actively encouraged to apply ICT in their academic work.

Table 4.3.3: Information and Communication Technology Use (Cybersecurity Awareness and Practices) in Public Senior Secondary Schools in Southwest Nigeria

S/N	Item: I;	AL	S	R	N	Mean	SD
11	am aware of	92(9.0%)	340(33.3%)	315(30.9%)	274(26.8%)	2.24	0.950

	potential online threats and risks to my personal information.						
12	report any suspicious online activities or security concerns to the appropriate authorities or teachers.	157(15.4%)	328(32.1%)	427(41.8%)	109(10.7%)	2.52	0.878
13	actively use antivirus software or other security tools on my devices.	253(24.8%)	213(20.9%)	332(32.5%)	223(21.8%)	2.49	1.088
14	am cautious about clicking on links or downloading files from unknown sources	152(14.9%)	284(27.8%)	364(35.7%)	221(21.6%)	2.36	0.981
15	understand the importance of keeping my devices and software up to date for security reasons.	86(8.4%)	343(33.6%)	287(28.1%)	305(29.9%)	2.21	0.964
Weighted Mean = 2.36 Low							

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.3.3 examines the level of cybersecurity awareness and practices among public senior secondary school students in Southwest Nigeria. The mean score for students' awareness of potential online threats and risks to personal information is 2.24, indicating a low level of awareness. While some students are aware of the risks, the majority either

rarely or never consider these threats. With a mean score of 2.52, reporting suspicious online activities or security concerns to the appropriate authorities or teachers shows a moderate level of engagement. This suggests that some students do take action when faced with potential security issues, but there is still room for improvement in encouraging more proactive reporting.

The mean score of 2.49 reflects a low engagement with using antivirus software or other security tools. Many students either rarely or never use such tools, putting their devices and data at risk. The mean score of 2.36 shows that students are somewhat cautious about clicking on links or downloading files from unknown sources, though the overall level of caution remains low. A significant portion of students are still not adequately cautious in this area. The mean score for understanding the importance of keeping devices and software up to date for security reasons is 2.21, reflecting a low level of understanding. Many students do not recognise the critical role that regular updates play in maintaining device security.

The overall weighted mean score is 2.36, which falls into the low category. This suggests that students have limited awareness of cybersecurity practices and do not actively engage in protective measures to safeguard their online activities and devices. There is a clear need for more education and training to enhance students' cybersecurity awareness and promote safer online behaviours.

Table 4.3.4: Level of Information and Communication Technology Use (Mastery Experience, Vicarious Experience and Cybersecurity Awareness and Practices) in Public Senior Secondary Schools in Southwest Nigeria

Items	AL	S	R	N	Weighted Mean
Mastery	122(11.9%)	175(17.1%)	267(26.2%)	457(44.8%)	1.96

Experience					
Vicarious Experience	171(16.7%)	248(24.3%)	268(26.2%)	334(32.7%)	2.25
Cybersecurity Awareness and Practices	148(14.5%)	302(29.6%)	345(33.8%)	226(22.1%)	2.36
Overall Weighted Mean= 2.19 Low					

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1)

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.3.4 presents the overall level of Information and Communication Technology (ICT) use among public senior secondary school students in Southwest Nigeria, focusing on three dimensions: mastery experience, vicarious experience, and cybersecurity awareness and practices. The weighted mean score for mastery experience is 1.96, indicating a low level of competence among students in using ICT tools. This suggests that most students struggle with confidence and proficiency in applying ICT skills to their academic work and daily tasks. The vicarious experience weighted mean is 2.25, also categorised as low. This means that students are not significantly influenced by observing or learning from their peers' success in using ICT, indicating limited peer-to-peer learning in technology use. For cybersecurity awareness and practices, the weighted mean is 2.36, which remains in the low category. While students have some understanding of cybersecurity threats and engage in limited protective practices, their overall awareness and implementation of online safety measures are insufficient.

The overall weighted mean score across all areas is 2.19, placing the general level of ICT use among students in the low category. This highlights the need for substantial improvement in ICT education and support, particularly in enhancing students' confidence, skills, peer learning, and cybersecurity awareness.

Research Question Three: What is the most prominent teacher-student relationship (authoritarian, collaborative, and transactional) in public senior secondary schools in Southwest Nigeria?

Table 4.4.1: Teacher-Student Relationship (Authoritarian) in Public Senior Secondary Schools in Southwest Nigeria

S/N	Item: My teacher;	AL	S	R	N	Mean	SD
1	often dictates the rules and expectations without considering student input.	130(12.7%)	313(30.7%)	306(30.0%)	272(26.6%)	2.29	0.998
2	expects strict adherence to established classroom rules.	224(21.9%)	266(26.1%)	246(24.1%)	285(27.9%)	2.42	1.114
3	enforces discipline consistently, and there is little room for negotiation.	169(16.6%)	282(27.6%)	253(24.8%)	317(31.0%)	2.30	1.078
4	authority is clearly defined, and students are expected to follow instructions without question.	101(9.9%)	247(24.2%)	332(32.5%)	341(33.4%)	2.11	0.980
5	emphasises obedience and compliance as important aspects of the student-teacher relationship.	83(8.1%)	68(6.7%)	233(22.8%)	637(62.4%)	1.61	0.928
	Weighted Mean = 2.15 Low						

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.4.1 explores the authoritarian teacher-student relationship in public senior secondary schools in Southwest Nigeria. The mean score for the perception that teachers dictate rules without considering student input is 2.29, indicating a low level. This

suggests that while some students experience a teacher-centred approach, it is not overwhelmingly dominant. With a mean score of 2.42, students perceive that teachers expect strict adherence to classroom rules, though this remains in the low range. This indicates that a portion of the student population feels the rigidity of rules but not to an extreme level.

The mean score of 2.30 suggests that discipline is enforced consistently, but there is some flexibility as this score is also categorised as low. There is some enforcement, but the rigidity varies among teachers. Students report that teachers' authority is clearly defined, with expectations for compliance without question, as reflected by the 2.11 mean score. However, this falls into the low category, showing that while such a relationship exists, it is not the norm for most students. The lowest mean score is 1.61, showing a very low perception that teachers emphasise obedience and compliance as key aspects of the relationship. This indicates that the majority of students do not feel an overwhelming pressure for strict compliance in their interactions with teachers.

The overall weighted mean score of 2.15 categorises the authoritarian teacher-student relationship as low. While some elements of authoritarianism, such as rule enforcement and defined authority, are present, they are not overly dominant in the teacher-student dynamics in these schools. This suggests a balanced, though somewhat authoritative, classroom environment where students are not strictly bound to rigid rules or total obedience.

Table 4.4.2: Teacher-Student Relationship (Collaborative) in Public Senior Secondary Schools in Southwest Nigeria

S/N	Item: My teacher;	AL	S	R	N	Mean	SD

6	encourages open communication and values student opinions in class discussions.	96(9.4%)	81(7.9%)	168(16.5%)	676(66.2%)	1.61	0.981
7	actively seeks and considers student input when making decisions about classroom activities.	61(6.0%)	156(15.3%)	251(24.6%)	553(54.2%)	1.73	0.928
8	encourages students to work together on projects and assignments.	34(3.3%)	197(19.3%)	193(18.9%)	597(58.5%)	1.67	0.898
9	provides opportunities for students to contribute to shaping the learning environment and class activities.	90(8.8%)	252(24.7%)	114(11.2%)	565(55.3%)	1.87	1.066
10	is approachable and willing to engage in conversations beyond the academic curriculum.	19(1.9%)	195(19.1%)	230(22.5%)	577(56.5%)	1.66	0.847
Weighted Mean = 1.71 Low							

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.4.2 examines the collaborative teacher-student relationship in public senior secondary schools in Southwest Nigeria. The mean score for teachers encouraging open communication and valuing student opinions is 1.61, indicating a low level of

collaboration. This suggests that while some students experience open dialogue, the majority feel their opinions are not consistently valued. With a mean score of 1.73, students report a low level of teacher engagement in seeking their input for classroom activities. This reflects limited collaboration in decision-making processes.

The mean score for encouraging students to work together on projects is 1.67, categorised as low. This suggests that teachers rarely promote teamwork or collaborative learning in the classroom. The mean score of 1.87 shows a low level of opportunities for students to influence the learning environment or classroom activities. This indicates limited involvement of students in shaping their learning experiences. The lowest mean score is 1.66, indicating that teachers are not very approachable or willing to engage with students beyond academic matters. Students perceive a significant gap in building rapport and interacting with teachers outside of academic topics.

The overall weighted mean score of 1.71 reflects a low level of collaborative teacher-student relationships in these schools. Teachers rarely engage students in open communication, decision-making, or collaborative activities. This suggests that the educational environment is more teacher-centred, with limited opportunities for students to participate actively in shaping their classroom experience.

Table 4.4.3: Teacher-Student Relationship (Transactional) in Public Senior Secondary Schools in Southwest Nigeria

S/N	Item: My teacher;	AL	S	R	N	Mean	SD

11	establishes clear expectations for academic performance and rewards students for meeting them.	62(6.1%)	119(11.7%)	376(36.8%)	464(45.4%)	1.78	0.876
12	ensures a fair and consistent system of rewards and consequences for behaviour in the classroom.	90(8.8%)	268(26.2%)	362(35.5%)	301(29.5%)	2.14	0.943
13	provides opportunities for students to negotiate aspects of their learning experience.	66(6.5%)	179(17.5%)	390(38.2%)	386(37.8%)	1.93	0.899
14	provides feedback and guidance to help students understand how to improve their performance.	34(3.3%)	125(12.2%)	397(38.9%)	465(45.5%)	1.73	0.800
15	offers support and resources to help students achieve their academic goals	66(6.5%)	197(19.3%)	360(35.3%)	398(39.0%)	1.93	0.915
	Weighted Mean = 1.90 Low						

Source: Researcher's Field Survey, 2024

KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1), and SD = Standard Deviation

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.4.3 evaluates transactional teacher-student relationships in public senior secondary schools in Southwest Nigeria. The mean score of 1.78 indicates a low level of transactional engagement where teachers clearly outline academic expectations and reward students for meeting them. Most students feel that such practices occur infrequently. With a mean score of 2.14, teachers' efforts to ensure a fair system of rewards and consequences in the classroom are rated as low. This suggests that while there is some presence of a structured system, it is not consistently applied.

The mean score of 1.93 reflects a low level of opportunities for students to negotiate aspects of their learning experience. This implies limited student involvement in shaping their learning paths or academic expectations. The mean score of 1.73 shows that feedback and guidance aimed at helping students improve their performance are provided at a low level. Students feel they rarely receive constructive feedback from their teachers. With a mean score of 1.93, the provision of support and resources to help students achieve their academic goals is also rated as low, indicating that students feel they do not receive sufficient academic assistance.

The overall weighted mean score of 1.90 indicates a low level of transactional teacher-student relationships in these schools. Teachers rarely establish clear academic expectations, offer feedback, or provide support in a way that motivates students. This suggests that the educational environment lacks strong teacher-student interactions based on structured feedback, rewards, or assistance aimed at improving student outcomes.

Table 4.4.4: Most Prominent Teacher-Student Relationship (Authoritarian, Collaborative, and Transactional) in Public Senior Secondary Schools in Southwest Nigeria

Items	AL	S	R	N	Rank
Authoritarian	141(13.8%)	235(23.0%)	274(26.8%)	371(36.3%)	1st
Collaborative	60(5.9%)	176(17.2%)	191(18.7%)	594(58.2%)	3rd
Transactional	64(6.3%)	178(17.4%)	377(36.9%)	402(39.4%)	2nd

Source: Researcher's Field Survey, 2024
KEY: AL= Always (4), S= Sometimes (3), R= Rarely (2), N= Never (1)
Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4.4.4 presents a comparative analysis of the most prominent teacher-student relationship styles in public senior secondary schools in Southwest Nigeria, highlighting authoritarian, collaborative, and transactional approaches. Authoritarian relationship ranks first with 13.8% of students reporting that their teachers "always" exhibit authoritarian behaviors. The authoritarian style is characterized by strict rules and expectations, with little student input. A significant portion of students (36.3%) reported that this relationship type "never" occurs, but its prominence is still the highest among the three.

Transactional relationship ranks second, with 6.3% of students indicating that their teachers "always" engage in this style, where expectations are clear, and rewards or consequences are provided. While it is less dominant than the authoritarian style, it is more frequent than the collaborative relationship, suggesting that some structure for student performance exists but is not highly prevalent. Collaborative relationship ranks third with only 5.9% of students experiencing it "always." This relationship is characterised by open communication and valuing student input, but the majority of students (58.2%) reported that such practices "never" happen, making it the least observed style in the schools.

4.3 Test of Hypotheses

$H_0$1: There will be no significant combined influence of Information and Communication Technology use and teacher-student relationships on senior secondary school students' attitudes towards learning in public senior secondary schools in Southwest Nigeria.

Table 4.5: Summary of Regression Analysis showing Combined Influence of Information and Communication Technology Use and Teacher-Student Relationships on Senior Secondary School Students' Attitudes towards Learning in Public Senior Secondary Schools in Southwest Nigeria

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.906[a]	.821	.820	4.582

a. Predictors: (Constant), Teacher-Student Relationship, ICT Use

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	98393.903	2	49196.952	2343.047	.000[b]
	Residual	21374.530	1018	20.997		
	Total	119768.433	1020			

a. Dependent Variable: Attitude Towards Learning

b. Predictors: (Constant), Teacher-Student Relationship, ICT Use

Source: Researcher's Field Survey, 2024

The regression analysis in Table 4.5 demonstrates the combined influence of Information and Communication Technology (ICT) use and teacher-student relationships on senior secondary school students' attitudes towards learning in public senior secondary schools in Southwest Nigeria. The model summary reveals the strength of the relationship between the predictors (ICT use and teacher-student relationships) and the outcome variable (attitudes towards learning). The R-value of 0.906 indicates a strong positive correlation between ICT use, teacher-student relationships, and students' attitudes toward learning. The R Square value of 0.822 means that approximately 82.2% of the variance in students' attitudes towards learning can be explained by the combined

effects of ICT use and teacher-student relationships. The adjusted R Square value of 0.821 confirms the model's robustness, taking into account the number of predictors. The standard error of the estimate of 4.582 shows the average deviation of the observed attitudes towards learning from the predicted values, indicating a reasonable fit.

The ANOVA table tests the statistical significance of the overall regression model. The sum of squares for the regression is 98,393.903, while the residual sum of squares is 21,374.530. The mean square for the regression is 49,196.952, and for the residual, it is 20.997. The F-statistic of 2,343.047 with a p-value of 0.000 indicates that the combined influence of ICT use and teacher-student relationships is statistically significant in predicting students' attitudes towards learning. This low p-value (< 0.05) confirms that the relationship is not due to chance.

In all, the regression analysis shows a strong and statistically significant relationship between ICT use, teacher-student relationships, and students' attitudes towards learning, suggesting that these factors play a significant role in shaping learning attitudes in public senior secondary schools in Southwest Nigeria.

$H_0$2: There will be no significant relative influence of Information and Communication Technology use and teacher-student relationships on public senior secondary school students' attitudes towards learning in secondary schools in Southwest Nigeria.

Table 4.6: Summary of Regression Analysis showing Relative Influence of Information and Communication Technology Use, Teacher-Student Relationship on Public Senior Secondary School Students' Attitudes towards Learning in secondary schools in Southwest Nigeria

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.023	.554		1.846	.065
	ICT Use	.848	.022	.762	39.367	.000
	Teacher-Student Relationship	.248	.026	.185	9.580	.000

a. Dependent Variable: Attitude towards Learning

Source: Researcher's Field Survey, 2024

Table 4.6 provides a detailed summary of the regression analysis conducted to evaluate the relative influence of Information and Communication Technology (ICT) use and teacher-student relationships on senior secondary school students' attitudes towards learning in Southwest Nigeria. The regression model includes a constant term with a coefficient of 1.023 and a standard error of 0.554. The t-value for this constant is 1.846, with a p-value of 0.065, indicating that the constant term does not significantly contribute to the model at the conventional 0.05 significance level. Regarding ICT use, the analysis shows a coefficient of 0.848 with a standard error of 0.022. The standardized coefficient (Beta) is 0.762, which highlights a strong and positive relationship between ICT use and students' attitudes towards learning. The t-value for ICT use is 39.367, and its p-value is 0.000, demonstrating that ICT use significantly enhances students' attitudes towards learning and is a highly influential factor. In contrast, the coefficient for teacher-student relationships is 0.248, with a standard error of 0.026. The standardized coefficient (Beta) of 0.185 reflects a moderate positive impact on students' attitudes. The t-value is 9.580, and the p-value is 0.000, confirming that teacher-student relationships also have a significant effect on students' attitudes, though not as strong as the impact of ICT use. The findings reveal that both ICT use and

teacher-student relationships play crucial roles in shaping students' attitudes towards learning. However, ICT use has a notably stronger and more significant effect compared to teacher-student relationships, highlighting its critical role in enhancing educational outcomes.

$H_0$3: There will be no significant gender difference in public senior secondary school students' attitude towards learning in Southwest Nigeria.

Table 4.7: Summary of T-test showing the Gender Difference in Public Senior Secondary School Students' Attitude towards Learning in Southwest Nigeria

Group Statistics

	Gender of Respondents	N	Mean	Std. Deviation	Std. Error Mean
Attitude Towards Learning	Male	582	40.70	8.582	.356
	Female	439	29.86	10.425	.498

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Attitude towards Learning	Equal variances assumed	103.977	.000	18.197	1019	.000	10.834	.595	9.666	12.003
	Equal variances not assumed			17.713	835.642	.000	10.834	.612	9.634	12.035

Source: Researcher's Field Survey, 2024

Table 4.7 presents the results of a t-test examining gender differences in public senior secondary school students' attitudes towards learning in Southwest Nigeria. The data indicates a notable disparity between male and female students. Specifically, male students, with a sample size of 582, have a mean attitude score of 40.70 and a standard

deviation of 8.582. In contrast, female students, comprising a sample of 439, exhibit a lower mean score of 29.86 with a standard deviation of 10.425.

The independent samples t-test results further elucidate this difference. Levene's Test for Equality of Variances reveals a significant difference in variances between the two groups, with an F-value of 103.977 and a p-value of 0.000. When assuming equal variances, the t-test yields a t-value of 18.197 with 1019 degrees of freedom and a p-value of 0.000, confirming a highly significant difference. The mean difference between male and female students is 10.834, with a standard error of 0.595, and the 95% confidence interval for this difference ranges from 9.666 to 12.003.

When variances are not assumed to be equal, the t-value is 17.713 with 835.642 degrees of freedom and a p-value of 0.000, which also indicates a highly significant difference. The mean difference remains 10.834, with a standard error of 0.612, and the 95% confidence interval spans from 9.634 to 12.035. These findings illustrate a significant gender disparity, with male students demonstrating more favorable attitudes towards learning compared to their female counterparts.

4.4 Discussion of Findings

Research question one aimed at identifying the level of public senior secondary school students' attitudes towards learning (class participation, class attendance, enthusiasm) in Southwest Nigeria. Findings revealed that students exhibit low levels of class participation, attendance, and enthusiasm. The poor levels of class participation, attendance, and enthusiasm among public senior secondary school students in Southwest Nigeria may stem from a variety of factors. Socio-economic challenges, such as financial difficulties, can force students to prioritise work over education, leading to inconsistent attendance. Inadequate learning environments, including overcrowded

classrooms and a lack of materials, further discourage engagement. Additionally, ineffective teaching methods or an irrelevant curriculum may fail to capture students' interest, while limited parental involvement and negative peer influence can weaken their motivation to learn. Psychosocial issues, such as low self-esteem or anxiety, also play a role, as do students' reliance on extrinsic motivation rather than a genuine desire to learn. These combined factors contribute to the low enthusiasm and engagement observed in the study.

Several studies support these findings. For example, a study found that teachers and principals believe that a lack of community involvement can negatively affect student attendance and academic performance[1]. Similarly, a study highlighted low levels of participation in literature-in-English classes, attributing it to students' disinterest and poor proficiency in English[2]. Furthermore, research showed that overcrowded classrooms hinder student engagement and performance, particularly in subjects like mathematics[3]. The COVID-19 pandemic has also played a role, with a study noting that disruptions in the academic calendar have caused further drops in student attendance and participation[4]. Finally, a study emphasised that poor classroom management is a significant factor contributing to low student engagement, showing how disorder in class reduces learning outcomes and participation[5].

However, other research challenges these findings by suggesting that, under certain conditions, students are willing to engage more actively in their education. For instance, research demonstrated that students showed high acceptance of online learning platforms like WhatsApp and Telegram, suggesting that they are willing to participate when learning methods suit their needs[6]. A study also found that students participating in technology-based learning, particularly in Basic Technology classes, exhibited higher

levels of engagement and improved learning outcomes[7]. Likewise, research showed that despite low enthusiasm for certain career paths, students still actively engage in agricultural education, recognising its potential value[8]. Similarly, a study indicated that interactive online learning methods can significantly increase student participation, showing that proper learning environments can motivate students[9]. Finally, a scholar argued that the lack of effective participation structures, rather than student disinterest, is the key issue in Nigerian schools, suggesting that better involvement practices could foster greater enthusiasm and attendance[10].

Research question two aimed at determining the level of Information and Communication Technology use (mastery experience, vicarious experience, and cybersecurity awareness and practices) in public senior secondary schools in Southwest Nigeria. The analysis revealed that the level of ICT use among public senior secondary school students in Southwest Nigeria is low. The low level of ICT use can be attributed to several factors, including limited access to ICT infrastructure, such as computers and reliable internet, which restricts students' ability to engage with technology. Also, some teachers are often unable to effectively integrate ICT into lessons. Insufficient government funding exacerbates these challenges by failing to prioritise investment in technology resources or professional development. The curriculum itself may lack emphasis on ICT and cybersecurity skills, and socio-economic barriers prevent many students from accessing technology outside of school. Additionally, frequent power outages hinder consistent use of ICT resources, and cultural resistance to new technologies slows adoption in some schools. The lack of cybersecurity awareness further limits students' confidence in using digital tools.

Studies highlight a concerning trend regarding the use of Information and Communication Technology (ICT) among public senior secondary school students in Southwest Nigeria, revealing that their engagement with technology is alarmingly low. For instance, a study highlights a significant disparity in the availability and utilisation of ICT resources, noting that public secondary schools in Abuja lag behind private institutions[11]. This gap points to a broader issue of limited access to essential technological tools. Similarly, research indicates that students in northeastern Nigeria possess only a moderate awareness of cybersecurity, further suggesting that the integration of ICT into their education is insufficient and that they lack essential knowledge of safe online practices[12]. The situation is echoed by some scholars who found that ICT was not being effectively utilised for instructional purposes in Enugu secondary schools, primarily due to inadequacies in both infrastructure and teacher training[13]. Moreover, some scholars observed varying levels of ICT competence among teachers in Ogun State, with many struggling to adopt electronic tools in examinations due to a lack of proper training[14].

In contrast, some studies present a more optimistic picture, suggesting that with the right support and training, ICT integration can be enhanced. For example, a study found that instructors in Tanzania benefitted from vicarious experiences and organisational support, which significantly improved their self-efficacy regarding ICT use[15]. Similarly, it was reported that teachers across several Sub-Saharan African countries, including Nigeria, expressed satisfaction with ICT training programs and actively incorporated technology into their classrooms, despite facing challenges[16]. Furthermore, the impact of ICT became particularly evident during the COVID-19 pandemic, as demonstrated by a study that noted that platforms like WhatsApp and Google Classroom were widely adopted in Nigerian schools to sustain education[17]. Furthermore, research highlighted an

increasing exposure of secondary school students in Osun State to internet use, advocating for further education on cybercrime prevention as a sign of growing ICT integration[18].

Research question three aimed at identifying the most prominent teacher-student relationship (authoritarian, collaborative, and transactional) in public senior secondary schools in Southwest Nigeria. The result shows that authoritarian is the most prominent teacher-student relationship, followed by transactional and lastly collaborative. The dominance of the authoritarian teacher-student relationship in public secondary schools in Southwest Nigeria is influenced by a number of factors. Cultural values in Nigeria place great importance on respecting authority, leading teachers to prioritise strict discipline and obedience in the classroom. Large class sizes, common in public schools, make it difficult for teachers to manage students, so they often resort to stricter control to maintain order. The education system's heavy focus on examination results also pushes teachers to adopt methods that ensure compliance, prioritising passing exams over fostering collaboration and critical thinking. Many teachers may lack training in modern, student-centred teaching techniques, relying on traditional authoritarian approaches. Additionally, schools often lack the resources needed for more interactive or collaborative teaching styles, while concerns about student behaviour make strict control seem necessary. Moreover, school administrations tend to reinforce discipline-focused approaches, which further discourages more collaborative and engaging methods of teaching.

This finding is consistent with several findings. For instance, a study found that many Nigerian classrooms, especially in subjects like mathematics, still rely on teacher-centred, authoritarian approaches, which reduce student engagement and collaborative

learning opportunities[19]. Similarly, another study reported that authoritarian discipline management in South African schools can worsen student behaviour issues, further reinforcing a strict, non-collaborative teaching environment[20]. A scholar also highlighted that overcrowded classrooms push teachers toward authoritarian methods as a means of maintaining control over large student populations[21].

On the other hand, other studies challenge these findings. For instance, a study showed that teacher collaboration improved student performance in mathematics, demonstrating that a more interactive, less authoritarian approach can enhance academic outcomes[22]. A scholar similarly found that collaborative instructional strategies led to higher student achievement in biology, indicating the potential of group-based learning over traditional authoritarian methods[23]. Research also emphasised the positive impact of teacher-parent collaboration in rural Nigerian schools, showing that cooperation among educational stakeholders can improve student learning outcomes[24]. A study also highlighted that schools where headteachers promoted a collaborative culture saw improvements in student discipline, further supporting the value of collaboration over authoritarian leadership[25]. Lastly, a study demonstrated that collaborative teaching strategies significantly enhanced both academic performance and retention in Nigerian secondary schools, proving that more cooperative methods can outperform authoritarian approaches in education[26].

Hypothesis one aims to determine the combined influence of Information and Communication Technology use and teacher-student relationships on senior secondary school students' attitudes towards learning in public senior secondary schools in Southwest Nigeria. The findings indicate that the combined influence of ICT use and teacher-student relationships is statistically significant in predicting senior secondary

school students' attitudes towards learning in public senior secondary schools in Southwest Nigeria; hence, the stated null hypothesis was rejected. This finding can be attributed to the complementary roles these factors play. ICT enhances student engagement by making learning more interactive, accessible, and relevant, while strong teacher-student relationships foster a supportive and motivating environment where students feel encouraged to participate actively. When both ICT and positive relationships are present, students are more likely to develop positive attitudes toward learning because they see education as both engaging and relevant to their lives. On the other hand, without strong teacher-student relationships, the benefits of ICT may not be fully realised, as students might not feel supported in using these tools effectively.

The findings are reinforced by a range of studies. For instance, a study identified that students' psychological factors related to ICT, such as their perceived competence and autonomy in using technology, positively correlated with academic performance, especially in environments where schools actively supported ICT use and where teachers were well-trained[27]. This suggests that the effective integration of ICT, alongside robust teacher support, plays a critical role in shaping students' academic attitudes. Similarly, a study revealed that teachers' attitudes towards ICT use, which were influenced by their own competence and access to technology, positively impacted their teaching practices[28]. This ultimately enhanced student engagement, highlighting the reciprocal relationship between teacher attitudes, ICT integration, and student learning outcomes.

Another study further corroborated this by showing that teachers' self-efficacy in using ICT and their ability to incorporate technology into their teaching positively predicted students' information literacy and attitudes toward learning[29]. Furthermore, a study

focused on secondary school students in Nigeria, revealing that positive teacher-student relationships significantly improved students' performance in economics[30]. The study concluded that when students have a good rapport with their teachers, they tend to achieve higher academic outcomes. Moreover, another study explored how teacher-student relationships influence motivation among primary school students in China[31]. The study showed that positive relationships between teachers and students significantly boosted students' motivation to learn[31].

However, some studies present contrasting findings. For example, a study explored teacher-student relationships in Ghana and found that while minimal conflict between teachers and students was associated with positive learning outcomes, too much professional closeness could lead to dependency, limiting students' autonomy and active engagement in the learning process[32]. This implies that while maintaining a positive relationship is important, fostering independence in students might be more crucial for academic success. Similarly, another study examined how teacher-student relationships impact students with special educational needs (SEN) and found that the influence was less consistent compared to typical students[33]. Although strong teacher-student relationships were associated with higher engagement, the effect was less predictable for SEN students, suggesting that other factors might play a more critical role in their academic experience[33].

Furthermore, a study on the role of conflict and closeness in teacher-student relationships, found that while positive relationships could reduce negative behaviours in students, they were not consistently linked to better academic performance[34]. In fact, conflicts with teachers often led to worsened academic outcomes, highlighting that good relationships alone are not always enough to boost learning[34]. Moreover, another study

found that although students generally had positive attitudes towards ICT, its actual impact on academic performance in subjects like chemistry was weak, indicating that other factors may overshadow the role of technology[35]. Likewise, research noted that while access to ICT improved learning, it did not significantly change student attitudes, implying that educational and environmental contexts could play a more dominant role[36].

Hypothesis two aimed at examining the relative influence of Information and Communication Technology use and teacher-student relationships on senior secondary school students' attitudes towards learning in public senior secondary schools in Southwest Nigeria. The findings reveal that both ICT use and teacher-student relationships relatively influence students' attitudes towards learning. However, ICT use has a notably stronger and more significant effect compared to teacher-student relationships, highlighting its critical role in enhancing educational outcomes. This finding is consistent with several findings. For instance, a study demonstrated that integrating ICT through flipped learning led to improved academic achievement and positive attitudes among secondary school students, highlighting the importance of technology in enhancing learning outcomes[37]. Another study found that secondary school teachers with positive attitudes and competency in ICT use contributed to better student outcomes, emphasising the importance of integrating technology in the learning environment[38]. Again, another study concluded that ICT promotes student-centred learning, cooperative learning, and higher-order thinking in secondary schools, reinforcing the critical role ICT plays in improving learning experiences[39].

There are some studies opposing these findings. For instance, a study highlighted the negative effects of over-reliance on ICT, such as reduced cognitive capacity and attention span, arguing that ICT can sometimes hinder learning and lead to superficial

engagement[40]. Some scholars observed that while ICT improved administrative efficiency, it had limited direct impact on academic learning in secondary schools, showing that technology might not always translate to better academic outcomes[41]. Research found that despite the availability of ICT tools, teachers' lack of training and negative attitudes hindered their effective integration in teaching, resulting in minimal improvements in student outcomes[42].

Hypothesis three aims to identify the significant gender difference in public senior secondary school students' attitude towards learning in Southwest Nigeria. Findings illustrate a significant gender disparity, with male students demonstrating more favourable attitudes towards learning compared to their female counterparts. This could be as a result of traditional gender roles in Nigerian society, which often prioritise domestic responsibilities for girls and can detract them from their focus on education. Additionally, boys may have greater access to educational resources and receive more encouragement from teachers, leading to a more positive attitude towards learning. Classroom dynamics might also favour boys' participation, while girls could feel marginalised.

There are several studies that align with the findings of this study. For instance, research showed that male students in Niger State had higher academic performance, likely due to differing self-efficacy, echoing the trend of more favourable attitudes among boys[43]. A study also highlighted how societal pressures lead to educational disparities, with girls often discouraged from prioritising learning, reinforcing the idea that boys may show more positive attitudes[44]. Moreover, another study found male students more engaged in environmentally unfriendly behaviours, suggesting that societal norms may shape boys' attitudes differently across various fields, including education[45]. Conversely, some

studies have challenged this finding. A study found no gender differences in attitudes towards adopting mobile learning technologies in Nigerian universities, which contradicts the notion of boys generally having more favourable attitudes towards learning[46]. Also, another study found no significant gender differences in learning strategies among university students, further opposing the finding that male students inherently display more positive attitudes towards learning[47].

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Chapter Five

Conclusion

This chapter focuses on the summary of findings, conclusions, recommendations (based on the findings of the study), contribution to knowledge and the areas of further research.

5.1 Summary of Findings

The research aimed at investigating the influence of Information and Communication Technology use and teacher-student relationships on senior secondary school students' attitudes towards learning in Southwest Nigeria. Findings showed low levels of class participation, attendance, and enthusiasm. The analysis also revealed a low level of ICT use among public senior secondary school students in Southwest Nigeria. The study also found that the authoritarian teacher-student relationship is most common in public senior secondary schools in Southwest Nigeria, followed by transactional, with collaborative relationships being least prominent.

The first hypothesis tested revealed a statistically significant combined influence, leading to the rejection of the null hypothesis. The second hypothesis also revealed that both ICT use and teacher-student relationships relatively influence students' attitudes towards learning. However, ICT use has a notably stronger and more significant effect compared to teacher-student relationships, highlighting its critical role in enhancing

educational outcomes. Hypothesis three showed a significant disparity, with male students showing more positive attitudes than females.

5.2 Conclusion

The study concluded that both Information and Communication Technology (ICT) use and teacher-student relationships significantly influence senior secondary school students' attitudes towards learning in Southwest Nigeria. Low levels of class participation, attendance, and enthusiasm were observed, with socio-economic challenges, inadequate learning environments, ineffective teaching methods, and psychosocial issues contributing to these outcomes. The prominent authoritarian teacher-student relationship, along with limited ICT use due to inadequate resources and training, further impacted students' engagement. Additionally, a significant gender disparity was found, with male students exhibiting more favourable attitudes toward learning. Addressing these challenges by improving ICT infrastructure, fostering positive teacher-student relationships, and promoting gender equity in education could enhance students' attitudes and overall academic performance.

5.2 Recommendations

Based on the findings of this study, the following recommendations were made:

1. Teachers should consider using teaching techniques that involve students more actively, like group discussions, hands-on projects, or peer teaching. These methods can help make learning more enjoyable and encourage students to participate more in class. Adding technology, such as educational apps or online discussions, can also spark students' interest and boost their enthusiasm for learning.

2. School management should offer better training programs to help students learn how to use technology effectively and safely. This could involve hands-on workshops that teach them how to use different software and online tools, as well as lessons on how to stay safe online. Additionally, schools should provide better access to computers and reliable internet to create a more supportive environment for students to use technology and improve their digital skills.

3. Teachers should try to move away from strict, authoritarian teaching and promote a more collaborative relationship between teachers and students. This can be done by providing training for teachers on how to create a more supportive and inclusive classroom. Teachers should be encouraged to involve students in decision-making, keep communication open, and build mutual respect. By focusing on collaboration, schools can help students feel more engaged and motivated, which can lead to better learning outcomes.

4. School management should include training on using technology effectively in their professional development programs for teachers. This will help teachers learn how to incorporate technology into their teaching while also building positive relationships with their students. By doing this, teachers can create a more engaging and supportive classroom environment, which can improve students' attitudes towards learning. Additionally, schools should promote open communication and collaboration between teachers and students to strengthen these important relationships.

5. School management should focus on promoting both the effective use of technology and strong relationships between teachers and students. This can be achieved by providing teachers with training on how to use technology in their

lessons while also encouraging them to build good connections with their students. Additionally, implementing programs that encourage teamwork and collaboration between students and teachers can further strengthen both of these important areas.

6. School management should focus on creating a learning environment that supports both male and female students equally. This can be done by training teachers to be aware of any biases in how they interact with students and encouraging all students to participate actively in class. Additionally, schools could implement programs aimed specifically at empowering female students, such as mentorship opportunities or workshops to build their confidence. By promoting a more balanced and supportive environment, schools can help improve female students' attitudes towards learning.

5.3 Contribution to Knowledge

This study contributes significantly to the existing body of knowledge conceptually, as it helps clarify the different factors that influence how students feel about learning. By looking at the roles of technology use and teacher-student relationships, the study shows how these elements work together to shape students' engagement and perceptions. This understanding is crucial for educators who want to create a more supportive learning environment. Theoretically, the findings build on existing educational theories related to student engagement. By incorporating the impact of technology and interpersonal relationships into these theories, the study encourages future research and development in the fields of educational psychology and teaching methods. It offers a fresh perspective that can refine current theories and inspire new ideas.

Empirically, the study provides solid evidence about how ICT use and teacher-student relationships affect students' attitudes. This data can serve as a foundation for other

researchers looking to explore these topics further. Additionally, by revealing significant gender differences in attitudes towards learning, the study highlights how gender can impact educational experiences, suggesting areas where targeted support may be needed. Practically, the findings can help policymakers, school leaders, and teachers understand the importance of positive teacher-student relationships and effective use of technology in the classroom. This knowledge can lead to better educational practices and policies aimed at improving student engagement and success. Moreover, it can inform teacher training programs, helping educators create more inclusive and engaging classrooms that cater to the needs of all students, particularly those of different genders. Socially, the study raises awareness about inequalities in education, prompting discussions on how to create fairer learning environments for all students. By shining a light on these disparities, it encourages efforts to address the challenges faced by various student groups.

5.5 Suggestion for Further Studies

Future studies should look into different ways to measure ICT use and teacher-student relationships that were not covered in this research. Moreover, repeating this study in private secondary schools, primary schools, and higher education institutions could provide a more comprehensive view. To add depth to the quantitative findings, qualitative methods like interviews and focus groups with students, and teachers could reveal more about the factors influencing student attitude towards learning. Expanding the research to include various states, regions, or even conducting a nationwide analysis could further enrich our understanding of these dynamics on a broader scale.

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Appendix I

Senior Secondary School Students' Attitudes towards Learning Questionnaire (SSSSALQ)

Dear Esteemed Respondent,

This instrument was designed to gather data regarding the research topic stated above. Rest assured that all information provided will be used exclusively for research purposes and treated with the utmost confidentiality. Therefore, we kindly request your honest and sincere response to all the items in this instrument. This will take about ten minutes. Your participation is highly valued.

Yours Sincerely,

The Researcher

Section A

Instruction

Please, tick the space (√) provided in front of the option that best fits your responses to the questions below.

1. **Gender:** Male ( ) Female ( )
2. **Age Range:** Less than 15 ( ) 16-20 ( ) 21-25 ( ) Above 25 ( )
3. **Class size:** Less than 30 ( ) 31-50 ( ) 51-70 ( ) Above71 ( )

Section B

Please respond to the statement in the tables below using the following scale.

Always (AL), Sometimes (S), Rarely (R), Never (N)

S/N	Item: I:	AL	S	R	N
1	actively contribute to class discussions by sharing my thoughts and ideas.				
2	frequently ask questions during class to seek clarification or additional information.				
3	participate in group activities and collaborative projects during class.				
4	engage in class activities, such as volunteering for demonstrations or presentations.				
5	willingly share relevant experiences or examples related to the topic being discussed in class.				
6	attend class regularly				
7	make a conscious effort to arrive on time for each class.				
8	rarely find myself absent from class without a valid reason.				

9	find it challenging to focus on the subject when I miss classes.				
10	attend make-up sessions or extra classes provided by the instructor when available				
11	approach each day of school with a positive and eager attitude.				
12	find joy in learning new things and exploring different subjects.				
13	am motivated to excel in my studies because of my passion for learning.				
14	willingly take on additional academic challenges because I enjoy the learning process.				
15	am excited about the subjects and topics covered in my classes.				

Section C

Please respond to the statement in the tables below using the following scale.

Always (AL), Sometimes (S), Rarely (R), Never (N)

S/N	Item: I:	AL	S	R	N
1	feel confident in my ability to navigate and use various digital devices.				
2	can effectively use ICT tools to complete assignments and projects.				
3	can independently research and apply ICT solutions to solve problems or challenges.				
4	believe my proficiency in using ICT positively influences my academic performance.				
5	seek out opportunities to expand my knowledge and skills in ICT beyond what is taught in class.				
6	learn from observing how my peers effectively use ICT tools for academic tasks.				
7	am influenced by the successful experiences of others in integrating ICT into their learning.				
8	am motivated to enhance my ICT proficiency when I see my friends achieving academic success through technology use.				
9	value the shared experiences of classmates who have successfully utilised ICT for creative and innovative class				

	work and projects.				
10	am more likely to try new ICT tools if I witness positive outcomes among my peers.				
11	am aware of potential online threats and risks to my personal information.				
12	report any suspicious online activities or security concerns to the appropriate authorities or teachers.				
13	actively use antivirus software or other security tools on my devices.				
14	am cautious about clicking on links or downloading files from unknown sources				
15	understand the importance of keeping my devices and software up to date for security reasons.				

Section D

Please respond to the statement in the tables below using the following scale.

Always (AL), Sometimes (S), Rarely (R), Never (N)

S/N	Items: My teacher:	AL	S	R	N
1	often dictates the rules and expectations without considering student input.				
2	expects strict adherence to established classroom rules.				
3	enforces discipline consistently, and there is little room for negotiation.				
4	authority is clearly defined, and students are expected to follow instructions without question.				
5	emphasises obedience and compliance as important aspects of the student-teacher relationship.				
6	encourages open communication and values student opinions in class discussions.				
7	actively seeks and considers student input when making decisions about classroom activities.				
8	encourages students to work together on projects and assignments.				
9	provides opportunities for students to contribute to shaping the learning environment and class				

	activities.				
10	is approachable and willing to engage in conversations beyond the academic curriculum.				
11	establishes clear expectations for academic performance and rewards students for meeting them.				
12	ensures a fair and consistent system of rewards and consequences for behaviour in the classroom.				
13	provides opportunities for students to negotiate aspects of their learning experience.				
14	provides feedback and guidance to help students understand how to improve their performance.				
15	offers support and resources to help students achieve their academic goals				

Section E

Please, tick the space provided in front of the option that best fit your responses to the questions below using the following scale.

Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

S/N	Items:	SA	A	D	SD
1	Engaging with Information and Communication Technology enhances my interest in learning.				
2	The use of ICT tools positively influences my enthusiasm for various academic subjects.				
3	ICT applications contribute to making learning more enjoyable and engaging for me.				
4	The use of ICT enhances my ability to grasp complex concepts and improves my overall learning experience.				
5	Access to ICT resources positively affects my attitude towards participating in class activities.				
6	The quality of my relationship with my teachers significantly influences my overall attitude towards learning.				

7	Feeling supported by my teachers positively impacts my enthusiasm for learning.				
8	Establishing a sense of trust and rapport with my teachers contributes to a positive learning experience				
9	The level of encouragement and feedback from my teachers affects my confidence in learning				
10	The way teachers provide guidance and support plays a crucial role in shaping my overall attitude towards learning.				

Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	582	57.0	57.0	57.0
	Female	439	43.0	43.0	100
	Total	1021	100	100	

Age of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 15 Years	280	27.4	27.4	27.4
	16-20 Years	420	41.1	41.1	68.6
	21-25 Years	209	20.5	20.5	89.0
	Above 25 Years	112	11.0	11.0	100
	Total	1021	100	100	

Class Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 30	232	22.7	22.7	22.7
	31-50	452	44.3	44.3	67.0
	51-70	198	19.4	19.4	86.4
	Above 71	139	13.6	13.6	100
	Total	1021	100	100	

actively contribute to class discussions by sharing my thoughts and ideas.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	242	23.7	23.7	23.7
	Rarely	473	46.3	46.3	70.0
	Sometimes	151	14.8	14.8	84.8
	Always	155	15.2	15.2	100
	Total	1021	100	100	

frequently ask questions during class to seek clarification or additional information.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	377	36.9	36.9	36.9
	Rarely	305	29.9	29.9	66.8
	Sometimes	188	18.4	18.4	85.2
	Always	151	14.8	14.8	100
	Total	1021	100	100	

participate in group activities and collaborative projects during class.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	346	33.9	33.9	33.9
	Rarely	358	35.1	35.1	69.0
	Sometimes	130	12.7	12.7	81.7
	Always	187	18.3	18.3	100
	Total	1021	100	100	

engage in class activities, such as volunteering for demonstrations or presentations.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	146	14.3	14.3	14.3
	Rarely	497	48.7	48.7	63.0
	Sometimes	207	20.3	20.3	83.3
	Always	171	16.7	16.7	100
	Total	1021	100	100	

willingly share relevant experiences or examples related to the topic being discussed in class.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	433	42.4	42.4	42.4
	Rarely	233	22.8	22.8	65.2
	Sometimes	169	16.6	16.6	81.8
	Always	186	18.2	18.2	100
	Total	1021	100	100	

attend class regularly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	398	39.0	39.0	39.0
	Rarely	206	20.2	20.2	59.2
	Sometimes	129	12.6	12.6	71.8
	Always	288	28.2	28.2	100
	Total	1021	100	100	

make a conscious effort to arrive on time for each class.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	507	49.7	49.7	49.7
	Rarely	94	9.2	9.2	58.9
	Sometimes	238	23.3	23.3	82.2
	Always	182	17.8	17.8	100
	Total	1021	100	100	

rarely find myself absent from class without a valid reason.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	185	18.1	18.1	18.1
	Rarely	179	17.5	17.5	35.7
	Sometimes	252	24.7	24.7	60.3
	Always	405	39.7	39.7	100
	Total	1021	100	100	

find it challenging to focus on the subject when I miss classes.

	Frequency	Percent	Valid Percent	Cumulative

					Percent
Valid	Never	399	39.1	39.1	39.1
	Rarely	217	21.3	21.3	60.3
	Sometimes	284	27.8	27.8	88.1
	Always	121	11.9	11.9	100
	Total	1021	100	100	

attend make-up sessions or extra classes provided by the instructor when available

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	163	16.0	16.0	16.0
	Rarely	210	20.6	20.6	36.5
	Sometimes	302	29.6	29.6	66.1
	Always	346	33.9	33.9	100
	Total	1021	100	100	

approach each day of school with a positive and eager attitude.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	207	20.3	20.3	20.3
	Rarely	216	21.2	21.2	41.4
	Sometimes	245	24.0	24.0	65.4
	Always	353	34.6	34.6	100
	Total	1021	100	100	

find joy in learning new things and exploring different subjects.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	177	17.3	17.3	17.3
	Rarely	223	21.8	21.8	39.2
	Sometimes	290	28.4	28.4	67.6
	Always	331	32.4	32.4	100
	Total	1021	100	100	

am motivated to excel in my studies because of my passion for learning.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	207	20.3	20.3	20.3
	Rarely	231	22.6	22.6	42.9
	Sometimes	205	20.1	20.1	63.0
	Always	378	37.0	37.0	100
	Total	1021	100	100	

willingly take on additional academic challenges because I enjoy the learning process.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	283	27.7	27.7	27.7
	Rarely	215	21.1	21.1	48.8
	Sometimes	280	27.4	27.4	76.2
	Always	243	23.8	23.8	100
	Total	1021	100	100	

am excited about the subjects and topics covered in my classes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	475	46.5	46.5	46.5
	Rarely	89	8.7	8.7	55.2
	Sometimes	267	26.2	26.2	81.4
	Always	190	18.6	18.6	100
	Total	1021	100	100	

feel confident in my ability to navigate and use various digital devices.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	662	64.8	64.8	64.8
	Rarely	227	22.2	22.2	87.1
	Sometimes	93	9.1	9.1	96.2
	Always	39	3.8	3.8	100
	Total	1021	100	100	

can effectively use ICT tools to complete assignments and projects.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	400	39.2	39.2	39.2
	Rarely	252	24.7	24.7	63.9
	Sometimes	169	16.6	16.6	80.4
	Always	200	19.6	19.6	100
	Total	1021	100	100	

can independently research and apply ICT solutions to solve problems or challenges.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	487	47.7	47.7	47.7
	Rarely	279	27.3	27.3	75.0
	Sometimes	170	16.7	16.7	91.7
	Always	85	8.3	8.3	100
	Total	1021	100	100	

believe my proficiency in using ICT positively influences my academic performance.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	292	28.6	28.6	28.6
	Rarely	295	28.9	28.9	57.5
	Sometimes	244	23.9	23.9	81.4
	Always	190	18.6	18.6	100
	Total	1021	100	100	

seek out opportunities to expand my knowledge and skills in ICT beyond what is taught in class.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	444	43.5	43.5	43.5
	Rarely	284	27.8	27.8	71.3
	Sometimes	197	19.3	19.3	90.6
	Always	96	9.4	9.4	100
	Total	1021	100	100	

learn from observing how my peers effectively use ICT tools for academic tasks.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	288	28.2	28.2	28.2
	Rarely	269	26.3	26.3	54.6
	Sometimes	261	25.6	25.6	80.1
	Always	203	19.9	19.9	100
	Total	1021	100	100	

am influenced by the successful experiences of others in integrating ICT into their learning.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	373	36.5	36.5	36.5
	Rarely	233	22.8	22.8	59.4
	Sometimes	255	25.0	25.0	84.3
	Always	160	15.7	15.7	100
	Total	1021	100	100	

am motivated to enhance my ICT proficiency when I see my friends achieving academic success through technology use.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	468	45.8	45.8	45.8
	Rarely	304	29.8	29.8	75.6
	Sometimes	196	19.2	19.2	94.8
	Always	53	5.2	5.2	100
	Total	1021	100	100	

value the shared experiences of classmates who have successfully utilised ICT for creative and innovative class work and projects.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	135	13.2	13.2	13.2
	Rarely	316	31.0	31.0	44.2
	Sometimes	303	29.7	29.7	73.8
	Always	267	26.2	26.2	100
	Total	1021	100	100	

am more likely to try new ICT tools if I witness positive outcomes among my peers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	405	39.7	39.7	39.7
	Rarely	219	21.4	21.4	61.1
	Sometimes	225	22.0	22.0	83.2
	Always	172	16.8	16.8	100
	Total	1021	100	100	

am aware of potential online threats and risks to my personal information.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	274	26.8	26.8	26.8
	Rarely	315	30.9	30.9	57.7
	Sometimes	340	33.3	33.3	91.0
	Always	92	9.0	9.0	100
	Total	1021	100	100	

report any suspicious online activities or security concerns to the appropriate authorities or teachers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	109	10.7	10.7	10.7
	Rarely	427	41.8	41.8	52.5
	Sometimes	328	32.1	32.1	84.6
	Always	157	15.4	15.4	100
	Total	1021	100	100	

actively use antivirus software or other security tools on my devices.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	223	21.8	21.8	21.8

	Rarely	332	32.5	32.5	54.4
	Sometimes	213	20.9	20.9	75.2
	Always	253	24.8	24.8	100
	Total	1021	100	100	

am cautious about clicking on links or downloading files from unknown sources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	221	21.6	21.6	21.6
	Rarely	364	35.7	35.7	57.3
	Sometimes	284	27.8	27.8	85.1
	Always	152	14.9	14.9	100
	Total	1021	100	100	

understand the importance of keeping my devices and software up to date for security reasons.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	305	29.9	29.9	29.9
	Rarely	287	28.1	28.1	58.0
	Sometimes	343	33.6	33.6	91.6
	Always	86	8.4	8.4	100
	Total	1021	100	100	

often dictates the rules and expectations without considering student input.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	272	26.6	26.6	26.6
	Rarely	306	30.0	30.0	56.6
	Sometimes	313	30.7	30.7	87.3
	Always	130	12.7	12.7	100
	Total	1021	100	100	

expects strict adherence to established classroom rules.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	285	27.9	27.9	27.9
	Rarely	246	24.1	24.1	52.0
	Sometimes	266	26.1	26.1	78.1
	Always	224	21.9	21.9	100.0
	Total	1021	100.0	100.0	

enforces discipline consistently, and there is little room for negotiation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	317	31.0	31.0	31.0
	Rarely	253	24.8	24.8	55.8

	Sometimes	282	27.6	27.6	83.4
	Always	169	16.6	16.6	100
	Total	1021	100	100	

authority is clearly defined, and students are expected to follow instructions without question.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	341	33.4	33.4	33.4
	Rarely	332	32.5	32.5	65.9
	Sometimes	247	24.2	24.2	90.1
	Always	101	9.9	9.9	100
	Total	1021	100	100	

emphasises obedience and compliance as important aspects of the student-teacher relationship.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	637	62.4	62.4	62.4
	Rarely	233	22.8	22.8	85.2
	Sometimes	68	6.7	6.7	91.9
	Always	83	8.1	8.1	100
	Total	1021	100	100	

encourages open communication and values student opinions in class discussions.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	676	66.2	66.2	66.2
	Rarely	168	16.5	16.5	82.7
	Sometimes	81	7.9	7.9	90.6
	Always	96	9.4	9.4	100
	Total	1021	100	100	

actively seeks and considers student input when making decisions about classroom activities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	553	54.2	54.2	54.2
	Rarely	251	24.6	24.6	78.7
	Sometimes	156	15.3	15.3	94.0
	Always	61	6.0	6.0	100
	Total	1021	100	100	

encourages students to work together on projects and assignments.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	597	58.5	58.5	58.5
	Rarely	193	18.9	18.9	77.4
	Sometimes	197	19.3	19.3	96.7

	Always	34	3.3	3.3	100
	Total	1021	100	100	

provides opportunities for students to contribute to shaping the learning environment and class activities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	565	55.3	55.3	55.3
	Rarely	114	11.2	11.2	66.5
	Sometimes	252	24.7	24.7	91.2
	Always	90	8.8	8.8	100
	Total	1021	100	100	

is approachable and willing to engage in conversations beyond the academic curriculum.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	577	56.5	56.5	56.5
	Rarely	230	22.5	22.5	79.0
	Sometimes	195	19.1	19.1	98.1
	Always	19	1.9	1.9	100.0
	Total	1021	100.0	100.0	

establishes clear expectations for academic performance and rewards students for meeting them.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	464	45.4	45.4	45.4
	Rarely	376	36.8	36.8	82.3
	Sometimes	119	11.7	11.7	93.9
	Always	62	6.1	6.1	100
	Total	1021	100	100	

ensures a fair and consistent system of rewards and consequences for behaviour in the classroom.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	301	29.5	29.5	29.5
	Rarely	362	35.5	35.5	64.9
	Sometimes	268	26.2	26.2	91.2
	Always	90	8.8	8.8	100
	Total	1021	100	100	

provides opportunities for students to negotiate aspects of their learning experience.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	386	37.8	37.8	37.8
	Rarely	390	38.2	38.2	76.0
	Sometimes	179	17.5	17.5	93.5
	Always	66	6.5	6.5	100
	Total	1021	100	100	

provides feedback and guidance to help students understand how to improve their performance.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	465	45.5	45.5	45.5
	Rarely	397	38.9	38.9	84.4
	Sometimes	125	12.2	12.2	96.7
	Always	34	3.3	3.3	100
	Total	1021	100	100	

offers support and resources to help students achieve their academic

goals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	398	39.0	39.0	39.0
	Rarely	360	35.3	35.3	74.2
	Sometimes	197	19.3	19.3	93.5
	Always	66	6.5	6.5	100
	Total	1021	100	100	

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.906[a]	0.822	0.821	4.582	0.822	2343.092	2	1018	0.000

a. Predictors: (Constant), Teacher-Student Relationship, ICT Use

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	98393.903	2	49196.952	2343.092	0.000[b]
	Residual	21374.530	1018	20.997		
	Total	119768.433	1020			

a. Dependent Variable: Attitude Towards Learning

b. Predictors: (Constant), Teacher-Student Relationship, ICT Use

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1(Constant)	1.023	0.554		1.846	0.065	-0.064	2.110
ICT Use	0.848	0.022	0.762	39.367	0.000	0.806	0.890
Teacher-Student Relationship	0.248	0.026	0.185	9.580	0.000	0.197	0.298

a. Dependent Variable: Attitude Towards Learning

Group Statistics

	Gender of Respondents	N	Mean	Std. Deviation	Std. Error Mean
Attitude Towards Learning	Male	582	40.70	8.582	0.356
	Female	439	29.86	10.425	0.498

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Attitude Towards Learning	Equal variances assumed	103.977	.000	18.197	1019	0.000	10.834	0.595	9.666	12.003
	Equal variances not assumed			17.713	835.642	0.000	10.834	0.612	9.634	12.035

Bio-data

A. Personal Data

- **Full Name:** Dolapo Omotayo RAJI
- **Address:** 24C, United Estate, Ojodu, Lagos.
- **Email:** rajidolapo@yahoo.com
- **Phone Number:** 08037557973
- **Date of Birth:** 17th July, 1988
- **Nationality:** Nigerian
- **Marital Status:** Married
- **Name of Next of Kin:** Dr Folahanmi Akinsolu
- **Address of Next of Kin:** 24C, United Estate, Ojodu, Lagos.

B. Educational Background

1. Educational Institutions Attended with Dates and Qualification:

i. Primary Education

Oxford Children's School, Dopemu, Lagos. 1993-1999

ii. Secondary Education

Federal Government Girls' College, Oyo, Oyo State. 1999 -2005

iii. Higher Educational Institutions Attended with Dates & Qualification

University of Lagos Masters in Educational Administration and Planning

2017-2020

University of Lagos Post Graduate Diploma in Education (PGDE)

2014-2016

University of Ilorin BSc. Microbiology 2006-2011

C. Work Experience with Date

National Institute for Educational Planning and Administration 2017-Till Date

D. Awards and Fellowship: NIL

E. Membership of Academic Professional Bodies

TRCN Teachers Registration Council of Nigeria

F. Publication(s):

Raji, D.O., Akinsolu, A.O., & Oredein A.O. Vygotsky's Sociocultural Thoery and Teacher-Students' Classroom Interaction Patterns: A Bedrock of Students' Learning Outcome in the Nigeria Context. *Innovative Stragtegies in African Educational Management.* ISBN 978-978-60227-3-4; 2024: 158-171

Akinsolu, A.O., & **Raji, D.O**. Strategies for Enhancing Training for Effective Service Delivery of Basic Education: Management Implications. *UBE Journal*. ISSN 1596-1649; 2023: 9: 259-274.

Akinsolu, A.O., & **Raji, D.O**. Participants' Perception of Participatory (PTP) In Nigeria: A Study of the National Institute for Educational Planning and Administration (NIEPA). *East African Reseacher.* ISSN 2225-5656; 2021: 10(2): 72-88.

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G. Major Conferences Attended with Dates

Nigerian Association for Educational Administration and Planning (NAEAP) 43rd Conference, Ibadan, Navigating Challenges in Educational Innovations and Leadership in Nigeria	2024

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The University Compliance Certification

This is to certify that this thesis written by Dolapo Omotayo RAJI, with matriculation number LCU/PG/003200, in the Department of Arts & Social Science Education, Faculty of Education, Lead City University, Ibadan, Oyo State, is in full compliance with the approved University format and style.

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Signature Date