STUDENTS' ASSESSMENT OF BIOLOGY TEACHERS' ATTITUDE AND ENVIRONMENTAL FACTORS ON THEIR ACADEMIC PERFORMANCE: A CASE STUDY OF UDU LOCAL GOVERNMENT AREA

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A PROJECT SUBMITTED TO THE DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY, FACULTY OF EDUCATION IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE DEGREE IN EDUCATION (B.Sc. Ed) OF THE UNIVERSITY OF BENIN, BENIN CITY, NIGERIA.

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CERTIFICATION

We the undersigned, hereby certify that this work was carried out by **IGWE Favour Chinelo** in the Department of Curriculum and Instructional Technology, Faculty of Education, University of Benin, Benin city, Nigeria.

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DEDICATION

This work is dedicated to GOD ALMIGHTY, the creator of the entire universe, JESUS, My Saviour and to sweet HOLY SPIRIT, My comforter and all in all.

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In deep sense of appreciation, I acknowledge a unique personality who through her remarkable efforts made this project work a reality, my Project Supervisor, Dr. A. A. Odia. God bless you Ma for the motherly role you played in making this work a huge success.

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Finally, I extend my acknowledgement to all Biology students globally, I wish you all the best as you climb the ladder of success academically.

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ABSTRACT

This work implements a descriptive survey design to investigate the students' assessment of Biology teachers' attitude and environmental factors on their academic performance as it concerns secondary school students in Udu Local Government Area of Delta State. Teachers' attitude characterized by teachers' mastery of subject matter, ability to communicate and classroom management skill, as well as environmental factors such as equipped laboratory, class size and location were considered as independent variables affecting students' academic performance in Biology. To achieve the purpose of the study, eight research questions and seven hypothesis were posed and formulated to guide the study. Literature was also reviewed based on the variables considered.

Questionnaires were administered to one hundred and fifty (150) Biology students from five selected secondary schools in Udu local government. In analyzing the responses of the respondents, percentage ranking and rating, mean, standard deviation and the application of t-test was used to determine the significance of each hypothesis at a significance level of 0.05. The findings of the study showed that Teachers' attitude characterized by teachers' mastery of subject matter, ability to communicate and classroom management skill, as well as environmental factors such as equipped laboratory, class size and location significantly affect the academic performance of Biology students in Udu Local Government Area of Delta State.

Based on the findings of the study, it was recommended that teachers should exhibit attitudes that promote students' learning interest in terms of good communication system, effective classroom management, proper mastery of subject matter and provision of a conducive learning environment. Suggestions for further studies were also made.

CHAPTER ONE

INTRODUCTION

Background To The Study

Learning process of a child, significantly affect academic performance. Just as opined by Behavioral Psychologists such as B.F. Skinner, Ivan Pavlov and others, learning causes a change in behavior (Egbochuku, 2012). This change is required for the achievement of desired learning outcome. Hence, educators are needed to achieve this efficiently as teaching of Biology cannot be left for just anyone. Ajiboye (2021) argues that teaching is a specified field or discipline consisting of a body of skills, knowledge and orientations which are suitable for the molding and formation of human characters, intellect and capacities. He further emphasized that these skills, knowledge and orientations are not available in the street or market places but can be acquired specifically through intensive and validated preparations in institutions made available by government for such purpose (Ajiboye, 2021).

Teachers are individuals who are ready to impart knowledge into the students through the teaching-learning process. Such individual must have acquired

professional knowledge in teaching and possess the ability to utilize such knowledge during the teaching-learning process (Musa, 2022). They facilitate the acquisition of knowledge, information, values, attitudes and skills by learners under their tutorship. This is why the attitude of every teacher must be consistently checked as this affects effective learning.

Attitude is a concept that characterizes attributes exhibited by an individual which forms a part of human nature. In psychology it is identified as a set of emotions, beliefs, and behaviors displayed towards a specific object, thing or event (Cherry, 2023). It could be explicitly or implicitly defined and greatly influenced by experience, social roles and norms, learning, conditioning processes and observations (Cherry, 2023). In this context, the teacher can be regarded as the individual who displays the attributes while the object, person, thing or event could either be the student or the subject in question (Biology). Teachers' attitude consists of teachers' perception resulting to exhibit teaching practices in class. These attitudes may be of negative or positive influence on the learners. Seeing the teacher as a role model, they tend to act same way as the

teacher. This is why a positive attitude is highly expected from all certified teachers.

Also proper mastery of subject matter and academic qualification have roles to play as they would enhance the nature of lesson delivery during instruction. According to the idealist approach in educational philosophy, a teacher is expected to be a rational being who is intelligent, expertise in authority, guiding and capable of ordering the students in a way that aids the provision of quality education with reason, gain, moral and value in order to enhance judgment and ensure justice in the society (Cervizci, 2017). Meanwhile for the realist, the teacher as the center of educational process is expected to acquire knowledge of the world's unchanging reality and should be able to transfer this knowledge in order to empower the mind (Gutek, 2011). These various school of thought drives the essence of communication and classroom management as part of the attitude displayed by the teacher. These factors are ingredients making up part of the teachers' attitude.

The school serving as a learning environment for students is affected by diverse factors which could be influential on learning outcome. In the sciences, Biology

precisely, an equipped laboratory serves as a conducive environment for its learning. Owoeye and Yara affirms that laboratory work enhances learner`s interest because they are opportune to carry out useful scientific activities and experimentations (Owoeye & Yara, 2010). This therefore confirms the reason why schools with well-equipped laboratory produce students who do better academically than their counterparts in other schools. Class size and location of schools is an essential environmental factor. The rates of overpopulation in most schools is alarming as most students although in class but cannot tell what is being taught. Schools located in rural communities are most often faced with this challenge.

Statement Of The Problem

Biology is a science that studies natural phenomenon as relating to life and existence. Meaning its study revolves around existence on planet earth and should not be neglected by anyone. A nation whose citizens are of utmost relevance considers the state of her environment as this would contribute in conserving life as well as other resources required for the survival of her citizens. Hence the Biology curriculum is designed in such a way that it probes

greatly into nature thereby giving an in-depth knowledge on how to apply scientific knowledge to everyday life as well as aggravate students' interest in Biology. It also forms a foundation on which other sciences are built.

Research has shown that some students perform better than the others in Biology and this has been ascribed to various factors some of which includes: intelligence, parental factors, socio-economic status and others. Amongst all these, teachers' attitude and school environmental factors has made significant impacts on the academic performance of Biology students, hence the sole aim of the study to analyze the effect of teachers' attitude and environmental factors on the academic performance of Biology Students in Udu local government area of Delta state.

Research Questions

The following questions will guide the study:

1. What is the attitude of Biology teachers towards teaching Biology?
2. To what extent does Biology teachers' mastery of subject matter affects students' learning outcome in Biology?

3. To what extent does Biology teachers' ability to communicate affects students’ academic performance in Biology?
4. To what extent does Biology teachers' classroom management skills enhance students’ performance in Biology?
5. To what extent does school environmental factors affects students’ academic performance in Biology?
6. To what extent does equipped laboratory affects students’ academic performance in Biology?
7. To what extent does class size affects students’ academic performance in Biology?
8. To what extent does location affects students’ academic performance in Biology?

Hypothesis

1. Biology teachers’ mastery of subject matter does not significantly affect students’ academic performance in Biology.

2. Biology teachers’ ability to communicate does not significantly affect students’ academic performance in Biology.

3. Biology teachers' classroom management skill does not significantly affect students' academic performance in Biology.
4. School environment does not significantly affect students' academic performance in Biology.
5. Equipped laboratory does not significantly affect students' academic performance in Biology.
6. Class size does not significantly affect students' academic performance in Biology.
7. Location does not significantly affect students' academic performance in Biology.

Purpose Of The Study

This study was carried out to analyze the effect of teachers' attitude and school environment on the academic performance of Biology students in senior secondary schools. It is aimed at:

1. Determining the attitude of Biology teachers towards teaching Biology.
2. Determining the extent to which Biology teachers' mastery of subject matter affects students' learning outcome.

3. Determining the extent to which Biology teachers' ability to communicate affects students' academic performance in Biology.
4. Determining the role of Biology teachers' classroom management skill in enhancing students` academic performance in Biology.
5. Investigating the extent to which school environment affects students' academic performance in Biology.
6. Investigating the extent to which equipped laboratory affects students' academic performance in Biology.
7. Investigating the extent to which class size affects students' academic performance in Biology.
8. Investigating the extent to which location affects students' academic performance in Biology.

Significance Of The Study

This study would significantly contribute to enhancing learning outcome from the teaching-learning process of Biology in senior secondary schools. It would be relevant to Biology teachers in the teaching profession as it identifies key factors affecting Biology students'

academic performance. It also creates a vivid picture of a conducive Biology learning environment which is essential to senior secondary school owners and other personnel in the educational sector for planning, development and accreditation.

Scope And Delimitation Of The Study

This study revolves around the influence of teachers' attitude and environmental factors on students' academic performance in Biology.

Based on the study, key variables such as mastery of subject matter, ability to communicate effectively and classroom management skills composed teachers' attitude while laboratory, class size and location were studied as environmental factors. This study is limited to Biology students in senior secondary schools in Udu local government in Delta State.

Definition Of Terms

The following terms are operationally defined and used in the study

Teacher: A teacher is an individual who causes learning to take place by imparting knowledge, stimulating learners` interest as well as facilitates learning. This individual serve as a key instrument for achieving the goals and objectives of education. In simple terms a teacher can be regarded as one who teaches.

Attitude: Attitude is the way individuals view, evaluates something or someone. These tendencies could be negative or positive, combining factors such as beliefs, opinions, moods, and emotions.

Environment: This is the entire surrounding of an organism in which it lives and operates.

Laboratory: A building or room equipped majorly for scientific experimentations, researches, teachings or manufacturing. It can also be seen as a place where experimental studies in sciences are carried out.

Biology: This is the branch of science that studies life. It deals with the study of living organisms and life processes.

Student: This is a person who is formally engaged in learning in educational institutions such as colleges, universities etc.

Academic Performance: This is the measurement of students' academic achievements in subjects offe

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter presents a review of related literature on effect of teachers` attitude and school environmental factors on the academic performance of Biology students. The preview is presented under the following sub-headings:

- Theoretical framework
- Concept of teachers' attitude towards Biology teaching and student`s learning outcome.
- Teachers' mastery of subject matter and students` learning outcome in Biology.
- Teachers' ability to communicate and student academic performance in Biology.

- Teachers' classroom management skills and students' academic performance in Biology.
- Concept of school environmental factor and students' academic performance in Biology.
- Equipped laboratory and students` academic performance in Biology.
- Class size and students' academic performance in Biology.
- Location and students' academic performance in Biology.
- Summary of literature review

Theoretical Framework

Teachers` attitude school environmental factors could affect student learning through diverse processes as suggested by various learning theories such as:

1. Social Learning Theory: This theory proposes that imitation and observation of teachers by students enhances learning outcome. Albert Bandura supported this theory, combining concepts of behavioral and cognitive learning, comprising of four distinct phases: paying rapt attention, retention of modelled behavior, display behavior and motivated to repeat previously displayed behavior (Bandura, 1977). According to

him, students should enlightened on how to set achievable goals as it concerns their academic performance including self-motivation to achieve set goals (Egbochuku, 2015).

2. Behaviorist Theory: This theory emphasizes the effect of environment on learning which involves its reward and other consequential factors. For learning to have taken there must be a change in behavior. According to B.F. Skinner, positive reinforcement influences the repetition of certain behavioral display (Egbochuku, 2015).
3. Constructivist Theory: This theory as supported by Piaget, opines that individuals construct their own expertise through analysis and direct experience. He views environmental experience as the bedrock for intellect development. He further stated that the response to environmental stimuli (physical and social) is dependent on available potentials. He studied the developmental process of a child as well as their learning ability, noting that children create their own realities based experiences, combining their observations, with their understanding of

how the world functions. This is how they learn and acquire behavior (Egbochuku, 2015).

Concept Of Teachers' Attitude Towards Biology Teaching And Student`S Learning Outcome

The effect of teachers' attitude towards Biology teaching cannot be over emphasized as it enhances students` learning outcome. Biology as a science subject, has a curriculum that inquires invariably into nature and requires skilled personnel possessing the right attitude to handle. It is subject that cannot be taught by just anyone who is not qualified in attitude. A qualified Biology teacher must have been certified academically which is an indication that such an individual is abreast with what is obtainable in Biology teaching. This is in line with the TRCN's (Teachers' Registration Council of Nigeria) definition of a teacher as an individual who in accordance to the Nigerian system of education, has obtained needed didactic skills and knowledge which fits best into the value system and capable of teaching at the appropriate level of education in Nigeria (Musa, 2022). Hence the need for teachers to be

professionally trained and certified as affirmed by the National Policy on Education, article 72 (Musa, 2022).

Teaching according to Rich (1971), teaching is an activity intended to initiate learning, aimed at achieving an end state of knowing involving the teacher and learner. This process is metamorphosed into belief, attitude or acquisition of skill. A good Biology teacher must find biology interesting and should be able to impart knowledge effectively into the students as this enhances academic performance. The goals of teaching can be easily achieved when teachers elicit positive attitude towards their subject of instruction. Ulug (2011) as cited in Bizimana (2022), opined that teachers` positive attitude has a favorable impact on students` academic achievement.

A study on the correlation of teachers' attitude and skills to students' academic achievement in Biology asserts that teachers' display of positive attitude towards subject knowledge arouses students' interest, causing learning to take place (Olagunju & Akpan, 2019). This research further affirms that a display of passion towards subject of instruction by the teacher could be regarded as positive attitude. This implies that Biology teachers need to develop a sense of

responsibility towards achieving the main goal of teaching which can be actualized when they put in their best during the teaching-learning process of Biology.

In addition to this, another research work on the influence of Biology teachers on the academic performance of students in senior secondary schools, supported that students` academic performance could associated with positive teachers` attributes such as helpful behavior, resourcefulness, enthusiasm, good method of presentation, teachers' knowledge of subject matter and acceptance as role models (Omosholape & Oluwole, 2021). This therefore proves the fact that students' assimilation ability can be related to teachers' attitude which effects learning and finally reflects in students` academic performance.

Mcleoid (2014) understands teachers' attitude as tendencies towards specific objects, groups or symbols, identifying these tendencies as array of beliefs, feelings and behavior. Mutual trust and respect amongst teachers and students are products of influential attitude (Bonni, 2005). Richardson (1996) as cited in Bonni (2005) states that attitudes and beliefs defines the structure and content of

mental states which are presumed to aggravate an individual's action. Still on Bonni's research, five effective teachers' attitude were suggested:

1. Displaying care and kindness.
2. Responsibility sharing.
3. Sensitivity and diversity acceptance without any form of discrimination and discrepancies.
4. Fostering individual instruction.
5. Encouraging creativity.

Classifying attitude based on the nature of its effect, can be identified as:

1. Positive attitude.
2. Negative attitude.

Kahveci's (2023) work concurred with this classification, categorizing some teachers' attitude as positive and others as negative. The positive attitude were grouped into three categories which includes:

1. Effective communication and ethical attitude.

2. Professional competence and dedication.
3. Individual support and trust.

While the negative attitude were classified as thus:

1. Discrimination and injustice.
2. Classroom management and communication problems.
3. Occupational incompetence and irresponsibility.

Probing further into his work, it was discovered that teachers' attitude and confidentiality level possess a remarkable way of boosting students' academic performance accrediting to the fact that students perform better amidst teachers' expression of a good level of support and acceptance. To further support these findings, Yurtul and Artut (2010) asserts that *"positive teachers' attitude influences academic achievement and negative teaching attitude influences academic performance."* The effect of teachers' attitude on students as described by Sever (2018) is a prolonged one.

Teachers' Mastery Of Subject Matter And Students' Academic Performance In Biology

In education, a teacher is seen as an educator, instructor, tutor, lecturer, counsellor or professor, assuming diverse utilitarian responsibilities (Musa, 2022). A teacher can also be regarded as one who instructs. Philosophically, this individual is recognized as one who can deliver effectively based on specified field on the basis of possessed knowledge with unique specification. The teacher according to Agenta (1991) as cited in Musa (2022) is referred to as an input operator in the education setting, saddled with the responsibility of converting raw materials (students)into finished products, transforming the unlearned into the learned, uneducated into educated and unskilled into skilled. Proper subject mastery, makes instruction effective and enhances students` academic performance.

Teachers' mastery of subject matter can be regarded as teachers` conceptual knowledge in subject of instruction. It is the ability of a teacher to think, understand basic concepts in subject of instruction as well as impart knowledge, skills, attitude and values into the students (Onyekachi, Dominic, Zugwai,

Chidiebube & Chidinma, 2020). It is a display of good command of subject matter. A teacher with a good mastery of subject matter understands the concepts, principles, relationships, processes and application within a given subject and is capable of appropriating or organizing these concepts for impactful teaching-learning process. Findings from Aina and Olaonipekun (2005) suggests that having a surface knowledge of concepts in a subject is not sufficient in the professional development of a teacher but a sound knowledge background and ability to teach any concept in the curriculum will be able to achieve desired goals in terms of students` academic performance. The Biology teachers' mastery of subject matter is highly dependent on their capability to understand what they are to teach (Erikwe, Dirisu & Ogunbayo, 2020).

Another research on the impact of teachers' personality on academic performance of Biology students, affirmed that a foundational understanding of basic structural concepts and sequence develops deep knowledge required for specific subjects and guides learners during the teaching-learning process. Probing further into this research, lack of expertise as it relates to subject mastery, give rise to poor teaching and learning of Biology concepts and risks

students` academic performance. Hence, teachers should possess a broader knowledge in subject of instruction surpassing the limits of curriculum for effective instruction process and tremendous academic performance. In developing this ability, Abdullah and Jasmi (2016) proposed that friendly group conversation, lecture delivery, scientific books, articles or journals writing, papers presentation and reading resourceful internet materials could help in developing a good subject mastery.

Teachers` Communication Ability And Students` Academic Performance In Biology

Communication is an interactive process whereby information is passed from one person to another. It could be verbal or non-verbal involving the use of gestures, sign language or written texts. The students' ability to understand what is taught is dependent on how well the teacher communicates ideas (Morreale, Osbon & Pearson, 2000). As a skill, communication is the ability to efficiently use understood signs, symbols and semiotic convention to make meaningful statement or pass information to specific personalities (Hamper, 2015). It aids understanding and in turn improves the communication skills of learners.

Academic performance is enhanced amidst effective learning and this characterizes the brain behind effective communication.

Types of Communication Skill

1. Verbal Communication Skill: This is the ability to pass information orally. A good listening skill is required to complement oral communication. It can also be recognized as the transmission of ideas from one person to another verbally (Swarthout & Chapel, 2020).
2. Non-Verbal Communication Skill: This is a direct opposite of verbal communication. It involves the use of gestures, facial expression, eye contact body language or posture (Doyle, 2020). It may also involves the use of text writing or sign language. Possessing this ability implies that a proper and effective communication of ideas enhances learning outcome.

According to Muller (2006) communication is necessary for the following reasons:

1. Improve management effectiveness.
2. Coordination of group activities.

3. Convey of information about changes in technology which include current technology trends, economic, political and social environment.
4. It increases general knowledge and understanding.

In the classroom, effective communication leads to the following:

1. Facilitates understanding by enhancing students` ability to understand what is taught in class and this in turn builds students` knowledge and self-confidence.
2. Promotes active learning through class discussions.
3. Students are able to give feedbacks to teachers as this ascertains the level of mastery in learners.
4. During class discussion, ideas sharing and exploration of new concepts, critical thinking and problem solving ability are developed in learners.
5. Learning challenges are easily identified for additional guidance and support.
6. Improves students` engagement by motivating them to learn.
7. Fosters lifelong learning by helping student cultivate the habit of learning.

In addition to this, Asra, Tariq and Rashid asserted that the background of students' academic performance in character and standard is dependent on teachers` ability to communicate efficiently. Also, McCarthy and Carter (2001), proposed that for an efficient lesson delivery and exceptional academic performance, teachers` ability to communicate is a determining factor.

Factors Militating against Effective Classroom Communication.

According to Ashizzaman (2023), the following are hindrances to effective communication in the classroom;

1. Excessive verbalism.
2. Anxiety: this is the inability of a student to speak up due to lack of self-confidence.
3. Language: This can significantly affect learning, if students don`t understand the language of instruction.
4. Expression: This becomes problematic when tutors find it difficult to describe conceptual ideas so as to impart knowledge or learning.
5. Reference Confusion: Inappropriate use of words different contexts.

Others include:

6. Disinterest.
7. Physical discomfort.
8. Lack of credibility.
9. Mental factor.
10. Age factors and others.

In another research, on the effects of teachers' communication skills on students' academic performance, heredity, mannerisms, accents and purpose of information were said to have influenced teachers' ability to communicate which in turn affects clarity of lesson, students' familiarity with subject matter, students' presentation skill and academic performance in examinations (Olusegun, 2012). Noise was considered a distorting factor during the course of this research, hence the need for effective classroom management.

Teachers' Classroom Management Skill And Students' Academic Performance In Biology

Classroom management according to Mulvahill (2018) can be defined as teaching skills and techniques implemented by teachers to ensure the smooth

run of their classroom without distractions from students. From this study, it was discovered that passion or dedication is not sufficient in imparting learning as the absence of classroom management negatively influences learning. It also plays a functional role in creating and maintaining an orderly environment for effective learning (Vidya, 2022). This author further affirms that classroom managerial concepts are directly linked to academic achievement, teachers' efficiency and behavior. Vidya (2022) further stated that classroom management consists of three major constituents which are intertwined. They include:

1. Content management.
2. Conduct management.
3. Covenant management.

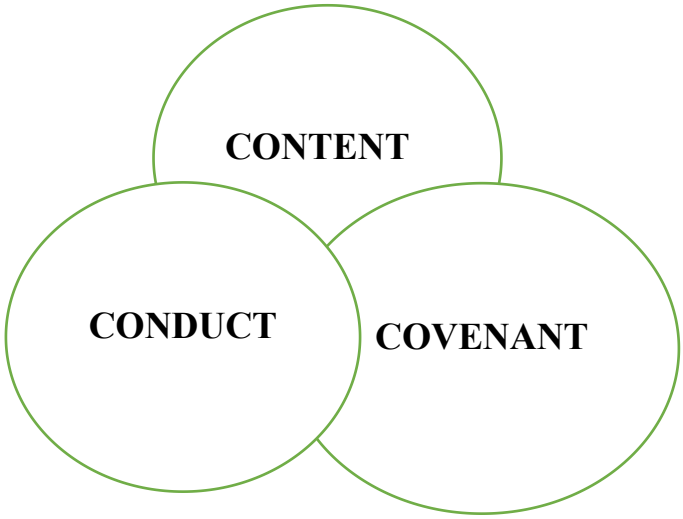

Figure1: Constituents of Classroom (Adopted from Vidya (2022)).

The content management was referred to as the skill encompassing subjects and activities while conduct management involves one's belief about peoples nature which is integrated into teaching and covenant management emphasizes the roles of students and teachers in creating a conducive learning environment regarding the classroom as a social system.

The Role of a Teacher in Classroom Management

This involves the responsibility of a teacher in ensuring that the classroom is properly managed. This includes:

1. Establishing Clear Expectation: A productive learning atmosphere is achievable when acceptable form of behavior, consequences of misbehavior and academic expectations are clearly stated.

2. Relationship Building: For a teacher to impact knowledge, effective and positive relationship must be built which entails knowing the students individually, showing empathy and giving room for open communication.
3. Provides structure and routines: This minimizes distractions and maximizes instruction as students understand expectations.
4. Encourages active participation of students in class: This can achieved by using various instructional strategies that promote active participation. Examples include: hands-on activities, group work, discussion and technology integration.
5. Continuous monitoring and reflection.
6. Positive inheritance.

According to Arif (2003) as cited in Gujjar & Naoreen (2009), to create a productive learning environment the teacher has the following roles to play as a classroom manager;

1. Motivates student learning: This serves as an initial approach to inhibit indecency in class and it occurs when the learning atmosphere suggests

comfort, social acceptance, safety or value. When students are motivated to learn, academic performance is enhanced (Gujjar & Naoreen, 2009).

2. Displays moderate degree of control: A teacher who is strictly an authoritarian makes learning tasking for learners as student are not given needed freedom to explore their self-generated ideologies. Although this may be suitable for memory task.
3. Students empowerment: This can be achieved through group or individual learning task
4. Communicate interest in all students: This is displayed when on shows concern for each student either through eye contact or facial expression during instruction (Gujjar & Naoreen, 2009).

Effects of Classroom Management on Academic Performance of Students

Robert Diguilo in Ebimiere, Ulaoku and Onyekachi (2020), identifies positive classroom management as consequential to the following factors:

1. Teachers` regard on their students.
2. Classroom set-up.

3. Skillful content teaching.

A properly managed classroom bring about consistency in remarkable academic performance, meaning classroom management is a combination of instructional and behavioral management which enhances teaching and learning, boosting academic performance (Ebimiere, Ulaoku & Onyekachi, 2020). Walker (2009) asserts that the best teachers don`t only teach content but people. Moore (2008) also suggests a relationship between some classroom management strategies and increased students' performance.

Classroom Management Strategies

These strategies as stated in Ebimiere, Ulaoku & Onyekachi (2020) includes:

1. Reward-based motivational system.
2. Teacher-student interaction.
3. Classroom discipline.
4. Active student participation.
5. Efficient class monitoring and feedback.
6. Proper seating arrangement

7. Birthing self-discipline and a sense of belonging in students.

Concept Of School Environmental Factor And Students' Academic Performance In Biology

In Biology, environment is referred to as the entire surrounding of an organism which could be internal or external and in turn affect its survivability and development. According to Omolo, Otara and Atieno (2020), school environmental factor refers to the present state of the school which is capable of affecting students` academic performance such as school climate, facilities and resources. In another study, Orlu (2013) discovered that environment affects performance while lack of maintenance causes low academic performance. This proves the fact that learning is greatly influenced by environment. To drive this further, B.F Skinner a behavioral psychologist, conducted an experiment. He placed a rat in a box which is called 'Skinner box'. This box had a protruding bar in it with food underneath it. The rat inspects the bar and pressing it caused some amount of food to drop. As this was noticed by the rat, it pressed the bar continuously for more food. This proves that the environment influences

learning. After learning has taken place due to environmental influence, its results is reflected in the academic performance of the student.

From another analysis, it was discovered that schools with good academic performance of student had adequate, functional and quality structures. This however differed significantly from their counterparts who had short supply of these structures (Okoye, Okoh, Ezeji, Omonkhuanlen & Onoh, 2021). UNESCO (2001) affirms that the Nigerian child is a resultant factor or outcome of diverse environments which contributes invariably to the development and learning process of that child. From records, schools with the best WAEC results in previously written exams were schools of high standards. In 2019, the whole country was amazed when a student came out top with 9A's including Biology. This outstanding performance prompted the researcher to make more findings about the school and it was discovered that the school where this student belonged was highly standardized.

Equipped Laboratory And Students' Academic Performance In Biology

A laboratory is simply a place where scientific experiments are carried out. It is a place where scientific related researches, developments and analysis takes

place (Schrieiber, 2024).The presence of a laboratory in a school environment gives room for a life experimentation or direct communication with the material world making use of tools, data collection techniques, models and science theories (Singur, Hilkon & Schivergruber, 2006). Lunetta (1998) defined it as an experience in school that causes students to observe materials and understand the natural world.

Essence and Effect of Laboratory in Biology Teaching

As derived from the National Research Council, (2006), the laboratory experience is vital for the following reasons:

1. To better understand science and its learning
2. To develop interest in science and its nature
3. To enhance effective mastery of subject matter
4. To develop scientific reasoning
5. To develop team work abilities
6. To develop practical skills

7. To navigate efficiently through the complex and ambiguous nature of empirical work.

Apart from the National Research Council, (2006), other researchers across the globe have painstakingly studied the effect of laboratory and its practical activities on the academic performance of students in Biology. In Rwanda, Ntawuhiganayo and Nsanganwimana, (2022) revealed based on their findings that laboratory practical activities considerably raise students' academic achievement in Biology than the traditional teachers' exercises such as the chalk and talk method. The study further recommended that laboratory practical activities should be incorporated into the teaching-learning process by teachers.

Olutola, (2016) a Nigerian researcher, discovered that Nigerian students who were exposed to practical activities obtained greater average scores than their counter parts who were exposed to alternative activities. Abidoye (2021) also affirms a significant impact of laboratory practical on the academic performance of Senior Secondary School Students in Biology in Ilorin South LGA, Kwara State. A remarkable academic performance is undeniably credited to effective teaching and learning. Adebisi and Ajayi (2015) opines that practical activities

which makes science appear real to the human sense of reasoning is of great essence to effective science learning. Through a wide range of activities that use sourced science ideas to enhance learning experience, misconceptions are broken down, abstract and challenging concepts are made concrete thereby kindling, expanding and maintaining students` enthusiasm towards science (Etiubon & Udoh, 2017).

Going further into the National Research Council, (2006) earlier mentioned, it was suggested that the essence of a laboratory can be realistic when the following are considered:

1. Good classroom planning for effective science teaching in order to ensure a coordinated flow of instruction in a properly organized classroom.
2. Integration of science content and process during learning
3. Use of team work or class group to enhance effective teaching learning process
4. In other to communicate the learning purpose of a laboratory effectively, it is designed with the learning outcomes in mind.

Description of a Well-Equipped Biology Laboratory

A well-equipped biology laboratory is made up of functional Biology facilities which Udo (2006) sees as facilities that can be used to improve educational program and enhance teaching-learning process.

A well-equipped laboratory possess the following equipment:

1. Essential laboratory facilities such as:
   a. Laboratory benches with sink, water-faucet, reagent-rack, base cabinets and others.
   b. Teachers table
   c. Cupboard
   d. Lab stools and chairs
2. Essential equipment:
   a. Microscope
   b. Slide
   c. Petri-dish
   d. Watch-glass
   e. Dissecting tray and others
   f. Forceps and others.

3. Laboratory consumables:

a. Tubes

b. Strips

c. Filters

d. Reagents

e. Caps

f. Tips

g. Gloves and others

4. Laboratory machines.

Class Size And Students` Academic Performance In Biology

Considering the increasing global population, the class size will unavoidably grow (Owoeye & Yara, 2011). This inhibits the Biology teacher from providing the students with the attention they need, understanding the fact that Biology is one of the subjects that requires a lot of student focus and demonstration. Less motivated students are usually observed at the back of the class forming a

committee to engage in discussions irrelevant to the material being covered in class because teachers` class control have decreased to an extent that is apparent (Ehebha & Adeyinka, 2022). Class size also regarded as the typical student population taught by a specific teacher, can be defined as the total number of students enrolled in a given class (Christian, 2017). It can also be defined as the total number of students in a classroom allocated to learn one or more previously stated subjects (Ehebha & Adeyinka, 2022).

It is essential for educators to comprehend whether a correlation exists between the quantity of pupils in a classroom and their academic performance. Empirical evidence demonstrating the importance of the correlation between class size and academic achievement is required for stake-holders at all educational levels. Particularly in economically challenged rural areas, where financing is scarce than in rich places (urban areas). Studies (Akachukwu & Igboabuchi, 2018; Mokobia & Okoye, 2018) have indicated that students and teachers generally favor smaller class sizes while the National Policy on Education (FRN, 2013) advocated a teacher-student ratio of 1:40, Babatunde (2019) recommended an educational policy with class sizes smaller than thirty as the number of students

in a class influences students' comprehension level. Regretfully, there are a lot of conflicting findings that make it difficult to decide whether or not to reduce the number of pupils in a classroom in order to improve academic attainment regarding the subject (Addonizio & Phelps, 2010; Biddle & Berliner, 2012; Milesi & Gamoran, 2016; Slavin, 1989 as cited in Ijeoma & Ngozi, 2020). The West Africa Examination Council (WAEC, 2010) identified a number of reasons that contributed to the low biology results, including a lack of understanding of ecological concepts and huge class sizes. It is discouraging to see how many science students there are in senior secondary classes (Omwirhiren & Anderson, 2016).

According to Musa (2018), the majority of students in big class sizes don't replicate the teacher's notes or the summary of the lecture. Large class sizes are typically associated with disruptive behavior, challenges organizing learning activities for the students, and a shortage of supplies. Students become less committed to their education as a result of this. In another research conducted by Ruffina, Esther and Anastecia (2018), it was discovered that there is probability that students in large classes will cheat on assignments, tests, and

exams. Implying that the students' real academic performance was not evident in their class grade, which could have a negative impact on them in any external exam. Large class sizes can also make it difficult for students to follow and see what is written on the whiteboard. It can also make it difficult for professors to dedicate enough time to helping students develop the necessary practical skills, which can hinder students' performance.

Location And Students' Academic Performance In Biology

According to Nworgu et al. (2013); Okorie and Ezeh (2016), a student's academic success may be impacted by the location of their school. In a similar vein, Bizimana et al. (2022) discovered that one of the most important variables influencing students' academic achievement in Biology was the school's location. Location is a geographical range of a place, a place where something is situated. A school location is a place where the school is situated. This place could be rural or urban.

There is recorded and reported evidence linking the location of the school to the academic performance of the students (Ellah & Ita, 2017; Umar & Samuel, 2018). According to several studies (Alordiah et al., 2015; Bizimana et al., 2022;

Nnenna & Adukwu, 2018; Olusola & Omotade, 2014; Olutola, 2016; Umar, 2017), urban students performed better in science and mathematics than their rural counterparts while Awodun and Oyeniyi (2018) found, however, that students' achievement in fundamental science was unaffected by the location of the school. Students in rural schools also seem to value education less, according to other research findings (Macmillan, 2012). It follows that children in rural schools may not fare as well academically in biology as their urban counterparts due to reduced educational standards and a lessened focus on academics. Because of the disparity in social amenities between rural and urban schools, instructors also have a tendency to detest rural schools more than urban ones, which is bad for the former (Ronfeld et al., 2014).

Furthermore, parental contributions provide urban school teachers with a compensation bonus in addition to their government salary. Compared to rural areas, cities typically offer more opportunities for earning extra money (Bennell & Ntagaramba, 2008; Rubagiza et al., 2016). Due to this effect, qualified educators have been reluctant to post to rural areas, which raises the possibility that they would quit and ultimately lowers student academic attainment

(Ronfeldt et al., 2014; Tumwebaze, 2016). As a result, there is a discrepancy in the caliber of educators in the two aforementioned fields, which accounts for the performance disparity.

Summary Of Literature Review

Teachers` attitude and school environment play key roles in influencing students` academic performance in Biology, hence for effective literature review these independent variables were divided into sub-variables. The essence of teaching is to cause learning and this would be effective when factors influencing the teaching-learning process are kept in constant check for better academic performance. For enhanced conceptual understanding and implementation, empirical analysis was carried out to bring together diverse researchers and authors perceptions of these key factors and how they affect the academic performance of students in Biology. Amidst the unifying views of some researchers some were still outstanding with their views.

Although other sub-variables influenced students` academic performance but communication, classroom management, well equipped laboratory and location, play a unique role in the Biology teaching-learning process. This chapter was

concluded by listing the breadth and caliber of literature on the effect of these variables on Students` academic performance in Biology.

CHAPTER THREE

METHODOLOGY

This chapter is discussed under the following sub-headings:

- Design of the Study
- Population of the study
- Sample and sampling technique
- Research instrument
- Validity of the instrument
- Reliability of the instrument
- Method of data collection
- Method of data analysis

Design Of The Study

A descriptive survey research design was adopted for the study to ascertain the effect of attitude and school environmental factors on the academic performance of biology students in senior secondary school. It is a non-experimental research design with an array of questions designed to elicit responses from a defined population as regards a specific subject of interest.

Population Of The Study

The population of the study includes students offering Biology in senior secondary schools, Udu Local Government Area, Delta State with an estimated population of about two thousand (2000) students in eighteen (18) secondary schools.

Sample And Sampling Technique

The sample for this research was one hundred and fifty (150) students from five (5) secondary schools in Udu Local Government Area, Delta State. Random sampling technique was used in selecting the study sample.

Research Instrument

The instrument for data collection was a structured questionnaire consisting of two sections A and B in order to guide the study. Section A consisted of the student`s bio data while section B involved the objectives of the research broken down into sub-categories. It was taken to the researcher`s supervisor for validation before administration.

Validity Of The Instrument

The researcher`s supervisor validated the instrument, effecting corrections and modifications where necessary.

Reliability Of The Instrument

The split half method was used to determine the reliability of the instrument, checkmating its internal consistency. The reliability coefficient of 0.80 derived indicates that the instrument is reliable.

Method Of Data Collection

The questionnaires were administered personally by the researcher to the respondents and they were retrieved immediately.

Method Of Data Analysis

The statistical method of data analysis was dependent on percentage ranking and rating, mean, standard deviation and the application of T-test to determine the significance of stated hypothesis.

Responses were structured as follows:

SA- Strongly Agree

A- Agree

D- Disagree

SD- Strongly Disagree

Weights were also allocated to each scales used in determining actual scores:

SA = 4

A = 3

D = 2

SD = 1

Percentage rating was applied in describing the amount of responses of respondents as well as the demographic data.

CHAPTER FOUR

PRESENTATION OF RESULT AND DISCUSSION OF FINDINGS

This chapter presents the data collected, analyzes and interprets the results during the course of study.

Presentation Of Results

Section A: Analysis of Demographic Data

Table 1: Gender of Respondents

Gender	Respondents	Percentage
Male	53	35%
Female	97	65%
Total	150	100%

Table 1 shows that 35% if the total respondents were males with 65% were females

Table 2: Class of Respondents

Class	Respondents	Percentage
SSS1	60	40%
SSS2	59	39%

SSS3	31	21%
Total	150	100%

Table 2 shows that 40% of the respondents are in SSS1, 39% are SSS 2 and 21% are in SSS 3

Section B: Analysis of Research Questions

Research Question 1: Attitude of Biology teachers towards teaching Biology

Table 3: Respondents' view on the attitude of Biology teachers towards teaching Biology

	SA (%)	**A (%)**	**D (%)**	**SD (%)**	**Total (%)**
My Biology teacher finds it interesting teaching my class Biology.	61 (41%)	65 (43%)	14 (9%)	11 (7%)	150 (100%)
My Biology teacher does not miss classes.	66 (44%)	63 (42%)	6 (4%)	15 (10%)	150 (100%)
My Biology teacher makes adequate preparation for lessons.	69 (46%)	55 (37%)	20 (13%)	6 (4%)	150 (100%)
My Biology teacher finds it fun and interesting teaching Biology as a	75 (50%)	58 (39%)	7 (5%)	10 (7%)	150 (100%)

subject.					
My Biology teacher carries everyone along whenever she teaches.	70 (47%)	53 (35%)	14 (9%)	12 (8%)	150 (100%)

Research Question 2: Extent to which Biology teachers' mastery of subject matter affects students' learning outcome in Biology

Table 4: Respondents' view on the extent to which Biology teachers' mastery of subject matter affects students' learning outcome in Biology

	SA (%)	**A (%)**	**D (%)**	**SD (%)**	**Total (%)**
My Biology teacher breaks down Biology concepts to my level of understanding.	88 (59%)	37 ((25%)	13 (9%)	12 (8%)	150 (100%)
My Biology teacher is resourceful in the way responses are given to questions asked by the students.	51 (34%)	80 (53%)	12 (8%)	7 (5%)	150 (100%)
Biology lessons are related to everyday life by the Biology teacher.	64 (43%)	56 (37%)	18 (12%)	12 (8%)	150 (100%)
My Biology teacher is abreast with current trends in Biology.	43 (29%)	75 (50%)	24 (16%)	8 (5%)	150 (100%)
I would remarkably perform well, if Biology concepts are clearly explained.	108 (72%)	27 (5%)	9 (6%)	6 (4%)	150 (100%)

Research Question 3: Extent to which teachers' ability to communicate affects students' academic performance in Biology

Table 5: Respondents' view on the extent to which teachers' ability to communicate affects students' academic performance in Biology.

	SA (%)	A (%)	D (%)	SD (%)	Total (%)
My Biology teachers communicate Biology concepts effectively, hence I understand them.	40 (27%)	81 (54%)	17 (11%)	12 (8%)	150 (100%)
I am motivated to learn Biology when there is free flow of information from teacher to students and vice versa.	91 (61%)	52 (35%)	4 (3%)	3 (2%)	150 (100%)
Student-teacher communication enhances academic performance.	81 (54%)	59 (39%)	5 (3%)	5 (3%)	150 (100%)
Effective communication eliminates classroom distractions and ensures a free flow of information without disruption.	55 (37%)	79 (53%)	10 (7%)	6 (4%)	150 (100%)

Research Question 4: Extent to which classroom management skills enhance students' academic performance in Biology

Table 6: Respondents' view on the extent to which classroom management skills enhance students' academic performance in Biology

	SA (%)	A (%)	D (%)	SD (%)	Total (%)
No side talks are entertained during Biology classes.	58 (39%)	46 (31%)	22 (15%)	24 (16%)	150 (100%)
My Biology teacher is an efficient classroom manager.	53 (35%)	70 (47%)	21 (14%)	6 (4%)	150 (100%)
An organized classroom enhances academic performance.	84 (56%)	50 (33%)	8 (5%)	8 (5%)	150 (100%)
Active participation of students is ensured during Biology classes.	61 (41%)	59 (39%)	16 (11%)	14 (9%)	150 (100%)
Proper sitting arrangement is ensured during Biology classes.	41 (27%)	62 (41%)	20 (13%)	17 (11%)	150 (100%)

Research Question 5: Extent to which environmental factors affect students' academic performance in Biology

Table 7: Respondents' view on the extent to which environmental factors affect students' academic performance in Biology

	SA (%)	A (%)	D (%)	SD (%)	Total (%)
My schools' environment is conducive for learning.	44 (29%)	50 (23%)	26 (17%)	30 (20%)	150 (100%)
Learning facilities are efficiently maintained.	34 (23%)	41 (27%)	42 (28%)	33 (22%)	150 (100)
I find it difficult to learn in my school environment.	27 (18%)	23 (15%)	51 (34%)	49 (33%)	150 (100%)
My school is highly standardized with quality infrastructure.	19 (13%)	43 (29%)	44 (29%)	44 (29%)	150 (100%)
I will perform better academically if my school environment is improved upon.	98 (65%)	42 (28%)	3 (2%)	7 (5%)	150 (100%)

Research Question 6: Extent to which equipped laboratory affect students' academic performance in Biology

Table 8: Respondents' view on the extent to which equipped laboratory affect students' academic performance in Biology

	SA (%)	A (%)	D (%)	SD (%)	Total (%)
I have seen a well-equipped Biology laboratory.	20 (13%)	41 (27%)	44 (29%)	45 (30%)	150 (100%)
My school has a functional Biology laboratory.	12 (8%)	44 (29%)	43 (29%)	51 (34%)	150 (100%)
Biology practical are effectively carried out in my school.	16 (11%)	46 (31%)	38 (25%)	50 (33%)	150 (100%)
I enjoy practical Biology than theoretical Biology.	40 (27%)	61 (41%)	20 (13%/	29 (19%)	150 (100%)
My Biology grades would improve greatly if practical Biology is carried out effectively.	105 (70%)	38 (25%)	7 (5%)	0 (0%)	150 (100%)

Research Question 7: Extent to which class size affect students' academic performance in Biology

Table 10: Respondents' view on the extent to which class size affect students' academic performance in Biology

	SA (%)	A (%)	D (%)	SD (%)	Total (%)
My classroom is highly populated.	74 (49%)	43 (29%)	26 (17%)	7 (5%)	150 (100%)
A small and moderate class size encourages effective learning.	65 (46%)	55 (37%)	15 (10%)	11 (7%)	150 (100%)
I will do better in a largely populated class.	23 (15%)	38 (25%)	40 (27%)	49 (33%)	150 (100%)
A large class can be effectively controlled by my Biology teacher.	51 (34%)	35 (23%)	36 (24%)	28 (19%)	150 (100%
A largely populated classroom encourages examination malpractices.	90 (60%)	40 (27%)	7 (5%)	13 (9%)	150 (100%)

Research Question 8: Extent to which location affect students' academic performance in Biology

Table 11: Respondents' view on the extent to which location affect students' academic performance in Biology

	SA (%)	A (%)	D (%)	SD (%)	Total (%)
Schools located in urban areas are more equipped in terms of infrastructure than those in rural communities.	60 (40%)	57 (38%)	22 (15%)	11 (7%)	150 (100%)
Noise is a factor that should be considered in siting a school.	63 (42%)	59 (39%)	8 (5%)	20 (13%)	150 (100%)
My school location is easily accessible.	61 (41%)	57 (38%)	20 (13%)	11 (7%)	150 (100%)
My schools' location encourages learning and better academic performance.	57 (38%)	67 (48%)	28 (19%)	8 (5%)	150 (100%)

Hypothesis Testing And Interpretation

1. Biology teachers' mastery of subject matter does not significantly affect students' academic performance in Biology.

Table 13: T-test

Sample mean	Standard Deviation	Significance Level	T-critical	T-calculated	P-value
16.26	3.91	0.05	-1.96 < x > 1.96	19.6084	0.0001

Decision: Reject null hypothesis, H0 at a significance level of 0.05. This however implies that teachers' mastery of subject matter significantly affect students' academic performance of students in Biology

2. Biology teachers' ability to communicate does not significantly affect students' academic performance in Biology

Table 14: T-test

Sample mean	Standard Deviation	Significance Level	T-critical	T-calculated	P-value
13.19	2.93	0.05	-1.96 < x > 1.96	13.3343	0.0001

Decision: Reject null hypothesis, H0 at a significance level of 0.05. This however implies that Biology teachers' ability to communicate significantly affect students' academic performance of students in Biology.

3. Teachers' classroom management skill does not significantly affect students' academic performance in Biology.

Table 15: T-test

Sample mean	Standard Deviation	Significance Level	T-critical	T-calculated	P-value
15.27	4.5	0.05	-1.96 < x > 1.96	14.3431	0.0001

Decision: Reject null hypothesis, H0 at a significance level of 0.05. This however implies that Biology teachers' classroom management skill significantly affect students' academic performance of students in Biology.

4. School environment does not significantly affect students' academic performance in Biology.

Table 16: T-test

Sample mean	Standard Deviation	Significance Level	T-critical	T-calculated	P-value
13.21	5.01	0.05	-1.96 < x > 1.96	7.8472	0.0001

Decision: Reject null hypothesis, H0 at a significance level of 0.05. This however implies that School environment significantly affect students' academic performance of students in Biology.

5. Equipped laboratory does not significantly affect students' academic performance in Biology.

Table 17: T-test

Sample mean	Standard Deviation	Significance Level	T-critical	T-calculated	P-value
12.93	4.57	0.05	-1.96 < x > 1.96	7.8523	0.0001

Decision: Reject null hypothesis, H0 at a significance level of 0.05. This however implies that equipped laboratory significantly affect students' academic performance of students in Biology.

6.Class size does not significantly affect students' academic performance in Biology.

Table 18: T-test

Sample mean	Standard Deviation	Significance Level	T-critical	T-calculated	P-value
14.78	4.83	0.05	-1.96 < x > 1.96	12.1207	0.0001

Decision: Reject null hypothesis, H0 at a significance level of 0.05. This however implies that class size significantly affect students' academic performance of students in Biology

7. Location does not significantly affect students' academic performance in Biology.

Table 19: T-test

Sample mean	Standard Deviation	Significance Level	T-critical	T-calculated	P-value
12.60	3.72	0.05	-1.96 < x > 1.96	8.5600	0.0001

Decision: Reject null hypothesis, H0 at a significance level of 0.05. This however implies that location significantly affect students' academic performance of students in Biology.

Based on the outcome of the hypothesis tested, it therefore affirms the fact that a good number of students believes that teachers' attitude and environmental factors have a significant impact on their academic performance.

Discussion Of Findings

The formulated, tested hypothesis and outcome of findings form the basis of the findings discussion with each hypothesis discussed individually.

Teachers' attitude towards Biology Teaching

From the data analyzed, it is observed that teachers' attitude based on students' assessment is characterized by classroom management skills, mastery of subject matter and other influential teachers' attitude. This however correlates with the study of Omosholape and Oluwole (2021), considered knowledge of subject matter, teaching methodology and other teachers' related attributes. Kahveci (2023) also considered considered both positive and negative teacteachers'

attitude which included effective coomunication, professional competence, individual support, discrimination, poor classroom managent and others.

Teachers' Mastery of Subject Matter and Students' Academic Performance in Biology

The result of this hypothesis indicates teachers' mastery of subject matter significantly affect students' academic performance in Biology. This finding corresponds with that of Onyekachi et al. (2020) who supports that subject mastery is an essential part, of the teaching profession as improved teaching quality, inspires students and also improves their academic performance. Bizzimana (2022), in his research on the interplay between teachers' efficacy, effectiveness, attitudes and students' academic achievement concludes that good Biology knowledge alongside positive attitude towards Biology teaching plays a crucial role in the academic success of Biology students in Biology. Also Omosholape and Olawole (2021) based on their findings discovered Biology teachers have a significant influence on the academic performance of Biology students in South-West zone, Nigeria and this they attributed to be as a result of

teachers' knowledge of subject matter, helpful behaviour, resourcefulness, good method of teaching and concern for students' knowledge of subject matter.

Teachers' ability to Communicate and Students' Academic Achievement in Biology

The result of the hypothesis indicates that there is a significant influence of teachers' ability to communicate on students' academic performance in Biology. This is in line with the findings of Asra, Tariq and Rashid (2018) who asserts that teachers' ability to communicate efficiently contributes to the foundation of students' academic performance both in standard and character. According to Amadi and Paul (2017), student-teacher communication has significantly improved the teaching-learning process of under graduate students in the Department of Educational Psychology Guidance and Counselling, University of Port Hacourt which have been consequential to their academic achievement. Roorda et al. (2014) also affirms based on their findings, that quality teacher-student relationship and students' school engagement in high school which are both derivatives of student-teacher communication, have a significant influence on students.

Teachers' Classroom Management Skills and Students Academic Performance in Biology

The result of this hypothesis showed that teachers' classroom management skills significantly affect students' academic performance in Biology. A total of eighty-four (84) respondents strongly agreed that an organized classroom enhances academic performance. This corroborates the findings of George, Sakirudeen et al. (2017) which states that effective classroom management significantly influence students' academic performance. According to Wang (2009), effective mastery and application of classroom management techniques is essential for a remarkable impact on students' academic performance.

Environmental Factors and Students' Academic Performance in Biology

From the data analyzed, it is observed that environment factors significantly affect students' academic performance in Biology. Majority of the respondents strongly agreed to the fact that environmental factors have contributed its quota to their academic performance with just a few strongly disagreeing. The students convincingly affirmed that if these factors are improved upon, then

there would be a positive change in their academic performance in Biology. In consonance with the findings of Hussain (2023), environmental factors makes a remarkable impact on students' educational background as well as their future performance. Ozcan (2021) opined that the academic success of students is dependent on the reliability of the school environment in enhancing learning. Orlu (2013) also affirm that environment affects performance while lack of maintenance causes low academic performance.

Equipped Laboratory and Students' Academic Performance in Biology

The result of the hypothesis revealed that an equipped and functional laboratory significantly affect students' academic performance in Biology. Most respondents, One hundred and five (105) precisely believed that their Biology grades will improve if practical Biology is carried out effectively. This however correlates with the findings of Abidoye (2021) who affirms that laboratory practical significantly influence students' academic performance in Biology. Also, Katcha and Wushishi (2015) based on their findings, discovered that a significant difference exists between the academic performance of Biology students exposed to an adequately equipped laboratory as well as their counter

parts without such exposure. They also suggested based on their findi ngs that such exposure is necessary for activity based learning is key to enhanced knowledge construction and academic performance in Biology.

Class Size and Students' Academic Performance in Biology.

The result of the hypothesis indicates that class size significantly affects students' academic performance in Biology with a total of ninety respondents (90) who strongly agreed that a largely populated classroom encourages examination malpractice. This however correspond with the findings of Ruffina et al. (2018) which asserts that a large class size has a negative impact on students' academic performance as true performance of students cannot be determined since some students benefit from the act of cheating during exams. Also, Oluyemisi et al. (2022) discovered class size makes a significant impact on the academic performance of Biology students in senior secondary schools. Going further into their research work, it was revealed that a class with a lower population will perform better than those with a higher population.

Location and Students Academic Performance in Biology

The result of the hypothesis indicates that location significantly affect students' academic performance in Biology. This findings however corresponds with findings of Bizzimana et al. (2022) which revealed that school location, gender and type of school significantly affect students' academic performance in national examinations precisely. They also went further to affirm that students in urban areas perform better than their counter parts in rural areas. Findings from Isemede (2021) reveals that school location influences students' academic achievement despite the absence of no significant difference in academic performance of students in rural and urban areas.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

This study was aimed at eliciting responses from Biology students as regards their assessment of teachers' attitude and environmental factors as well as their effect on academic performance in Biology. The following questions were raised by the researcher to guide the study:

1. What is the attitude of Biology teachers towards teaching Biology?
2. To what extent does Biology teachers' mastery of subject matter affects students' learning outcome in Biology?
3. To what extent does Biology teachers' ability to communicate affects students' academic performance in Biology?
4. To what extent does Biology teachers' classroom management skills enhance students' performance in Biology?
5. To what extent does school environmental factors affects students' academic performance in Biology?

6. To what extent does equipped laboratory affects students' academic performance in Biology?
7. To what extent does class size affects students' academic performance in Biology?
8. To what extent does location affects students' academic performance in Biology?

In attempt to answer these questions during the course of the research, data was collected from the field and analyzed, hence the following findings

1. Every student have a unique way in which they see their teachers and this can be considered as preference on the part of the student towards their teacher. Although most students credited their teachers for a job well done as it concerns their attitude towards Biology teaching while others, on the contrary.
2. Teachers' subject mastery is essential for effective lesson delivery as this has a significant impact on the academic performance of students in Biology. The highest population of students involved in this research,

making 72% of the entire sample attested to the fact that they would remarkably perform better if Biology concepts are clearly explained.

3. Students strongly agreed that they are motivated to learn when there is a dual free flow of information from teachers to students characterizing communication. For an applaudable performance to be achieved learning must be feasible and for learning to occur motivation must be activated with effective communication.
4. Every teacher must be an effective classroom manager for an efficient teaching-learning process. Students agree to the fact that effective classroom management enhances their academic performance with 56% of the respondents supporting.
5. Apart from teachers' attitude, students also believe that they would perform better if their school environment is improved upon.
6. Remarkably during the course of the research most students complained about the availability and functionality of their Biology laboratory. 70% of the entire population strongly agreed that their Biology grades would improve greatly if practical Biology is carried out effectively.

7. Students affirmed that a small and moderate class size encourages effective learning while a largely populated classroom encourages examination malpractice which is detrimental to students' academic performance in Biology.
8. Each student have diverse responses as to how location influences their academic performance.

Conclusion

The academic performance of students is influenced by variety of elements which could be derived from either teachers' attitude or environment. Without constant check of these factors, there will definitely be a drastic decrease in the level of academic performance, even the country as a whole will fail to meet their set educational goal and objectives. Negative teachers' attitude, overcrowded classroom, inadequate learning infrastructures as well as many other related factors would be detrimental to students' academic performance in Biology.

Recommendations

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

1. Teachers should exhibit attitudes which promote students' learning interest.
2. To foster amicable interactions between teachers and their students throughout teaching-learning process, teachers are to make conscious decisions as to building cordial relationships with their students within the educational system as this consequently improves learning and causes a remarkable transformation in students' academic performance.
3. Every teacher must be an effective classroom manager and a master in specified subjects of instruction as this enhances learning.
4. Practical Biology should be carried alongside theoretical Biology.
5. A conducive atmosphere is necessary for effective learning in terms of location, class size and availability of other functional infrastructure.

6. Administrators of both public and private school should be cognizant of the vitality providing adequate learning materials in order to enhance learning and improve academic performance.

Suggestions For Further Studies:

The following recommendations for more research were given in light of the study's limitation:

1. This study can be replicated using the entire state to determine validity and reliability of the present.
2. The population sample size is small to generalize findings, hence a larger population can be used.
3. It would be appropriate to conduct similar investigation with alternative data collection techniques.
4. A comparable investigation can be conducted for the variables excluded from the current analysis.

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UNIVERSITY OF BENIN
DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY
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STUDENTS' ASSESSMENT OF BIOLOGY TEACHERS'ATTITUDE AND ENVIRONMENTAL FACTORS ON THEIR ACADEMIC PERFORMANCE: A CASE STUDY OF UDU LOCAL GOVERNMENT AREA.

Dear respondent,

This questionnaire solicits your sincere response regarding the effect of teacher's attitude and school environmental factors on the academic performance of Biology students in senior secondary schools located in Udu Local Government Area, Delta State. Your responses will however, be treated with extreme confidentiality as this survey is basically for academic purpose. Please tick the correct column for each statement, making accurate choices as your sincere response will facilitate this research.

Thanks in anticipation.

Section A: Demographic data

Please tick accurately in the space provided

Gender: Male [ ] Female [ ]

Class: SSS 1 [ ] SSS 2 [ ] SSS 3 [ ]

Section B: Statements

SA- Strongly Agree

A- Agree

D- Disagree

SD- Strongly Disagree

Research Question 1

Attitude of Biology teachers towards teaching Biology

	SA	A	D	SD
My Biology teacher finds it interesting teaching my class Biology.				
My Biology teacher does not miss classes.				
My Biology teacher makes adequate preparation for lessons.				
My Biology teacher finds it fun and interesting teaching Biology as a subject.				
My Biology teacher carries everyone along whenever she teaches.				

Research Question 2

Extent to which Biology teachers' mastery of subject matter affects students' learning outcome in Biology

	SA	A	D	SD
My Biology teacher breaks down Biology concepts to my level of understanding.				
My Biology teacher is resourceful in the way responses are given to questions				

asked by the students.				
Biology lessons are related to everyday life by the Biology teacher.				
My Biology teacher is abreast with current trends in Biology.				
I would remarkably perform well, if Biology concepts are clearly explained.				

Research Question 3

Extent to which teachers' ability to communicate affects students' academic performance in Biology.

	SA	**A**	**D**	**SD**
My Biology teachers communicate Biology concepts effectively, hence I understand them.				
I am motivated to learn Biology when there is a free flow of information from teacher to students or vice versa.				
Student-teacher communication enhances academic performance.				
Effective communication eliminates classroom distractions and ensures a free flow of information without disruption.				

Research Question 4

Extent to which classroom management skills enhance students' academic performance in Biology.

	SA	A	D	SD
No side talks are entertained during Biology classes.				
My Biology teacher is an efficient classroom manager.				
An organized classroom enhances academic performance.				
Active participation of students is ensured during Biology classes.				
Proper sitting arrangement is ensured during Biology classes.				

Research Question 5

Extent to which environmental factors affect students' academic performance in Biology.

	SA	A	D	SD
My schools' environment is conducive for learning.				
Learning facilities are efficiently maintained.				
I find it difficult to learn in my school environment.				
My school is highly standardized with quality infrastructure.				

I will perform better academically if my school environment is improved upon.				

Research Question 6

Extent to which equipped laboratory affect students' academic performance in Biology.

	SA	A	D	SD
I have seen a well-equipped Biology laboratory.				
My school has a functional Biology laboratory.				
Biology practical are effectively carried out in my school.				
I enjoy practical Biology than theoretical Biology.				
My Biology grades would improve greatly if practical Biology is carried out effectively.				

Research Question 7

Extent to which class size affect students' academic performance in Biology

	SA	A	D	SD
My classroom is highly populated.				
A small and moderate class size encourages effective learning.				

I will do better in a largely populated class.				
A large class can be effectively controlled by my Biology teacher.				
A largely populated classroom encourages examination malpractices.				

Research Question 8

Extent to which location affect students' academic performance in Biology?

	SA	**A**	**D**	**SD**
Schools located in urban areas are more equipped in terms of infrastructure than those in rural communities.				
Noise is a factor that should be considered in siting a school.				
My school location is easily accessible.				
My schools' location encourages learning and better academic performance.				