INVESTIGATION OF STUDENTS' PERSONALITY TRAITS ON ACADEMIC PERFORMANCE IN CHEMISTRY AMONGST SECONDARY SCHOOLS IN BOSSO L.G.A, NIGER STATE

BY

JIBRIL, Maryam

2017/3/69282BE

DEPARTMENT OF SCIENCE EDUCATION

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF

BACHELOR OF TECHNOLOGY (B.TECH) DEGREE

IN SCIENCE EDUCATION

AUGUST, 2021.

TABLE OF CONTENTS

CONTENTS	PAGES

LIST OF TABLES

ABSTRACT

The Study examined the students' personality traits influence on academic performance in Chemistry amongst secondary schools in Bosso L.G.A., Niger State. The objective of the Study was to find out the influence of Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism on the academic performance of some selected secondary school students. The Study Design was Descriptive Survey Design in which a 20-item questionnaire was utilized as the research instrument. The population of the Study was made up of all SS2 students of all public secondary schools in Bosso L.G.A., which constituted a total of 5,671 students. Simple Random Sampling Technique was used for the selection of 360 students as sample. Hence, 360 questionnaires were administered out of which 200 were certified for the analysis. Face and Content validity was used to determine the validity of the instrument and the reliability of the instrument was determined by using Test-Retest Method in which Crobanch Alpha formula was used to determine its consistency and a Pearson correlation coefficient of .85 was obtained. The five research questions were analyzed using Mean and Standard Deviation. The Study's findings revealed that, openness to experience, conscientiousness, extraversion and agreeableness positively influence the academic performance of students and only neuroticism influences the academic success of secondary school students in Bosso L.G.A negatively. The Study recommended that parents should encourage their neurotic children to have full confidence in themselves and their abilities.

CHAPTER ONE

1.0   INTRODUCTION

1.1   Background to the Study

A lot of researchers and psychologists have defined Personality in several ways. According to (E. Ikpi, 2014), Personality is the sum total of the characteristics that differentiates people, or the permanency of a person's behavior across diverse situations. In another way, it means those qualities an individual is noted for. Traits on the other hand are enduring dimensions of personality characteristics which differentiates people from one another (Golsteyn *et al.*, 2021). Traits are therefore the sum total of stable characteristics in a person across different times and situations, which make him or her unique or distinct from others. This definition agrees with the one by (A. Hashmi & Q. Naz, 2020) that refers to personality traits as consistent differences between the behaviours characteristic among people. It is also defined as any unique, relatively enduring way in which one individual differs from another (Andersen *et al.*, 2020). When we take a look at people around us, one of the first thing that we observe is how different people are from one another. While some people are extroverts, others are introverts. Some are active whereas others are lazy. Some worry a lot, others almost never seem anxious. Each time we use one of these words, like talkative, quiet, active, or anxious, to describe people around us, we are talking about a person's personality. The characteristic ways that people differ from one another (Hazrati-Viari *et al*., 2012). The behavior of an individual towards others' attitude, characteristics and mindset, describes his personality (E. Ikpi, 2014).

Academic motivation is one of the effective factors on learners' achievement. Learners need to be interested in learning; otherwise, all efforts of the educational system would fail. So, understanding and developing the knowledge about factors that affect academic motivation can help to improve educational performance. Although ability and intelligence are considered as predictors of academic achievement, there is evidence that personality variables also play a role. Personality traits affect the academic motivation and performance (Martey & Larbi, 2016). The nature of individuals differs, the personality of the individuals too differs and this is the law of nature and this varying nature has a great impact on making life a success or a failure, including the life of the students.

Academic accomplishment is a key issue among students, teachers, parents, school administrators, and the community at large. Efforts have been made by researchers to unravel the difficulties surrounding academic success (Dur Khan, 2018). Psychologists have presented a lot of explanations to why these differences in accomplishment exist. A lot of attention had been given to external factors such as school location, type of school, teacher's experience, teaching methods, instructional materials, etc. (Kenni, 2020). A lot of money have been spent by many people in order to secure good schools either for their children or themselves and those who can afford it even invest on education abroad as they believe this will enhance academic excellence, and which in turn gives an added advantage in terms of securing gainful employment (Golsteyn *et al.*, 2021).

Opinions differ as to why some students excel academically while others seem to perform below average. Many researchers and psychologists have constantly tried to identify the major predictors of individual academic accomplishment. Factors such as study habit, self-concept, intelligence, gender, maturation, home background etc., have been widely

2

explored as being accountable for academic performance, especially among secondary school students (Tsok *et al.*, 2013). Some other important factors to include; peer group influence, socio-economic background, child rearing patterns and learning environment (Andersen *et al.*, 2020). A major factor that is widely believed to be responsible for academic performance in students is their personality traits (Lumanisa, 2015). However, there has been a growing interest in the Big Five Personality Traits and the role they play in respect to academic feat of students. Particular interest is the role that these traits play in the academic performance of secondary school students. These traits, popularly recognized as the 'Big Five' comprise conscientiousness, agreeableness, openness to experience, extraversion and locus of control with an acronym CAOEL used to describe them (A. Hashmi & Q. Naz, 2020). These personality traits affect academic accomplishment in students, either positively or negatively.

There have been cases of poor academic performance among secondary school students as clearly shown by poor performances in WAEC and other Exam Bodies results which over the years have been the criteria for measuring academic achievement (Ojukwu, 2016). The public school system in Nigeria has collapsed. Therefore, many parents who can afford money to re-register their wards take their children to private schools. This situation has an adverse effect on the youths and the future of the country. Hence, in a desperate bid to pass by all means, examination malpractice has been encouraged in varying degrees. A lot of students find it difficult to defend the result they obtained. It is pathetic that a student having distinction in all subjects, including English language and General Mathematics can neither make correct sentences in English nor solve simple Algebraic problems (Kenni, 2020).

Everyone is worried at the rate of decline of academic standard. Big Five otherwise known as CAOEL has therefore been explored in order to find possible solutions to the problem of poor academic performance among secondary school students. The acronym CAOEL denotes the traits: conscientiousness, agreeableness, openness, extraversion and locus of control to experience (Althof, 2010).

An excellent grade on Conscientiousness shows a student who is organized, thorough, careful, self-disciplined and determined. Poor grade on this trait portray carelessness, disorganization, indiscipline and indifference. Student who excels on this trait is likely to perform excellently well, academically and vice versa (Hashmi & Naz, 2020). Agreeableness describes one who is trusting, sympathetic and cooperative. Students with excellent grade on agreeableness are selfless, flexible and pleasant. Such students work with others easily with little or no friction. Those having low score on this trait however find it difficult to get along with others. (Hazrati-Viari *et al.*, 2012) noted this to be psychotics, which refers to a person who is uncooperative, unsympathetic, skeptical and rude. Poor scores are expected to affect academic accomplishment negatively (Golsteyn *et al.*, 2021).

1.2   Statement of the Research Problem

The problems faced by the Nigerian Educational Sector as well as Personality Traits have much influence on the academic performance of students in schools. According to (Kenni, 2020), the academic sector in Nigeria has been facing a lot of challenges over the years. Challenges like poor funding, poor instructional materials, good and quality teachers, poor educational infrastructure, inadequate classrooms, social vices like examination malpractice, cultism etc. and of course corruption. These have adverse effect on the quality of students

4

produced from every sector of our Academics. It is quite unfortunate to see how secondary school students perform woefully in science subjects especially, Chemistry (Apu, 2020). This has a lot to do with personality traits of such student and some other factors stated above (Golsteyn *et al.*, 2021). The impact of personality traits cannot be ignored as it greatly influences students' academic performance (Taiwo & Amadi, 2019).

It is in order to examine the influence of students' personality traits on academic performance and to solve the problem leading to secondary school students' low academic success that this research work "Investigation of Students' Personality Traits Influence on Academic Performance in Chemistry Amongst Secondary Schools in Bosso L.G.A., Niger State" was conducted.

1.3   Aim and Objectives of the Study

The aim of this research work was to assess the influence of students' personality traits on academic performance in Chemistry amongst secondary schools in Bosso L.G.A., Niger State.

The specific objectives are to:

1. Assess the influence of Openness to experience on students' academic performance.

2. Assess the influence of Conscientiousness on students' academic performance.

3. Assess the influence of Extraversion on students' academic performance.

4. Assess the influence of Agreeableness on students' academic performance.

5. Assess the influence of Neuroticism on students' academic performance in some selected secondary schools in Bosso L.G.A., Niger State.

1.4   Research Questions

The Study was guided by the following research questions:

1. What is the influence of Openness to experience on students' academic performance?

2. What is the influence of Conscientiousness on students' academic performance?

3. What is the influence of Extraversion on students' academic performance?

4. What is the influence of Agreeableness on students' academic performance?

5. What is the influence of Neuroticism on students' academic performance in some selected secondary schools in Bosso L.G.A., Niger State?

1.5   Scope of the Study

This research work was based on Students' Personality Traits Influence on Academic Performance in Chemistry Amongst Secondary Schools in Bosso L.G.A., Niger State. It covered the various personality traits that influence students' academic performance and SS2 students were used for the Study. The variables used were Independent Variable (Personality Traits) and Dependent Variable (Academic Performance). The Study lasted for five (5) weeks.

1.6   Significance of the Study

Findings from this research work would be beneficial to the teachers, researchers, students, parents and the society at large.

Teachers: findings from this research work will enable teachers to pair students whose personality traits positively influence academic performance with those whose personality traits negatively influence academic performance during learning.

6

Hence, the problem of poor academic performance amongst students will be reduced.

Researcher(s): Result from this Study will enlighten the researcher and other researchers who might likely carry out similar research in the future on those students' personality traits that positively or negatively influence academic performance.

Students: findings from this Study will enlighten each student on whether his/her personality trait influences academic performance positively or otherwise. It may also make students with negative personality traits to readjust if need be, so as to perform better in school.

Parents: outcome from this research will educate parents on the existence of different personality traits and its influence on academic performance. This will make them to encourage their neurotic children to have more confidence in themselves and their abilities.

Society: findings from this Study would be beneficial to every member of the society as it will educate them on the influence of the major five (5) personality traits (Openness to experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism) on academic performance of students in secondary schools.

1.7   Operational Definition of Major Terms

Performance: this is a process of accomplishing a task.

Academic performance: is the extent to which a student accomplish his or her school work or task.

Personality: Refers to the totality of characteristics and behaviour which set a person apart from others.

Trait: This is a distinguishing quality or characteristic, especially of one's personal nature.

CHAPTER TWO

2.0   REVIEW OF RELATED LITERATURE

2.1   Introduction

The related literatures for this Study were reviewed under the following sub-headings: Conceptual Framework, Theoretical Framework and Empirical Studies. The Conceptual Framework however, examined the concepts of Education in Nigeria, Evaluation and Evaluation Agencies in Nigeria, WAEC and NECO as Main Examination Bodies in Nigeria, Students' Attitude Towards Science, Students' Attitude Towards Chemistry, Five Factor Model and Personality Traits among others. The Theoretical Framework of the Study covered theories such as: Trait Theories of Personality, Psycho-analytical, Attribution theories etc. In addition, the Empirical Studies were thoroughly reviewed in this chapter.

2.1.1   Conceptual Framework

2.1.2   Concept of Education in Nigeria

Education is regarded as the key to success; as a result, it is given huge attention by the society, politicians and other stakeholders in their attempt to promote societal norms, national philosophy and vision. Education can be described as the holistic process that characterized human learning, through which knowledge is imparted, passed across from one generation to another, faculties trained and skills developed (Nordin *et al.*, 2020).

Education is segregated into different levels ranging from primary to secondary and tertiary education. Secondary schools not only occupy a strategic place in the educational system in Nigeria, it is also the link between the primary and the university levels of education

(Coenen *et al.,* 2021). All the levels are vital to human learning and academic prowess but very significant is the impact of secondary school education as it serves as the link between primary and tertiary education. (Kenni, 2020) opined that education at secondary school level is supposed to be the bedrock and the foundation towards higher knowledge in tertiary institutions. It is an investment as well as an instrument that can be used to achieve a more rapid economic, social, political, technological, scientific and cultural development in a country. It is rather unfortunate that the secondary schools today are not measuring up to the standards expected of them (Lumanisa, 2015).

2.1.3 Evaluation and Evaluation Agencies in Nigeria

Evaluation is the passing of decision or judgment on a particular trait in accordance with a test which validly and reliably measures the presence of that trait (Ojukwu, 2016). Evaluation involves both quantitative and qualitative description of a pupil's behaviour, and the passing of value judgement concerning the desirability of that behaviour. Since evaluation remains indispensable in any academic programme, teaching and instructional duty are rendered incomplete or lacking until an evaluation of the outcome of instruction has been performed. Evaluation Agencies, which also act as Examining Bodies, are tasked with maintaining a common standard in the development and administration of public examinations. Evaluation Agencies were set up to promote education, to co-ordinate educational programmes, and to control and monitor the quality of education in educational institutions, the essence of which is the organization of public examinations so as to provide uniform standards to all test takers, irrespective of the type or method of instruction they have received (Apu, 2020).

2.1.4   WAEC and NECO as Main Examination Bodies in Nigeria

Nigerian students obtain their Senior School Certificate by passing examinations administered by either the Western African Examinations Council (WAEC) or the National Examinations Council (NECO) (Kenni, 2020). Many universities have also started to administer their own entrance examinations due to allegations that results in these external examinations have been manipulated.

The West African Examination Council (WAEC) was established in 1952 to replace University of Cambridge Local Examination syndicate, the City and Guide London Institute, the London Chamber of Commerce and Royal Society of Arts. The certificate awarded has gained national and international recognition since its establishment (Kenni, 2020). WAEC's mandate is to determine examinations required in the public interest in West African Countries. WAEC has five member countries: the Gambia, Ghana, Liberia, Sierra Leone and Nigeria. From 1952 to 1968, WAEC performed its duties well without much criticism. Criticisms started becoming louder in 1967 as a result of massive failure plus other variables, which made the country Nigeria to hold a national conference in 1969. The conference held in 1969 heralded the development of yet another curriculum different from the one Nigerians were used to prior to independence. This curriculum conference was a turning point in the curriculum development history of Nigeria, mathematics inclusive. The outcome of this conference was what gave birth to a new curriculum which comprises some part of the pre-independence curriculum and some new aspects (like Modern Mathematics Curriculum) were introduced (Troncone *et al.*, 2014).

(E. Ikpi, 2014), stated that the WAEC adopted the new curriculum in 1974 but the 1974 results were very poor. However, from 1970s, some issues appeared to be getting too much

for WAEC to handle such as timely release of results, massive failure, uncontrollable population explosion of candidates, overloading of works, cases of leakage of examination papers and increased rate of examination malpractice. The massive leakage of question papers in 1977 was the climax which led the Federal Government of Nigeria to set up the Sogbetan Commission of Inquiry to investigate the situation. It was as a result of these that made the Federal Government of Nigeria to establish National Technical Examination Board (NABTEB) for technical and business subjects, National Teachers Institute (NTI) for teachers Grade two certificate examination and National Examinations Council (NECO) for Senior Secondary school Certificate Examination. These were established based on the Sogbetan Commission's recommendation to the Federal Government of Nigeria in April 1999. The Sogbetan Commission's recommendation also brought about the transformation of the National Board for Educational Measurement (NBEM) that was established under decree no 69 of August 1993 (Kenni, 2020).

Based on this recommendation, the National Board for Educational Measurement (NBEM) was transformed to National Examinations Council (NECO) to conduct national examinations simultaneously with WAEC so as to break the monopoly of WAEC thus, enabling Nigerians to monitor and maintain their own educational standard to reduce the work load of WAEC which many believed had been over stretched beyond capability (Kenni, 2020).

(E. Ikpi, 2014) however augured that NECO had standard quality of question papers set and grades when compared to Bloom's principles of evaluating students which, according to him, has made NECO to be superior to WAEC. WAEC and NECO administer the SSCE twice a year: internal or school candidates (i.e., those who are finishing their last year

within the secondary school system) write the examination in the spring or early summer, while external or private candidates (i.e., those who are outside the school system) write the exam in late autumn (E. Ikpi, 2014). Candidates are tested on a minimum of eight and a maximum of nine subjects. The SSCE grading system is as follows: A1: Excellent, B2: Very Good, B3 : Good, C4 : Credit, C5 : Credit, C6 : Credit, D7 : Pass, D8/E8 : Pass and F9: Fail. The results of the SSCE are reportedly used to obtain employment, to qualify to run in elections and to gain admission into university or college. According to the NECO website, however, universities and colleges in Nigeria are required by law to recognize certificates awarded by both NECO and WAEC. Looking at studies that have attempted to compare WAEC and NECO, it would be observed that most of them were based on opinions. While recognizing the fact that opinions could serve as indicators, they are not the best to be used in taking decisions, when it is possible to obtain facts and those authors that did not rely on opinions attempted to compare grades obtained in the university by holders of the two certificates (Kenni, 2020). Apart from the comparison of grades, (E. Ikpi, 2014) had called for a comparison of the question papers set by the two examination bodies to see if the variances in the performances of candidates possessing the two certificates could be explained using them. In a nutshell, (Ikpi, 2014) had made an attempt to do this comparison, but he merely asked teachers and students their opinions about the Bodies.

2.1.5 Students' Attitude towards Science

The word "Attitude" has been defined by many scientists around the world. They all come with the same conclusion that attitudes toward science are viewed as a combination of individual values, feelings, and beliefs toward science (Hassan *et al.*, 2015). Similarly,

attitudes are the act of feeling or thinking either positively or negatively toward something in the environment. Attitudes are feelings of "like or dislike of an object, person, or an event that characterize a human being. Moreover, attitudes are considered outcomes that can be acquired during the learning process. Therefore, students' attitudes change in their learning process either directly or indirectly through observation, experiences, and the learning environment. Hence the change in attitude is mostly influenced by teachers, parents, peers' characteristics, and classroom environment (Golsteyn *et al.*, 2021).

2.1.6   Importance of Developing Positive Attitude towards Science Subjects

The development of students' attitudes toward science subjects is one of the most critical components of science education as students' attitudes significantly impact learning. According to (Martey & Larbi, 2016), lifelong learning and interest in science are influenced by positive feelings toward science commitment. (Lumanisa, 2015) have investigated the importance of developing a positive attitude towards learning of chemistry among secondary schools' students, and their findings showed that the attitude is directly linked to the academic achievement and the attitude is a predictor of behavior.

(Hazrati-Viari *et al.*, 2012) reported that students with a positive attitude are trying to excel in the subject being taught compared to those with a negative attitude, (Andersen *et al.*, 2020) who reveals that there is a positive correlation between students' achievement and their attitude towards science subjects. However,

(Martey & Larbi, 2016) states that an unfavorable attitude to a particular subject causes difficulty in learning as there is a lack of interest and confidence in the subject. According to (Andersen *et al.*, 2020), factors that may interrupt the proper teaching and learning

environment should be considered while preparing the lessons. The contents should also be well designed to inculcate the desirable attitude and values among the students. This help to shape their attitude, behaviors, and motivation, influencing their cognitive skills and active participation in the teaching and learning process.

2.1.7   Students' Attitude towards Chemistry

One of the impacts of Science Education is to help different individuals to develop a positive attitude towards science. However, it was indicated that students' enrolment in science subjects at the secondary level is declining. The latter affected the rate of students pursuing science related careers to be relatively low. Furthermore, it was reported that students' attitudes are most favorable in biology and least positive in chemistry and physics. Students' ignorance was one reason for a decrease in their positive attitudes towards science and science based careers (Coenen *et al.*, 2021). Further studies and reports carried out in the U.S. and in Europe attributed these factors to the lack of relevant content and pedagogical approaches at school levels.

Besides, some Studies have investigated the attitudes of students toward Chemistry learning among secondary school students. For instance, research was conducted in Chile to explain secondary school students' attitudes toward chemistry. The results pointed out that the attitudes of Chileans students toward chemistry were neutral. They have relatively positive feelings or emotions in chemistry, but they believe that their content is tricky and challenging. Also, their attitudes seemed to decrease as they progress from lower to the higher year group. The gender difference was not appearing in this study. Furthermore, the

authors found a strong relationship between chemistry achievement and attitudes (Ghazi *et al.*, 2013).

Similarly, (Apu, 2020) investigated secondary students' attitudes toward chemistry in terms of difficulty, interest, usefulness, and chemistry importance. Their results indicated that the attitudes of Greek students were neutral. Though they have acknowledged the importance of chemistry in their lives, they do not realize the usefulness of chemistry courses in their future lives. Their results also revealed that boys' and girls' attitudes in the level of interest, usefulness, and importance given to chemistry were identical of developing positive attitudes toward chemistry.

2.1.8 Concept of Academic Performance

Academic performance refers to the degree of a student's accomplishment in his or her tasks and studies. The most well-known indicator of measuring academic performance is grades which reflect the student's score for their subjects and overall tenure (Ojukwu, 2016). (Apu, 2020), conceptualized academic performance as the knowledge gained by students which is assessed by marks by a teacher and educational goals set by students and teachers to be achieved over a specific period of time. These goals are measured by using continuous assessment or examinations results. Academic performance is seen as the knowledge attained or skills, shown in the school subject. It is the school evaluation of the classroom work on the basis of the grades awarded. Academic achievement may also refer to a person's strong performance in a given academic arena (Golsteyn *et al.*, 2021).

A student who earns good grades or awards in science has achieved in the academic field of science. (Fuertes *et al.*, 2020) asserted that academic performance is a cardinal concept in

education. The centrality of this concept is derived from the goals of instructions which is to bring about desired changes in knowledge, skills and attitude of students. For example, people send their children to school in order to acquire certain competencies their preference on the attributes of interest provides an indication of the degree of efficiency of the machinery of education. In the formal school system, students' academic performance can be assessed at the main points which give rise to three types of performance assessment and these are diagnostic, formative and summative evaluation or assessment. The diagnostic assessment or evaluation take place as the course commences, formative evaluation are conditions where teachers gives periodic test for example continuous assessment exercise. While summative tests are used by classroom teachers and external examination bodies and grades are awarded. The grades of ABC and F are awarded to students according to students' performance by their teachers or examiner. The assessment competence of a teacher includes knowledge and skills which are critical to a teacher's role as educator (Nordin *et al.*, 2020). Academic performance is designated by test and examination scores or marks assigned by the subject teachers.

Student performance can be low, average or high. Performance of students can be affected by several factors, which can be student related factors, school related factors (teacher) and home related factors (Nordin *et al.*, 2020). Students performance is driven by helping teachers construct learning scenario that are meaningful to individual students, relevant to their circumstances and cognizant of their prior learning and potential.

Understanding what students have achieved, what they should need next and how to effectively reach their destination requires a coordinated effort, bringing together best of breed learning and assessment tools with engaging and effective content and instruction.

(Kenni, 2020), stated that the scope of teachers' professional role and responsibilities for students' assessments may be described in terms of the following activities; activities occurring prior to instruction, activities occurring during instruction and activities occurring after instruction.

2.1.9 Factors Affecting Students' Academic Performance in Chemistry

Students' attitude toward Science Subject (Chemistry) is an important factor that affects their academic performance in schools. Attitude is defined within the frame work of social psychology as a subjective or mental preparation for action. It defines the outward and visible posture and human beliefs. Attitudes determine what each individual will see, hear, think and do (Kenni, 2020). Attitude towards science denotes interest or feeling towards studying science. (Apu, 2020) reported that those who have positive attitude toward science tend to perform better in the subject. The affective behaviours in the classroom are strongly related to academic achievements and excellence. (Kenni, 2020) carried out a study on the influence of students' attitude towards Chemistry and their academic achievement found that the teachers' method of teaching chemistry and his personality greatly accounted for the students' positive attitude towards the study of Chemistry and their achievement in the subject. This is in line with comparative study of factors influencing Chemistry achievement among senior secondary school students in England and Norway which revealed that there exist a direct line between students' attitude towards Chemistry and students' outcomes (Lumanisa, 2015). Students' attitude towards the learning of chemistry (a science subject) is a factor that has long attracted the attention of Researchers. According to (Hazrati-Viari *et al.*, 2012), students' academic achievement in

Chemistry is a function of their attitude. Attitude has been described as the basic for both "intellectual preparedness" and motivation in learning.

Students' resource unavailability is another factor which affect students' academic performance. A resource material is any source of information made available for learning purpose (Kenni, 2020). According to (Lumanisa, 2015), a growing body of research in the cognitive science suggest that students learn and better retain what they learn when engaged in 'authentic' learning tasks. (Andersen *et al.*, 2020) maintains that in many countries, the school Chemistry curriculum is more laboratory based and a large proportion of learning is spent on practical or hands on experience. He further says that the practical sessions accord the students an opportunity to manipulate concrete objects, specimens, equipment and chemicals under the guidance of the teacher. The results from this increased interaction between students and teachers among many other benefits. The extent to which students access learning resources particularly those that aid in application of chemical concepts in practical lessons goes a long way in determining students' overall achievement in Chemistry (Seman & Ismail, 2019). The learner can only adequately acquire these concepts and skills through the actual use of the resource materials. This is particularly important in Sciences where the hand on approach to learning has been demonstrated to play a crucial role in the understanding of concepts and retention of content taught, as well as developing the ability to think scientifically. (Apu, 2020), reported that 5% of the post primary schools in Lagos State, Nigeria had schools with laboratories equipped with human and material resources. These factors, which are not peculiar to Lagos State alone, are likely to affect student's achievement in Chemistry.

(Apu, 2020) reported that, positive students-teachers' relationship is a valuable resource for students. They suggested that having a positive relationship with a teacher allows students to be able to work on their self because they know they can count on their teachers if problems arise. They concluded that forming strong and supportive relationships with teachers allow students to feel safer and more secure in the school scenery, enhances competency, make more positive connections with peers and make greater academic gains.

(Fuertes *et al.*, 2020) stated that teachers need to be actively engaged in interactions with children in order for learning to occur. (Hassan *et al.*, 2015) Conducted a study synthesizing educational research on factors that influence academic success. It was discovered that teacher's personal interaction with their students made a significant difference. The recommendations were that students need teachers to build strong inter personal relationship with them, focusing on strengths of the students while maintaining high realistic expectations for success. This relationship should be based on respect, trust, caring and cohesiveness and a sense of belonging are all by product of a strong teacher-student relationship that is critical to a student success in school (Hassan *et al.*, 2015).

(Hassan *et al.*, 2015) concludes by saying that, the Study served as a powerful reminder that everyday teacher-student interactions in the classroom matters. (Hashmi & Naz, 2020) stated that, children's intellectual functioning at school as at home is intimately related to the social relationships in which it becomes embedded. Familiarity facilitates responsiveness which plays an important part in learning, (Hashmi & Naz, 2020) believed in the importance of creating a learning environment that all the stakeholders have invested in, will have a positive impact on the learning that will take place.

Martey & Larbi (2016), suggests a useful question for anyone wishing to understand factors that improve student's achievement, is to ask what influence does individual teacher have on a student apart from what the school does? He indicates that the impact of decision made by an individual teacher is far greater than the impact of decision made at the school level. (Martey & Larbi, 2016) writes "The core of effective teachers-students' relationship as a healthy balance between dominance and cooperation" showing interest in student as individuals, has a positive impact on their learning.

The regularity of students to class also affect their academic performance. (Coenen *et al.*, 2021) assured that university students benefit from attending lectures. (Coenen *et al.*, 2021) refers to academic achievement as how well a student is accomplishing his tasks and studies, that grades are certainly the most well known indicator of academic achievement, grades are students score for their classes and overall term grades are most often a tallying or average of assignment and test scores and may often be affected by factors such as attendance and instructor's opinion of the student as well.

(Lumanisa, 2015) stated that, missing classes has an adverse influence on achievement only for more able students, they further reported that; there seems to be influence of missing class for lower ability students. (Andersen *et al.*, 2020) conducted a research on determinant of academic achievement using "A Multinomial Logit Approach" and reported that the role of class attendance was statistically significant in explaining students grades in those classes. Specifically, their findings demonstrated that the lack of attendance was statistically significant in explaining why a student received a 'D' rather than 'A', 'B' or a 'C' grade. The statistical test employed revealed that regular class attendance was significant determinant in minimizing a student chance of receiving D or F. Following his

report, (Taiwo & Amadi, 2019) in their research reported a significant difference in the mean GPA of students with strong attendance over those with poorer attendance.

(Ojukwu, 2016) in a meta analytical review of the relationship of class attendance with grades and students' characteristics, discovered that the highest performing students had a very good class attendance and the poor performing students were most likely to have average (rather than poor) attendance.

(Apu, 2020) carried out a Study in an institute where attendance is proposed to be made mandatory at minimum of 70% attendance rate as criterion for students were divided into two groups; students who had at least 75% class attendance, it was observed that there was statistically significance difference between the two groups for mean marks. Mean marks were higher in the group where attendance was 75% or more.

Students' population also affects their academic performance. A lot of secondary schools today have more students than they can accommodate in terms of facilities available. (Fuertes *et al.*, 2020), observed that the schools' population counts in thousands today against the hundreds of the previous years. Schools today are overcrowded in classrooms which make it impossible to talk of an ideal size of a classroom for effective teaching of Chemistry. No effective teaching can take place under a chaotic situation where he cannot handle the large number of students effectively. Consciously, quantity and quality cannot work together and this can affect the students' learning of chemistry and thus perform poorly.

2.1.10 The Five Factor Model

Personality Traits are enduring personal characteristics that are revealed in a particular pattern of behaviour in a variety of situations. One popular and widely used Personality Trait Model is the Five Factor Model (FFM). The Five Factor Model was initially proposed by Costa & McCrae in the year 1992 and often describes the relation between an individual's personality and various behaviours. There are five parameters which describe an individual's personality. These five dimensions are also called 'Big Five' Factors, and the Model is referred to as Five Factor Model, abbreviated as FFM (Althof, 2010). The Five Factor Model of personality is a set of group of personality attributes in relations of five elementary proportions. A comprehensively used personality model, McCrae and Costa's NEO Five Factor Model, or 'Big Five Model', comprised of the subsequent personality components: The first important component of the personality trait that has immense effect is Extraversion which leads to the tendency to be socially active, fun-loving, talkative, assertive, out-going and positive to take group leadership positions and expertise cheering effects such as liveliness, enthusiasm and eagerness. The second important component is of the personality trait is Agreeableness, it is defined as the trend to be kind, helpful, trusting, accommodating, loving, and gentle while persons with little friendliness are despicable, distrustful, and irritated. The third component is Conscientiousness; it is the tendency to be hardworking, motivated, well organized, dutiful, self-disciplined and achievement-oriented. People with low conscientiousness are relaxed, impulsive, and careless. Fourth component is Neuroticism; it is the trend to experience humble expressive modification and knowledge of undesirable feelings such as nervousness, self-doubt, and aggression. The final component is Openness to experience; this is the tendency to accept

different concepts and also reveals originality, thoughts, and open-mindedness. Directness to experiences leads to curiosity about an individual inner and outer world (Seman & Ismail, 2019). The Five Factor Model (FFM) (Seman & Ismail, 2019) has gained a widespread acceptance regarding the science of personality traits FFM (also called the Big Five which will be used interchangeably throughout this thesis) is as hierarchical model of personality traits with five basic factors as mentioned earlier. Moreover, there is considerable agreement among theories that specific functions are associated with the Big Five, extraversion is sensitive to reward and positive affect; neuroticism manifests to be sensitive to punishment and negative affect; agreeableness is the tendency to act altruistic vs. exploiting others; conscientiousness is the ability to top-down regulate behaviour in order to pursue non-immediate goals and to follow rules; openness manifests the tendency to explore, detect and enjoy abstract and sensory information (Althof, 2010). Each domain includes more specific personality traits referred to as facets, for instance assertiveness belongs to the factor extraversion and self-discipline to the factor conscientiousness. Furthermore, (E. Ikpi, 2014) suggest the five factors are stable dispositions that are visible in patterns of behavior found in both personality questionnaires and lexical studies of description of traits, universal and heritable, thus biologically grounded. Additionally, there are suggestions that the five factors are divided into two higher meta-traits, where neuroticism, agreeableness and conscientiousness are said to belong to the meta-trait of stability, whereas extraversion and openness are said to belong to the meta-trait plasticity (Khan *et al.*, 2018).

The definition of Big Five Factors and Facets are as follows (Taiwo & Amadi, 2019):

1. **Extraversion:** implies an energetic approach toward the social and material world.

Warmth: outgoing.

Gregariousness: sociable.

Assertiveness: forceful.

Activity: energetic.

Excitement seeking: adventurous.

Positive emotions: enthusiastic.

2. **Agreeableness:** contrasts a prosaically and communal orientation toward others with antagonism.

Trust: forgiving.

Straight forwardness: not demanding.

Altruism: warm.

Compliance: not stubborn.

Modesty: not show-off.

Tender-mindedness: sympathetic.

3. **Conscientiousness:** describes socially prescribed impulse control that facilitates task and goal directed behaviour.

Competence: efficient.

Order: organized.

Dutifulness: not careless.

Achievement striving: thorough.

Self-discipline: not lazy.

Deliberation: not impulsive.

4. Neuroticism: contrasts emotional stability and even-temperedness with negative emotionality.

Anxiety: tense.

Hostility: irritable.

Depression: not contented.

Self-consciousness: shy.

Impulsiveness: moody.

Vulnerability: not self-confident.

5. Openness: describes the breadth, depth, originality, and complexity of an individual's mental and experiential life.

Fantasy: imaginative.

Aesthetics: artistic.

Feelings: excitable.

Actions: wide interests.

Ideas: curious.

Values: unconventional.

2.1.11 Personality Traits

Personality refers to individual differences in characteristic patterns of thinking, feeling and behaving. The study of personality focuses on two broad areas: One understands individual differences in particular personality characteristics, such as sociability or irritability. The other understands how the various parts of a person come together as a whole (American Psychological Association, APA). Personality traits are the consistent traits of an individual which make him different from other individuals. The blend of personality traits is also important in predicting success in education and various domains (Taiwo & Amadi, 2019). It is one of the branches of psychology that is most known and has the widest range of influencing ones' actions in his or her life. Personality is ones' idea of themselves, it is about your understanding of how certain actions are being interpreted and shown in the environment one belongs. A person's personality is a case to case basis, which depends on the situation an individual is currently facing. There are various known personalities, but the most widely accepted, is the Big Five Personality Traits, conveniently you can know and remember these personality traits through the abbreviation of OCEAN which means Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism (Althof, 2010). The Big Five Personality is a combination and the idea that makes up an individual. And there are concepts of factors that affect the personality and often can adhere to how he or

she relates to other people. Moreover, it is the distinct interpretation of an individual's attitude, behavior, feelings, and view towards himself and other people, and it can either affect or not affect the academic performance. In the Big Five Personality Traits, it deals with five broad dimensions and is a continuum that often encapsulates to one's identity (Seman & Ismail, 2019)

2.2   Theoretical Framework

Trait Theories of Personality, Psycho-analytical Theory, Theory of Constructivism and Attribution Theory were reviewed under the Theoretical Framework.

2.2.1   Trait Theories of Personality

The quest to know why people behave the way they do, has been on, it has attracted so many researchers. In order to answer some of these questions, personality psychologists have developed a sophisticated model of personality known as Trait Theory. (Taiwo & Amadi, 2019) defined a trait as a continuous dimension on which individual differences may be arranged quantitatively in terms of the amount of the characteristics the individual has. (Kumari, 2014), defined trait as a property within the individual that accounts for his unique but relatively stable reactions to the environment. Other personality theorists emphasize the role of biological, cognitive and environmental forces in shaping personality. Personality description is not the central goal of these theorists; instead their goal is to explain personality and behavior in terms of their underlying causes. The ancient Greek psychologists divided people into four types: this was made popular by (Khan *et al.*, 2018), who in his own opinion also spoke of four types of individuals in that they are sanguine

(optimistic and happy), Melancholic (Unhappy, depressed), Choleric (violent tempered) the Phlegmatic (apathetic), not really moved to excesses of emotion.

2.2.2   Sigmund Freud's Psycho-analytical Theory

Psycho-analysts believe man's behaviour is triggered mostly by powerful hidden forces within the personality. These forces are shaped by childhood experiences and they play an important role in energizing and directing our everyday behaviour. Sigmund Freud, an Australian physician was the originator of this theory in the early nineties. He says much of people's everyday behaviour is motivated by unconscious forces about which they know little. In order to fully understand personality then one need to illuminate and expose what is in the unconscious. According to Freud's model of personality, there are three major components: The Id, the Ego and the Superego, which although are separate components, interact within the individual. The Id, which is the raw, untamed, unorganized, uncultured and inherited part of personality whose function is to reduce the tension created by biological drives such as hunger, sex, aggressiveness and irrational impulses. It operates according to the pleasure principle which goal is the immediate reduction of tension and maximization of pleasure. However harsh realities of life prevent the satisfaction of the demands of the pleasure principle in most cases by presenting constraints. The Ego acts as buffer and helps cushion the effects of reality. The Ego operates according to the reality principle in which instinctual energy is retrained in order to maintain the safety of the individual and help to integrate him into the society. The Ego makes decisions controls actions and allows thinking and problem solving of a higher order than the Id is capable of. The Super-ego acts the final component, which represents rights and wrongs of society as handed down by one's parents, teachers and other important figures. It becomes part of

personality when children learn rights from wrongs and continue to develop as people in the society in which they live, begin to incorporate their own standards into them. These are the components of adult personality. Whenever the demands of the Id or the Superego threaten to overwhelm the Ego, anxiety is the result. Ego defense mechanisms such as regression, denial, repression etc. are therefore used to reduce anxiety by distorting either thoughts or reality. Although Freud's conception faced a lot of criticisms due to dearth of scientific evidence to support it, nevertheless it had gained a lot of impact in the field of psychology (Apu, 2020).

2.2.3 The Theory of Constructivism

This theory was propounded by Jean Piaget and it states that people construct their own understanding and knowledge of different things through experiencing things and reflecting on that experience. Constructivism Learning Theory by Jean Piaget generally explain that; when a person or learner encounters with something new, first they have to reconcile it with their previous ideas and experiences, may be to change what they believed or may be to the new information as irrelevant. In his words, people are the active creators of their own knowledge.

Piaget elaborates about nine (9) principles that guide Constructivism Learning Theory such as, learning is an active process whereby learners use sensory input and construct meaning out of it, the crucial action of constructing meaning is metal (cognitive) hence, it happens in the mind and people learn to learn as they learn. Other principles include; learning is a social activity so learning is intimately associated with learners' interactions with human beings and environment around him. Learning uses language hence the language used to

influence learning is, contextual people learn in relation to what is known believed and observable. The other principles of constructivism are: it takes time to learn because learning is not instantaneous, one needs knowledge learning and motivation as a key component (E. Ikpi, 2014), suggested that knowledge is internalized through accommodation and ideas from their experience. Constructivism views learning as a process in which students activity construct new and concepts based upon prior knowledge and new information. And all these processes elaborated by the theory are required for effective teaching and learning of science require practical experiments, observation and retention so the learning theory of constructivism complies with the teaching and learning of science and the achievement either good or poor achievement is determined by the whole process of teaching.

The Theory of Constructivism by Jean Piaget has relevance to this Study because it is particularly applicable to the teaching and learning of various things including science subjects (chemistry). An achievement is an outcome of learning. Hence ways of learning determines outcome or achievement in science subject (chemistry). The process of teaching and learning science subjects involves asking of questions, experiment, observation, exploration and assessment and all those activities are elaborated as main principles of constructivism learning theory. Its basic assumption was that learning is constructing of ideas, knowledge and understanding through experience, observation and reflection and there are independent variables which are the influencing factors in the process of learning chemistry and it has relation to dependent variables which is academic achievement in grades.

2.2.4 Attribution Theory by Bernard Weirner

Attribution Theory is concerned with how individuals interpret events and how this relates to their thinking and behaviour. Weirner developed a theoretical framework that has become a major research paradigm of social psychology. Attribution Theory assumes that people try to determine why people do what they do either attribute causes to behavior. A person seeking to understand why another person did something may attribute one or more causes to that behavior.

A three stage process that underlines an Attribution Theory are:

    I. The person must perceive or observe the behaviour.

    II. Then the person must believe that the behaviour was intentionally performed.

    III. The person must believe the other person was forced to perform the behavior (in which case the causes is attributed to the situation) or not (in which case the cause is attributed to the other person).

Weiner focused his attribution theory on achievement (E. Ikpi, 2014). Attributions are classified along three causal dimensions. They are:

    1. Locus of control.

    2. Stability.

    3. Controllability.

The Locus of Control Dimension has two poles; internal versus external locus of control.

The Stability Dimension captures whether causes change over time or not. For instance, ability can be classified as a stable and internal cause and effort classified as unstable and external.

Controllability: contrasts causes one can control such as skill and efficacy, from causes one cannot control such as aptitude, mood, others, actions and luck. The Attribution Theory is closely associated with the concept of motivation.

2.2.5 The Relevance of Bernard Weiner Theory of Attribution:

Attribution theory has been used to explain the differences in motivation between high and low achievers. According to attribution theory high achievers will approach rather than avoid tasks related to succeeding because they believe success is due to high ability and effort which they are confident of. Failure is thought to be caused by bad luck or poor exams i.e. not their fault. Thus, failure does affect their self-esteem but success builds pride and confidence. On the other hand, low achiever avoids success related chores because they tend to; doubt their ability and assume success is related to luck or to "who you know" or to factors beyond their control. This even when successful, it is not as rewarding for low achievers because he or she does not feel responsible, i.e. it does not increase his or her pride and confidence.

Weiner held the following beliefs regarding Hearing and Education:

1. There is a significant relationship between attitude and achievement.

2. That people's behaviour is attributed to internal and external causes that influence people's behaviour (Ojukwu, 2016). Maintain that our view of the world, our

33

previous experiences with a particular person or situation and our knowledge of the behavior play an important role in our attempt to explain the world and to determine the cause.

3. The students with higher rating of themselves and with higher school achievement tend to attribute success to internal, stable, uncontrollable factors such as ability, while they attribute failure to either internal uncontrollable factors such as efforts or external uncontrollable factors such as task difficulty.

4. Weiner emphasized the fact that student's disposition or attitude (internal factors) can cause poor academic achievement in chemistry.

2.3   Empirical Studies

The Study of Taiwo & Amadi (2019) titled "Personality Traits and Underachievement of Secondary School Students in Bayelsa State" used a correlational survey research design with focus on three personality traits. 3610 senior secondary school students were used as sample. The instrument adopted were Teacher Made Achievement Test (TMAT), Bakare's Progressive Matrices (BPM) and Students' Personality Descriptive Scale (SPDS). Findings from the Study revealed that there was a significant negative relationship between openness to experience, conscientiousness, extraversion and academic underachievement. This present Study will adopt Descriptive Survey Design with senior secondary school students in Chemistry but with a sample size of three hundred and sixty (360) in contrast with 3610 used as sample by the former. Five (5) personality traits will be the focus of the present Study unlike the former which focused on three (3) personality traits. Also, the Study will employ the use of one research instrument (questionnaire) while the former employed two

research instruments including an Achievement Test. The location of the current Study is Bosso L. G. A., Niger State while the location of the former Study was Benue State.

The Study of (E. Ikpi *etal.*, 2014) investigated the influence of personality traits on the academic performance of secondary school students in Cross River State, Nigeria. The Study adopted a causal-comparative or ex-post facto research design. The population of the Study was made up of 13,838 and a sample of 8530 was drawn from twenty (20) schools that were randomly selected. The questionnaire employed for the Study contained 44-items. The Study disclosed that a significant difference was found between the achievement of students with high level of conscientiousness and agreeableness and those with low level of the traits. The present Study however, will assess students' personality traits influence on the academic performance in Chemistry amongst secondary schools in Bosso L.G.A., Niger State and thus, will adopt descriptive survey design unlike the former Study which used causal-comparative research design. The population of the present Study is 5,671 across twenty (20) public secondary schools in Bosso L.G.A, where a sample of three hundred and sixty (360) SS2 students were drawn from four (4) secondary schools selected by simple random sampling technique in contrast with the former Study which used a population of thirteen thousand eight hundred and thirty-eight (13,838) and eight thousand five hundred and thirty (8,530) SS1 students as sample. In addition, this Study will use a 20-item questionnaire against a 44-item questionnaire employed in the former Study. Findings from the present Study showed that, openness to experience, conscientiousness, extraversion, agreeableness and neuroticism influence students' academic performance either positively or negatively. The location of the present Study is Bosso L. G. A., Niger State; unlike the former Study by (E. Ikpi *etal.*,) whose location was Cross River State.

The Study of Dur Khan (2018) examined the impact of personality traits on academic performance of management students. A sample of 706 MBA students from different management institutes of Mumbai region was used for the Study. T-test and Mann Whitney U-test were used to analyze the data. Result from the Study revealed that, conscientiousness strongly influence academic performance. It was also revealed that, extraversion and agreeableness have a considerable impact on academic performance. The impact of openness to experience and emotional stability (neuroticism) on academics were not observed in this research work. The present Study assess students' personality traits influence on academic performance in Chemistry amongst secondary schools in Bosso L.G.A and used 360 SS2 students as sample against 706 MBA students used in the former Study. Mean and Standard Deviation was used in the present Study to analyze the data unlike the former, which used Mann Whitney U-test for its analysis. Findings of the present Study revealed that openness to experience, conscientiousness, agreeableness, extraversion and neuroticism influence academic performance either positively or negatively. The location of the present Study is Bosso L.G.A., Niger State unlike the former Study whose location is Mumbai, India.

The Study of (E. Martey *etal.*, 2016) titled "Assessing the Impact of Personality Traits on Academic Performance: Evidence from Tertiary Students in Ghana" used convenience sampling technique to select 700 tertiary students as sample. Findings of the Study revealed that there was a significant positive relationship between conscientiousness, agreeableness, openness to experience and academic achievement of tertiary students. However, no relationship was observed between extraversion and neuroticism and academic achievement. This present Study will use simple random sampling technique to select four

(4) public secondary schools and 360 SS2 students were selected as sample against 700 tertiary students which were selected by convenience sampling in the Study of (E. Martey *etal*., 2016). Result of the present Study shows that openness to experience, conscientiousness, extraversion, agreeableness and neuroticism influence students' academic performance either positively or negatively. The location of the present Study was Bosso L.G.A., Niger State against the former, whose location was Ghana.

An investigation by (S. Joseph *etal*., 2020) on the Study "Influence of Personality Traits on English Language Performance of Secondary School Students in Oyo" used all SS3 students in Oyo as the population. Simple random sampling technique was adopted to randomly select 300 students from the selected secondary schools as sample. The data from this Study was analyzed using Descriptive Statistics of Percentage and Analysis of Variance (ANOVA). Findings from the Study revealed that openness to experience was the most predominant personality trait found among the students which was followed by extraversion.The Study further revealed that the academic performance Oyo students in English Language is low. The population of the present Study was all SS2 public secondary school students which constitute a total of 5,671 in Bosso L.G.A., Niger State. Also, 360 students were randomly selected and used as sample as against 300 students used in the Study of (S. Joseph *et al*., 2020). The data obtained from the present Study was analyzed using Mean and Standard Deviation with the use of SPSS version 25. Findings from the present Study revealed that Openness to experience, conscientiousness, agreeableness and neuroticism influence the academic performance of secondary school students in Bosso L.G.A., Niger State.

2.4 Summary of Literature Review

The Study reviewed conceptual framework on Concept of Education in Nigeria, Evaluation and Evaluation Agencies in Nigeria, WAEC and NECO as Main Examination Bodies in Nigeria, Students' Attitude towards Science, Importance of Developing Positive Attitude toward Science Subjects, Students' Attitude towards Chemistry, Concept of Academic performance, Factors Affecting Students' Academic Performance in Chemistry, The Five Factor Model, Personality Traits. Also, three (3) Theories were reviewed under the Theoretical Framework. Namely: Traits Theories of Personality, Sigmund Freud's Psycho-analytical Theory, Theory of Constructivism, Theory of Attribution. In addition to this, the Empirical Studies were also reviewed.

CHAPTER THREE

3.0   RESEARCH METHODOLOGY

3.1   Introduction

Chapter Three which is the Research Methodology of the Study, covered the Research Design, Population of the Study, Sample and Sampling Techniques, Research Instrument, Validation and Reliability of the Instrument, Methods of Data Collection and Analysis

3.2   Research Design

The Research Design adopted for this Study was Descriptive Survey Design. Meanwhile, a Survey Research is viewed as the collection of information from a sample of individuals through their responses to questions (Check & Schutt, 2012). It is a method of collecting data in a consistent way which is useful for documenting existing community conditions, characteristics of a population and community opinion.

Ajayi (2013) further stated that, survey method tends to be quantitative in nature and aims to collect information from a sample of the population such that the results are representative of the population within a certain degree of error.

3.3   Population of the Study

Population is the total number of people or items in an area of study. The population of this Study is comprised of all SS2 students of all the public secondary schools in Bosso Local Government Area, Niger State which made up a total of 5,671 students as shown below:

Table 3.1 Population of SS2 Students of Each Public Secondary School in Bosso L.G.A., Niger State

S/N	Schools	Population
1	**Abdullahi Dada Secondary Sch. Maikunkele**	**122**
2	Bosso Secondary School Minna	**410**
3	Day Secondary School Gbada Gidan Mangoro	**209**
4	Day Secondary School Chanchaga Minna 'B'	**305**
5	Day Secondary School Garatu	**121**
6	Day Secondary School Maikunkele 'A'	**123**
7	Day Secondary School Maitumbi Minna	**384**
8	Day Secondary School Pyata	**125**
9	Day Secondary School Shatta	**77**
10	Federal Government College Minna	**312**
11	Government Army Day Secondary School	**722**
12	Government Day Secondary School Beji	**166**
13	Government Science College Chanchaga	**471**
14	Government Senior Secondary School Kampala	**138**
15	Government Technical College Minna	**524**
16	Hill Top Model Secondary School	**480**
17	Maryam Babangida Girls Science College	**372**
18	Model Science College Tudun Fulani	**178**
19	Niger State School For Special Education Minna	**38**
20	Sheikh Muhammad Sambo College of Arts and Islamic Studies Tudun Fulani Minna	**394**
	Total	**5,671**

3.4 Sample and Sampling Techniques

 The sample size of the Study was determined by using Krejcie Morgan postulated sample size for research studies. A total of three hundred and sixty (360) students were used as sample.

Simple Random Sampling Technique was used to select ninety (90) students each from four (4) public secondary schools. This technique was adopted because it gives the respondents an equal chance of being selected.

Table 3.2 Questionnaire Distribution to Four (4) Selected Public Secondary Schools in Bosso L.G.A., Niger State

S/N	Schools	No. Of Questionnaires
1	Bosso Secondary School Minna	90
2	Model Science College Tudun Fulani	90
3	Day Secondary School Maikunkele 'A'	90
4	Abdullahi Dada Secondary School Maikunkele	90
	Total	**360**

3.5   Research Instrument

The Research Instrument used for data collection was the questionnaire titled "Questionnaire on Investigation of Students' Personality Traits Influence on Academic Performance in Chemistry Amongst Secondary Schools in Bosso L.G.A., Niger State."

Questionnaire is the most appropriate instrument for the Study because it is easy and cheap to administer and data could be collected within a short period of time (Ibrahim, 2013). The questionnaires for the Study were well-structured in such a way that respondents' views and opinions can be gotten easily and thus, was made up of two (2) Sections. Namely:

I. Section A: This covered the Demographic Data of the respondents which include gender and class.

II. Section B: This contained five (5) research questions on the influence of students' personality traits (openness to experience, conscientiousness, extraversion, agreeableness and neuroticism) on academic performance in Chemistry amongst secondary schools in Bosso L.G.A. Research Questions 1, 2, 3, 4 and 5 contained four (4) items each. Hence, a total of twenty (20) items were generated.

The modified Likert approach was used in the structuring of the questionnaire which adopted a 4-point scale system, ranging from "strongly agree" (**SA**), through "agree" (**A**), "disagree" (**D**) to "strongly disagree" (**SD**) which was scaled 4, 3, 2 and 1 respectively. The respondents (students) were then instructed to answer the questions based on their extent of agreement with the statements on the questionnaires.

3.6   Validation of the Instrument

Validity of an instrument refers to the extent to which an instrument measures what it is meant to measure. The research instrument for the Study (questionnaire) went through Face and Content validity. For this Study, Face validity were used to ascertain whether the

instrument or a test appears to measure the construct it was meant to measure (at face value). Content validity on the other hand, was used to ascertain whether the items on the instrument represent the entire range it was meant to cover.

The validation of the research instrument was done by the researcher's supervisor after which it was thoroughly re-examined by two other experts with the knowledge of measurement, from the Department of Science Education, Federal University of Technology, Minna. Suggestions and corrections were made by the experts which were effected by the researcher.

3.7   Reliability of the Research Instrument

Reliability of an instrument is the degree to which an instrument measures with consistency what it is meant to measure. For this Study, the Test-Retest Method was employed by the researcher to determine the stability of the instrument which was achieved by administering the questionnaires to a selected group of students. The same questionnaires were re-administered to the same students at a week interval and the results obtained from the two (2) sessions were correlated to check if there is consistency. Cronbach Alpha formula was used to determine the consistency of the instrument and a correlation coefficient of .85 was gotten. Hence, the instrument was said to be reliable.

3.8 Method of Data Collection

Copies of the Introduction Letters were collected by the researcher from the Department of Science Education, Federal University of Technology Minna and were taken to the four (4) public schools to be used for the Study. The Introduction Letters were submitted to the Principals or Vice Principals of the selected schools namely: Bosso Secondary School, Model Science College Tudun Fulani, Day Secondary School Maikunkele 'A' and Abdullahi Dada Secondary School Maikunkele to sought their permission so as to enable the researcher to administer the questionnaires. The researcher was permitted and was asked to return in a week's time to enable the school management to make necessary arrangements with some subject teachers whose lesson periods would be used by the researcher, and to inform the target students beforehand. The researcher returned on the stipulated days and administered three hundred and sixty (360) copies of the questionnaires to ninety (90) randomly selected SS2 students of the four (4) sampled public schools in Bosso L.G.A., with the assistance of some teachers in the schools. The students were guided by the researcher on how to fill the questionnaires. Out of the three hundred and sixty (360) questionnaires that were administered, two hundred and forty five (245) were returned and only two hundred (200) of the returned questionnaires were properly filled and deemed good for analysis. Direct delivery and retrieval method was employed in the administration and retrieval of the questionnaires.

Table 3.3   The Stratetegic Plan and Time Frame for the Research

S/N	Steps	Activities	Duration
1	Visitation	Visitation to the principal or vice principal's office. This would enable the researcher to seek for permission and for students to be informed before administering the questionnaires.	1 week
2	Treatment	Administering questionnaire to the students.	2 weeks
3	Retrieval	Retrieval of questionnaires.	2 weeks
	Total		**5 weeks**

3.9   Method of Data Analysis

The data gotten from the questionnaires after collection were analyzed using Mean and Standard Deviation which was achieved by using a software known as Statistical Package of the Social Sciences (SPSS) version 25. Hence, the stated objectives of the Study were achieved and the research questions were judiciously answered.

CHAPTER FOUR

4.0   RESULTS AND DISCUSSION

4.1   Introduction

Chapter Four covered the analysis of the five (5) research questions raised during the course of the Study. The chapter basically centered on finding out the influence of openness to experience, conscientiousness, extraversion, agreeableness and neuroticism on academic performance of secondary school students in Bosso L.G.A., Niger State. Results obtained were summarized and then fully discussed in details.

4.2   Analysis of Research Questions

Research Question One: What is the influence of Openness to experience on students'' academic performance?

Table 4.1 Influence of Openness to Experience on Students' Academic Performance

Statement	N	$\bar{x}$	SD	Remark
Students' good attitude towards the learning of Chemistry influences academic performance positively.	200	3.11	.742	Agreed
Students' unwillingness to learn new Chemistry concepts influences academic performance negatively.	200	3.03	.948	Agreed
Students' curiousity toward learning of Chemistry influences academic performance positively.	200	3.23	.957	Agreed
Students' laziness toward class works/activities influences academic performance negatively.	200	3.09	.961	Agreed
Grand Mean	200	3.12	0.90	Agreed

Decision $\geq$ 2.50

Table 4.1 reveals the students' responses on influence of Openness to experience on students' academic performance. The result shows that the students agreed that; students' good attitude towards the learning of Chemistry influences academic performance positively, students' unwillingness to learn new Chemistry concepts influences academic performance negatively, students' curiousity towards the learning of Chemistry influences academic performance positively and students' laziness toward class works/activities influences academic performance negatively with the mean value of 3.11, 3.03, 3.23 and 3.09 respectively.

Research Question Two

What is the influence of Conscientiousness on students' academic performance?

Table 4.2 Influence of Conscientiousness on Students' Academic Performance

Statement	N	$\bar{x}$	SD	Remark
Students' creativity and imagination influences academic performance positively.	200	3.98	.898	Agreed
Students' hard work and commitment influences academic performance positively.	200	3.53	.978	Agreed
Students' goal-driven nature influences academic performance positively.	200	3.69	.951	Agreed
Students' good organization of class activities influences academic performance positively.	200	3.03	.925	Agreed
Grand Mean	200	3.56	0.94	Agreed

Decision $\geq$ 2.50

Table 4.2 shows the results on responses of students on influence of Conscientiousness on students' academic performance. It was disclosed on the table 4.2 that on average, students'

creativity and imagination influences academic performance positively, students' hard work and commitment influences academic performance positively, students' goal-driven nature influences academic performance positively, students' good organization of class activities influences academic performance positively with mean value of 3.98, 3.53, 3.69 and 3.03 respectively.

Research Question Three

What is the influence of Extraversion on students'' academic performance?

Table 4.3 Influence of Extraversion on students' Academic Performance

Statement	N	$\bar{x}$	SD	Remark
Students' good inter-personal relationship with other students influences academic performance positively.	200	3.08	.862	Agreed
Students' liveliness influences academic performance positively.	200	2.80	.992	Agreed
Students' anti-social nature influences academic performance negatively.	200	3.08	.862	Agreed
Students' unfriendliness influences academic performance negatively.	200	2.61	.833	Agreed
Grand Mean	200	2.89	0.89	Agreed

Decision ≥ 2.50

Table 4.3 shows the responses of students on influence of Extraversion on students'' academic performance. The students agreed that: Students' good inter-personal relationship

with other students influences academic performance positively, students' liveliness influences academic performance positively, students' anti-social nature influences academic performance negatively and students' unfriendliness influences academic performance negatively with mean value of 3.08, 2.80, 3.08 and 2.61 respectively.

Research Question Four

What is the influence of Agreeableness on students'' academic performance?

Table 4.4 Influence of Agreeableness on students' Academic Performance

S/N	Statement	N	$\bar{x}$	SD	Remark
1	Students' kind attitude towards other students influences academic performance positively.	200	3.04	.653	Agreed
2	Students' sympathetic nature towards other learners influences academic performance positively.	200	3.21	.697	Agreed
3	Students' helpfulness to peers influences academic performance positively.	200	3.15	.630	Agreed
4	Students' compassion towards other learners influences academic performance positively.	200	3.03	.733	Agreed
	Grand Mean	200	3.11	0.68	Agreed

Decision ≥ 2.50

Table 4.4 shows the results on responses of students on influence of Agreeableness on students'' academic performance. It was disclosed on the table that on average, students' kind attitude towards other students influences academic performance positively, students' sympathetic nature towards other learners influences academic performance positively, students' helpfulness to peers influences academic performance positively, students'

compassion towards other learners influences academic performance positively with mean value of 3.04, 3.21, 3.15 and 3.03 respectively.

Research Question Five: What is the influence of Neuroticism on students'' academic performance in some selected secondary schools in Bosso L.G.A., Niger State?

Table 4.5 Influence of Neuroticism on students'' Academic Performance in Some Selected Secondary Schools in Bosso L.G.A, Niger State

S/N	Statement	N	$\bar{x}$	SD	Remark
1	Students' self-doubt about their abilities influences academic performance negatively.	200	3.24	.353	Agreed
2	Students' anxiety toward class activities influences academic performance negatively.	200	2.91	.217	Agreed
3	Students' pessimistic attitude towards the learning of Chemistry influences academic performance negatively.	200	3.09	.350	Agreed
4	Students' good emotional state influences academic performance positively.	200	3.43	.533	Agreed
	Grand Mean	200	3.17	.363	Agreed

Decision ≥ 2.50

Table 4.5 shows the results on responses of students on influence of Neuroticism on students'' academic performance in some selected secondary schools in Bosso L.G.A.,

50

Niger State. It was disclosed on the table that on average, Students' self-doubt about their abilities influences academic performance negatively, students' anxiety towards class activities influences academic performance negatively, students' pessimistic attitude towards the learning of Chemistry influences academic performance negatively, students' good emotional state influences academic performance positively with a mean value of 3.24, 2.91, 3.09 and 3.43 respectively.

4.3   Summary of Findings

The following are findings of the study:

1. The findings on Research Question One depicted that students' good attitude towards the learning of Chemistry influences academic performance positively, students' unwillingness to learn new Chemistry concepts influences academic performance negatively, students' curiosity towards the learning of Chemistry influences academic performance positively and students' laziness toward class works/activities influences academic performance negatively

2. The findings on Research Question Two depicted that students' creativity and imagination influences academic performance positively, students' hard work and commitment influences academic performance positively, students' goal-driven nature influences academic performance positively, students' good organization of class activities influences academic performance positively.

3. The findings on Research Question Three unveiled that students' good inter-personal relationship with other students influences academic performance positively, students' liveliness influences academic performance positively, students' anti-social nature

influences academic performance negatively and students' unfriendliness influences academic performance negatively.

4. The findings on Research Question Four showed that students' kind attitude towards other students influences academic performance positively, students' sympathetic nature towards other learners influences academic performance positively, students' helpfulness to peers influences academic performance positively, students' compassion towards other learners influences academic performance positively.

5. The findings on Research Question Five depict that students' self-doubt about their abilities influences academic performance negatively, students' anxiety towards class activities influences academic performance negatively, students' pessimistic attitude towards the learning of Chemistry influences academic performance negatively, students' good emotional state influences academic performance positively.

4.4   Discussion of Findings

The findings of the study dislcosed that students' good attitude towards the learning of Chemistry influences academic performance positively, students' unwillingness to learn new Chemistry concepts influences academic performance negatively, students' curiosity toward learning of Chemistry influences academic performance positively and students' laziness toward class works/activities influences academic performance negatively. This is in line with the findings of (Apu, 2020).

The findings of the study dislcosed that students' creativity and imagination influences academic performance positively, students' hard work and commitment influences academic performance positively, students' goal-driven nature influences academic

performance positively, students' good organization of class activities influences academic performance positively. This is in line with the findings of (Lumanisa, 2015).

Similarly, The findings of the Study unveiled that students' good inter-personal relationship with other students influences academic performance positively, students' liveliness influences academic performance positively, students' anti-social nature influences academic performance negatively and students' unfriendliness influences academic performance negatively. This is in agreement with the findings of (Lumanisa, 2015).

Also, the findings of the Study unveiled that students' kind attitude towards other students influences academic performance positively, students' sympathetic nature towards other learners influences academic performance positively, students' helpfulness to peers influences academic performance positively, students' compassion towards other learners influences academic performance positively. This is in line with the findings of (Apu, 2020).

Fnally, the findings of the Study depicted that students' self-doubt about their abilities influences academic performance negatively, students' anxiety toward class activities influences academic performance negatively, students' pessimistic attitude towards the learning of Chemistry influences academic performance negatively, students' good emotional state influences academic performance positively. This is in line with the findings of (Apu, 2020).

CHAPTER FIVE

5.0   SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1   Introduction

This Chapter focused on the summary, conclusion and recommendations of the research work. In addition to these, suggestions were made by the researcher for further Studies.

5.2   Summary

The researcher carried out a research titled "Investigation of Students' Personality Traits Influence on Academic Performance in Chemistry Amongst Secondary Schools in Bosso L.G.A., Niger State," with the following summary:

The background, Problem statement, Research Problem, Significance, Scope and Definitions of Important Terms of the Study were all addressed in the Chapter One.

The concepts of Education in Nigeria, WAEC and NECO as Nigeria's Main Examination Bodies, the Five-Factor Model, Personality Traits, and other literary works were reviewed in the second Chapter under Conceptual Framework. However, reviews on Trait Theory of Personality, Psychoanalytical, and Attribution Theories, among others; were made under Chapter Two. The Empirical Studies were also subjected to a thorough examination.

The Study's Methodology was covered in the Chapter Three which comprised the following topics: Study's Design, Population, Sample and Sampling Techniques, Research Instrument, Validation and Reliability of the Research Instrument and Data Collection and Analysis Methods. The research was conducted using the Descriptive Survey Design, with the

questionnaire serving as the research instrument with five (5) research questions being addressed. The Study's population consisted of all SS2 students of all public secondary schools in Bosso L.G.A., who were chosen at random from four (4) selected schools with a total of 5,671 students.The population sample consisted of 360 students, hence 360 questionnaires were distributed, but only 200 were properly filled, returned, and assessed. The instrument's reliability was verified using the Test-Retest Method, and its consistency was determined using Cronbach Alpha Formula, which yielded a Pearson Correlation Coefficient of.85. Mean and Standard Deviation were used to examine the data from the questionnaires.

The findings of the entire Study were examined and explained in Chapter Four, which were obtained through the use of Mean and Standard Deviation. The findings demonstrated that students' academic performance in the selected public secondary schools in Bosso L.G.A. is influenced positively by their openness to experience, conscientiousness, and agreeableness.

The researcher concluded in Chapter Five that: students' personality traits (openness to experience, conscientiousness, extraversion, and agreeableness) positively influence the academic performance of secondary school students in Bosso L.G.A., and only Neuroticism negatively influences students' performance and that parents should encourage their neurotic children to believe in themselves and their abilities, according to the findings.

5.3 Conclusion

Based on the Study's findings, it could be concluded that openness to experience, conscientiousness, extraversion and agreeableness influence the academic performance of

students positively and only neuroticism negatively influence the academic performance of secondary school students in Bosso L.G.A., Niger State.

5.4 Recommendations

The researcher recommended that:

Teachers:

1. Teachers should be well-enlightened on students' personality traits that influence academic performance either positively or negatively so that students with favourable personality traits can be paired with those with negative traits. Hence, the issue of poor academic performance will be reduced.

2. Hard working students should be highly motivated by their teachers.

3. Teachers should encourage students with low self-esteem to have confidence in themselves and their abilities.

Researcher(s):

4. The researcher and other researchers should carry out further research on personality traits that influence students' performance in other geographical locations.

Students:

5. Students should be enlightened on personality traits that positively or negatively influence their academic success in schools so that they can readjust if need be, in order to perform better.

6. Students should develop high self-esteem in order to excel academically.

Parents:

7. Parents should encourage their neurotic children to believe more in themselves and their abilities so as to excel academically.

8. Hard working children should be motivated and rewarded with more learning materials by their parents so as to do better in school.

Society:

9. Each and every member of the society should know those students' personality traits that favourably influence academic performance and otherwise.

5.5   Contribution of Study to Existing Knowledge

1) This research work will enlighten every member of the society on the influence of the five major personality traits on the academic performance of secondary school students in Bosso L.G.A., Niger State.

2) The Study will enable the students to know the influence of personality traits on their performance and make certain changes regarding their behaviors if need be, so that they can excel in school.

5.6   Limitation to the Study

The major limitation to this study is the issue of time constraint on the part of the researcher, as it was difficult for the researcher to combine academic and research work.

5.7   Suggestions for Further Studies

The following suggestions were made by the researcher for further studies:

1. Investigation of Students' Personality Traits Influence on Academic Performance in Chemistry Amongst Secondary School Students in Bida L.G.A, Niger State.

2. Influence of Teachers' Personality Traits on the Effective Delivery of Classroom Instruction in some Selected Secondary Schools in Kontagora, Niger State.

REFERENCES

Althof, R. W. (2010). The Big Five Personality Traits as Predictors of Academic Maturity. *Masters Theses*. 12-54.

Andersen, S. C., Gensowski, M., Ludeke, S. G., & John, O. P. (2020). A stable relationship between personality and academic performance from childhood through adolescence. An original study and replication in hundred-thousand-person samples. *Journal of Personality*, 88(5), 925-939.

Apu, G. (2020). Factors Affecting Students Academic Achievement in Chemistry: A Case of Obudu Local Government Area. *SSRN Electronic Journal*, 6, 1-53.

Chamorro-Premuzic, T Furnham, A. (2003). Personality Traits and Academic Performance. *European Journal of Personality*, 17(3), 90-103.

Coenen, J., Golsteyn, B. H. H., Stolp, T., & Tempelaar, D. (2021). Personality traits and academic performance: Correcting self-assessed traits with vignettes. *PLoS ONE*, 16(3), 1-13.

Dur, K. (2018). Study of Impact of Personality Traits on Academic Performance of Management Students. *Journal of Personality*, *7*(4), 43-50.

Fuertes, A. M. de C., Fernández, J. B., Mata, M. de los Á. G., Gómez, A. R., & Pascual, R. G. (2020). Relationship between personality and academic motivation in education degrees students. *Education Sciences*, *10*(11), 1-14. https://doi.org/10.3390/educsci10110327

Ghazi, S. R., Shahzada, G., & Ullah, S. (2013). Relationship between Students' Personality Traits and their Academic Achievement in Khyber Pakhtunkhwa , Pakistan. *Journal of Education and Social Research*, *3* (2), 437-444.

Golsteyn, B. H. H., Non, A., & Zölitz, U. (2021). The impact of peer personality on academic achievement. *Journal of Political Economy*, *129*(4), 1052–1099.

Hashmi, A. & Naz, Q. (2020). Impact of Big five personality traits on Academic Achievement of Prospective Teachers. *Journal of Arts & Social Sciences*, *February*, 40–52.

Hassan, A. A., Ali, H. I., Salum, A. A., Kassim, A. M., Elmoge, Y. N., & Amour, A. A. (2015). *Factors Affecting Students' Performance in Chemistry: Case Study in Zanzibar Secondary Schools*. *9*(11), 4086.4093.

Hazrati-Viari, A., Rad, A. T., & Torabi, S. S. (2012). The effect of personality traits on academic performance: The mediating role of academic motivation. *Procedia - Social and Behavioral Sciences*, 3(2), 367.371.

Ikpi, E. A. E. (2014). The Influence of Personality Trait on the Academic Performance of Secondary School Students in Cross River State, Nigeria. *IOSR Journal of*

Humanities and Social Science, *19*(3), 12.19. https://doi.org/10.9790/0837-19311219

Kenni, A. M. (2020). *Analysis of Students' Performance in Chemistry in the West African Senior School Certificate Examination (WASSCE) and National Examination Council (NECO) from 2015-2018*. *7*(1), 35.49.

Khan, A., Shin, L. P., Hishan, S. S., Mustaffa, M. S., Madihie, A., & Sabil, S. (2018). Effect of personality traits and learning styles towards students' academic achievement in Johor Bahru. *International Journal of Engineering and Technology(UAE)*, *7*(2), 4.9.

Kumari, B. (2014). The correlation of Personality Traits and Academic performance: A review of literature. *IOSR Journal of Humanities and Social Science*, 19(4), 15–18.

Lumanisa, A. N. (2015). The Influence of Personality Traits and Motivational Factors in Predicting Students Academic Achievement. *International Journal of Engineering and Technology* 1–58.

Martey, E. M., & Larbi, A. K. (2016). Assessing the Impact of Personality Traits on Academic Performance : Evidence from Tertiary Students in Ghana. *International Journal of Research in Engineering, IT and Social Sciences*, *6*(03), 1–17.

Nordin, N., Ismail, M. H., Saleh, M. F. M., & Nasir, N. A. M. (2020). Assessing Personality Traits and its influence on Academic Performance among Prospective Teachers of Shah Alam. *International Journal of Academic Research in Business and Social Sciences*, *10*(14), 159.170. https://doi.org/10.6007/ijarbss/v10-i14/7685

Ojukwu, M. O. (2016). Perception of Students on Causes of Poor Performance in Chemistry in External Examinations in Umuahia North Local Government of Abia State. *International Journal of Education and Literacy Studies*, *4*(1), 123.149.

Seman, K., & Ismail, Z. (2019). Big Five Personality Traits on Academic Performance Among Foundation Students. *Asian Social Science and Humanities Research Journal (ASHREJ)*, *1*(2), 28.35.

Taiwo, D. E., & Amadi, G. N. (2019). Personality Traits and Academic Underachievement of Secondary School Students in Bayelsa State. *Asian Journal of Advanced Research and Reports*, *5*(2), 1.8.

Troncone, A., Drammis, M. L., & Labella, A. (2014). Personality Traits, Self-Esteem and Academic Achievement in Secondary School Students in Campania, Italy. *Universal Journal of Educational Research*, *2*(7), 512.520.

Tsok, S. H., Kpanja, S. S., & Hwere, M. S. (2013). A Comparative Study of Students' Performance in S.S.C.E Mathematics and Pre-National Diploma (PRE-ND) Programmes Mathematics: A Case Study of Nasarawa State Polytechnic Lafia. *Journal of Education and Practice*, *4*(27), 69.81.

APPENDIX
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE.

Questionnaire on Investigation of Students' Personality Traits Influence on Academic Performance in Chemistry Amongst Secondary Schools in Bosso L.G.A, Niger State

Dear Respondent,

I am a student of the above named institution conducting a research on the project titled above. Your responses supplied will be be treated with a high level of confidentiality and is needed towards the successful completion of my B. Tech.

SECTION A: Demographic Data

Gender: Male [ ] Female [ ]

Class: SS1 [ ] SS2 [ ] and SS3 [ ]

SECTION B: Items On Students' Personality Traits

Instruction: Kindly tick (√) as appropriate using the provided keys below:

Strongly Agreed (**SA**), Agreed (**A**), Disagreed (**D**), Strongly Disagreed (**SD**).

RSQ1: What is the influence of Openness to Experience (i. e the tendency of a person to be creative, curious and willing to learn new ideas) on students' academic Performance?

S/No	STATEMENT	SA	A	D	SD
1.	Students' good attitude towards the learning of Chemistry influences academic performance positively.				
2.	Students' unwillingness to learn new Chemistry concepts influences academic performance negatively.				
3.	Students' curiousity toward learning of Chemistry influences academic performance positively.				

		SA	A	D	SD
4.	Students' laziness toward class works/activities influences academic performance negatively.				

RSQ2: What is the influence of Conscientiousness (i. e the tendency of a person to be hard working, focused and organized) on student's academic performance?

S/NO	STATEMENT	SA	A	D	SD
5.	Students' creativity and imagination influences academic performance positively.				
6.	Students' hard work and commitment influences academic performance positively.				
7.	Students' goal-driven nature influences academic performance positively.				
8.	Students' good organization of class activities influences academic performance positively.				

RSQ3: What is the influence of Extraversion (i. e the tendency of a person to be social, outgoing and talkative) on students' academic performance?

S/N	STATEMENT	SA	A	D	SD
9.	Students' good inter-personal relationship with other students influences academic performance positively.				
10.	Students' liveliness influences academic performance positively.				
11.	Students' anti-social nature influences academic performance negatively.				
12.	Students' unfriendliness influences academic performance negatively.				

RSQ4: What is the influence of Agreeableness (i.e the tendency of a person to be sympathetic, kind and compassionate) on students' academic performance?

S/NO	STATEMENT	SA	A	D	SD
13.	Students' kind attitude towards other students influences academic performance positively.				
14.	Students' sympathetic nature towards other learners influences academic performance positively.				
15.	Students' helpfulness to peers influences academic performance positively.				
16.	Students' compassion towards other learners influences academic performance positively.				

RSQ5: What is the influence of Neuroticism (i. e the tendency of a person to be anxious, easily depressed and to have self-doubt of himself/herself) on students' academic performance?

S/NO	STATEMENT	SA	A	D	SD
17.	Students' self-doubt about their abilities influences academic performance negatively.				
18.	Students' anxiety toward class activities influences academic performance negatively.				
19.	Students' pessimistic attitude towards the learning of Chemistry influences academic performance negatively.				
20.	Students' good emotional state influences academic performance positively.				