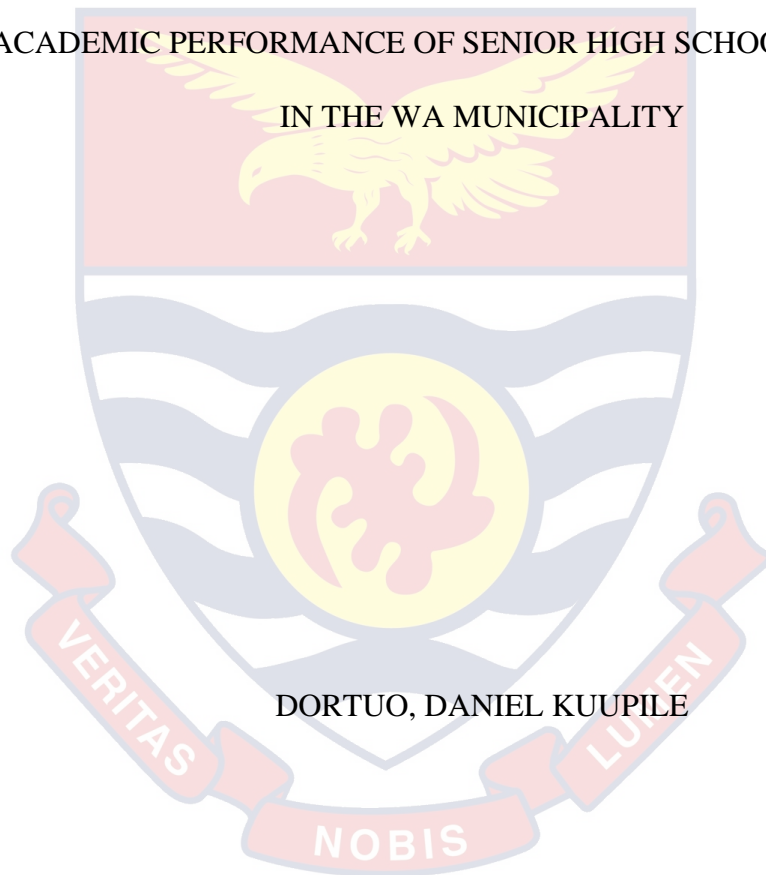


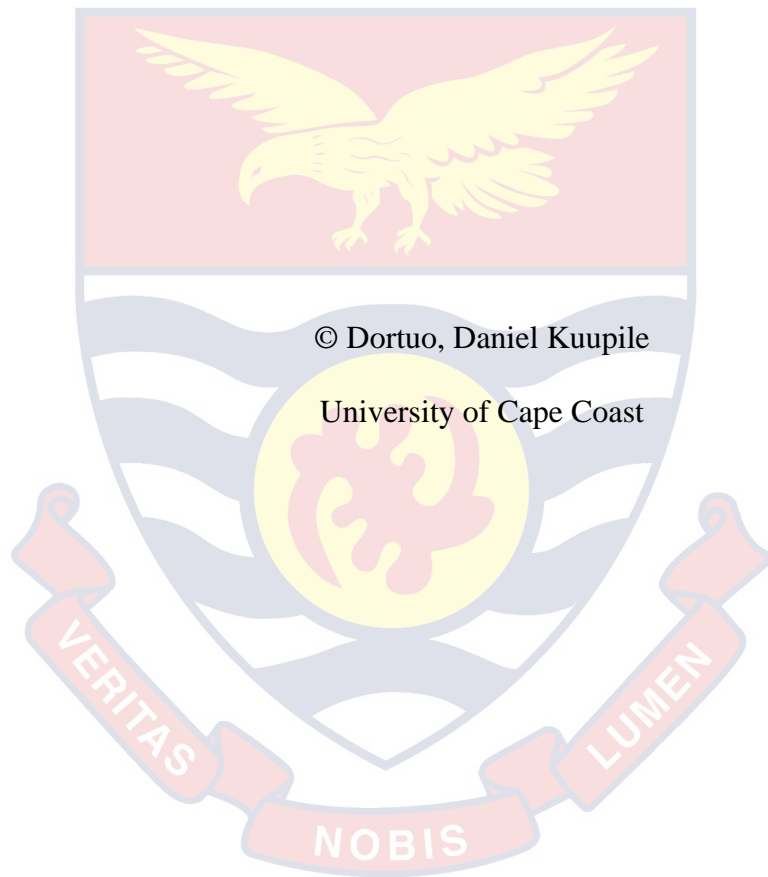
UNIVERSITY OF CAPE COAST

RELATIONSHIP AMONG TEST ANXIETY, STUDY SKILLS AND  
ACADEMIC PERFORMANCE OF SENIOR HIGH SCHOOL STUDENTS  
IN THE WA MUNICIPALITY



DORTUO, DANIEL KUUPILE

2020

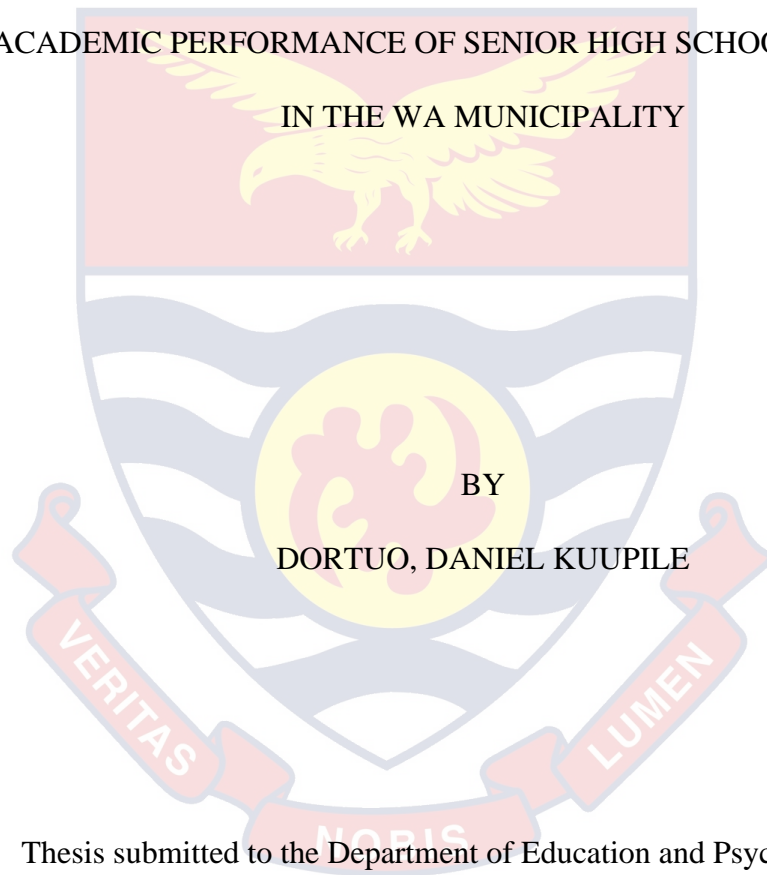


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Thesis submitted to the Department of Education and Psychology of the  
Faculty of Educational Foundations, College of Education Studies, University  
of Cape Coast, in partial fulfilment of the requirements for the award of  
Master of Philosophy degree in Educational Psychology

SEPTEMBER 2020

## DECLARATION

### Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature..... Date.....

Name: .....

### Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature ..... Date .....

Name: .....

Co-supervisor's Signature ..... Date .....

Name: .....

## ABSTRACT

The major aim of this study was to explore the relationship among test anxiety, study skills and academic performance of Senior High School students in the Wa Municipality. A correlational research design, through the use of quantitative approach, was adopted for the study. A sample size of 284 Public Senior High School students within the Wa Municipality was selected to participate in the study. Data were collected using the adapted versions of the Test Anxiety Scale and Study Skills Inventory. Also, test scores of students' final mock examination in mathematics, English and Science were obtained from the selected schools and used to measure students' academic performance. Descriptive statistics and inferential statistics (Pearson product moment correlation coefficient-PPMCC and independent samples t-test) were used to analyse the data. The study found a significant strong negative correlation between Test Anxiety and Academic Performance of SHS students in Mathematics, English Language and Science. Also, a significant strong positive correlation was found between Study Skills and academic performance. It was concluded from the study findings that test anxiety and study skills have an influence on students' academic performance. It was therefore recommended that school authorities should introduce and, or intensify test anxiety prevention and intervention programmes as well as organise study skills training workshops and seminars for students to help them cope with anxiety and also adopt good study skills in order to improve their academic performance.

## KEYWORDS

Academic Performance

Anxiety

Students

Study Skills

Text Anxiety

Wa Municipality



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DEDICATION

To my lovely children: Ivy, Ike and Iva





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## LIST OF ACRONYMS

AP	Academic Performance
TAS	Test Anxiety Scale
SSI	Study Skills Inventory
TA	Test Anxiety
MES	Mathematics, English and Science
WAEC	West Africa Examination Council
WASSCE	West Africa Senior Secondary Certificate Examination
PPMCC	Pearson Product Moment Correlation Co-efficient
MED	Municipal Education Directorate
WM	Wa Municipality
SEM	Standard Error of Measurement
GNA	Ghana News Agency
SS	Study Skills
DF	Degree of Freedom
AM	Average Means
ASD	Average Standard Deviation
AAWUN	American Association of University Women

## CHAPTER ONE

### INTRODUCTION

The education system globally, tends to focus heavily on the significance of tests and remarkable academic performance (Ader & Erktin, 2010). Testing, in recent times, has become common across every level of school education (Ader & Erktin, 2010). Tests and examinations are used extensively across all levels of formal education as a yardstick for measuring the proficiencies of students in their academic lives. More importantly, assessments are a significant part of modern education system in that they are used, among others, to evaluate and figure out educational thresholds, professional positioning and academic progression in the individual's educational pursuit. In the educational domain, testing has become an increasingly important component in a student's ability to do well. In fact, almost all schools use formal testing situations and examinations to assess students' progress throughout their years in school (Rothman, 2004). Unfortunately for many students, the high-stakes decisions that are made based on these formal tests (i.e., acceptance to higher institutions of learning, etc.) can put so much pressure on them that they develop test anxiety (Kouzma & Kennedy, 2004). Again, studies have shown that test, together with its associated anxiety, has an impact on the overall academic performance of students (Ader & Erktin, 2010).

There is usually excessive pressure imposed on students by society to perform well and this consequently has caused many students across the



different levels of the educational domain to develop heightened anxiety and stress during test and examination (Ader & Erkin, 2010). The issue of test anxiety has assumed perversity over the years thus, affecting the academic performance of students of all ages and genders, and across various levels of school education (Ader & Erkin, 2010).

### **Background to the Study**

Anxiety disorders have been reported to be present in almost all cultures (Demyttenaere, 2013). Global research findings however, show that test anxiety is one of the most common type of anxiety present and rising among student populace (Sarason & Sarason, 1990). Test anxiety has been defined as the negative affect, worry, physiological arousal, and behavioural responses that go along with concerns about failure or lack of competence on an examination or similar evaluative situation (Matthews, Zeidner & Roberts, 2006).

Furthermore, test anxiety is experienced when the demands of evaluative settings provoke the fear of failure, risk to self-worth and apprehension about being assessed by others (Demyttenaere, 2013). Perceived as one of the most important problems faced by students worldwide, Khosravi and Bigdeli (as cited in Sharif, 2013), test anxiety has been established to have an inverse relationship with academic performance. It is also reported to be present in both genders, that is, males and females (Sowa & LaFleur, 2016), and again in both younger and older age groups (Cassady & Johnson, 2002). It is usually the claim that gender, which is linked to many developmental trends, affects the growth and exposure of anxiety in testing and evaluative encounters (Basso, Gallagher, Mikusa & Rueter, 2011). In the middle years of elementary school, gender differences in test anxiety start to show up, and consistently

female students tend to report higher test anxiety levels compared to male students from elementary school through high school and college (Hill & Sarason, 1966; Allen, Elias, & Zlotlow, 1980; Zeidner, 1998). Furthermore, several findings from the extant research studies suggest that there is an association between test anxiety level, study skills and academic success of students (Hembree, 1988; Zeidner, 1998; Cohen, 2008; Ergene, 2013; Numan & Hasan, 2017). This implies that study skills, test anxiety and academic performance are found to correlate.

A study conducted by Nicholson (2009) to explore the effects of test anxiety and study skills on student achievement of grade 11 students revealed that anxiety, study skills and academic success were related. Thus, high anxiety level relates to low academic performance and the vice versa. Again, Gaudry and Spielberger (1971) noted that high test anxiety is considered as one of the main factors for low performance of students.

Furthermore, literature has stressed the significant influence of students' study skills on their academic performance. It has been argued that effective study skills are extremely essential in ensuring academic success. Menzel (1982) reported that students do face problems in their academics because of their poor study skills, thus, adversely influencing their academic performance. Gettinger and Seibert (2002) mentioned that learners who exhibit poor study skills are predisposed to low academic performance. Students cannot perform well without applying good study skills. Kerka (as cited in Awabil, 2016), believed that study skills are those learning strategies that help students organize, process and use information effectively. For learning, every student uses different techniques and methods on a scheduled and regular basis. These

habitual practices for studying can be termed as study skills used by students (Khurshid, Tanveer & Qasmi, 2012). Study skills vary from one person to another. According to Azikiwe (1998), study skills are the approaches and ways a learner employs during his or her personal study time in order to achieve mastery of the subject. Study skills are thus, seen as the learning techniques that learners use to learn independently.

Other studies also concluded that study skills, such as textbook reading, memory, time management, note-taking, test preparation, and concentration relate to a student's test anxiety level and academic performance (Congos, 2010). Regarding study skills, time management is considered a study skill that predicts the academic performance of students (Kurshid, 2012). Some studies also found that other study skills such as having effective study techniques, using different study methods, and having good language proficiency were enhancing factors in learning (Congos, 2010) and which also had a bearing on the academic performance of students.

Furthermore, additional research findings found a significant relationship between college GPA and the following study skills of students: information processing skills, ability to select main ideas, self-testing, motivation, and time management (Kurshid, 2012). Poor study skills have been found to predict lower grades among students (Congos, 2010; Ergene, 2013), as well as a significant result on their levels of test anxiety and academic performance (Numan & Hasan, 2017).

It is my considered opinion that Senior High School students face various sources of academic stress, including a demonstration of an inability to engage in challenging materials under time limitation. These stressors usually

cloud their understanding of materials they already learned leading to poor recall. They particularly show a great amount of anxiety in subject areas such as mathematics, English Language and Science, because of the notion that such mandatory school subjects are generally difficult. It is therefore important that researchers, by means of scientific investigation, establish the underlying associations between identifiable study skills, test anxiety and academic performance of learners.

### **Statement of the Problem**

Test anxiety is a popular topic of research beginning as far back as the early 1900s. “Fear of exams and testing situations is widespread and appears to becoming more prevalent, possibly due to the increasing frequency of testing and the importance placed on testing” (Numan & Hasan, 2017, p. 96). Test taking has become prevalent in our society and the practice of testing applies to students at every level of the educational ladder. In recent years, students have been subjected to an increasing number of tests and evaluations right from the time they enter kindergarten until they complete high school. Although most students face these situations with normal amounts of nervousness (Akanbi, 2013), some students do not cope well in testing situations and experience moderate to severe anxiety. This has a detrimental effect on their test performances and subsequently, on their advancement and academic progression (Akanbi, 2013). Test anxiety affects people of all ages and sexes who have to be evaluated, assessed, and graded on their abilities or achievements (Lufi, Okasha, & Cohen, 2004).

Globally, research studies have shown that an estimated ten million elementary and high school students experienced test anxiety in the mid-1980s (Hill & Wigfield, 1984). Hill and Sarason (1966) suggested that in a typical classroom of 25 students, between one and three students were at risk for developing test anxiety, including students of average intelligence, with learning disabilities, and even gifted learners. It is reported in test anxiety literature that, heightened test anxiety and poor study skills often impact negatively on students' assessments results (Cizek & Burg, 2006). Cizek and Burg (2006) argued that many students suffer from test anxiety and poor study skills when facing difficult academic tasks.

Research on factors impacting students' work has been under investigation for some time. One predominant area of research is test anxiety and study skills which are psychological constructs. Cizek and Burg (2006) argued that among the diversity of academic experiences associated with emotions, study skills and test anxiety have a long educational history and thus, merit continuing attention. Anxiety can stem from many course-related issues, including inadequate preparation, comparing performance to peers, fear of disappointing parents, consequences of performing poorly, and more (Culler & Holohan, 1980; Cassady & Johnson, 2002)

. Though tests generate anxiety among students and the fact that every student endures test and examinations throughout their educational career, research works, however, have recognised that Senior High School years are more challenging than any other level of education. At the Senior High School level, students do face varied problems and stressors during examinations (Rodgers & Tennison, 2009)

It has been indicated that test anxiety, coupled with student's poor study skills is one of the major issues that can adversely affect a student's academic success (Zeidner, 1998). Some studies concluded that students with good study skills experience less test anxiety and high academic achievement as compared to the students with poor study skills (Ergene, 2013).

Gender has been reported as a factor that may contribute to the development of test anxiety (Ünal-Karagiiven, 2015). There are differences in test anxiety manifestation with respect to gender. Thus, when comparing the test anxiety levels of males and females, females consistently scored higher than males (Akanbi, 2013). The effect of test anxiety on female students however, tends to be greatest in the middle school and early high school years and the weakest in the elementary years and at the college level (Cizek & Burg, 2006). It is however unknown whether there will be gender differences among students within the Wa Municipality.

Quite a lot of work in the Western world has been done in the area of test anxiety. It can however be observed that the academic locality of these western institutions where most of these studies were conducted is largely unique and different from the educational background in Ghana especially in the Wa Municipality. It is therefore necessary that context-specific studies be conducted to advance the argument further. Admittedly, some studies have been done in the area of test anxiety and academic performance in the Ghanaian context. Agyapong-Nimo (2017) and Frimpong-Manso (2017), among other studies, for instance, are some of such local context studies. These studies however are quite different from the current one in terms of their methodologies and study location.

In addition to the above, the researcher's long years of teaching and invigilation at the Senior High School level has given him sufficient opportunity to interact with students during and after important examination situations such as the West African Senior Secondary Certificate Examination (WASSCE). In such situations, it is often observed with great concern the high levels of test anxiety manifestations among students, particularly in Mathematics, English Language and Science and hence the researcher's motivation to scientifically investigate this phenomenon. The above discussions concerning test anxiety have therefore, necessitated the need to conduct the current study to explore the relationship among test anxiety, study skills and academic performance of third year public Senior High School students in Mathematics, English Language and Science within the Wa Municipality in the Upper West Region.

### **Purpose of the Study**

The main purpose of the study was to explore the relationship among test anxiety, study skills and academic performance of Senior High School students. In addition, the study explored the gender differences with respect to test anxiety, study skills and academic performance of Senior High School students in three core subject areas. Specifically, the study sought to

1. Explore the relationship between test anxiety level and academic performance of students using the scores in Mathematics, English Language and Science as a proxy for academic performance.
2. Establish the relationship between study skills and academic performance of students using the scores in Mathematics, English Language and Science as a proxy for academic performance.

3. Examine the gender difference between test anxiety of SHS students in Mathematics, English Language and Science.
4. Find out the gender difference between study skills of SHS students in Mathematics, English Language and Science.

### Research Hypotheses

The following hypotheses were formulated at  $p < 0.05$  level of significance to guide the study.

**H<sub>0</sub>1:** There is no statistically significant relationship between test anxiety and academic performance of SHS students in Mathematics, English Language and Science.

**H<sub>1</sub>A:** There is a statistically significant relationship between test anxiety and academic performance of SHS students in Mathematics, English Language and Science.

**H<sub>0</sub>2:** There is no statistically significant relationship between study skills and academic performance of SHS students.

**H<sub>2</sub>A:** There is a statistically significant relationship between study skills and academic performance of SHS students.

**H<sub>0</sub>3:** There is no statistically significant gender difference between test anxiety of SHS students.

**H<sub>3</sub>A:** There is a statistically significant gender difference between test anxiety of SHS students.

**H<sub>0</sub>4:** There is no statistically significant gender difference between study skills of SHS students.

**H<sub>4</sub>A:** There is a statistically significant gender difference between study skills of SHS students.



### **Significance of the Study**

The outcome of the study is intended to add to the body of literature on test anxiety and study skills in the field of secondary education. It appears most of the existing test anxiety studies placed emphasis on undergraduate and college students (Sapp, 1996).

The study is again intended to draw the attention of teachers, administrators and parents to negative effects of test anxiety on academic performance of students and the need to take action to overcome its effects.

Lastly, the results of the study would inform stakeholders in GES and society at large about the need for changes in curriculum design and instructional strategies aimed at addressing the issue of the rate and significance of testing.

### **Delimitation**

The study was delimited to third year SHS students from three randomly selected public Senior High Schools within the Wa Municipality. First and second year students were excluded because the introduction of the double track/semester policy currently being implemented in Senior High Schools in Ghana made it impossible to have both tracks in school at the same academic term. The study site was confined to the Wa Municipality in the Upper West Region, Ghana. Academic performance was restricted to students' performance in Mathematics, English Language and Integrated Science and was measured using the marks of their Final Mock Examination. Mathematics, English Language and Science were chosen because they seem to be the subjects in which students in Senior High Schools performed poorly as was disclosed by the Head of the National office of WAEC, Mrs. Wendy Addy-Lamptey, at the

2018 WAEC National Distinction Awards Presentation Night in Accra, Ghana. (GNA, March 9, 2018).

### **Limitations**

The findings of this study pertain only to students of the Wa municipality, thus generalization to all students is seen as the weakness of the current study. This is because students differ in characteristics such as economic, cultural, social and educational background of parents from one Municipality to another in Ghana. Again, the study relied on self-reported data by respondents and as it were, respondents might fake responses. Furthermore, the final mock examination scores which were used to measure students' academic performance was a weakness. Since it was a teacher made test, all the steps of a standardised test might not be adequately followed. It was however used since the main purpose of the study was to explore relationships among variables and not for purposes of comparison.

### **Definition of Phrases/Terms**

**Academic performance:** Marks or scores obtained in Mathematics, English Language and Science.

**Anxiety:** An unpleasant emotional reaction that results from the perception or appraisal of a particular situation as threatening.

**Test anxiety:** Distressing and unpleasant dispositional feelings of apprehension and worry cognitions, in a test environment of persons under scrutiny.

**Test:** Tasks given to students according to set objectives. Students' responses to tasks are scored by a teacher as a measure of an attribute.

**Students/Learners:** The terms students and learners are used interchangeably by the researcher, and are seen as synonyms with regards to this study. These

words refer to any person who is learning or who is receiving education in a learning situation.

**Coeducation:** An educational institution where there are both male and female learners.

**Single-sex:** Boys or girls only.

### **Organization of the Study**

This study was organized into five chapters. Chapter one consists of an introduction to the study; the background of the study, statement of the problem, the purpose of the study and objectives of the study. In addition, the research questions, significance of the study, delimitation, limitations as well as organization of the study are described in this Chapter. Chapter two deals with the review of literature from documents, published and unpublished, including books, journals, newspapers, the internet and other materials that are relevant to the study. Chapter three looks at the research methods used in the study. Contents of this chapter include the research design, population, sampling procedure, data collection instruments, data collection procedure as well as the data processing and analysis plan. Chapter four focuses on the results of the study and discussions. Chapter five deals with the summary, conclusions drawn from the study, recommendations made and suggestions for further research studies.

## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

The purpose of the study was to explore the relationship among test anxiety, study skills and academic performance of Senior High School students. This chapter constitutes review of concepts, theoretical and empirical data on the topic under investigation.

#### Conceptual Review

##### Concept of Test Anxiety

Over the years, as test anxiety research has developed, variety of definitions and descriptions of this construct have emerged. The concept of test anxiety has been present in scientific literature since the early 1950's (Mandler & Sarason, 1990). This has been an important area of study since its inception and a number of theories have been advanced to help understand this phenomenon (Ünal-Karagüven, 2015). Spielberger as cited in Ergene (2013, p. 314), defines test anxiety as an “unpleasant state characterized by feelings of tension and apprehension, worrisome thoughts and the activation of the autonomic nervous system when an individual faces evaluative achievement-demanding situation”.

King, Ollendick and Gullone (1991), describe test anxiety as unpleasant emotional reactions, characterized by subjective feelings of tension, apprehension, nervousness, and uncertainty, precipitated by evaluative situations. Pekrun, Goetz, Perry, Kramer, Hochstadt and Molfenter (2004, p.

290), use Zeidner's definition of test anxiety as, "anxiety subjectively relating to taking tests and exams, including anxiety related to the threat of failing an exam and the associated negative consequences." They identify some components of test anxiety, including nervousness, worry cognitions, physiological activation, fearful facial expressions, and impulses to escape. Increased heart rate and perspiration are common physiological responses of test anxiety (Pierce, Sarason, & Sarason, 1990).

Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi, and McCann (2005), defines test anxiety as the set of phenomenological, psychological, and behavioural responses that accompany concerns about possible negative consequences or failure on an exam or similar evaluative situations. Baddeley (2016), also defines test anxiety as the reaction to stimuli that are associated with an individual's experience of testing or evaluative situations. Kirkland and Hollandsworth (1980), defines test anxiety as a constellation of behaviours that have a debilitating effect on academic performance. The above therefore suggest that test anxiety is an apparent manifestation of worry and emotionality associated with testing situation.

Wine (1971), suggests that the performance difference between high and low-anxious persons is due to loss of attentional focus during the task being performed. Low test-anxious persons are generally focused on task-relevant stimuli while performing tasks, while high test-anxious subjects focus on test-irrelevant stimuli. When a task requires full attention, splitting attention among stimuli that are irrelevant could interfere with performance (Wine, 1971). Ralph Culler and Holahan (1980) replicated the finding of previous studies that had shown that test anxiety is associated with a significant decrease in grade point

average. The researchers studied high test-anxious and low test-anxious college freshmen who were enrolled in an introductory psychology course. The researchers found significantly lower GPAs associated with higher levels of anxiety. The researchers further found that students with poor academic records tended to have poor study skills, as well as higher levels of test anxiety.

According to Morris and Liebert (1970), the cognitive or worry component and the emotional component are two distinctive components of test anxiety. Worry refers to cognitive concerns about test performance (Morris & Liebert, 1970). Thoughts of or worrying about failing an examination and internal self-statements regarding self-efficacy are elements of the worry component (Baddeley, 2016).

### **Components of Test Anxiety**

Liebert and Morris (1967) proposed that test anxiety has two major components: worry and emotionality. Worry describes the cognitive evaluative ruminations of test anxiety, while emotionality describes the unpleasant autonomic responses. Worry concerns performance and the consequences of failure and poor evaluation relative to others. Emotionality includes muscle tension, sweaty palms, shivering etc. (Sharma, 2002). Emotionality tends to peak immediately before a test, and falls off rapidly when the test is concluded. Furthermore, emotionality is not related to performance expectancy. Worry is related to performance expectancy, and tends to be fairly constant across time Liebert and Morris (as cited in Baddeley, 2016). Worry impairs performance by reducing the amount of working memory available, such that task performance is seriously impaired (Baddeley, 2016 )

While test-anxious individuals must put in more effort to achieve the same satisfactory levels of performance as their non-test anxious counterparts, they have the capability of performing well when their worry is contained (Keogh, Bond, French, Richards, & Davis, 2004). Of the two components of test anxiety, worry has been found to contribute more to test anxiety and poor performance (Keogh, Bond, French, Richards, & Davis, 2004; Morris & Liebert, 1970). Wine (1971) expanded on the work of Liebert and Morris (1967), as well as Mandler and Sarason (1952), suggesting an attentional interpretation of test anxiety. Wine (1971) placed a great deal of emphasis on the attention that is drained by the distractive cognitions of test-anxious persons, contending that high test-anxious individuals divide their attention between the demand characteristics of the test, and task-irrelevant cognitions such as worry and self-criticism (Wine as cited in Sharma, 2002). These irrelevant cognitions distract students from the task demands of testing, resulting in low or poor performance.

### **Factors Causing Test Anxiety**

Pierce, Sarason and Sarason (1990), stressed the relevance of cognitive interference and attentional factors in test anxiety. They contended that in spite of vast differences in the content of possible self-preoccupied cognitions, their commonality is that they reduce on-task behaviour during testing by diverting attention from relevant cues, causing the individual to misinterpret perceived cues. Anxious self-preoccupations involve a heightened concern over one's perceived inadequacies and shortcomings. Creighton-Lacroix (2007), maintained that test anxious persons focused on perceived present and potential dangers and threats, and their perceived inability to cope with them. Thus, it is

not the nature of the danger, but the misinterpretation of the events that causes test anxiety Pierce, Sarason and Sarason (1990) identified the following as the cognitive events that occur in anxiety producing situations:

1. The situation is perceived as difficult, challenging, and threatening.
2. The individual judges him or herself to be ineffective or inadequate in dealing with the task being confronted.
3. The individual becomes primarily and exclusively focused on his or her personal inadequacy and the undesirable consequences of this inadequacy.
4. Strong self-deprecatory preoccupations interfere with task-relevant cognitive activity.
5. The individual fully anticipates failure and resulting loss of regard by others. It is self-consciousness, perceived helplessness and expectation of negative consequences that occupy the attention of the test-anxious person (p.67).

Cognitive information-processing perspectives abound in current test anxiety research. A low-anxious individual, according to this perspective searches the environment for cues, focuses on cues that facilitate thought and action and integrates new and old information to make constructive decisions. A test-anxious person becomes self-preoccupied, which leads to a state of self-reference. To the extent that self-preoccupation prevents an individual from attending to environmental cues, the cues are dealt with in accordance with the person's idiosyncratic system of information processing. Thus self-preoccupation interferes with task-relevant cognitive processes. Thoughts such as "I don't know what to do" from a person who might otherwise have the



wherewithal to perform the task at hand are self-defeating (Sarason, 1990). There is mounting evidence that test anxious individuals are not only more susceptible to distraction from internal, self-deprecatory thoughts but also to a general susceptibility to distraction (Keogh & French, 2001).

Keogh et al, (2004), concluded that while worry is an important factor in predicting test anxiety, so is susceptibility to distractions. Distraction, even from non-threatening cues, plays a key role in the disruption of test performance. For some individuals, failure to perform at their best on tests is attributable to their inability to filter out irrelevant material, either internal or external. Zeidner (1998), addressed the importance of family and interpersonal influences in test anxiety. According to Zeidner (1998), parental child-rearing practices, standards and expectations and feedback and support systems may all influence the child's development of an internal locus of control.

Test anxious students, lacking internal locus, develop feelings of hopelessness and fear of failure, which contribute to the cognitive interference characteristics of test anxious individuals (Creighton-Lacroix, 2007). After its climax in the 1980s, the number of scientific publications on test anxiety has decreased significantly. This may be due in part to the fact that test anxiety is often subsumed under different constructs including exam anxiety, performance anxiety, and maths or statistics anxiety (Ünal-Karagüven, 2015). In spite of the reduction in quantity of research, the last decade has seen some important advances. Current research in particular emphasizes the multidimensional nature of test anxiety (Ünal-Karagüven, 2015).

The rise in multidimensional perspectives of test anxiety has allowed previously minimized dimensions, such as skills deficit and emotionality components, to re-emerge as relevant within the broad construct. Interestingly, current consensus is that test anxiety and the resulting poor school performance can be accounted for by a combination of interference, including cognitive and behavioural factors, and skills deficits, including poor study and test-taking skills (Sharma, 2002). Stress over tests is normal, and even useful. It is the inability of the test-anxious person to respond to that stress in a productive way that makes it debilitating. Every teacher knows students who, are quite brilliant and apparently capable of success but are dread stricken at exam time. Some of these students become fixated on the consequences of their perceived impending failure, such that their cognitions become destructive (Pierce, Sarason and Sarason, 1990).

### **Evidence of test anxiety in secondary school students**

A study done by Hembree (1988) showed that test anxiety causes poor academic achievement and it relates inversely to students' self-esteem and directly to their fears of negative evaluation, defensiveness and other forms of anxiety. He meta-analyzed 5622 students from elementary school through college in America and found that test anxiety reduced academic performance at every educational level.

Yousefi, Talib, Mansor, Juhari, and Redzuan (2010), also concluded that test anxiety has impact on adolescents' academic achievement and that it decreases their learning abilities and hinder excellent academic performance. Again, Xiao (2013), also revealed that test anxiety has a negative relationship on test performance on study done by using Chinese Senior High School

Students. From the work of Rahimi (1999), 36.9% of Senior High School students in Iran suffers test anxiety. Again, Ünal-Karagüven (2015), documented that 37% of male and 53% of female high school students in Saghez city in Kurdistan province had test-anxiety. More so, Mozaffari as cited in Yousefi, Talib, Mansor, Juhari, and Redzuan (2010) found that 60% of Shayeds' high school students and 50% of non Shayeds' high school students in Sanandaj had test-anxiety.

Furthermore, a study conducted by Lowe (2015), to examine measurement invariance across gender and gender difference on two measures of test anxiety developed for US middle, high schools and colleges revealed that, females scored significantly higher than their male counterparts on the test anxiety measures. It has also been confirmed from literature that prevalence rates of test anxiety among USA middle, high schools and colleges have ranged from 10% to 40% (Gregor, 2005; Methia, 2004 as cited in Lowe, 2015).

Lastly a research conducted by Oladipo and Ogungbamila (2013), on the academic levels and students faculty as factors of test anxiety among students in Nigeria shown that despite one's academic level and faculty, test anxiety is unavoidable. From all the above assertions it can be said factually that test anxiety exists in our Senior High Schools and students suffer from it. Even though the problem has been identified to exist not much interventional programs or researches has been done to help curb the problem especially in Ghana.

### **Symptoms of Test Anxiety**

Messer and Beidel (2012), recorded the symptoms of test anxiety to include physical, behavioural and cognitive indicators.

The physical indicators may include;

1. muscle tensions
2. headaches,
3. stomach upset,
4. nausea
5. rapid heart beat,
6. irregular breathing and dizziness
7. Sweaty palms

The behavioural indicators may also include;

1. procrastination and avoidance of test
2. excessive studies/cramming
3. poor nutrition
4. sleeping disorders
5. inability to relax and fatigue

The cognitive indicators may also include;

1. negative or self-defeating talks
2. excessive worry
3. going blank on exam questions
4. difficulty organizing and expressing thoughts
5. difficulty concentration

### **Concept of Study Skills**

A number of researchers have examined the role of non-cognitive variables such as study skills (Awang & Sinnadurai, 2011; Hassanbeigi, 2011; Demir, 2012; Fazal, 2012), study behavior (Yang, 2011), study skills (Nuthana & Yenagi, 2009; Kurshid, 2012) on academic achievement. Study skills are

mainly external factors that facilitate the study process such as sound study routines that include how often a student engages in study sessions, review of learning materials, self-evaluation, rehearsal of the material, and studying in a conducive environment (Credé, 2008). Azikiwe (1998) describes study skills as “the adopted way and manner a student plans his private readings, after classroom learning so as to attain mastery of the subject (p.78)”. According to Azikiwe, good study skills are good assets to learners because the skills assist students to attain mastery in areas of specialization and consequent excellent performance, while the opposite constitutes constraints to learning and achievement, leading to failure.

Good (1998) also defines the term study skills as the student’s way of study whether systematic, efficient or inefficient. This definition literally means that good study skills produce positive academic performance while inefficient study skills lead to academic failure. According to Fleming (2003), study skills are the regular tendencies and practices that are depicted during the process of gaining information through learning. In other words, they are the behaviours used when preparing for tests or learning academic material.

According to Hussain (2000), study skills refer to predispositions which students have developed towards private readings through a period of time. According to him, study skills are a gateway to successful achievement in studies. Study skills also involve the degree to which the student engages in regular acts of studying that are characterized by appropriate studying routines. Some of these appropriate studying routines include reviews of material and frequency of studying sessions occurring in an environment that is conducive to studying. Nilda (2007) also opined that a good study skill means overcoming

all the competing attractions with the study environment both internal and external such as watching movies while studying, noise, reading other books, discussions and the state of mind of the learner.

According to Nilda (2007), study skills are different for everybody. A studying strategy may be effective for one but entirely of no use to another student. However, the study skills fit for one student can help the student in different ways. To name one, with continuous studying, study skills develop and they create a more effective understanding about the topic. Study skills can also improve the learning and understanding about the subject, and thus, the grades. Charles-Ogan (2014), also saw study skills as a desired repetitive pattern of studying a subject. “Study skills refer to learning which leads to the achievement of a learner’s goal, through a prescribed pattern of study behaviour” (Ogbodo, 2010, p 229).

According to New Standard Dictionary of Education (2001), study skills mean theme setting of subject to be learned or investigated, and the tendency of pupils or students to study when the opportunity is given. Effective and successful study consists of more than merely memorizing of facts. It calls for knowing where and how to obtain important information and ability to make intelligent use of it.

According to Oloyede and Olatoye (2005), study skill is a systematic conscious task of acquiring specific knowledge geared towards a set of standards. Akporehwe and Onwioduokit (2010) therefore suggested that good study skills will make learners rational in thinking, curious, open-minded, objective, honest, humble and never suspicious. Study skills elicit and guide one's cognitive processes during learning and therefore play a very crucial role

in the academic performance of students. The impact of study skills as one of the several influential factors on academic performance has been confirmed by several authors such as Bernard (1990) and Kendler (1995).

Ariyati and Royanto (2018) defined Study skills as, the amount and kinds of study routines which the student uses during a regular period of study in a conducive environment. Study skill, also, in the view of Adeyemo (2005), is a pattern of activity that goes beyond merely reading for pleasure. According to the author, it is a well-planned and deliberate form of consistency on the part of the student towards the understanding of academic subjects. Crow and Crow (2006), asserted that study skills, include plan or place, a definite time table and taking brief or well-organized notes. Experts, (Bajwa, Gujjar, Shaheen & Rawzan, 2011), have agreed that great success in the field of knowledge is attributed to good and consistent study skills. Like any other activity, skills and dedication are the key points for learning.

### **Study Skills Dimensions**

Study skills can be seen in several dimensions. The main dimensions considered in the current study include Time Management, Note-Taking, Concentration, Environment of study, Test Preparation, Textbook Reading and Memory/Remembering.

### **Time management**

Before students begin to think about the process of studying, a schedule must be developed and followed. Time management was therefore considered in the current study because it has been suggested by Nausheen (2002) that proper investment of time in students' life is important. Time management involves the time a student spends on studying and also covers the days set aside

by students for studies. Time management also involves activities such as organizing and planning time so that students can avoid distraction from regular studies. Egbochuku (as cited in Awabil, 2016), explained time management to include setting and following a schedule of study so as to organize and prioritise one's studies within the framework of competing activities of work, family and so on. Researchers have found that effective time management practices may have significant influences on students' achievement (Hill & Ballow, 2000).

To be able to successfully manage time, Hills and Ballow (2000) suggested the use of work diary. The diary is planned on the basis of needs and purposes and allocating adequate time to each task so that no particular task consumes more time than necessary. A work diary allows students to properly schedule and apportion time to every subject of study. Planning and organizing time in this way helps to minimize worry and indecision that may arise in case of any extra work that has to be slotted in.

Other strategies of time management include the use of blocks of study time and breaks, dedicated study spaces, prioritizing assignments, achieving stage by stage to get things done, postponing unnecessary activities until the work is done, identifying resources that can be of help to students and using free time wisely. These strategies are essential because when considering the relationship between study time and performance, it is not only how much time a student spends studying but also how effectively this time is spent that influences academic performance (Nonis & Hudson, 2010).

### **Note Taking**

Note taking is a complex activity involving active listening, sorting out, organizing and recording information which has been received through listening



and reading. There are two major methods of taking down notes: pen and paper method and note-taking using a computer or laptop. According to a study done at Princeton University (Mueller & Oppenheimer, 2014), students who took notes on a 15-minute lecture using laptops wrote an average of 310 words, while those who wrote on paper only averaged 173 words. This study concluded that note taking using a computer is highly facilitating than writing notes on paper. The study further reported that students' preference for technology is increasing and that students enjoy the speed and efficiency that laptops give. Accordingly, laptops allow students to type faster and, for a longer time (Bui, Myerson & Hale, 2013). However, educational psychologists, (Spielberger, Gonzalez, Taylor, Anton, E.D., Algaze, Ross, & Westberry, 1980; Mangen & Velay, 2010, Mueller & Oppenheimer, 2014; Smoker, Murphy, & Rockwell, 2009; Daly, Chamberlain, & Spalding, 2011) have suggested that longhand notes are more beneficial for learning than computer note-taking. Mueller and Oppenheimer, (2014) further argued that handwriting is a more complex process and relates to creativity in paraphrasing notes, which is more generative than verbatim repetition from a laptop. In conclusion therefore, the educational system cannot discount technology in its educational delivery, thus, it is important for policy formulators in the educational sector to look at sufficiently integrating modern technology with the traditional learning of longhand note taking to enhance teaching and learning.

### **Concentration**

Concentration is one of the most important skills that one needs to develop in order to become an effective learner (Koki & Abdullahi, 2014). The ability to direct one's attention on the task at hand is necessary for concentration.

There are a number of factors that affect concentration, some of which are the environment, light, temperature, emotions, other people and the reader's body (Koki & Abdullahi, 2014). The environment includes where you are and what surrounds you. Many small details can make the environment either a good one for studying or a poor one. For example, sound can affect your concentration a great deal. Although many students insist that they can accomplish a lot while TV, radio or CD is playing, scientific studies suggest otherwise (Koki & Abdullahi, 2014). The degree of light one needs to study is a matter of individual's preference. However, the brighter the light in the study room, the better one's concentration when studying. The study room should neither be too cold nor too hot. It is therefore important to study at a place where the temperature supports one's effort to learn. The desire to learn depends on many emotional factors. Emotions have strong effect on one's thinking. Sometimes emotions support one's effort to learn whiles at other times it inhibits one's ability to learn. However, if you feel bored or disinterested in a course or subject you find it difficult to concentrate while studying (Koki & Abdullahi, 2014)

The practice of concentration is to focus on the task at hand and eliminate distraction. We all have the ability to concentrate sometimes but not at all times. Robinson (1990) outlined five major conditions that affect concentrations, these include distractions, (internal and external situations) associated with other activities, study materials not convenient, poor lightening and physiological conditions.

### **Environment of Study**

According to Crow and Crow (2006), effective study skills include planning, place of study, a definite time table and taking brief or well organized

notes. To them, 'Study skill' is the amount and kinds of studying routines which the student is used to during a regular period of study which occurred in a conducive environment. Consideration is given to the environment of study as it appears to have adverse effects on the whole concept of study. The place one studies has an important effect on his/her efficiency because the location and all of its characteristics are stimuli (Osa-Edoh & Alutu, 2012). The stimulus of the study situation should produce the response of studying and no other response. It has been suggested that an important approach is to have a place set aside specifically for study. It should be well ventilated, noise free and a well-lighted room or open place with a desk and a chair. Ruch (2005) wrote on the need to consider the type of chair and desk used for study. These should be such that they allow the individual to maintain an erect and comfortable sitting posture. The study desk should be spacious enough for the books and materials but should contain only what one needs at a time to ensure concentration.

Hepher (as cited in Osa-Edoh & Alutu, 2012) revealed that the effect of temperature and humidity on the body temperature of the individual can cause a reduction in the body function and mechanism. The emphasis here is on the need for abundance of fresh air in the study environment to avoid unnecessary fatigue. Hills and Ballow (2000) pointed out that glaring light could cause eye strain and headaches. Therefore, covered light bulbs and light coloured blotters should be used if possible to reduce light intensity. In effect, light should not shine directly on the table or reading desk. Taking into consideration, a rural setting where students have to study under locally made lamps and hurricane lanterns, these should be adjusted well enough to reduce light intensity or placed at a considerable distance away from the reading desk. It has been observed

that some people cannot study without music. Hills and Ballow (2000) agreed that music is good if it does not constitute noise in itself or when used to neutralize other external noise.

From the forgoing discussions, it can be stated that an environment of study should be devoid of noise, well lighted to avoid headache and should have good furniture such as a desk and chair. The effect of music on studies is however ambiguous. Hills and Ballow (2000) agreed that music is good if it does not constitute noise in itself though noise can be interpreted in different ways. An environment for study should also be well ventilated as temperature and humidity on the body temperature of the individual can cause reduction in the body function and mechanism.

### **Textbook Reading Skills**

Knowles (1980) posited that, today, students have much to read because of the great demand inherent in the core curriculum. This is more obvious in situations in which the students are expected to study different subjects or more in some cases. The ability to read fast will be an advantage. According to Osa-Edoh and Alutu (2012), quick readers take in and retain more than slow readers because the quick reader catches the drift and flows on the passage better whereas the slow reader delays over each word.

There are some cases in which slow reading can however be adopted depending on the subject matter and the purpose of reading. Maddox (2002) formulated four different types of reading which include mastery reading, exploratory and revision reading, critical reading and pleasure reading. He stressed that these types of reading have different rates for the individual. Despite the subject matter and the purpose of reading as Maddox (2002) puts it,

students are expected to be a bit faster in their readings to enable them meet the demands of their course outline.

Solomon (1999) stated that most poor readers are too slow ones who were often concerned with unimportant details while the good and fast readers often adopt a wider view of the entire paragraph. Solomon continued by saying that there are a number of bad skills which poor readers adopt; most of which involve using extra body movement in the reading process. In effective reading, the muscles of the eyes should make the external movement. Extra body movement such as pointing with the fingers or moving the lips, do not help reading and often only help in slowing it down.

### **Remembering /Memory skills**

The ability to remember what has been read is a vital skill. The term “remember” means retaining past experiences. It is thought that in remembering, a memory trace is laid down on the mind, and being a sensory impression, by repetition, the traces are made deeper and therefore are more lasting (Hallas, 2002). Remembering must involve either recall or recognition. The former necessitates the reproduction of material that is not actually present before time. According to Oladele (2000) there are four kinds of remembering and they include recognition, recall, reproduction and performance. He held the view that our failure to recall emanates from non-practice. He also maintained that performance, a fourth kind of remembering, is also the performance of skills so well learned that they are highly automatic. But for Hallas (2002), memory, the second and the third being the need to think about and use the material associated with long- term memory respectively.

However, most students make the mistake of reading and re-reading without actually training to think over what they have read. A very effective technique in remembering is to study the passage or diagram as the case may be for a given period of time. Try to reproduce it immediately and then later at increasing intervals of time, for example, every day for a week and then every week for a month. This method according to Oladele (2000) is known as repeated reproduction and has been found to be very useful.

### **Factors that Influence Study Skills**

Nonis and Hudson (2010) reported that several studies conducted have found that demographic variables, such as gender and age (Haist, Elam, Blue, & Fosson, 2000; Wong, 2000); psychological variables, such as academic self-efficacy (Nelson, & Knight, 2010); motivation (Berg, 2004); optimism (Schulman, 1999); and behavioural variables, such as time management skills (Paden & Stell, 1997), relate to student performance. Other factors identified by Osa-Edoh and Alutu (2012) were environment of study, time planning, effective and fast reading and note-taking.

Schonwetter (2010) found that study skill or skills would have a significant direct relationship with the academic performance of college students. Study skills or strategies such as paying attention in class, being on time, taking good notes, completing homework in a timely manner, and reading the study material before a lecture would have a significant direct relationship with the academic performance of college students. Although not every learning strategy or study habit produces useful results in terms of academic achievement, it would be expected that students who possess good study skills in general are better performers than those students with poor study skills. There

is some empirical evidence that shows that study skills impact academic performance. Somuah, Dankyi and Dankyi (2014) and Okpala, Okpala and Ellis (2000) reported that good study strategies positively influenced performance in economics courses.

Schonwetter (2010) stated that variability in motivation across students may dampen the association between ability and performance. Similar to how motivation interacts with ability to influence academic performance, behaviours such as study efforts can interact with ability to influence performance. Rooney (2003) noted that children whose parents have higher income have better access to quality schools, and these same parents shape the tastes and expectations of their children. They are also able to better nurture the intellect of their children by assisting and directing their studies. Somuah, Dankyi and Dankyi (2014)) agrees with this assertion. From the above discussions, it can be argued that factors such as gender and age, time management, environment of study, fast reading and note taking, socio-economic factors and school type can influence one's study skills. It has also been found that academic performance relates positively with study skills.

### **The Concept of Students' Academic Performance**

The main aim of every teacher is to obtain maximum achievement from each student. In the academic domain, achievement is regarded as a performance that leads to 'something', the something referring to the progress of the students at school (Brennan, 2008). In educational institutions, success is measured by academic performance, or how well students deal with their studies; how they cope with or accomplish different tasks given to them by their teacher, and the extent to which a student, teacher, or institution has achieved

their educational goals (Lay, Edwards, Parker, & Endler, 1989). As an outcome of education, academic performance refers to the capacity to achieve when one is tested on what one has been taught (Otoo, 2007), which relates to curriculum content, the learner's intellect, and hence depends on the learner's competence. It is also referred to as academic achievement or scholastic functioning (Babatunde & Olanrewaju, 2014). Academic performance of students especially at the secondary school level is not only a pointer to the effectiveness or otherwise of schools but a major determinant of the future of youths in particular and nations in general, Aremu and Sokan (as cited in Osei-Mensah, 2012).

Performance in school is evaluated in a number of ways including examinations as a factor of quality education (Osei-Mensah, 2012). Academic performance is measured in terms of examination marks, the grading of which concerns the ability of individuals to use the knowledge and skills acquired. For regular grading, students demonstrate their knowledge by taking written and oral tests, performing presentations, turning in homework, and participating in class activities and discussions. Performance results are shown in the form of letter or number grades and side notes that describe how well a student has done, which also allows students to be ranked and sorted on a scale that is numerically obvious, and also as a means of holding teachers and schools accountable for the components of each and every grade (Bell, 2012). Academic achievement is represented by the actual mark obtained by the participants in an examination. Success is typically defined in terms of performance, and grades represent the most obvious and universally accepted indicator of academic performance in educational contexts (Osei-Mensah, 2012).



Students are also evaluated by their performance on standardized tests geared toward specific ages and based on a set of achievement objectives that students in each group are expected to meet. In the past, academic performance was often measured more by year than today, and teachers' observations made up the bulk of the assessment; today's summation or numerical method of determining how well a student is performing is a fairly recent invention (Bell, 2012). Academic under-achievement can be defined as the academic performance of a student that is below his or her capabilities. Students' underachievement is most commonly defined as a discrepancy between potential (or ability) and performance (or achievement). Therefore, a student who seems capable of succeeding in school but is nonetheless struggling, is often referred to as an under-achiever (McCoach & Siegle, 2001).

### **Theoretical Review**

#### **Social Cognitive Theory**

The Social cognitive theory formally known as the social learning theory is of the view that people learn by watching others. Social learning theory emphasizes learning that occurs within a social framework. It considers the fact that people learn from one another, including such concepts as modelling, observational learning, and imitation. Among others Albert Bandura is considered the leading proponent of this theory. Behaviourists say that learning has to be represented by a permanent change in behaviour, in contrast social learning theorists say that because people can learn through observation alone, their learning may not necessarily be shown in their performance. Learning may or may not result in a behaviour change (Ormrod, 1999). According to Bandura (2001), when people see others being rewarded for a particular behaviour, they

tend to behave the same way to attain a reward too. People are also more likely to imitate those with whom they identify. Bandura notably illustrated social learning by showing a video of a girl punching a doll to a group of children; presented later with a doll, the children behaved in similar aggressive ways (Bandura, 1999). Not all learning is acted upon; for example, one might learn to draw by observing others yet might never actually draw.

Social-cognitive theories of personality emphasize the role of cognitive processes, such as thinking and judging, in the development of personality. Social cognition is basically social thought, or how the mind processes social information; social-cognitive theory describes how individuals think and react in social situation (Bandura, 2001). How the mind works in a social setting is extremely complicated-emotions, social desirability factors, and unconscious thoughts and all interact and affect social cognition in many ways.

Albert Bandura, a behavioural psychologist, who is credited for the postulation of the social learning theory, agrees with B.F. Skinner's theory that personality develops through learning (Bandura, 2001). However, he disagreed with Skinner's strict behaviourist approach to personality development. In contrast to Skinner's idea that the environment alone determines behaviour or personality, Bandura (1999) proposed the concept of reciprocal determinism, in which cognitive processes, behaviour, and context (environmental determinants) all interact, each factor simultaneously influencing and being influenced by the others.

Cognitive processes: Personal characteristics refer to all characteristics previously learned, including one's thoughts, emotions, beliefs, expectations, goals, and so forth. Behaviour is conceptualized as a person's skills and actions.

Behaviour refers to anything that we do that may be rewarded or punished. In other words, the behaviour itself is something that may or may not be reinforced at any given time or situation (Bandura, 2001).

Bandura's Social Learning Theory (1977) posited that people learn from one another, via observation, imitation and modelling. The theory has often been called a bridge between behaviourist and cognitive learning theories because it encompasses attention, memory, and motivations. People learn through observing others' behaviour, attitudes, and the outcomes of those behaviours. Most human behaviour is learned observationally through modelling: from observing others, one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action (Bandura, 2001). Social learning theory explains human behaviour in terms of continuous reciprocal interaction between cognitive, behavioural, and environmental influences. Social Learning Theory suggested that a learner's behaviour is influenced by the interactive processes between cognitive and personal influences, external influences and influences of the behaviour itself. Campbell (2007) identified three key aspects of this interactive process, namely observation, language and self-talk. According to Campbell, learners use observation, language and self-talk to make sense of the world and assist in their choice of behaviours.

However, Bandura found this too simplistic, and so in addition he suggested that behaviour causes environment as well. Later, Bandura considered personality as an interaction between three components: the environment, behaviour and one's psychological process (one's ability to entertain images in minds and languages).

Again, the Social Learning Theory continued to state that people are more likely to engage in certain behaviours when they believe they are capable of executing those behaviours successfully. This means that they will have high self-efficacy. In layman's terms self-efficacy could be looked at as self-confidence towards learning. Banduras' Social Learning Theory is in parallel with study skills such as: Metacognition which includes the concepts of self-efficacy and self-regulation of behaviours, whereas gathering data through all senses comprises observational skills and learning from others. Thinking and communicating with clarity and precision incorporates language as the key communicative tool and the means of clarifying the learners' ideas and thoughts. Similarly, from the theoretical viewpoints, learners have to possess some study skills such as self-regulation, gathering data through all senses, processing information, retrieving information for later use, questioning and metacognition in order to form good study skills.

Finally, the context in which the behavior occurs refers to the environment or situation, which includes rewarding and punishing stimuli. The environmental component is made up of the physical surroundings around the individual that contain potentially reinforcing stimuli, including people who are present or absent (Bandura, 2001). The environment influences the intensity and frequency of the behavior, just as the behavior itself can have an impact on the environment. Bandura suggests that human behavior or personality is due to a reciprocal determinism that involves three interactive factors: personal determinants (cognitive, affective and biological processes), behavioural determinants, and environmental determinants.

## **Etiological Theories of Test Anxiety**

Transactional process and concept organization theories are the etiological theories of test anxiety. The first to talk about is transactional process theory of test anxiety. Spielberger and Vagg (1995) describe the transactional process of test anxiety as being situation specific and involving a temporal sequence of events. The transactional process theory distinguishes between a series of events that take place during an evaluative situation. These events include the examination itself (e.g. stressor), the student's subjective interpretation about the stressor as more or less intense (e.g. threat), the emotional states that are experienced during an exam (e.g. anxiety), cognitive appraisals (e.g. irrational thinking), coping strategies (e.g. avoidance) and consequences (e.g. exam performance). When a student begins the exam process, according to Spielberger and Vagg (1995), the exam itself will be interpreted as being more threatening or less threatening according to the student.

This interpretation depends upon the extent of the student's trait anxiety (e.g. personality characteristics, individual differences). The student will then appraise the exam condition (Lawson, 2006). If the student interprets the exam as more threatening, then the student is likely to experience an elevation in state anxiety (e.g. worry, apprehension, ruminating thoughts of failure, test irrelevant thoughts). Lawson (2006) further maintained that the emotional responses provide feedback that can alter or reinforce the appraisal of the exam as being more threatening or less threatening. For example, if a student is considered to be test-wise (e.g. demonstrate proficient test-taking skills), they may think the exam situation is less threatening compared to a student who is considered to be

less test-wise. Appraisals of the exam correspond to the student's knowledge of the exam material. If the student is able to answer a question correctly, especially at the beginning of the exam, then state anxiety is likely to lower along with increased positive cognitive appraisals (e.g., "I am confident that I will pass this exam"). On the other hand, if a student's knowledge of the exam material is weak and they are unable to respond to questions correctly, they are likely to experience a negative emotional response including tension, worry, and physiological arousal.

The rise in state anxiety may lead to the student appraising the exam situation as more threatening which, in turn, will likely reinforce negative cognitive appraisals and self-blame (e.g. "I should have studied longer"). The final stage of the transactional process model is the formulation of answers to the exam questions (e.g. retrieving information from memory). Poor academic performance is likely to cause emotional responses and cognitive appraisals that may finally interfere with information retrieval, attention and concentration that will contribute to poor performance. According to Vagg and Spielberger (1995), students who are high test-anxious consider examinations as a significant threat to which they respond with more intense emotionality and negative worry cognitions compared to students who are low test-anxious. Lawson (2006) opined that emotional responses interfere with concentration and attention due to task irrelevant thoughts and worry cognitions interfere with information processing and the ability to retrieve information from memory.

Concept organization model of test anxiety is the second etiological model. Understanding the way students organise their personal concepts during an exam is likely to shed some light on important aspects of the test-taking

experience (Lawson, 2006) example what environmental cues are students likely to attend to, strategies students use to regulate their behaviour (Saarni, 1998). The way an individual organises personal emotional concepts regarding a specific event depends upon personal experiences and how they regulate appraisal processes (Lawson, 2006)). Students who are considered to be high test-anxious are likely to have varying concepts about the testing situation (Schutz, Davis, & Schwanenflugel, 2002). Schutz et al (2002) discuss theories of emotion regulation that influence the way students experience thoughts and feelings during an exam. They discussed four conceptual sub-domains; cognitive appraisals, task-focusing, emotion-focusing, and emotion-experiences.

The first conceptual sub-domains to talk about is cognitive appraisals which occur when a student assesses the testing situation in relation to his or her goals Schutz et al (2002). In order for anxiety to emerge, a student must consider the exam to be important. This implies that, as the student's perception of the importance of the exam lessens, so does the anxiety. Thus, the thoughts relevant to the importance of the examination are the basic components regulating an emotional response. The perception of what is actually happening in relation to the student's goals of the test-taking experience is the second component of cognitive appraisals (Schutz, Davis & Schwanenflugel, 2002). That is, in order to achieve the student's goals, specific events must take place (e.g., ability to recall certain information, responding correctly to a certain percentage of questions) in order to achieve the expected grade. The third component of cognitive appraisal is the perception of the student's ability to

cope and handle the test (e.g. having the confidence to deal with challenging questions, strategies to guess at multiple choice options).

Secondly, task-focusing as described by Schutz et al (2002) is the student's ability to focus and manage the task at hand (e.g. the exam itself). Task focusing consists of processes such as reading directions, analysing important concepts of an exam question, strategically keeping track of and managing time, selecting the best multiple-choice options and checking answers. These processes are designed to help maintain focus on the exam and away from task-irrelevant and unpleasant thoughts.

Emotion-focusing is the third conceptual sub-domain according to Schutz et al (2002). To them, emotional-focusing occurs when the student's attention drifts away from the exam to their own emotions about the exam (Schutz et al, 2002). That is, the student's focus is disengaged from the exam itself to the student's thoughts and feelings about their performance. For example, the student may emphasize the test's importance, blame one's self for not studying enough or wonder how others are doing, such students might ask him or herself "how will I feel if I perform poorly?" The emotion-focusing process may actually reduce or elevate a student's anxiety. For instance, a student may engage in self-talk that deemphasizes the importance of test, thus reducing anxiety (Lawson, 2006). However, a student may engage in self-blame and list things that should have been studied or done to better prepare for the test, resulting in an elevation of anxiety (Schutz et al, 2002).

The fourth conceptual sub-domain is emotion-experiences. These are described by Schutz et al (2002) as the types of emotions that the student is experiencing. These emotions can be pleasant (e.g. pride, satisfaction) or



unpleasant (e.g. anger, hopelessness). The distinction is based upon cognitive appraisals. If the student's goals are being met and the exam is going as expected, then pleasant emotions are likely to emerge such as feeling of pride and contentment. However, if the exam is not going as expected, then unpleasant emotions are likely to set in, such as feeling disappointed or angry. Furthermore, if a student believes that he or she cannot effectively cope with the exam, the experience of anxiety is more likely (Schutz et al 2002).

In order to test concept organization and the relationship that exists between them, Schutz et al (2002) instructed participants to rate the degree of relationship between the above concepts with respect to test anxiety during an exam. They found that, among the low to moderate test-anxious students, the students' distinguished concepts based upon their ability to regulate task focusing and emotion-focusing processes. That is, low to moderate test-anxious students had a tendency to rate their ability to focus on the task at hand as successful and typically experienced emotions that were described as being pleasant. Among the high test-anxious students, however, emotional regulation was significantly correlated with feelings of anxiety, hopelessness, shame and anger, and ability to focus on the task at hand was less successful. With regard to cognitive appraisals, when the low to moderate test-anxious students endorsed feeling confident, certain or in control during the exam, these were significantly correlated with the endorsement of pleasant emotions (e.g. pride, enjoyment, satisfaction).

However, high test-anxious students viewed task-focusing strategies as being correlated to unpleasant emotions (e.g. anxiety, anger). The use of strategies (e.g. task-focusing) was higher among the high test-anxious students

compared to the low test-anxious students. They reported spending more time reading directions, checking answers as well as reporting high anxiety. Schutz et al (2002) suggest that the results demonstrated evidence of attentional bias among students who were highly anxious (e.g., scanning the test environment for possible signs of threat; Derakshan & Eysenck, 2009). Attentional bias is speculated to be caused by the ability to find unpleasant emotions intertwined with the test-taking process and greater use of test-taking strategies (Lawson, 2006).

#### **Four-Factor Theory of Test Anxiety**

Sarason (1984) expanded the test anxiety construct that went beyond worry and emotionality. He described the construct of test anxiety as encompassing four factors namely tension, worry, bodily symptoms and test irrelevant thoughts. Tension is described as the emotional feelings that one experiences prior to or during an exam (e.g. distress, uneasiness, anxiety, feeling jittery). According to Lawson (2006), worry is described as thoughts relative to exam performance (e.g. potential failure, performance of others, consequences). He further maintained that test-irrelevant thinking is described as thoughts and concerns that divert the student's attention away from the exam itself (e.g. irrelevant bits of information that "pops up", thoughts unrelated to the exam, thoughts about past events). Again, he defined bodily reactions as physiological symptoms just prior to or during an exam (e.g. headache, stomach upset, and increased heart rate). Tension and bodily symptoms are considered as part of emotionality whereas worry and test-irrelevant thoughts are considered to be cognitive processes (Lawson, 2006).

### State-Trait Test Anxiety

According to Spielberger (1972) state anxiety may be conceptualised as a transitory emotional state or condition of the human organism that varies in intensity and fluctuates over time. The condition is characterised by subjective, consciously perceived feelings of tension and apprehension and activation of the autonomic nervous system (Spielberger, 1972, p. 39). In a testing situation, state anxiety is conceptualised as a situation-specific form of test anxiety that encompasses both worry and emotionality. It is characterised as an emotional state that a student may experience during an evaluative situation e.g. the anxious effect provoked by an exam (Hong & Karstensson, 2002). A student may consciously experience nervousness, tension, worry, disorganisation, apprehension, fear or even feel a sense of danger in response to physiological arousal from the autonomic nervous system (e.g. increased heart rate, perspiration, dry mouth). The emotional states are usually accompanied by ruminating thoughts of failure and hopelessness.

State anxiety often changes depending upon the extent of the student's perceived threat created by factors such as how well prepared the student is for the exam (e.g. amount of time studying, studying the correct topics), the type of test questions (e.g. multiple choice, essay), difficulty level of the test question (superficial versus deep knowledge) and individual differences in personality characteristics (Spielberger, 1972; Spielberger & Vagg, 1995; Zeidner 1998). Trait anxiety can be difficult to isolate and measure directly because it is not typically manifested in behavior. In other words, it is covert behaviour or hypothetical construct. Spielberger defines trait anxiety as relatively stable individual differences in anxiety proneness, that is, differences in the disposition

to perceive a wide range of stimulus situations as dangerous or threatening and in the tendency to respond to such threats with state anxiety reactions. Trait anxiety may also be regarded as reflecting individual differences in the frequency and the intensity with which state anxiety have been manifested in the past and in the possibility that such states will be experienced in the future (Spielberger, 1972, p. 39).

In a testing situation, a student has the ability to perceive and interpret an exam situation as being more or less threatening or dangerous. Thus, trait anxiety is characterised as the ability to perceive or interpret a testing situation to which the student responds with more or less intensity of state anxiety (e.g., apprehension, worry; Spielberger, 1972; Spielberger & Vagg, 1995). For example, students who score high on trait anxiety are likely to interpret the exam situation as being more threatening compared to students who scored lower on trait anxiety. Thus, high trait anxious students are more likely to experience state anxiety of greater intensity and frequency (Zeidner, 1998), greater physiological arousal, more worry cognitions, and increased task-irrelevant thoughts that distract the student's attention away from test performance compared to low trait anxious students (Spielberger, 1978).

Moreover, Spielberger's (1972) state-trait differentiation provided a conceptual framework for the identification and classification of the major variables in anxiety research. State-Trait theory recognizes the affective and cognitive processes that characterise anxiety and identifies the stressors that evoke different levels of state anxiety in those who differ in trait anxiety. These variables include stress, cognitive appraisal of threat and various psychological defenses. State-trait furthermore recognizes the interrelationship that exist

between these variables. State-trait theory identifies trait anxiety or A-trait, as a proneness to anxiety in general and state anxiety, or A-state, as a transitory state or condition characterised by tension, apprehension and the activation of the autonomic nervous system. Situations which elicit the evaluation of one's personal adequacy are perceived as ego-threatening, and are perceived as more threatening by persons high in A-trait than those low in A-trait.

Differential levels in state anxiety have been shown to influence performance on a variety of tasks (Biaggio, Natalicio & Spielberger, 1976). State-trait theory holds the view that students with high A-trait are hyper-vigilant in scanning the environment for potential threat, resulting in selectively negative biases which further lead to distraction and thought interference (Biaggio et al, 1976; Keogh & French, 2001). Trait anxiety, then, predisposes one to experience emotions that interfere with test-taking performance. If emotions resulting from testing are very specifically related to a point of time before, during or after the testing situations, they are seen as state test emotions (Keogh, Bond, French, Richards, & Davis, 2004).

### **Interference Theory**

The interference theory tries to explain how students who experience test anxiety divide attention. Hembree (1988), refers to the student who experiences test anxiety as one who is abreast with the course material, but freezes up during testing situations and therefore fails to remember learned material. In the Wine (1980) interpretation of this theory, students who experience higher levels of test anxiety tend to split their attention between task (test-taking demands) and negative self-pre-occupation (worry and emotions) under testing conditions hence performance is interfered with. The poor

academic performance of highly test-anxious students was therefore seen as a consequence of this interference of negative thoughts and emotions during the period of examinations ( Ebel, & Frisbie, 1991).

According to Birjandi and Alemi (2010), there are two types of distractions: inappropriate cognitions and physical distractions. Students with higher levels of anxiety possibly will become overly self-focused during a testing situation. A test anxious student for example, starts to think that others are finishing before me; I must not know the material and so on. Physical distractions include increased autonomic activity (for example, sweaty palms and muscle tension). In retrospect, research suggests that the performance of a high test-anxious student is impaired by negative self-evaluative statements and task-irrelevant thoughts that interfere with the ability to recall task relevant information (Bull, Espy, & Wiebie, 2008).

### **Study Skills Deficit Theory**

The Deficit theory, as explained by Birenbaum and Pinku (1997), articulated that the low academic performance of students suffering from higher levels of test anxiety in relations to a deficit or insufficient knowledge of the course material may be due to poor study skills or other variables in addition to the meta-cognitive awareness of this insufficient knowledge at the time of taking the test. The thrust of the Deficit model is that poor academic performance is the result of inadequate mastery of course material rather than interference in recalling material that have been thoroughly learned. In other words, test anxiety does not cause poor academic performance rather it is just an emotional reaction that accompanies the awareness of being inadequately prepared for the examination (Musch & Broder, 1999).

It has been argued that the Deficit model and the Interference model are not mutually exclusive but rather complement each other. Naveh-Benjamin, McKeachie, Lin and Holinger (1981), conceptualized the two models as complementary rather than contradictory. This school of thought was further authenticated by Naveh-Benjamin, McKeachie, and Lin (1987). In the study they came across two types of test-anxious students; those with good study skills whose foremost difficulty is recollecting information during examinations and those with poor study skills who have problems understanding, organizing and recalling material.

### **Attribution Theory**

According to the Attribution theory, students need to feel in control over the outcome of an academic task. Students who feel more in control over the outcome will have more motivation to successfully complete that task (Lim, 2007). To be in control, students need to comprehend why a certain outcome occurs. For example, a student who never studies mathematics and fails each time he/she writes mathematics test may not understand the reason for the poor performance. If the student understands that addition, subtraction, multiplication, division and constant practice is basic requirement in mathematics test, the student might be more interested in studying and might do well on the test.

Causes of success or failure can be external or internal, stable or unstable, and controllable or uncontrollable. Internal reasons are something that the student does. Someone or something else controls external reasons. Stable causes are expected to occur again, and unstable causes are changeable. Controllable causes are something a student can change, but uncontrollable

causes are believed to be unchangeable (Ortner & Caspers, 2015). Males tend to focus more on ability and other internal factors while females tend to focus on effort and external factors (McClure, Meyer, Garisch, Fischer, Weir, & Walkey, 2011). The Attribution theory suggests a relationship between students' sense of control over the outcome of an academic task and motivation to succeed (Ortner & Caspers, 2015).

In summary, these theories come together to explain how students facing anxiety focus attention on something else aside the test, freeze up during test and forget materials they have learnt. Also, the theories explain how students feel unable to take total control of themselves but rather allow other factors to control them during evaluative situations.

### **Empirical Review**

#### **Test Anxiety and Academic Performance**

Researchers have long acknowledged that anxiety may play a positive role in improving task performance such as in enhancing executive functioning, initiating goal-oriented behaviours or triggering internal drives to achieve (Ortner & Caspers, 2015, Mandler & Sarason, 1952). A threshold effect of test anxiety with performance has been replicated in research across student age groups, suggesting that an optimally mild level of anxiety can promote good outcomes (Ortner & Caspers, 2015; Gregor, 2005; Owens, Stevenson, Norgate and Hadwin, 2008). However, the facilitative role of test anxiety has received relatively little attention in research over the past few decades (Ortner & Caspers, 2015; Martin & Marsh, 2003) as most of the theoretical development in this area have focused on the detrimental effects of anxiety and how it impairs performance (Cassady & Johnson, 2002; Tobias, 1985; Sarason, 1984).



A lot of research have been conducted in order to identify in what way test anxiety affects academic performance, considering the fact that this psychological construct has a variety of sources. According to one review of the research on test anxiety, different possibilities have been examined. For instance, some studies have identified the root of test anxiety as lying in students' poor preparation (Schwartz & Buchwald, 2003). Those studies suggest that some students ineffectively organise or process information and they perform poorly on tests because of anxiety. Naveh-Benjamin et al. (1987) have found that when compared with less anxious students, highly test-anxious students have difficulties in organizing material to be learned.

As several research studies have noted, highly test anxious students have less effective study skills compared to their low anxious counterparts (Culler and Holahan, 1980). This view is also synonymous to suggestion by Hembree (1988), that lack of effective study skills contribute to poor performance under evaluative conditions, which in turn leads to heightening feelings of anxiety when it comes to performing in subsequent examinations. Support of this research evolved from treatment studies that focused on helping students to improve study skills. The results of these studies suggested that study skills can also help to reduce test anxiety and improve performance.

Zeidner's (1998) was of the view that the state of test anxiety cannot be explained without work or exam performance, since conscientious and highly motivated students also suffered from its debilitating impact. He further asserted that academic performance mostly depended on the information processing routines (directly controlling learning, understanding of classroom materials, focused attention, working memory, long term memory retrieval processes) that

might be biased by personality factors such as test anxiety. Other studies have identified “the habitual, irrelevant, negative thoughts that some students have during a testing situation” as a major cause of anxiety (Schwartz & Buchwald, 2003).

Sarason (1980) believes that learners’ capacity, task difficulty, the fear of getting bad grades and lack of preparation for a test are the other factors that make learners worried. Similarly, learners with high levels of anxiety have less control of attention. He also suggests that there is considerable evidence that the performance of highly test anxious individuals on complex tasks is deleteriously affected by evaluation stressors. The less difficult the task, the weaker this effect becomes. Concerning task difficulty, Gaudry and Spielberger (1971) seem to share the same view. The results of their study showed that high-anxious subjects performed better than low-anxious subjects on simple tasks but performed more poorly than low-anxious subjects on complex tasks. This fact was supported by a study of Zeidner (1998) who found that test anxiety was more detrimental to demanding tasks.

Literature on test anxiety shows that some of the factors that influence students’ reactions to tests were related to test validity, time limit, test techniques, test format, length, testing environment and clarity of test instructions (Young, 1999). Concerning the importance of test validity, the study of Young (1991) indicated that students experienced anxiety if the test involved content that was not taught in class. Another factor that increases test anxiety and affected performance was time limit. According to Ohata (2005), learners sometimes felt pressured to think that they had to organise their ideas

in a short period of time. Inappropriate test technique is yet another factor that affects students' performance negatively (Young, 1999).

Young (1991) found that students felt anxious when they had studied for hours for a test and then found in the test question types which they had no experience about. Last of all, Ohata's study (2005) revealed that most of the participants in the study admitted that they feared taking tests, due to test-taking situations which would make them fearful about the negative consequences of getting a bad grade. This result has been found in many studies.

Furthermore, research indicates that anxiety affects performance negatively not only at basic schools but at the high and university levels as well. Al-Atram (2015) tested the effect of anxiety on academic performance by giving a group of first year female students a traditional examination on their course. The students were aware that the marks of this test would count on their final grade. Immediately after the test they were asked to fill in a test anxiety questionnaire and were given a parallel form of the examination they had previously taken but this time it was emphasized that the marks would not be taken into account towards their grade. When the results were analyzed, it was found that highly anxious students did better on the non-stressful examination whereas low-anxiety students performed better in the traditional condition. Sometimes it is the type of test that leads to test anxiety. Some students become anxious during exams that require them to demonstrate their knowledge in ways in which they do not feel comfortable. For example, some students panic when they get to know that they have to take essay tests. Others become anxious over oral exams. Different types of tests can make students anxious (Gonzalez, 2017)

Researchers do not share the same opinion on when and how test anxiety interferes with test performance. It interferes either at test time or at study time. Wine (1980) believes that test anxious individuals divided their attention between task relevant activities and preoccupation with worry and self-criticisms. With less attention available for task-directed efforts, their performance is depressed. There is consistently replicated finding that a higher level of test anxiety is related to poorer performance on academic examination (Cassady, 2004; Gregor, 2005; Hunsley, 1985). While this relationship is often identified across different modes of research, the strength of the effect appears to be small. For example, a comprehensive meta-analysis of 562 studies identified that test anxiety had a weak or negative correlation with various indicators of academic performance (Hembree 1988). A review of literature which used measures of both the worry and emotionality component of test anxiety, revealed that it accounts for about 5% of the variance in exam performance and that the size is generally small (Chapell et al, 2005; Hembree, 1988; Mush & Broder, 1999).

A finding that is more consistent within test anxiety research is that only the cognitive or worry aspect of anxiety is significantly associated with lower academic performance (Deffenbacher, 1980; Hembree, 1988). Studies have generally found that emotionality has no significant relationship with test performance (Chapell et al, 2005; Deffenbacher, 1980; Hembree, 1988) or that it is associated with impaired performance only when there are also high levels of worry (Morris, Davis, & Hutchings, 1981). These findings have greatly been interpreted from two main theoretical points of view as discussed earlier namely, interference and skill deficit theories. The finding that only the worry

component has a deleterious effect on performance is consistent with the interference view on the relationship between test anxiety and test performance (Chun-Hong, 2014). Interference model focuses on the intrusion of thoughts during a test situation, placing greater demand on the individual's attention capacity and thus reducing the cognitive resources available to complete the task (Wine, 1980). Similar arguments were adopted in Sarason's (1984) model of cognitive interference, which focuses on the intrusive internal dialogue that people experience during tests, such as being preoccupied with doubts over one's own capabilities.

In addition to self-defeating thoughts, cognitive interference may also manifest as 'freezing up', daydreaming or otherwise engaging in task-irrelevant thinking such as thinking about current events (Dundas, Wormnes, & Hauge, 2009; Dweck, & Molden, 2005). Hence, the interference framework provides an account of why the cognitive worry component of test anxiety exerts much greater effect on academic performance than that of emotionality (Chun-Hong, 2014).

The interference models carry the implicit assumption that worry mediates the impairing influence of anxiety on task performance irrespective of pre-existing factors like level of ability, knowledge or study skills. Indeed, students across ability levels may experience cognitive interference and have problems retrieving previously learned information only during an examination (Naveh-Benjamin, McKeachie, & Lin, 1981; Zohar, 1998). However, the predicted group differences in cognitive task performance between high-anxious groups have not always been observed (Dundas, Wormnes, & Hauge, 2009). Furthermore, the reduction of worry alone is not reliably linked to

improve performance (Gregor, 2005) with other studies identifying that, worry accounts for only 5% of the variance in task performance (Chapell et al, 2005).

Deficit models consider factors beyond the effects of cognitive interference that occurs during the test-taking situation and focus instead on the processes involved during learning and test preparation. The central premise of deficit model is that individuals become test-anxious due to known deficiencies in study skills and test-taking abilities (Naveh-Benjamin, McKeachie, Lin & Holinger, 1981). This follows the observation that students with high test anxiety tend to have less effective study skills, particularly around the processing and learning materials (Kirkland & Hollandsworth, 1979, 1980; Kleijn, Van der Ploeg & Topman, 1994). As such, deficit model researchers have examined the predictors of performance through the cognitive psychology framework (Aronen, Vuontela, Steenari, Salmi & Calson, 2005; Derakshan & Eysenck, 2009). In particular, cognitive theories surrounding working memory (Baddeley, 2016) have been adopted to examine the applicability of deficit models, such as information processing theory (Humphreys & Revelle, 1984), processing efficiency theory (Derakshan, & Eysenck, 2009).

The progression in development of these theories is characterised by the increasingly specific identification of mechanisms of working memory that impair different types of cognitive demands (Derakshan & Eysenck, 2009). For example, Owens et al (2008) examined processing efficient theory and identified how verbal working memory mediated the relationship between trait anxiety and academic performance while spatial working memory did not. Based on attentional control theory, Derakshan and Eysenck (2009) distinguished between the flexibility and inhibitory roles of executive

functioning to explain how the influence of anxiety may differ across different cognitive demands. Furthermore, studies have adopted such explanation and have identified how specific components of executive functioning may have differing effects on different types of academic tasks (Bull, Epsy & Wiebie, 2008; Lutzman, Elkovitc, Young & Clark, 2010).

The difference between interference and deficit models need not necessarily make them mutually exclusive (Musch & Broder, 1999). Researchers have acknowledged that the impact of test anxiety can spread across the whole learning cycle (Cassady, 2004). As such, mechanisms of interference can affect cognitive performance during test-taking in similar ways as the experience of state anxiety, while mechanisms of deficit can impair the acquisition of information during the test preparation in similar ways as trait anxiety (Chun-Hong, 2014). Together, interference and deficit models highlight how variety of specific cognitive, behavioural and physiological processes may predispose or mediate the relationship between test anxiety and test performance.

However, the increasingly specific examination of different components of working memory and their influence on different tasks, inherently limits the generalisability of the findings of as well as the ability for the results to be replicated. From a practical perspective, it may be difficult for parents and tutors to readily recognize problem with students' working memory or other information processing processes (Chun-Hong, 2014). Furthermore, identifying the role of specific mechanisms of working memory may provide little insight to mental health clinicians or school counsellors regarding how to detect, prevent or reduce students' test anxiety.

## Study Skills and Academic Performance

The study skills that students adopt or use have been an issue of interest to several researchers. Different study skills have been used by students with different levels of achievement. Effective studying requires not only that the student possess knowledge of appropriate studying techniques and practices (study skills), but also ability to concentrate and be involved in self-monitoring (study skills) (Anisa & Shahini, 2011). Specifically, high performing students and low performing students have been found to use different study skills. According to Cerna and Pavliushchenko (2015), high performing students ask questions in class, are on time, ask for feedback regarding assignments, take notes in class and while studying, look for the professor after class, seat at the front of the classroom and attend every class. The high performing students also study in silence and alone at regular times along the whole semester, read the material about two weeks before the exam, review notes before the exam, talk about the content with other students. Cerna and Pavliushchenko (2015) indicated further that low performing students miss at least three classes per semester, are normally late, sit at the back of the classroom, don't take notes in class and never look for the professor after class-hours. These implied that different study skills were used by different students.

In a similar view to that of Cerna and Pavliushchenko (2015), Ley (1998) revealed that students, especially self-regulated ones seek assistance from peers and teachers (consultation), possess high self-efficacy and effective time management skills. These studies are all in line with the findings of Helsel and Miles (as cited in Cerna & Pavliushchenko, 2015) on the study skills of agronomic students. Helsel and Miles identified characteristics of low



performing students to include low usage of instructional objectives before class, low usage of dictionary to understand concepts, lower rate of asking instructors questions, over estimation of time of concentration, and lower rate of keeping pace with reading assignments.

According to Menzel, cited by Rana and Mahmood (2010), many students fail not because they lack ability but because they do not have adequate study skills. Students who have difficulty in school frequently do not have adequate study skills and so their academic achievement is affected. Again, Mutsotso and Abenga (2010) noted that many students had not learned how to take effective notes and manage time for studying. This view was in support of the view of Nagaraju (2004) that students do not usually devote sufficient time to their studies and seldom have proper study skills. These findings all point to the fact students of different levels of achievement use different study skills in their academic work.

Study skills have been found to be related to the academic performance of students by different researchers. The studies of Rooney (2003), and Reed (1996) revealed that sound and persistent study skills reduced test anxiety, enhanced student's ability, improved student's performance and developed the confidence of students. The study of Osa-Edoh and Alutu (2012) which examined the usefulness of imbibing study skills in students as a means of enhancing their academic performance, revealed a high correlation between study skills and students' academic performance. They suggested therefore that it is only when students imbibe or cultivate the proper study skills that their academic performance can be improved. Literature review by Nagaraju (2004) also pointed out that for good academic success, good study skills and attitudes

are important. Sheikh and Jahan (2012) agreed that good study skills were good assets to learners because they help students attain mastery in their areas of specialization and ensured excellent achievement. It means then, that bad study skills lead to very poor achievement by the learners. This also agrees with Alonge (2005) who said that good study habit is a key to effective learning.

In terms of the influence of specific study habit dimensions, the study of Raiz (2002) revealed that there existed a significant positive relationship between achievement of the students and factors like schedule of study, and the habit of note taking. Similarly, Nuthana and Yenagi (2009) found significant correlation between study skills and academic achievement. They revealed further that reading and note-taking skills, skills of concentration, and preparation for examination had significant correlation with academic achievement. Students who were found to be better in reading and note-taking, well prepared for the board examination, and had concentration were found to have better academic achievement. In support of these findings, the study of Fazal (2012) also identified various study skills used by learners and assessed which of the study habit dimensions was more related to academic achievement. The study of Fazal found that there was a significant relationship between time management skills, reading and note-taking skills and academic achievement. Fazal therefore concluded that students with higher academic achievement used a wide range of study skills as compared to students with lower academic achievement. Even though time management skills influenced academic performance, Schonwetter (2010) found that the amount of time spent studying did not directly influence academic performance but interacted with academic ability to affect academic performance.

Williams and Worth (2002) conclude that attendance and note-taking predict performance. When considering the relationship between study time and performance, it is not only how much time a student spends studying but also how effectively this time is spent that influences academic performance (Schonwetter, 2010). Mace (2002) pointed out that study is a systematic acquisition of knowledge and an understanding of facts and principles that call for retention and application. Kelly (1998) stated that study is the application of one's mental capacity to the acquisition, understanding and organization of knowledge; it often involves some form of formal learning. Crow and Crow (as cited in Okorodudu, 2000) explained that study is a programme of subject matter mastery. It involves hard work. However, study involves the individual's thinking, feeling, personality, social interaction, physical activities and health rather than mere learning of facts on the thought system for the purpose of recall when asked.

For those who belong to the school of thought that study is not only applicable to academic work, Olatubosun (as cited in Oladele, 2000) explained that a teacher is studying when he examines the results of an experiment, a lawyer when he or she prepares his or her case, a salesman or woman when he or she learns about his or her products and a citizen when he or she tries to understand the issues in an upcoming election. Studies require time spent in a deliberate attempt to learn. It should be differentiated from simple leisure to reading. Thomas and Robinson (1990) emphasized that the learner needs to use a systematic discipline and purposive approach to study. Effective study consists of a conscious sequential series of inter-related steps and processes.

Okorodudu (2000) asserted that, study involves the total of all behavioural patterns (addition, verbal, psychomotor, emotional) determined purpose and enforced practices that the individual adapts in order to learn and achieve competence. Since it has been found by the studies reviewed that study habit had a positive influence on academic performance, it is not wrong to conclude that poor study skills affect or impact academic performance poorly. This was confirmed by the views of Asaqwara (1994) that bad study behaviours made studies rigorous and painful. Panda (2009) and Good and Brigman (2003) also stated that students' performance will be poor when they do not adopt effective methods of studying. Ogbodo (2010) also revealed that adoption of bad approach to studying leads to poor results while good study approaches (skills) lead to high enthusiasm and thus, good results. Panda (2009), and Oluwatimilehin and Owoleye (2012) found that there is highly significant relationship between study skills and academic achievement of students in schools at various levels of education.

Overall, it can be stated on concrete empirical basis that study habit of students had an influence on the academic performance of students. However, since most of the studies are culturally different from the current study, it is not out of place to investigate into whether the study skills of students in Ghana (specifically Wa Municipality) influence their academic performance

### **Relationship between Gender and Test Anxiety**

Asikhia (2014), conducted a study on the effect of cognitive-restructuring training on the reduction of mathematics anxiety among a group of Senior Secondary School Students in Ogun State. Analysis of Covariance was used to analyse the three hypotheses formulated and tested at 0.05 level of

significance. She used a 2 x 2 x 3 pre-test, post-test factorial design (treatment, gender, and study habit) in the study and the results of the study revealed that gender affected students' anxiety in Mathematics significantly with male students having more reduction in Mathematics anxiety than female students. Farooqi, Ghani, and Spielberger (2012), also conducted a research to investigate gender differences in test anxiety level and academic performance of medical students. A sample of 150 students (75 males and 75 females) who were within the ages of 17-24 years were used for the study. The results of the research suggested that the female students reported significantly higher test anxiety level as compared to their male counterparts.

Furthermore, Lowe (2015), also conducted a study to examine measurement invariance across gender and gender differences on two measures of test anxiety developed for the United States of America middle, high school and college students and found out that the female students scored significantly higher scores than their male counterparts on the text anxiety measures. Interestingly, the findings from Bruce (2015), revealed that males from senior high schools experience higher test anxiety as compared to their female counterparts. On the other hand, the findings of Atindanbila, Abasimi, Nyarko, and Adika (2014), proved that there is no significant difference when it comes to the anxiety levels of both males and females.

Devine, Fawcett, Szucs and Dowker (2012) revealed that the conditions that give rise to differential test anxiety levels include ability, gender and school grade level. Other researches have suggested a difference in anxiety responses between males and females (King et al., 2000); with females generally self-reporting higher levels of test anxiety symptoms than males. From this point of

view, it would be important to consider the role of gender when interpreting the results from outcome measures of self-reported test anxiety. Furthermore, there are apparent gender differences in both the level of anxiety experienced and its magnitude of effect on test performance, girls being more affected by the phenomena. Theorists believe that females have more role expectancy conflicts than males, thus leading to differences in test anxiety (Farooqi, Ghani & Spielberger, 2012). Farooqi, Ghani & Spielberger (2012) found that female students show a significantly higher level of test anxiety that might be associated with different social roles assigned to females versus males and with higher emotional vulnerability of females that have socially learnt to express feelings in ontogenesis whereas males suppressed them.

Regarding the academic performance measured by Pomerantz, Altermatt and Saxon (2002), there is disagreement in literature over whether boys and girls have significantly different academic achievements. They asserted that, it may seem girls outperform boys in school, particularly in stereotypically feminine subjects. The researchers found that elementary school girls outperformed boys across four subjects and were more vulnerable than boys were. Pomerantz, et al (2002) also found that female students experience higher levels of test anxiety than do males irrespective of their cultural background. They further argue that the major fundamental factor involved in the gender-related differences in test anxiety among students may be a greater role expectation conflict among females than among male students. Zaharakar (2008) associated high levels of anxiety with individuals' mental and physical malfunctions which negatively affect their personal, social, familial, occupational and educational performance.

Apart from the results been varied between test anxiety and test score, there are some conflicting evidence as to how male and female participants would report their level of test anxiety. Females have repeatedly been found to express higher levels of overall test anxiety than males (Bandalos, Yates, & Thorndike-Christ, 1995; Hembree, 1988; Zeidner, 1990). Those research findings which indicate that females express higher levels of test anxiety, however, have different explanations as to why this result is achieved. Some believe that the levels of test worry between genders are the same, however, due to higher levels of emotion in females they generally report higher levels of anxiety (Deffenbacher, 1980). It is often found that females experience higher levels of anxiety than their males' counterparts – a difference that is pervasive across early childhood education to university (Cassady & Johnson, 2002; Chapell et al, 2005; Divine, Fawcett Szucs, & Dowker, 2012; Hembree, 1988; Sharma & Sud, 1990).

However, there is consistency in the literature on gender differences regarding the magnitude of relationship between test anxiety and test performance. For instance, Chapell et al (2005) found statistically significant differences in grade point average between high-anxious and low-anxious female college students but not males. Inversely, Miller and Bchsel (2004) identified a significant relationship between anxiety and math performance for male college students but not females. These inconsistencies highlight the complexities in the potential underlying mediating factor that influence the connection between emotional state and achievement. For example, Perkrun's (2006) control-value theory highlighted how the cognitive appraisal of a testing situation, such as whether it is threatening or whether the individual can exert

control over the outcome determines whether the resulting emotion experience is activating or deactivating, serving to promote or performance, respectively. This is consistent with Bandalos, Yetes and Thorndike- Christ's (1995) finding that perceived self-efficacy and patterns of success or failure attributions explained the gender differences in levels of test anxiety.

Perkrun, Frenzel, Goetz and Perry (2007) also asserted that while the structural relationship between cognitive appraisals and achievement emotions are universal across gender, there are gender differences in the actual type of appraisal and the resulting emotional experience. For example, females may have higher levels of perceived threat towards testing situations than males (Cassady & Johnson, 2002). It is difficult then to make inferences regarding how gender differences in appraisal processes influence relationship between emotion and performance. On the one hand, negative appraisals can impair performance through the resulting deactivating emotions such as hopelessness and boredom as well as through the development of performance-avoidance goals (Zoller & Ben-Chain, 1990). Hence, if it is argued that negative appraisals are more prevalent for females, then it stands to reason that there is a pertinent connection between appraisal processes and test performance for females.

### **Relationship between Gender and Study Skills**

Woodfolk (2000) agreed that there is a connection between gender and study skills in relation to academic performance. His research revealed that there has been quite a difference on teachers' treatment of males and females. According to Woodfolk, one of the best documented findings in the past was that teachers interact more with boys than with girls. This finding shows that there is discrimination on students regarding their gender. Males are believed to



get more attention from teachers than females. Similarly, males tend to get more feedbacks from their teachers and get more instruction than females.

Again, in a research by the American Association of University Women (AAUW) in 1992 to consider gender equity in improving education and career opportunities for females, the evidence showed that girls were not receiving the same quantity or even quality of education as boys (Bleuer & Walz, 2002). However, recent studies showed that the AAUW report was wrong. Walker-Dalhouse and Dalhouse (2006) argued that the findings reported by the AAUW were contrary to their research's findings. According to them, from grade school through college, females currently receive higher grades and obtain higher-class ranks. They also received more honours in every field except science and sports.

On the contrary, Bleuer and Walz (2002) posited that most women in Malawi were over burdened with domestic (household) chores, insufficient sleep to attend to their babies and husbands as well as cooking. The tension and stress increased especially during examinations. In a study conducted by Somuah, Dankyi and Dankyi (2014) on whether gender differences had any influence on the study skills of male and female students, he found that no statistically significant differences existed between the study skills of males and females. Both sexes had the same study skills. However, his research revealed that more female students than male students have preference to finding answers from books to receiving them from friends. Also, more female students as compared to male students do not have study groups and male students generally do more regarding consultations.

Demographic variables such as gender and age of students have also been investigated to assess its relationship with study skills. In a study on age and gender difference on study habits, Ossai (2012) found that female students are better in study skills such as time scheduling, concentration, listing, note taking and reading. Salami (2015) studied the impact of gender on study skills and found that females are generally shown to be more ethical in situations such as frequency of attending lecturers, seeking academic assistance, adherence to timetable and note-taking and so as to avoid negative consequences of behaviours such as cheating during examinations. The different roles of males and females is what could have placed an expectation on females as such making them have better study skills than men (Salami, 2015).

The view of Salami was in agreement with the report of Singh, Muktesh, and Snehalata (as cited in Somuah, et al (2014) that girls have better study skills than boys. Khurshid, Tanveer, and Qasmi (2012) also found differences in the study skills of male and female students, specifically stating that female students possessed more effective study skills and therefore higher academic achievement than male students.

Furthermore, Trends in international Mathematics and Science study (TIMSS-2003) cited in Amatobi (2013) also observed differences between boys and girls in terms of their attitude towards academic work. The study of Ross (2002) revealed that “heavy readers” were more likely to be female than male; more likely to be younger rather than older; and to have achieved a higher education level than the population at large.

## CHAPTER THREE

### RESEARCH METHODS

#### Introduction

The purpose of the study was to explore the relationship among test anxiety, study skills and academic performance of Senior High School students in the Wa Municipality. This chapter provides information on the methodology, especially, the research design, population of study and sampling techniques. It also outlines instrumentation, data collection procedures as well as data analysis process. Explanation of validation and reliability of instruments as well as ethical consideration conclude the chapter.

#### Research Design

A correlational research design was used to examine the relationship among test anxiety, study skills and academic performance of Senior High School students in mathematics, English Language and Science within the Wa Municipality. Creswell (2003) described a correlational design as a research design that allows the researcher to find out whether two or more variables associate and to establish the relationship between the variables. In correlational study, the investigator does not manipulate the independent variables but simply measures two or more variables and then determines if a correlation exists between them. The method was appropriate for this study because it sought to examine if there is a relationship among students' test anxiety, study skills and academic performance without the manipulation of the variables involved.

## Population

Burns and Grove (2003) described population as all the elements that meet the criteria for inclusion in a research study. Polit and Hungler (1999) also defined population as a combination or entirety of all the objects, subjects or members that conform to a set of specifications from which a unit is selected to represent the whole group. Subsequent to the above definitions, the population for the current study involved all third year students in seven public Senior High Schools within the Wa Municipality in the Upper West Region. These schools were: Wa Senior High School (Wa SHS), Islamic Senior High School (Islamic SHS), Jamiat Islamic Girls' Senior High School (Jamiat Girls' SHS), Northern Star Senior High School (Northern Star SHS), Wa Senior High Technical School (Wa SHTS), Wa Technical Institute (Wa TECH) and T.I. Ahmadiyyah Senior High School (Ahmadiyyah SHS). All the schools are mixed boarding institutions (i.e., males and females) except Jamiat Islamic Girls' Senior High School which is Girls only.

The total population of third year students of all seven public SHSs as at the time of the study was 2,622. However, the accessible population for the study was 1,284 third year students drawn from three randomly selected public SHSs namely: Wa SHS, Jamiat Girls' SHS and Wa SHTS within the Wa Municipality. According to Amedahe (2002), when all members of the target group are not accessible, then it will be expedient to define the accessible group in addition to the population. In view of time and resource constraints, only three schools out of the seven public Senior High Schools within the Wa Municipality were selected to participate in the study.

An introductory letter was taken from the Department of Education and Psychology to the Municipal Education Directorate (MED) for approval and then to the Headmasters of all the schools within the Municipality to obtain the population of third year students. Table 1 presents the list of all the seven public Senior High Schools within Wa Municipality and their respective population of third year students as at the time of the study.

Table 1-*List of Public Senior High Schools within the Wa Municipality*

*and their Respective Population of Third Year Students at the Time of this Study*

S/N	Name of School	Population of 3 <sup>rd</sup> Years
1	Wa SHS	516
2	Wa SHTS	428
3	Islamic SHS	464
4	T.I. Ahmadiyyah SHS	344
5	Jamiat Islamic Girls' SHS	340
6	Wa Tech Inst	494
7	Northern Star SHS	36
<b>Total</b>		<b>2,622</b>

Source: Field data, (2019)

### **Sampling Procedures**

The sample size for the study was obtained from the accessible population of 1,284 third year students comprising 52.1% (669) females and 47.9% (615) males. The sample size of this study consisted of 297 third year students. The participants were enrolled in three different Public Senior High Schools within the Wa Municipality: Wa SHS 40% (119), Wa SHTS 33% (99) and Jamiat Islamic Girls' SHS 27% (79). A multistage sampling method was used in the sampling process. Multistage sampling refers to sampling

procedures where the sampling is conducted in stages by selecting smaller and smaller sampling units at each stage (Adane, 2013).

In the first place, purposive sampling technique was used to handpick Jamiat Islamic Girls' SHS from the seven public Senior High Schools within the Municipality. Jamiat Islamic Girls' SHS is the only single-girls Senior High School out of seven public Senior High Schools within the Municipality and hence was purposefully selected in order to have a fair representation of gender in the study.

Secondly, to avoid sampling bias and ensure fair representation by school, a simple random sampling technique (lottery method) was used to select two schools (Wa SHS & Wa SHTS) out of the remaining six schools within the municipality. This was done by numbering the rest of the schools from 1 to 6 on separate pieces of paper cut in equal sizes. The papers were put and properly mixed up in a container by shaking the container. The two schools (i.e., Wa SHS and Wa SHTS) were thus, randomly selected to form a representative sample of schools.

Purposive sampling technique was used on the assertion of Amedahe (2002) that in purposive sampling, researchers choose the cases to be included in the sample on the basis of their judgment of their typicality or particularity and knowledgeable about the issues under study. Thus, in purposive sampling, the researchers deliberately handpick subjects who in their opinion are thought to be relevant to the research topic. Also, simple random sampling technique was used to select the two schools in order to minimise sampling bias and ensure sample representativeness.

Thirdly, stratified sampling technique with proportional allocation method was used to get a fair representation of respondents by school and by gender after the three schools were selected. Proportionate stratified sampling technique is deliberately structuring the sample so that its composition matches the composition of the population (Leedy, & Ormrod, 2010). A sample size determination table by Krejcie and Morgan (1970) was used to determine the sample size for the study. The sample size determination table states that a population of 1,200 and 1,300 has the corresponding sample sizes of 291 and 297, respectively. However, since the population of the three schools in the current study was more than 1,200 but less than 1,300 as at the time of the study, the sample size 297 of 1,300 according to sample size determination table was used for the study. Based on the sample size of 297, the proportionate quota of respondents to be sampled from each school was calculated using the total number of students in each school. For instance, to get the respondents from Wa SHS, the population of third year students of Wa SHS was divided by the total population of the three schools and multiplied by the sample size (i.e.,  $516 / 1,284 \times 297 = 119.355$ ). This was rounded up to a whole number 119 since the study participants are human beings and cannot therefore be in decimals. The results of all the calculated quotas involved decimals and hence were rounded up to whole numbers and this gave the exact sample size of 297.

Having obtained the sample size of 297, the researcher calculated for gender representative to be selected from the two mixed schools. For example, although 119 respondents must be selected from Wa SHS third years, the question arises as to how many students should be sampled from males and how many from females? This was done after knowing the gender composition of

third years in each of the two schools and by calculating a proportional sample size based on each school's population. The gender breakdown of third year students of the two mixed schools as was obtained from the official records of the assistant headmasters in charge of academic affairs of the said schools at the time of this study were: 369 males and 147 females in Wa SHS, 248 males and 180 females in Wa SHTS. Thus, to obtain the sample of male respondents from Wa SHS, the number of male students was divided by the total number of third year students and multiplied it by the sample size of Wa SHS, that is,  $369/516 \times 119 = 85$ , hence 85 males were selected from Wa SHS. The same procedure was replicated to obtain representative sample of 34 female students from Wa SHS. The same process and approach was followed to select 57 males and 42 females as sample representatives in Wa SHTS.

Finally, in order to obtain a sample representative of the entire population, a simple random sampling technique (lottery method) was used to get the total representatives of third year students in each school. To achieve this, three-digit numbers were written on cardboard papers cut in equal sizes were assigned to each third year student in each school. These numbers were latter used to link the names of students for their scores in the final mock examination to determine their academic performance. Numbers were used because of the issues of privacy, confidentiality and anonymity of the study participants. These papers were then put into separate containers which were categorized and labeled accordingly.

The papers in each container were mixed together by shaking the container thoroughly. The pieces of papers in the container labelled, for instance "Wa SHS Boys", were picked and recorded one after the other in blindfold.



Once the number was picked, it was recorded and put back into the container. This process went on repeatedly until the required representative sample of male respondents (85) were obtained in Wa SHS. The same was applied to select the 34 female respondents in Wa SHS. Thus, a sample representative of 119 students, comprising 85 male and 34 female students was selected from Wa SHS. The same process was applied to obtain a representative sample of 99 respondents comprising 57 male students and 42 female students in Wa SHTS and finally, 79 respondents (all females) in Jamiat Islamic Girls' SHS. In all, the study sample consisted of 297 participants comprising 52% (155) females and 48% (142) males from the three randomly selected public Senior High Schools within the Wa Municipality. However, 284 participants, yielding a return rate of 96%, were actually used as respondents for the study. Thirteen participants did not return their questionnaires that were issued to them.

### **Data Collection Instruments**

Two sets of instruments namely Test Anxiety Scale (TAS) developed by Sarason (1980) which measures students' test anxiety levels during, before and after examination and Study Skills Inventory (SSI) developed by Congos (2010) which measures study skills of students were used for data collection. Both instruments were adapted in questionnaire form for data collection. The choice of questionnaire was informed by the claim of Cohen, Manion and Morrison (2008) that it is generally used and also useful for collecting survey information, providing structured, numerical data and being able to be administered without the presence of the researcher.

The Study Skills Inventory (SSI) was developed by Congos (2010) and was originally used to measure the study skills/habits of college students. It is a 51- item self-report scale and consists of six domains/subscales namely text book reading, note taking, memory, test preparation, concentration and time management. Responses were rated on a five-point scale, i.e., almost never = 1, less than half of the time = 2, about half of the time = 3, more than half of the time = 4 and almost always = 5. The domain/subscale of Textbook Reading (TR) includes eight items of the inventory. Note taking (NT) includes six items of the inventory. Nine items are used to measure the domain of Memory (MEM). Test Preparation (TP) is covered by thirteen items. Ten items measure the subscale of concentration (CONT), whereas, the domain of Time Management (TM) includes six items of the inventory. Total sum of all the subscales gives a total score of study skills/habits. A total score of less than 169 suggests poor study skills. The split half reliability of the two parts of this inventory is .789 and .749 respectively. The coefficient of reliability and validity of SSI had been reported in previous studies (Numan, & Hasan 2017) and the reliability of the test was measured using Cronbach's alpha (0.92). The alpha reliability for the subscales was: textbook reading .72, notes-taking .72, memory .77, test preparation .77, concentration .75 and time management .80. The adapted items were included in the second section of the questionnaire. This has been placed in Section B of the questionnaire.

The Test Anxiety Scale (TAS), developed by Sarason (1980) is a self-report psychometric scale which was developed to measure the individual's psychological and physiological states during, before and after an exam/test. The scale consists of 36 "True" or "False" items. Respondents indicate by

ticking whether the feeling they experience during an exam or test described in the statement is “True” or “False” about them. Based on a self-report method, this scale evaluates the psychological and physiological states of a student throughout the course of an exam or even after an exam. The TAS is scored by summing up the total number of “True” checks and the total score obtained by the respondents shows their level of test anxiety. The scores range between 0 to 36 and the cut-off points are as follow: 12 or below ranks in the low-test anxiety range, 13 to 20 reveals moderate anxiety and any score above 20 ranks severe anxiety (Lashkari, 2006). The adapted TAS questionnaire’s reliability and validity had been reported in previous studies (Hatami, 2010) and the reliability of the test was measured using Cronbach alpha (.70). The adapted items were included in the third section of the questionnaire. This has been placed in Section C of the questionnaire.

The SSI and TAS were adapted and used for the study. Accordingly, the instruments (SSI & TAS) were modified to suit the research objectives/hypotheses of the study. The individual items in the instruments had been reviewed to remove “unfamiliar” words and expressions and were reworded to suit the cultural setting and understanding of participants in the current study. The change also saw a revision of the response key of the SSI from ("Almost always," "More than half of the time," "About half of the time," "Less than half of the time" and "almost never") to ("Always", "Mostly", "Often", "Not Often", and "Almost Never").

Therefore, the scoring of each item on the SSI was on a five-point scale: Always = 5, Mostly = 4, Often = 3, Not Often = 2 and Almost Never = 1. Academic performance was determined by using students’ test scores of their

Final Mock examination in core Mathematics, English Language and Integrated Science. These were obtained to determine the relationship among test anxiety, study skills and academic performance. To achieve this, the scores in Mathematics, English Language and Science were added up and then divided by three to arrive at an average mark for each respondent. This was compared with the University of Cape Coast average mark boundaries (i.e., 69% - 65%), which were divided by two to give an average mark of 67%. This means that test scores less than 67% indicate low performance or below average whereas test scores above 67% indicate high performance or above average.

The questionnaire that was used for data collection had three sections: A, B and C. Section A covers respondents' demographic information. Sections B and C include items used to measure students' Study Skills and Test Anxiety respectively. The questionnaire has a total of 139 close-ended items.

### **Validation and Reliability of the Instrument**

The Test Anxiety Scale (Sarason, 1980) and Study Skills Inventory (Congos, 2010) were evaluated by my supervisors. Their vast experience and expertise in psychology, measurement and evaluation to a great extent offers assurance to the accuracy of the constructs. The face validity of the instruments was determined by experts and the researcher's supervisors after construction to make sure they measured what they are supposed to measure. According to Leedy and Ormrod (2010), face validity is the extent to which a test is subjectively viewed as covering the concept it purports to measure.

The instruments (TAS & SSI) were pilot-tested in Lassia-Tuolu Senior High School in the Wa West District to test for reliability and internal consistency. Forty-five (45) third year students were randomly selected to

complete the questionnaire which lasted for a period of 30 minutes. The obtained reliability for the Study Skills Inventory was .893 as well as .825 for the Test Anxiety Scale. According to McLeod (2007), reliability refers to the consistency of a research study or measuring test. Kerlinger (1986), equally defined reliability as a measurement instrument that is reliable and is one that is stable or consistent across time. Cronbach alpha with ranges from 0.00 to 1.00 where values close to 1.00 were used. Usually, Cronbach's alpha of 0.70 and above is recommended (Pallant, 2005). According to Ritter (2017), Cronbach alpha values ranging from the positive direction are trusted to indicating high level of consistency.

#### **Data Collection Procedures**

Permission was sought from the Municipal Director of Education and heads of Senior High Schools in the Wa Municipality before commencement of data gathering. The purpose and significance of the research was clearly explained to the participants and the various school authorities. Participants were made aware that their participation was voluntary and that they could withdraw freely from the research along the study period if they so desire. The questionnaire was administered to the participants by the researcher in person in their respective school Assembly Halls in groups and this yielded a high return rate of over 96%. The students were guided and were allowed ample time to complete the questionnaire. Data were collected in four weeks in the month of March.

#### **Data Processing and Analysis**

The collected data was coded, tabulated, scored and keyed into the computer. Then, the data was cleaned to remove outliers and other

inconsistencies. Codes were given to the Likert scale. The questionnaire data were analysed by means of descriptive statistics such as frequencies and percentages as well as inferential statistics such as correlation and independent samples t-test. Participant's demographic data were analysed using descriptive statistics. Research hypotheses one and two data were tested by means of Pearson Product Moment Correlation Co-efficient, whereas research hypotheses three and four data were tested using independent samples t-test.

### **Ethical Considerations**

Ethical clearance from the Institutional Review Board (IRB), UCC and an introductory letter, obtained from the Department (Education & Psychology) were used to seek permission from the Municipal Education Directorate and Headmasters of Senior High Schools within the Wa Municipality for the study. Also, in administering the questionnaires at the data collection stage, due honesty was exercised. The participants were given the opportunity to complete their questionnaires privately to ensure confidentiality. In the dissemination of results, measures were taken to ensure privacy, anonymity and confidentiality of all participants. Three digit numbers were assigned to each participants which were later used to match their final mock exam results. The names of the participants were not used or revealed throughout the research project. This was consistent with (Maree, 2007). The discussion of the findings was based on the trends that emerged from the data and not from any preconceived ideas.

## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

#### Introduction

This chapter presents the analysis of the study data based on the purpose of the study. The main purpose of the study was to explore the relationship among test anxiety, study skills and academic performance of Senior High School students in the Wa Municipality. In addition, the study explored the gender differences with respect to test anxiety, study skills and academic performance of Senior High School students in the three core subject areas. The analysis and interpretation of data were based on the results of the four research hypotheses set for the study. The quantitative data were analysed using descriptive statistics (frequencies and percentages) and inferential statistics (Pearson Product Moment Correlation-PPMC and Independent samples t-test). The first part of this chapter describes the demographic characteristics of the respondents. In the second part, the research data were analysed based on the research hypotheses outlined for the study.

#### Description of the Sample (Senior High School Students in the Wa Municipality)

This section of the questionnaire (Biographical) presents the background information of the respondents. These included the respondents' gender and age. Table 2 shows the distribution of the respondents and their biographical information.

Table 2-Demographic Characteristics of Respondents

Variables	Subscale	Freq.	Percent (%)
Gender	Male	142	48.0
	Female	155	52.0
Age Range	15 and below	61	21.48
	16- 20 years	199	70.07
	21 and above	24	8.45

Source: Field Data, (2019)

From Table 2, it can be observed that majority of the participants (52.0%) were females while the males were less (48.0%). With respect to the Age Range, majority (70.1%) of the participants were within 16-20 years. Those within 15 years and below followed (21.48%), while those with age range 21 years and above were the least represented (8.45%).

### Research Hypothesis One

*H<sub>0</sub>: There is no statistically significant relationship between test anxiety and academic performance of SHS students in Mathematics, English Language and Science.*

*H<sub>A</sub>: There is a statistically significant relationship between test anxiety level and academic performance of SHS students in Mathematics, English Language and Science.*

The Pearson Product Moment Correlation Co-efficient (PPMCC) was used for the analysis. In the analysis, correlation ( $r$ ) was used to determine the strength and the direction of the relationship between the independent variable (Test Anxiety, TA) and the dependent variable (Academic Performance, AP). The correlation was tested at 0.05 alpha level of confidence. To obtain the scores



for the students' Test Anxiety, all the items measuring these constructs on the questionnaire were computed to form a single item on the SPSS software (23 version).

In performing the Pearson Product Moment Correlation Co-efficient (PPMCC) analysis, homoscedasticity assumption was checked. Figure 1 presents the results of the normality assumption.

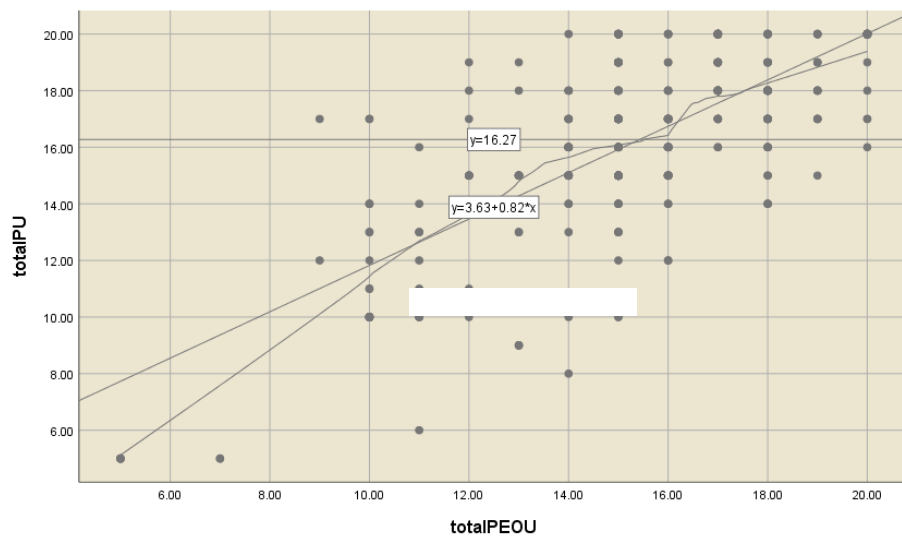


Figure 1-Homoscedasticity Normality Assumption

The figure shows that the movement of the variable along the diagonal line indicates that the data was assumed normal and as such Pearson Product Moment Correlation Co-efficient (PPMCC) could be performed.

Table 3 presents the results of the PPMCC between Test Anxiety and Academic Performance.

Table 3-Coefficient between Test anxiety (TA) and Academic Performance (AP)

No	TA*AP	Mean	SD	1
1.	TA	44.88	6.59	1
	AP (Co-efficient, r)			-.832*
	<b>Sig. Value</b>			.004*

\*. Correlation is significant at the 0.05 level (2-tailed) (n= 284)

The results in Table 3 show a significant strong inverse relationship between test anxiety and academic performance of SHS students in Mathematics, English Language and Science in the Wa Municipality  $r(df=282) = -.832$ , sig. =.004 (2-tailed). The results imply that the increase test anxiety of SHS students in Mathematics, English Language and Science in the Wa Municipality is likely to decrease their academic performance.

Some studies have identified the root of test anxiety as lying in students' poor preparation (Schwartz & Buchwald, 2003). Those studies suggest that some students ineffectively organise or process information and they perform poorly on tests because of anxiety. Naveh-Benjamin et al (1987) have found that when compared with less anxious students, highly test-anxious students have difficulties in organizing material to be learned.

Similarly, Sarason (1980) believes that learners' capacity, task difficulty, the fear of getting bad grades and lack of preparation for a test are the other factors that make learners worried. Similarly, learners with high levels of anxiety have less control of attention. He also suggests that there is considerable evidence that the performance of highly test anxious individuals on complex tasks is deleteriously affected by evaluation stressors. These findings of Sarason (1980) shared a similar view like the findings of the present study

Moreover, the work of Young (1999) found that there are some factors that influence students' reactions to tests are related to test validity, time limit, test techniques, test format, length, testing environment and clarity of test instructions. Concerning the importance of test validity, the study of Young (1991) indicates that students experience anxiety if the test involves content that was not taught in class. Another factor that increases test anxiety and affects

performance is time limit. According to Ohata (2005), learners sometimes felt pressured to think that they had to organise their ideas in a short period of time. Another factor, inappropriate test technique, affects students' performance negatively.

### Research Hypothesis Two

*H<sub>0</sub>: There is no statistically significant relationship between study skills and academic performance of SHS students.*

*H<sub>A</sub>: There is a statistically significant relationship between study skills and academic performance of SHS students.*

The Pearson Product Moment Correlation Co-efficient (PPMCC) was used for the analysis. In the analysis, correlation (r) was used to determine the degree and the direction of the relationship between the independent variable (Study Skills, **SS**) and the dependent variable (Academic Performance, **AP**). The correlation was tested at 0.05 alpha level of confidence. To obtain the scores for the students' Study Skills, all the items measuring these constructs on the questionnaire were computed to form a single item on the SPSS software (version, 23). Table 4 presents the results of the PPMCC between Study Skills and Academic Performance.

Table 4-*Correlation Coefficient between Study Skills (SS) and Academic Performance (AP)*

No	SS*AP	Mean	SD	2
2	SS	39.71	5.15	1
<b>AP</b> (Co-efficient, r)				.901*
<b>Sig. Value</b>				.000*

\*. Correlation is significant at the 0.05 level (2-tailed) (n= 284)

In relation to Study Skills (SS), the results presented in Table 4 show a significant strong positive relationship between Study Skills (SS) and Academic Performance (AP) of SHS students in Mathematics, English Language and Science in the Wa Municipality  $r(df=282) = .901$ , sig. =.000 (2-tailed). This means that as Study Skills (SS) become effective, the academic performance (AP) of SHS students increases and the vice versa.

A literature review by Nagaraju (2004) pointed out that for good academic success, good study skills and attitudes are important. Sheikh and Jahan (2012) research findings agreed with Nagaraju (2004) that good study skills are good assets to learners because they help students attain mastery in their areas of specialization and ensure excellent achievement. It means then, that bad study skills lead to very poor achievement by the learners. This also agrees with Alonge (2005) who said that good study habit is a key to effective learning.

In terms of the influence of specific study habit dimensions, the study of Raiz (2002) revealed that there existed a significant positive relationship between achievement of the students and factors like schedule of study, and the habit of note taking. Similarly, Nuthana and Yenagi (2009) found significant correlation between study skills and academic achievement. They revealed further that reading and note-taking skills, skills of concentration, and preparation for examination had significant correlation with academic achievement. Students who were found to be better in reading and note-taking, well prepared for the board examination and those had with high level of concentration were found to have better academic achievement.

In support of these findings, the study of Fazal (2012) also identified various study skills used by learners and assessed which of the study habit dimensions was more related to academic achievement. The study of Fazal found that there was a significant relationship between time management skills, reading and note-taking skills and academic achievement. Fazal therefore concluded that students with higher academic achievement used a wide range of study skills as compared to students with lower academic achievement.

### **Research Hypothesis Three**

*H<sub>0</sub>: There is no statistically significant gender difference between test anxiety of students.*

*H<sub>A</sub>: There is a statistically significant gender difference between test anxiety of students.*

At 0.05 alpha level of significance, hypothesis three was tested to find gender differences between test anxiety of SHS students in the Wa Municipality. To realize this results, independent samples t-test was deemed appropriate for the analysis. This is based on the assumption that, the hypothesis sought to find out whether statistically significant differences exist between the means in two unrelated groups (male and female students' test anxiety). The independent variables are male and female SHS students in Mathematics, English Language and Science in the Wa Municipality while the dependent variable here is test anxiety. Levene's test for homogeneity of variances was carried out and the results presented in Table 5.

Table 5-Results of Homogeneity of Variances Test

Levene Statistic	df1	Cal. t-value	Sig.	Remarks
4.163	282	.517	.067*	Equal Variances Assumed

Source: Field Data (2019) \*Significant difference exists at  $P \leq 0.05$ ,  $n=284$

As illustrated in Table 5, the Levene's test produced non-significant results which implies that the variances are assumed equal. That is ( $t=.517$ ,  $sig. = .067$ ). The results imply that the variances are assumed equal (homogeneous) and as such Homogeneity of Variances Test has not been violated. To this regard, Table 6 presents results of independent samples t-test comparing gender differences in the test anxiety of SHS students in the Wa Municipality.

Table 6-Results of independent samples t-test comparing gender differences in the test anxiety of students

Variables	Mean	Std. D	SEM	Cal.t-value	Df	p-value
Female	50.48	5.58	3.61	1.312	282	.006*
Male	20.59	6.63	2.81			
Total	AM	ASD	ASEM			
(N=284)	=35.5	=6.1	=3.21			

Source: Field Data (2019) \*Significant difference exists at  $p \leq 0.05$ ,  $n=284$

**Key:**

**SEM\*\***=Standard Error of Measurement

**AM\*\***=Average Mean

**ASD\*\***=Average Standard Deviation

**Df\*\***=Degree of Freedom

Shown in Table 6, is the results of the independent samples t-test that compares gender differences in test anxiety of SHS students in the Wa Municipality. The descriptive results (Mean and Standard Deviation) specified that there were actual differences in mean scores of the independent variables (female and male students' test anxiety). Evaluating the results, the female students were found to be experiencing higher test anxiety than the male students. Notwithstanding the descriptive results, the independent samples t-test and p-values show that differences were not by chance. That is, the descriptive results are statistically significant and this means that there were real differences between female and male students in terms of their experience of test anxiety  $t(df=282) = 1.312, sig. = .006(2-tailed)$ . Based on the results, the hypothesis stated as: "There is no gender differences between test anxiety of students" was therefore rejected and the Null hypothesis was upheld.

The results obtained from the current study agreed with that of Asikhia (2014) who conducted a study on the effect of cognitive-restructuring training on the reduction of mathematics anxiety among a group of Senior Secondary School Students in Ogun State. In her study she used a 2 x 2 x 3 pre-test, post-test factorial design (treatment, gender, and study habit) in the study and the results of the study revealed that gender affected students' anxiety in Mathematics significantly with male students having more reduction in Mathematics anxiety than female students.

In furtherance to the above, research finding has suggested a difference in anxiety responses between males and females (King et al., 2000); with females generally self-reporting higher levels of test anxiety symptoms than males. From this point of view, it would be important to consider the role of

gender when interpreting the results from outcome measures of self-reported test anxiety. Furthermore, there are apparent gender differences in both the level of anxiety experienced and its magnitude of influence on test performance, girls being more affected by the phenomena.

Similarly, Farooqi, Ghani and Spielberger (2012) found that female students show a significantly higher level of test anxiety that might be associated with different social roles assigned to females versus males and with higher emotional vulnerability of females that have socially learnt to express feelings in ontogenesis whereas males suppressed them

In opposition to the current study, Lowe (2015), also conducted a study to examine measurement invariance across gender and gender differences on two measures of test anxiety developed for the United States of America middle, high and college students and found out that the female students scored significantly higher scores than their male counterparts on the test anxiety measures. Interestingly, the findings from Bruce (2015), revealed that males from Senior High Schools experience higher test anxiety as compared to their female counterparts

#### **Research Hypothesis Four**

***H<sub>0</sub>:** There is no statistically significant gender difference between study skills of SHS students.*

***H<sub>A</sub>:** There is a statistically significant gender difference between study skills of SHS students.*

Upon my readings, literature gives evidence to suggest that study skills could differ in terms of gender. So, at .05 alpha level of significance, hypothesis four was tested to find gender differences between study skills (SS) of SHS



students in the Wa Municipality. To gather evidence for this results, independent samples t-test was deemed applicable for the analysis. The choice of this statistical tool was based on the assumption that the researcher sought to find out whether statistically significant differences exist between the means in two unrelated groups (males and females) with respect to their study skills. The independent variables were male and female SHS students in Mathematics, English Language and Science in the Wa Municipality while the dependent variable here is study skills. Again, Levene’s test for homogeneity of variances was carried out and the results presented in table 7.

Table 7-Results of Homogeneity of Variances Test

Levene Statistic	df1	Cal. t-value	Sig.	Remarks
2.760	282	.419	.774*	Equal Variances Assumed

Source: Field Data (2019) \*Significant difference exists at  $P \leq 0.05$ ,  $n=284$

As shown in Table 7, the Levene’s test produced non-significant results and the remarks is that the variances are assumed equal based on the obtained results. The result is reported as ( $t=.419$ ,  $sig. = .774$ ). The result indicates that the variances are assumed equal (homogeneous) and as such Homogeneity of Variances Test has not been violated. In this regard, Table 8 illustrates results of independent t-test comparing gender differences between study skills of SHS students in the Wa Municipality.

Table 8-Results of independent t-test comparing gender difference between study skills of SHS students in the Wa Municipality

Variables	Mean	Std. D	SEM	Cal.t-value	Df	p-value
Male	30.23	7.58	3.72	1.623	282	.000*
Female	69.29	5.63	2.62			
Total (N=284)	AM =49.76	ASD =6.60	ASEM=3.17			

Source: Field Data (2019) \*Significant difference exists at  $p \leq 0.05$ ,  $n=284$

**Key:**

**SEM\*\***=Standard Error of Measurement

**AM\*\***=Average Mean

**ASD\*\***=Average Standard Deviation

**Df\*\***=Degree of Freedom

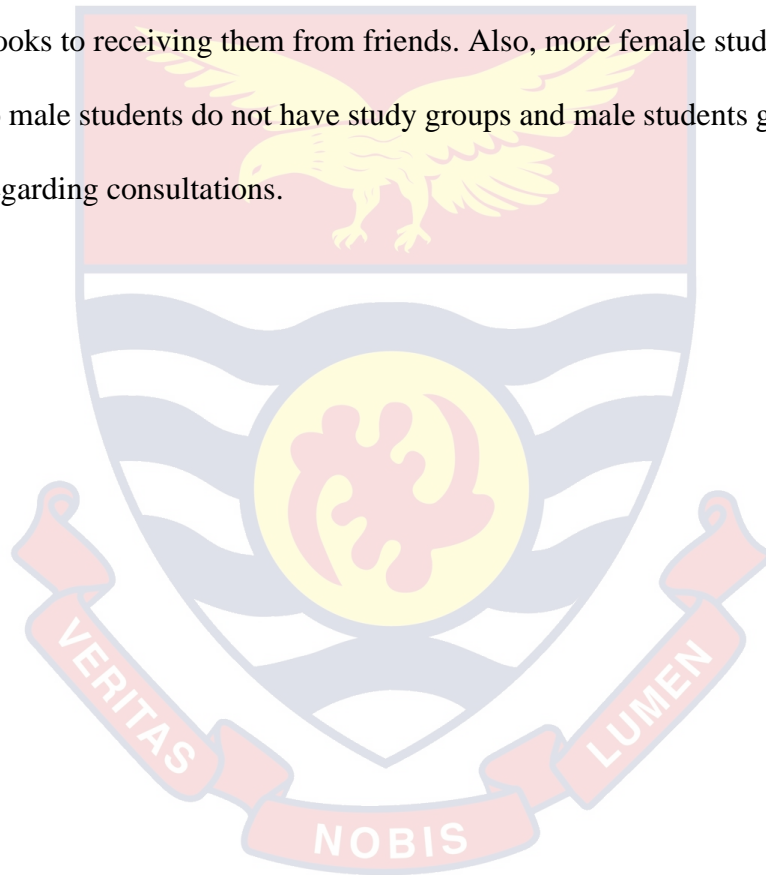
As shown in Table 8, the results show that there were descriptive differences in the mean scores of the independent variables (male and female students' study skills). From the descriptive results, it was evident that female students employed good study skills than the male students. To complement the descriptive results, the independent samples t-test and p-values show that the differences in the mean scores were not by chance. That is, the descriptive results are statistically significant and this means that there were real differences between male and female students in terms of their study skills [ $t=1.623$ ,  $sig.=.000$ ]. The results imply that the female SHS students in the Wa Municipality employ good and effective study skills that could influence their academic performance than the male students. Based on the result, the hypothesis stated as: "There is no gender difference between study skills of students" was therefore rejected and the null hypothesis was upheld.

The findings of the current study are not surprising at all because previous research findings shared similar results. The current study lent support to a research by the American Association of University Women (AAUW) in 1992 who considered gender equity in improving education and career opportunities for females. The evidence showed that girls were more quality or even quantity of education than boys (Bleuer & Walz, 2002).

Similarly, Ossai (2012) found that female students are better in study skills such as time scheduling, concentration, listening, note taking and reading. Salami (2015) studied the impact of gender on study skills and found that females are generally shown to be more ethical in situations such as frequency of attending lectures, seeking academic assistance, adherence to timetable and note-taking so as to avoid negative consequences of behaviours such as cheating during examinations.

The results of Khurshid, Tanveer, and Qasmi (2012) again, shared similar results to that of the researcher's findings. Khurshid, Tanveer, and Qasmi (2012) found differences in the study skills of male and female students, specifically stating that female students possessed more effective study skills and therefore higher academic achievement than male students. Furthermore, Trends in international Mathematics and Science study (TIMSS-2003) cited in Amatobi (2013) also observed differences between boys and girls in terms of their attitude towards academic work. The study of Ross (2002) revealed that "heavy readers" are more likely to be females than males; more likely to be younger rather than older; and to have achieved a higher education level than the population at large.

Differing from the findings of the current study though, other studies have found insignificant results. For example, in a study conducted by Somuah, Dankyi and Dankyi (2014) on whether gender differences had any influence on the study skills of male and female students, he found that no statistically significant differences existed between the study skills of males and females. Both sexes had the same study skills. However, his research revealed that more female students than male students have preference to finding answers from books to receiving them from friends. Also, more female students as compared to male students do not have study groups and male students generally do more regarding consultations.



## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

This chapter presents the summary of the findings of the study as well as the conclusions, recommendations and suggestions for further research. Thus, the chapter focuses on the implications of the findings from the study for policy formulation and further research. The recommendations are made based on the key findings and major conclusions arising from the study

#### Overview

The general purpose of the study was to explore the relationship among test anxiety, study skills and academic performance of Senior High School students in Mathematics, English Language and Science in the Wa Municipality. Specifically, the study sought to explore the relationship between test anxiety level and academic performance of students, explore the relationship between study skills and academic performance of students, explore the gender difference between test anxiety level and academic performance of students and finally, explore the gender difference between study skills and academic performance of students. To be able to realise these objectives, a correlational research design was adopted as the research design. A sample size of 297 Public Senior High School students within the Wa Municipality through the use of multi-stage sampling procedure was carefully selected to participate in the study. However, the actual sample size used for the study was 284 respondents comprising 134 male students and 150 female

students. Data were collected by using the adapted versions of the Test Anxiety Scale (TAS) developed by Saraso (1980) and Study Skills Inventory (SSI) developed by Congos (2010). Both scales were adapted in questionnaire form for data collection. Also, students' final mock exam scores in the core mathematics, English and Science were obtained from the various schools and used to measure academic performance. Descriptive statistics (frequencies and percentages) and inferential statistics (Pearson Product Moment Correlation Coefficient, and independent samples t-test) were used to analyse the data.

### Summary of Findings

The following findings were emerged from the study.

1. The study gave evidence that there was a significant strong inverse relationship between Test Anxiety (TA) and Academic Performance (AP) of SHS students within the Wa Municipality in Mathematics, English Language and Science ( $r = -.832$ ,  $sig. = .004$ ).
2. Also, a significant strong positive association was found between Study Skills (SS) and academic performance (AP) of SHS students in Mathematics, English Language and Science ( $r = .901$ ,  $sig. = .000$ ).
3. With respect to gender differences between test anxiety of students, the results indicated that female SHS students were found to suffer higher test anxiety than males when they are both caught up in situations of test anxiety. The findings revealed significant real differences between gender and test anxiety  $t(df=282) = .517$ ,  $sig. = .067(2-tailed)$ .
4. Finally, with respect to gender differences between study skills of students, the results disclosed that female SHS students employed good study skills than their male counterparts. The findings disclosed

significant real differences between gender and study skills  $t(df=282)$   
 $=1.312, sig. =.00(2-tailed)$ .

### **Conclusions**

Based on the findings of the study, the following conclusions are drawn. Evidence can be adduced from the findings that test anxiety as well as study skills can largely predict the academic success of students within the Wa Municipality.

The findings further observed that male students become higher academic achievers than females since males are less anxious than females during examination and evaluative situations.

Finally, inferences can be made from the study's findings that the kind of study skills that students use in studying can have an impact on their test anxiety.

### **Recommendations**

Based on the findings that emerged from the study and the conclusions drawn, the following recommendations are made to guide policy formulation and further research:

1. It is recommended to the GES, MOE, PTA, school authorities, examiners, Guidance and Counselling Coordinators and all partners in the delivery of education to develop and, or intensify test anxiety intervention and prevention programmes for students. These programmes should help identify and treat the students with high test anxiety in order to enhance their academic performance.
2. The school exam units, in partnership with academic counsellors in schools should intensify and periodically, organize test anxiety and study skills seminars more for final year students. This will help the

students develop good study skills in order to improve their academic performance.

3. It is recommended that test anxiety intervention and prevention programmes by schools should target or focus more on female students to help them overcome anxiety.
4. Finally, it is recommended that teachers should encourage the formation of group studies and study clubs among male and female students in Senior High Schools to promote effective study skills behaviours in students.

### **Suggestions for Future Research**

Notwithstanding the general recommendations which have been clearly stated in this research report, it is suggested that other academic research exercises could be conducted around the present topic to give widespread findings. The following are some suggested areas that can be considered for further studies.

1. Test anxiety is an extremely relevant factor among students and there has been much research conducted on its antecedents, effects and treatments. It can be expected that research in this area will continue to grow due to the fact that problems of test anxiety do affect students at all levels in academia. This required that more studies need to be conducted to give more varied conclusions to have implication for practice.
2. Again, a comparative study should be done to investigate test anxiety and academic performance among Colleges of Education students across the country, particularly Colleges from northern and



southern parts of Ghana

3. Moreover, it is recommended that a comparative study with respect to gender differences and study skills behaviour involving male and female students of Senior High Schools in different Municipalities across the country be explored further by future.



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**APPENDICES**

**APPENDIX A**

**UNIVERSITY OF CAPE COAST**

**COLLEGE OF EDUCATION STUDIES**

**DEPARTMENT OF EDUCATION AND PSYCHOLOGY**

**Dear Respondent,**

This questionnaire comprises three sections: A, B & C. Section A is about the demographic characteristics of the learner, while sections B and C seek to elicit information on students' test anxiety experiences and study skills respectively.

To gain a better understanding of yourself as a learner, it is always helpful to identify the study skills you now employ as well as your level of anxiety during an exam/test.

This is purely an academic exercise and you are assured of complete **confidentiality** and **anonymity** of all information provided.

Now answer all the questions in each section as truthfully and honestly as you can.

**SECTION A**  
**DEMOGRAPHIC CHARACTERISTICS**

**Direction: Tick where applicable**

**1. Gender:**

- a) Male [   ]
- b) Female [   ]

**2. Age:**

- a) 15 and below [   ]
- b) 16 – 20 years [   ]
- c) 21 and above [   ]

**3. ID Number.....**

**SECTION B**  
**STUDY SKILLS INVENTORY (SSI)**

**Directions:** Read each of the statements below carefully and answer by ticking (√) one of the options on the right that best describes your study behaviour for that particular study skill.

No	Statements	Almost Never	Not Often	Often	Mostly	Always
1	I formulate questions from a chapter before I begin reading					
2	Before reading an assignment, I survey headings, bold print, italics, questions, summaries, etc.					
3	I try to get the meaning of new terms as I encounter them the first time					
4	I formulate questions to answer as I read an assignment					
5	I look for main ideas as I read.					
6	I am able to readily identify clarifying details under each main idea					
7	I read a textbook chapter more than once					
8	I use a textbook study system such as					

	Survey, Question, Read, Recite & Review (SQ3R)					
9	I take notes as I read my textbook assignments					
10	I take notes in class					
11	After taking notes, I revise them before going on to something else					
12	I rewrite class notes					
13	I compare notes with one or more classmates to check for completeness and accuracy					
14	I revise notes more than once or twice for exams and quizzes					
15	I use mnemonics/cues					
16	I use visuals in my notes such as sketches, mind maps, diagrams, charts, etc					
17	I quiz myself over material that could appear on future exams and quizzes					
18	I organize details to main ideas into numbered or lettered lists					
19	I convert text and class material into my own words					

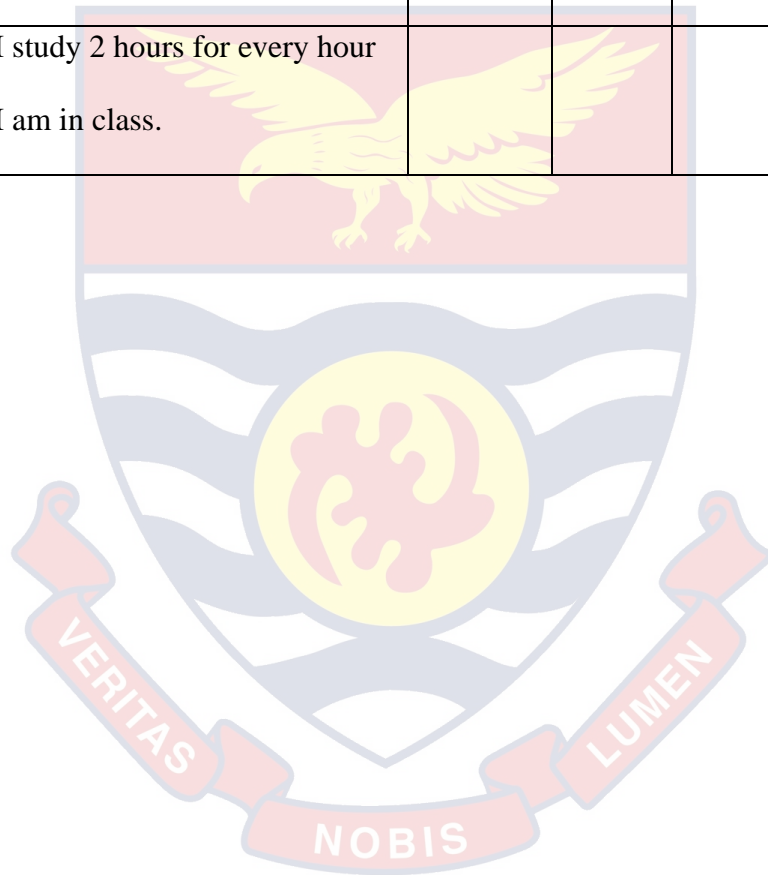
20	I think about material that could be on exams and quizzes when I am not studying					
21	I try to understand material in my notes as opposed to memorizing					
22	I try to organize main ideas and details into some logical or meaningful order					
23	I study with a classmate or group					
24	When I don't understand something, I get help from classmates, teachers, instructors etc					
25	I do all homework assignments					
26	I submit all homework assignments on time.					
27	I can easily identify what I have learned and what I have not yet learned before I take a test					
28	I revise notes for a class before I go to that class					



29	I read assigned material before I go to class					
30	I begin studying for an exam from the first week material is assigned or covered in class					
31	I revise class notes soon after class					
32	I keep up to date on assignments and Homework					
33	I eat well-balanced meals daily					
34	I exercise daily					
35	I have taken a learning skills class or attended learning skills workshops					
36	I study where it is quiet when trying to learn and remember something					
37	I study for a length of time then take a short break before returning to studying					
38	I study in the same place					
39	I avoid over studying for a short period of time					

40	I have all my study equipment handy to my study place (pens, paper, calculator, etc.).					
41	When I sit down to study, I tell myself that I intend to study					
42	I break larger tasks into smaller segments in order to complete a large assignment					
43	When the subject matter is not naturally interesting, I find ways to learn it anyway					
44	It is not difficult to pay attention in class					
45	I avoid studying in the evenings as much as possible					
46	I use a calendar book for recording daily and weekly upcoming academic and personal activities					
47	I use lists such as daily “to do” lists, priority lists, assignment lists, etc. to organize					

	academic and personal activities					
48	I set up a master schedule of fixed monthly activities such as work, club meetings, etc					
49	I start papers and projects way before they are due.					
50	I study 2 hours for every hour I am in class.					



**SECTION C**  
**TEST ANXIETY SCALE (TAS)**

**Directions:** Read each of the statements below, think carefully about each statement and respond as truthfully as you can. Using the options (True or False), tick (√) in the cell the statement that best describes your feeling before, during or after an exam/test.

No	Statement	True	False
1	While taking an important exam, I find myself thinking of how much brighter the other students are than I am.		
2	If I were to take a test, I would worry a great deal before taking it.		
3	If I knew I was going to take a test, I would feel confident and relaxed.		
4	While taking an important exam, I sweat a great deal.		
5	During class examinations, I find myself thinking of things unrelated to the actual study material.		
6	I get to feeling very panicky when I have to take an “unexpected” exam.		
7	During a test, I find myself thinking of the consequences of failing.		
8	After important tests, I am frequently so tense my stomach gets upset.		
9	I freeze up on things like tests and final exams.		
10	Getting good grades on one test doesn't seem to increase my confidence on the second.		

11	I sometimes feel my heart beating very fast during important exams.		
12	After taking a test, I always feel I could have done better than I actually did.		
13	I usually get depressed after taking a test.		
14	I have an uneasy, upset feeling before taking a final examination.		
15	When taking a test, my emotional feelings do not interfere with my performance		
16	During a class test, I frequently get so nervous that I forget facts I really know. I seem to defeat myself while working on important tests		
17	The harder I work at taking a test or studying for one, the more confused I get		
18	As soon as an exam is over, I try to stop worrying about it, but I just can't.		
19	During exams, I sometimes wonder if I'll ever get through school.		
20	I would rather write a class assignment than take a test for my grade in a class		
21	I wish examinations did not bother me so much.		
22	I think I could do much better on tests if I could take them alone and not feel pressured by time limits.		
23	Thinking about the grade I may get in a class interferes with my learning and performance on tests.		
24	If examinations could be done away with, I think I would actually learn more		

25	On exams I take the attitude, "If I don't know it now, there's no point in worrying about it."		
26	I really don't see why some people get so upset about tests.		
27	Thoughts of doing poorly interfere with my performance on tests.		
28	I don't study any harder for final exams than for the rest of my class assignment.		
29	Even when I'm well prepared for a test, I feel very anxious about it.		
30	I don't enjoy eating before an important test.		
31	Before an important examination, I find my hands or arms trembling.		
32	I hardly ever feel the need for "ghosting"/"burning" before an exam.		
33	The school should recognize that some students are more nervous than others about tests and that this affects their performance.		
34	It seems to me that examination periods should not be made such intense situations.		
35	I started feeling very uneasy just before getting a test paper back.		
36	I fear subjects where the teacher has the habit of giving "unexpected" test.		

Thank you for your time!