ADDIS ABABA UNIVERSITY SCHOOL OF GRADUATE STUDIES

SCHOOL OF PSYCHOLOGY

The Relationship between Test Anxiety and Academic Performance at Addis Ababa University Institute of Technology

BY: Amsalework Legesse

A thesis submitted to the School of Graduate Studies of Addis Ababa University in partial fulfillment of the Degree of Masters of Art in Measurement and Evaluation

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ADVISOR: DR.-Mulu Nega

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This is to certify that this thesis prepared by Amsalework Legesse, entitled: The Relationship between Test Anxiety and Academic Performance at Addis Ababa University Institute of Technology and submitted in partial Fulfillment of the requirements for the degree of master of Art in Measurement and Evaluation complies with the regulations of the University meets the accepted standards with respect to originality and quality.

Signed by the Examining committee

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Chair of Department or Graduates program coordinator

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ABSTRACT

The purpose of this study was to investigate the relationships between test anxiety and academic performance of university students. This study employed the mixed methods approach to collect and analyze data. The population of the study was AAIT final year students. The participants of the study were 221 final year engineering students of which 172 were males and 49 females. The mean ages of the participants were 23.34. One scale that is Test Anxiety Inventory (TAI) developed by Professor Emeritus and Dr. Charles D. Spielberger (1980) was individually administered to the participants. Interview questions were also administered. Additionally document mining was employed. Pearson product moment correlation-test and one-way ANOVA were computed to analyze the data. The finding of the study indicate that test anxiety of university students is inversely and significantly correlated with their academic performance with weak relationship (r= -.171). The results suggest that the female university students reported significantly higher test anxiety level compared to their male students counterparts (t = 2.790; df=219;p = <0.001). Again the male university students achieved statistically insignificant difference in their GPAS as compared to the female students (t =-5.866, df =219, p □ 0.414). There is no significant difference in the academic performance (GPA) among the University students by their levels of test anxiety. More over a further research is recommended in order to examine the existence of gender differences in test anxiety and the impact of test anxiety on academic performance of students at different level of education.

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Abbreviations

AAIT-Addis Ababa Institute of Technology

AAU-Addis Ababa University

GPA-Grade Point Average

HTA-High test anxiety

LTA-Low Test anxiety

M-Mean

MTA-Moderate Test Anxiety

S.D-Standard Deviation

TAI-Test Anxiety Inventory

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I. INTRODUCTION

1. Background of the Study

Tests and examinations at all stages of education, especially at higher education level have been considered as an important and powerful tool for decision making in our competitive society, with people of all ages being evaluated with respect to their achievement, skills and abilities. Zollar and Ben-chain (1990) have the opinion that the era in which we live is a test- conscious age in which the lives of many people are not only greatly influenced, but are also determined by their test performance.

Everyone experiences anxiety. Anxiety is our body's reaction to what we perceive as threatening. Anxiety can be a healthy and adaptive response to stress. However, anxiety occurs on a continuum, ranging from normal, healthy concern on one end to worry, anxiety and panic toward the other end.

One important factor, which is influential on students' academic achievement, is test anxiety. Test anxiety has become one of the most disruptive factors in school and other settings where testing is performed (Cassady, 2004).Test Anxiety negatively affects academic performance of students. In a meta analysis of 562 studies that looked at the relationship between test anxiety and academic achievement, Hombree as cited in Moore (2006) found that test anxiety routinely caused poor performance and the impact of test anxiety on students performance is frequently caused by the evaluation of the classroom teacher. He further reported that students who are in high test anxiety also tend to have poor study habits and test taking skills.

There are several definitions of test anxiety (Liebert & Morris, 1967; Nicaise,1995; Spielberger, Gonzalez, Taylor, Algaze, & Anton, 1978; Suinn, 1968). Test anxiety may be, as described by Nicaise (1995), defined test anxiety as an individual's physiological, cognitive, and behavioral responses that stimulate negative feelings about an evaluation. He proposed that when an individual becomes anxious, the physiological system becomes stimulated, causing faster heart beat and increased perspiration from the sweat glands, leading to feelings of apprehension and inadequacy. He believes that when experiencing test anxiety, individuals develop negative feelings about testing situations (Nicaise,1995).Test anxiety is an overwhelming feeling of disturbance and distress among the students around the world. It is a type of performance problem just like when some people get nervous speaking to large crowds or trying something new. Test anxiety can be a devastating problem for many college and university students; because it may impair their performance and well being in the long run (Culler & Holahan, 1980; Rafiq, Ghazal & Farooqi, 2007). Cassady and Johnson (2002) found that cognitive test anxiety exerts a significant stable and negative impact on students' academic performance.

A certain amount of exam anxiety keeps us energized, motivated, alert, and focused. But too much anxiety can interfere with exam performance by blocking our recall or thinking abilities, by fostering negative frames of mind, or even by promoting panic reactions.

The effect of test anxiety on academic performance has been thoroughly investigated by many researchers,examples., (Cassady & Johnson, 2002; Rezazadeh & Tavakoli, 2009; Wine, 1971). Generally, the study of the relationship between test anxiety and academic achievement began in the early 1900's (McDonald, 2001). The comprehensive reviews by Hambree (1988) studies showed that test anxiety caused poor performance. It implied that test anxiety had a negative

relation with student's performance. Therefore, the high-test anxious students tended to score lower than low-test anxious students. This result was supported by the findings of various studies (Example, Eman & Farooqi, 2005; McDonald, 2001).

According to Zeidner (1998) test anxiety is a set of phenomenological, physiological and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation. As we see from Zeidner's statement, test anxiety is strongly related to failure consequences. This connection can be noticed even in Sarason, (1990) who state that when not in an evaluation situation, or anticipating one, the highly test anxious individual may not worry about possibilities of failure, embarrassment and social rejection. But in evaluation situations these possibilities become active. We should also emphasize the fact that students who suffer from test anxiety do not necessarily lack in intellect or drive. Test anxiety and other deficits related to test anxiety, interfere with academic performance (Everson & Millsap, 1991).

Test anxiety is normal and some anxiety can be helpful, prompting you to be better prepared for the demands of your course. It simply varies from person to person. At too low level of arousal, you may put little or no effort into preparing for exams, At medium levels of arousal, you can work and prepare well, and give you best performance, however, too much arousal can disrupt and harm performance. This level of arousal is unpleasant and where test anxiety can become a problem.

Exam anxiety often involves apprehensions of performing at levels below those at which we'd like to perform, or even apprehensions of failure. This type of anxiety may be a product of our underestimating our abilities to perform or of the resources; we have available to help us to

perform to our desired levels on exams. Conversely, exam anxiety may be a natural reaction to insufficient exam preparation.

Even though test anxiety is a common problem in higher learning institutions, the research on test anxiety in Ethiopian University students seems to be limited. This is the main reason why I find it necessary to conduct a research with university students. Another reason is related to the fact that this phenomenon affects a considerable number of students and impairs their performance. Considering the fact that test anxiety is a complex and problematic area, it is necessary to determine the problems, and provide recommendations on the ways of reducing it, which would be helpful to both students and teachers.

2. Statement of the problem

College students face a number of pressures and challenges in the academic environment as they seek to maintain optimal academic performance or even to remain in the academic program. Due to these pressures and challenges, they fail to attain an acceptable level of academic achievement and ultimately withdrawal results.

Test anxiety is not only a problem in schools, but it also affects many people in various life stages and careers beyond school, whenever their abilities, achievements, or interests are evaluated or assessed (Lufi, Okasha, & Cohen, 2004).

Due to the complex nature of anxiety in relation to human activities, continuous research exercise should be carried out, hence the present research effort.

One of the manifestations of such process is test anxiety. However, the link between test anxiety and academic performance is not well researched in the context of university in the developing countries including Ethiopia. Hence, this study attempts to explore the extent to which test anxiety influences academic performance of university students.

To this end, this study addresses the following basic research questions:

1. Is there a significant relationship between test anxiety and academic performance of Addis Ababa University engineering students?
2. Is there gender difference in test anxiety level and academic performance of technology students?
3. What are the factorial components of test-taking anxiety of engineering students?
4. What can be done to reduce (alleviate) test taking anxiety of students at Addis Ababa University institute of technology?

3. Objectives

The main objectives of this study is to examine the relationship between test anxiety and academic performance of Addis Ababa University Institute of technology students. More specifically,

- To investigate the extent of test anxiety and academic achievement of AAIT
- To identify the strength and directions of relationships between test anxiety and academic achievement.
- To differentiate the impacts of test anxiety on the academic achievements of male and female students

- To identify the major components that cause test taking anxiety and possible solutions that can reduce test taking anxiety problems

4. Significance of the study

Assessing the relationship between test anxiety and academic achievements is an important issue to overcome the test anxiety problems that affect the performance of the students. It is hopefully believed that it could be taken as guide to those test anxious university students to improve their performance.

The significance of the study based on the following rationale:-

1. The study will indicate future directions for those professionals, policy makers, school administrators and practitioners who are interested in the area.
2. It may help students to understand their own behavior well and help themselves to improve their test anxiety adjustment techniques
3. The study may provide students basic information regarding the extent to which test anxiety in relation to academic achievement.
4. Serve as a spring board and reference for those interested to go for further in-depth study on the matter.

5. Delimitation of the study

The research was be conducted in the institute of technology at Addis Ababa university final year students and delimited to a manageable size of students from some selected technology

faculty departments. University level is taken as a focuses of this study because the effect of test anxiety on academic achievement is more feasible in university students specially technology faculty.

6. Operational definitions

Anxiety:-is an emotion that is commonly experienced as fear, shyness, worry or stress which hampers individual normal activities.

Test Anxiety:-indicates a state where a student experiences unpleasant disturbing feeling before, during or after associated to any evaluative school activity.

Academic Achievement:-Academic Achievement of students on classroom examination as indicated by averaging the scores obtained from different subject scores in the four year stay in the University (CGPA) of the participants.

Test Anxiety Inventory (TAI):-The Test Anxiety Inventory (Spielberger, 1980) was designed by Spielberger (1980) to measure anxiety progress in tests examinations and to measure test anxiety level of an individual in an evaluative situations. The 20-item inventory is designed to assess three components of test anxiety: Worry, Emotionality and total anxiety.

Worry (w):- It refers to excessive preoccupation and concern about the outcome of a test, especially the consequence of failure.

Emotionality (E):- It refers to an individual's behavioral reactions and feelings aroused by test situations.

II. LITRATURE REVIEW

2.1. Conceptual Framework of the Study

In this section, an effort was made to bring the works of different scholars and researchers on test anxiety and academic performance. In general, this chapter presents review of the relevant literature that contains 6 sections. The first section deals with an overview of anxiety. The second section comprises the concept of test anxiety and models,components,sources, effects ,types,characterstics and signs of test anxiety respectively. section three, four and five deals about how can test anxiety be handled?, academic achievement and test anxiety and academic performance respectively.

2.2. Overview

Anxiety prevails when a person is at odds with himself. It can be persisting, distressful psychological state arising from an inner conflict. The distress may be experienced as a feeling of vague uneasiness or foreboding, a feeling such as fear, anger, restlessness, irritability, depression, or other diffuse and nameless feelings. Anxiety exists as a conscious state when the anxious person is aware of the nature of his conflicts, feelings and conduct (Jersild, 1963)

Sarason and his associates (1960) believed that anxiety had its roots in early childhood with both developmental and environmental elements. They proposed that these elements are all linked to perceived feelings of insecurity and inadequacy that are carried into adulthood.

The feeling of anxiety is very common. Some people refer to it as nervous and everyone, with varied situations, has experienced anxiety at one time or another. The feeling of general uneasiness, a sense of foreboding and a feeling of tension is something that happens in our day-to-day lives. Anxiety has both a physiological and a psychological aspect and it is the psychological aspect that affects the way we interpret sensations (Clark and Beck 2011). We can become anxious in situations merely because we perceive a threat even where there is none. William James, an early psychologist, suggested that all human emotions actually come from our perception of the situation/condition we are in (Hayes 1999): we do not weep because we feel sorrow: we feel sorrow because we weep. Further studies concluded that although it is our awareness of the situation that produces the emotion we actually feel, it is our physical condition which influences how strongly we actually feel it (Schachter and Singer. cited in Hayes, 1999). In a test situation, we don't feel anxious because of the test, the situation is anxious because of the way we feel.

2.3. Test Anxiety

There are few activities that can produce tension and anxiety. Most test takers experience performance anxiety in some form and to various degrees. This fear may be experienced while preparing for the test, for days or even weeks before hand, and not just while taking the test. It can be experienced in the present (test fright) as apprehension (fear of what could happen) and arousal (anticipation).

Test anxiety is not different from general anxiety. Feelings of fear and apprehension are accompanied by increased and prolonged physiological arousal. Severe anxiety is where the arousal is too high for optimal performance. This arousal may be normal and temporary, or

abnormal and long lasting and symptoms can be cognitive, behavioral and physiological. Research (Steptoe, 1989) shows that the processes underlying performance anxiety involves cognitive, behavioral and physiological factors.

Findings of the research conducted by Kassim, Hanafi and Hancock (2008) suggested that test anxiety was negatively related to academic performance. Test anxiety, according to Spielberger (1979), consists of two primary components: worry and emotionality. Worry includes personal thoughts regarding poor test performance and ultimate course or academic failure. Emotionality includes physiological components such as fear, panic, tension, and increased heart and respiration rates. Both of these components combine to potentially interfere with test performance in many situations

2.3.1.Models of Test Anxiety

Different views have been forwarded regarding the concept of test anxiety. To begin with, test anxiety has been perceived as a multidimensional construct that consists of a cognitive component, which involves elements such as worry and test irrelevant thinking, and emotionality component which includes elements such as bodily symptoms and tension (Blankstein, 1992). This encompasses both the behavior and thinking patterns regarding a pending exam or evaluation. Test anxiety is described as an emotional component of human beings that manifests itself in life endeavors in a form of worry and restlessness (Olatoye, 2007). The source of test anxiety is more on what can be objectively perceived as bodily changes rather than subjective experience. Research on test anxiety has identified three models that explain the causes of test anxiety. These models are described in the paragraphs that follow.

A. Interference model

The cognitive-interference theory was developed by Zeidner (1998).It focuses more on the attentional demands of anxiety, the cognitive system and the debilitating effects of self-related cognitions on performance. Benjamin et.al,(1981) suggested that people have certain capacity of processing information and test anxiety might block one's attention and inability to pay full energy on the learned material under evaluative settings. Once the test anxiety is highly aroused, it will take up some of an individual's processing capacity, which in turn, will leave less capacity available for task solution. In other words, when there is not enough cognitive processing capacity on call or when task demands and the capacity absorbed by anxiety exceeds the processing capacity, interference in learning is more likely to occur. Supporting this view, Sarason (1984) noted that a cognitive interference maybe the key factor in lowering the performance of highly test-anxious people.

Birenbaum and and Nasser (1994) concluded that preoccupation with test irrelevant thoughts take up more memory space and leave the type of processing necessary for complex tasks less possible to carry out. The authors further argued that below average performance is in fact limited by the poor preparation and the sense that students perceived that they do not have enough preparation.

B. Skill-Deficit Model

The skills deficit model considers the strategies that are used by students to prepare for the upcoming examination. Gambles (1994) explained that anxiety and poor performance are caused by lack of knowledge about preparation and test-taking skills. The skills deficit model supports the notion that problems occur before the examination. It is caused by inadequate learning which results in poor performance and manifest in a form of emotion that results from an awareness of being unprepared for the test. According to this model increasing learning strategies reduces test anxiety because students have poor understanding of the material and thus they cannot retrieve it (Chavous, 2008). The model considers mostly the practical and preparedness aspects of test anxiety. It does not consider the problems related to retrieval of information in the examination.

C. Information Processing Model

Many researchers feel that the "interference theory" and "skill deficit model" complement each other (Benjamin,Mckeachie,Lin,and Holinger,1981;Hyun Lee,1999).The development of information processing model supports this notion. This model invoves two stages namely, organized and when necessary retrieved. Each of these stages accounts for the input processing and output of information processing (Benjamin et.al,1981).This model assumes that each of these stages affected by test anxiety (Hyun Lee,1999).This model, advanced by Tobias (1985), suggests that limited cognitive processing capacity accounts for the effects of both interference and skill deficits. Benjamin (1991) modified this early claim and suggested a differentiation between two types of test anxious students. These are:1).those with poor study habits who have

problems encoding, organizing and retrieving information, and 2)those with good study habits who only have a problem of retrieving the information during the examination.

2.3.2. Components of Test Anxiety

According to Liebert and Morris (1969), there are two components of test anxiety i.e., worry and Emotionality. Worry is conceptualized as cognitive concerns regarding the exam and exam performance. Such concerns focus around negative cognitions (e.g., preoccupation with test performance), potential negative consequences (e.g., failure), and comparison of one's ability to others' (e.g., "I will be the only one who fails"). Worry can be elicited by internal or external cues that arise during an exam. For example, students may perceive that their ability to cope is inadequate, and thus failure is imminent. Students' worries stem primarily from memories of previous evaluative situations and are learned based upon success or failure (Zeidner, 1998).

Research has demonstrated that expectation of successful performance and worry are negatively correlated (Spielberger & Vagg, 1995). Wine (1971) also found that highly anxious students who performed poorly on an exam scored high on worry, suggesting poor performance was attributed to worrisome cognitions (e.g., self-blame for potential failure), and this in turn distracted the student from the task at hand (e.g., the exam). Students who scored high on worry often concerned themselves with past exam disasters and berated themselves for not studying properly or for forgetting the answers to simple exam questions (Covington, 1984).

Emotionality is conceptualized as the student's awareness of his or her physiological and autonomic arousal during a testing situation (e.g.nervousness, tension, perspiration; Liebert &

Morris, 1967). Both high test anxious and low test-anxious students experience emotionality, However, they differed in the intensity of physiological arousal (e.g., heart rate). For example, Deffenbacher (1986) examined 156 students who were evaluated as high test-anxious and low test-anxious. High test-anxious students had more elevated heartbeats (e.g., M = 79 beats/min) compared to the low test-anxious students (e.g., M = 70 beats/min) during an evaluative situation. Likewise, other research found that heart rates between high test-anxious and low test-anxious students were significantly different under evaluative conditions (Montgomery, 1977; Zeidner,

2.3.3.Types of Test Anxiety

a. Trait test anxiety

According to Spielberger et al (2005), trait anxiety is a general characteristic of an individual's personality. Individuals, who experience an anxiety trait, will tend to have an attitude and reaction which reflects their ability to understand the nature of certain environmental stimuli and stressful situations as more or less difficult or threatening. People who develop a more anxiety-trait are much more prone to reacting to a large level of stimuli, and will be more able to worry in less dangerous and hard situations. These individuals are more likely to present state-anxiety in some circumstances, especially in normal day-to-day activities. For example, people who are accustomed to facing tremendous amount of difficulties in their everyday life.

Trait anxiety can be difficult to isolate and measure directly because it is not typically manifested in behavior. Spielberger defines trait anxiety as relatively stable individual differences in anxiety proneness, that is, to 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 characterized 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).

b. State test anxiety

State anxiety is considered as an obstacle and an interruption of individual's emotional equilibrium. For example, when the person hears bad news about a very close friend, he becomes so anxious, so that emotional equilibrium will be put into question (Spielberger et al, 2005).

State anxiety may be conceptualized as a transitory emotional state or condition of the human organism that varies in intensity and fluctuates over time. The condition is characterized 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 conceptualized as a situation-specific form of test anxiety that encompasses both worry and emotionality. It is characterized 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, disorganization, 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 often accompanied by ruminating thoughts of failure and hopelessness. State anxiety often fluctuates depending upon the extent of the student's perceived threat created by factors such as how well prepared the student was 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 questions (superficial versus deep knowledge), and individual differences in personality characteristics (Spielberger, 1972; Spielberger & Vagg, 1995; Zeidner 1998).

c. Situation-specific anxiety

The third type is situation-specific anxiety which is related to the general orientation of anxiety and certain situations, or on a learning context in which the learner does not find himself capable to be proficient in a test taking.

2.3.4.Characteristics of Test Anxiety

Test anxiety is composed of three major components: cognitive, affective, and behavioral. Students who experience test anxiety from the cognitive perspective are worriers lacking self

confidence. They may be preoccupied with negative thoughts, doubting their academic ability and intellectual competence (Sarason & Sarason, 1990).

Furthermore, they are more likely to overemphasize the potential negative results and feel helpless in testing situations (Zeidner, 1998). Some students may feel the need to answer every question on the test correctly. When this does not occur they may think of themselves as being incompetent, thus fueling negative thoughts such as, "I knew I was not going to pass this test," "I know I am going to make a poor grade," or "Everyone knows I am not smart." In order for students to have the best opportunity for academic success, negative thinking must be minimized and controlled.

From the affective perspective, test anxiety causes some students to experience physiological reactions such as increased heart rate, feeling nauseated, frequent urination, increased perspiration, cold hands, dry mouth, and muscle spasms (Zeidner, 1998). These reactions may be manifested before, during, and even after the test is completed. In conjunction with the physiological reactions, emotions such as worry fear of failure, and panic may be observed. When students are not able to control their emotions, they may experience higher levels of stress, thereby making it more difficult for them to concentrate.

Test-anxious students express anxiety behaviorally by procrastinating and having inefficient study and test-taking skills. Zeidner (1998) contends that test-anxious students have more difficult time interpreting information and organizing it into larger patterns of meaning. In addition, some students may physically feel tired or exhausted during test administration because they do not have a healthy diet, have poor sleeping habits, and fail to routinely exercise.

Some students may experience symptoms of test anxiety, because they believe that the knowledge they bring to a test (resources) will be inadequate to perform to their desired level. This generates added stress and anxiety, which may become overwhelming for some students. When anxiety begins to affect exam performance it has become a problem.

2.3.5.Signs of Test Anxiety

Prior to, or during an exam, as in any stressful situation, a student may experience any of the following changes:

Physiological	**Emotional**	**Cognitive**
• Perspiration, sweaty palms	• Fear of failure	• Decreased ability to make decisions
• Diarrhea, indigestion, vomiting	• Helplessness	• Memory loss/forgetfulness
• Headache/Stomachache	• Frustration/anger	• Limited attention span
• Trembling/Dizziness	• Shame/guilt	• Inability to concentrate
• Rapid heart beat	• Doubt/hopelessness	• Mental distraction
• Tense muscles, tics	• Anxiety/panic	• Procrastination
• Poor eating habits	• Irritability	• Negative self-statements
• Poor sleeping habits or feeling tired	• Tearfulness	• Catastrophising
• Susceptibility to illness	• Moodiness	• Preoccupation with thoughts or tasks

2.3.6. Sources of Test Anxiety

Both the test situation and the test-taker can function as the source of test anxiety (Zeidner, 1998; Bonaccio & Reeve, 2010). Several important domains of perceptions in the testing situation that are probably encouraging anxiety have been identified by researchers. The current literature regarding test anxiety suggests that previous experiences of test takers have a significant influence on their perceptions, including their familiarity with the test subject, test difficulty and finally the intention of applying test scores (e.g., the use of the test results to make important decisions like job applications) (Anastasi, 1981; Pekrun et al., 2004; Reeve, Bonaccio, & Charles, 2008; Bonaccio & Reeve, 2010).

Various studies have found that the self-perception of the test taker determines whether individuals who take the tests believe that they are able to pass the standards of the test. For example, the feeling of whether they are adequately prepared for the exam, both perception of low self-efficacy and incompetence (Pekrun, 2006; Chamorro-Premuzic, Ahmetoglu &Eurnham, 2008; Bonaccio & Reeve, 2010; Putwain, Woods, & Symes, 2010), low competence beliefs that predict failure on academic evaluations. Therefore, linked to the assessment of evaluations as threatening, and also motivations derived from the fear of failure (Pekrun et al., 2007; Zeidner & Mathews, 2005; Elliot, 2005; Elliot &Pekrun,2007; Putwain & Daniels, 2010). Additionally, the lack of confidence, striving for flawlessness and setting excessively high performance standards or "maladaptive perfectionism" as well as low scores in emotional stability (or neuroticism)(Zohar, 1998; Reeve et al., 2008; Blatt, 1995; Spielberger, Gorsuch, &Lushene, 1970; Bonaccio& Reeve, 2010) are all caused by test anxiety. In this context, people's ideas

about “the self” will come into play based on his or her beliefs about their own characteristics, which might be perceived as state-like or trait-like.

Three main categories are used to classify why some students report test anxiety:

1) They do not have appropriate test-study and test-taking strategies and are aware that they are not well prepared,

2) They use appropriate test preparation strategies, but then become distracted during testing, or

3) They believe that they have appropriately prepared for the test but then perform poorly and are not able to pinpoint why (Cizek & Burg, 2006).

2.3.7. Effects of Test Anxiety

Tobias (1979) described anxiety as an affective state. Since most learning was a cognitively mediated process, anxiety affected learning only indirectly by impacting on cognitive processes at various stages. The author continued to describe learning in terms of the three classical information processing components: input, processing, and output. Input involves the presentation of instructional material to students. Processing encompasses the operations used to register, record, organize, store, and retrieve instructional input. Output denoted the measurement of achievement of the instructional objective. He took these components and developed a model that described the effects of anxiety on learning from instruction. According to this model, anxiety potentially influenced the learning at three possible points: preprocessing; during and after processing; and prior to output.

In the preprocessing period, the interference of anxiety was related to the degree to which input information was internally represented. The anxious student tended to divide his/her attention

between task demand and a preoccupation with somatic concerns and negative self-references. The diversion of attention in the anxious learner interfered with the process of making nominal input into effective stimuli. Since the information was not internally represented, it would not be effectively processed.

In the processing stage, anxiety directly affected the cognitive operations needed to process input information. Modifications that dealt with level of difficulty of the material, memory, and organization of the task had direct relevance to these processes. Finally, the post processing effects of anxiety represents interference in retrieving content at a later time. This phase of interference has been the subject of numerous research studies that focused specifically on test anxiety, its effects on academic achievement, and the effectiveness of efforts to reduce test anxiety using an anxiety reduction program.

Test anxiety affects individuals in different ways, but it typically involves physical, emotional, and cognitive components. Physically, individuals may have an increased heart rate, shortness of breath, shakiness, or an upset stomach. Emotionally, individuals may feel panic, fear and helplessness. Cognitively, individuals may have thoughts of failure and difficulties with concentration and memory. There are many types of test anxiety effects.

The first one is nervousness including having difficulty reading and understanding the questions on the exam paper, having difficulty of organizing one's thoughts, having difficulty of retrieving key words and concepts when answering essay questions, and doing poorly on an exam even though one knows the material. The second effect is related to mental blocking. It includes going blank on questions, and remembering the correct answers as soon as the exam is over. Finally,

common Worries that increase test anxiety are worry about performance, worry about bodily reactions, and worry about how others are doing, and worry about possible negative consequences.

In'nami (2006) investigated the effects of test anxiety on listening test performance and Found out that test anxiety did not affect listening test performance. He concluded that among the three components of test anxiety (i.e. general test worry, test-irrelevant thinking, and emotion), none affects listening test performance. The result supported Aida's (1994) and MacIntyre and Gardner's (1989) findings and suggested that, in foreign language anxiety test, anxiety seemed to work differently compared with communication apprehension and fear of negative evaluation. The non-relationship between test anxiety and listening test performance was because of test takers' English proficiency levels, strategic competence, and low stakes nature of test results. There are two types of test anxiety effects:-

I. Facilitating Effect

Whereby stress can be a good a motivator, for example, it may keep a person alert and provide him with motivation. But some stress can have devastating effects and can lead him to forget several issues at one go during an exam. This positive anxiety is called a facilitating anxiety, and this does not inhibit the preparation for tests and exams, and can motivate the learner to learn and succeed. In fact, this type of anxiety helps the individual to improve the progress of learning and performance.

According to Scovel (1978) facilitating-anxiety keeps the learner motivated and "**fights**" the new information and pushing them to do more efforts to reduce the negative impact of anxiety.

II. Debilitating Effect

Debilitating- anxiety, however, has a negative impact on student's motivation and his preparation before and during exams, like waiting until the last minute to revise and prepare for a big test or exam, feeling more anxious and unprepared or arriving at a test late and having to answer all of the questions in time (Alpert and Haber, 1960).

2.4. How can test anxiety be handled?

Tryon (1980) conducted a representative, but not exhaustive, review of 85 studies dealing with behavioral and cognitive treatments of test anxiety. The author noted that systematic desensitization was the most widely used behavioral technique for treatment of test anxiety. Desensitization participants were told not to terminate a scheme when anxious, but to use anxiety as a cue to relax. Most of the 41 studies that reported using systematic desensitization procedures demonstrated a decrease in pre- and posttest, self-reported test anxiety and/or a decrease in self-reported test anxiety for treatment compared to no treatment groups. However, systematic desensitization resulted in significant academic improvement in only seven of the 17 studies. Because of multiple methodological problems, the need for trained therapists, and the emphasis on emotionality instead of the worry component of test anxiety, Tryon discouraged future experimentation using this technique.

A second method of treatment consisted of self controlled relaxation and desensitization. These methods usually combined a coping component with a standard behavioral technique, such as relaxation or desensitization. Relaxation, as a general skill for coping with anxiety, has received more attention as a means to cope with test anxiety. Individuals treated with this technique were taught to relax at times when they would otherwise be anxious. Desensitization with self-control instructions also has been used to treat test anxiety. In Tryon's review, all of the 17 studies that used self-control procedures, such as relaxation and desensitization with self-control instructions, found these procedures to be effective in the reduction of self reported test anxiety. Participants in four of five studies measuring changes in academic performance showed a significant increase in grades following self-control intervention activities.

The third general category of procedures reviewed by Tryon (1980) included cognitive procedures that helped the individual learn to focus on the task at hand rather than attend to interfering self-oriented responses. This strategy was felt to cope with the worry aspect of anxiety. An example of this type of procedure was the cognitive modification procedure described by Meichenbaum (1972). In this procedure, participants were made aware of anxiety producing thoughts and were instructed to substitute thoughts and behaviors that would redirect attention to the task at hand. Other related procedures included in this category were stress inoculation, systematic rational restructuring, and retentional behavior therapy. Tryon found that when cognitive treatments were used, there was a significant reduction in self-reported test anxiety. Two of the four studies that used cognitive procedures also reported a significant improvement in academic performance. Because of the effectiveness of cognitive modification in treating test anxiety, the work of Meichenbaum (1972) was important. In a classic example of

research that focused on test anxiety reduction using cognitive modification, he compared the effects of a cognitive modification treatment program with a classic systematic desensitization strategy.

The experimental treatment contained two components. The first component attempted to make test anxious subjects aware of thoughts, self-verbalizations, and self-instructions emitted prior to and during test situations that contributed to poor performance. Through discussion, the subjects became aware of these thoughts as cues which signified anxiety and task irrelevant behavior. This self-awareness was the first step in anxiety reduction. The subjects were then required to visualize themselves when becoming anxious and tense; then visualize themselves handling and coping with the anxiety by slow deep breathing and positive self-instructions to attend to the task at hand. This process· was called coping imagery. Thus the experimental treatment combined an insight orientation which fostered an awareness of anxiety engendering thoughts with a modified desensitization procedure in which relaxation, task-relevant self-instruction, and coping imagery were used to handle anxiety.

In Meichenbaumts study, the effectiveness of this treatment strategy was compared to a standard desensitization treatment and a wait list control group. Dependent variables included self-report anxiety measures and grade point average. The results indicated that the cognitive modification group produced the most marked improvement, although not significantly different from the systematic desensitization group. Of the performance measures, grade point average showed the most significant performance improvement. The wait list control group showed significantly less improvement than did the two treatment groups in grade point average. Thus, either treatment

was significantly better than none at all. The data further suggested that cognitive modification was responsible for the change from pre- to post-treatment assessment.

In a study of the effects of different types of interventions on test anxiety, similar to those of Tryon and Meichenbaum, Hussian and Lawrence (1978) obtained similar results. Based on previous research that suggested the superiority of cognitive modification in treating test anxiety, Hussian and Lawrence compared the effects of a general versus specific type of stress inoculation training on the results of the Test Anxiety Scale and State-Trait Anxiety Inventory. Again, a modification of the Meichenbaum stress inoculation training program was used. Each treatment group received similar sessions involving education, rehearsal, and application phases. The major difference was the suggested statements for one treatment group were general and related to general stress, whereas, the other group received test-specific stress inoculation training to relieve test anxiety. The control groups received non-specific discussion or were placed on a wait list. Using a multivariate analysis, significant differences among the four groups were found. The test-specific inoculation treatment was significantly different from the control groups. There was no difference between the test-specific and general inoculation treatment group or between the control groups. Anton (1976) recognized the consistent effectiveness of systematic desensitization for relief of test anxiety. But the evidence regarding the effects of test anxiety desensitization on academic performance was less clear. Therefore, he designed a study to compare the effectiveness of desensitization, group counseling, and no treatment on test anxiety, trait anxiety, and academic achievement. The desensitization group initially received relaxation training, followed by a desensitization process using descriptive scenes from the test anxiety hierarchy. The counseling group received an equal number of sessions that focused on

test anxiety, abilities, and feelings. The Test Anxiety Scale (TAS) , STAI A-trait, and term grades were obtained before and after the treatment procedure. The desensitization group Showed a significant decrease in the TAS scores compared with the counseling and no-treatment groups. There was no significant difference between the discussion group and the no-treatment group. A-trait and GPA did not show significant differences, suggesting that grades and A-trait were not influenced by the experimental ·treatment. One recommendation identified by Anton was to determine the effectiveness of a treatment program designed to reduce anxiety in test situations and improve student study skills.

2.5. Academic Achievement

Broadly defined, Academic achievement concerns the development of motives, capabilities, interests and behavior that have to do with performance in evaluative situations. More specifically, the study of achievement during adolescence focuses on young people performance in educational settings and on their hopes and plans for future scholastic and occupational careers (Steinberg, 2002). It can also be regarded as academic attainment that brings individual closer to the fulfilling of one's goals and dreams. Achievement is not just reaching an end such as being handed with ones diploma. It is a process and occurs because it is aspired and worked to make it happen. Invariably it includes aspiration, effort and strategies for achieving better out comes. Achievement is a source of prestige, self- satisfaction and differential rewards, a means of evaluating performance and a goal towards ones efforts are directed. Hence, the key to achievement or success is making sure that planning, systematic time management, and organizing oneself is essential. The best way to plan systematically is to use a goal setting strategies which should be clear, direct as well as realistic and attainable to the capacity of an

individual. This is because the perceived importance of task and the task importance related to future goal in the individual will increase the arousal of achievement motivation which leads to success (Halvari, 1997; Feldman, 2002 and Maden, 2001). Moreover, having state of mind about things, attributing success to ability and hard work and failure to lack of effort, taking appropriate risk level and persistence in the face of difficult tasks, curiosity and confidence including anticipation of success are the ways to achievement and can contribute for improved performance (Daniel, 1992 and Feldman, 2000).

2.6. Test Anxiety and Academic performance

Academic performance is a critical issue in university education. Research findings indicated that psychophysiology difficulties produce in turn affects the performance of students academically (McCraty, 2007).

Academic achievement can be explained using attribution theory (Weiner, 1986). Attribution theory is a cognitive theory of motivation which states that a relationship between student's beliefs regarding cause of success or failure and the ways these beliefs are internalized will influence student's academic achievement, expectation to success and self concept. There are several factors affecting academic achievement, one of these is test anxiety. According to Zeidner (1998), test-anxiety is a multidimensional sign that can be described as a group of phenomenological, physiological, and behavioral reactions to appear with possible negative consequences or failure on an examination or similar evaluative situation. Test-anxiety, especially worry has impact on academic performance, and working memory (Eysenck, 2001).

Benjamin et. al., (1981) compared high, medium, and low test anxious students' retrieval process. They found that the study skill deficit model (defined previously as lack of study skills and test-taking skills among test anxious students during taking tests) was supported by results that higher test anxiety affects cognitive encoding and causes retrieval deficit. In their first study to investigate the problems of test anxious students , 146 subjects were selected from an undergraduate Psychology program and divided into three groupings (low, medium, high) based on their responses to the *Worry-Emotionality Questionnaire (Morris & Liebert, 1970)*.

The materials used consisted of three types of questions: thirteen multiple-choice questions, eight short-answer questions and two essay questions. The questionnaire administered after the final examination were utilized to examine their perceptions about feeling anxious, their difficulties in learning the material, their study hours in general and the grade point average.

In addition, Sarason (1984,cited in Keoghi, Bond, French, Richards and Davis, 2004) found that test- anxiety decreases attention span, memory and concentration, and then leads to low academic performance. Masson and associates (2004) found that high school students with high test–anxiety had a poor school performance. Thus, test- anxiety contributed to academic achievement because of vulnerability to distraction and interference experienced by students.

It is worth discussing some studies showing a statistically significant inverse relationship between test anxiety and students' achievement since long time. Gaudry and Spielberger (1971) discussed that high test anxiety is considered as one of the main factors for low performance of students at university level.

Vogel and Collins (2002) investigated the effect of test anxiety on academic performance. They found that students with high-test anxiety as well as those students with low-test anxiety showed lower academic performance. Moreover, those students with moderate levels of test anxiety performed well.

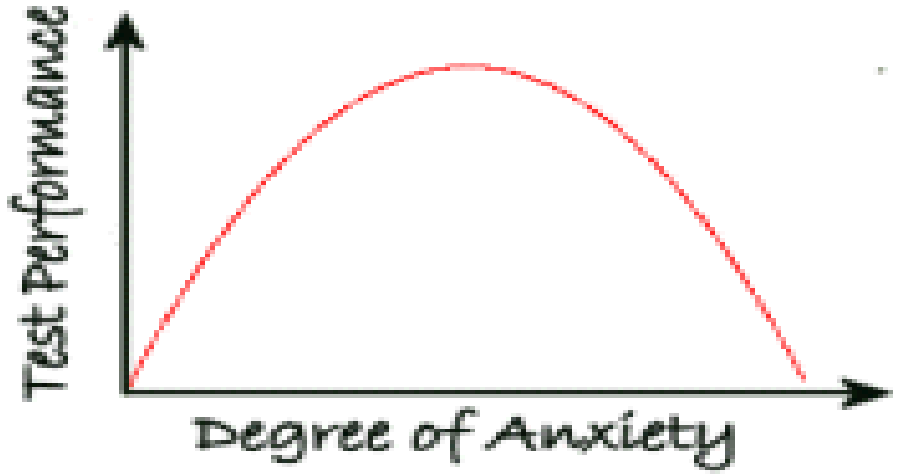

Figure 1: Degree of test anxiety and Academic Performance

The graph illustrates that having very little or no anxiety usually results in very poor test performance, probably because we are indifferent and careless. As nervousness about the test increases, performance also improves--up to a point. But, having more anxiety than a moderate amount negatively affects test performance. That is, as anxiety continues to go up, performance declines.

Hancock (2001) investigated the effects of students' test anxiety and teacher's evaluation practices on students' achievement and motivation at post secondary school level. He found statistically significant results, which revealed that all students, especially students with

high anxiety level**,** performed poorly and were less motivated to learn. Thus, he concluded that when test-anxious students are exposed to a highly evaluative assessment environment in their educational institution, they perform poorly and are less motivated to perform (Hancock, 2001). Getu (2010) investigated the relationship between test Anxiety, study habit parental involvement and academic achievement of grade ten students in Addis Ababa. The study generally addressed the relationship between the given variables. In this paper the relationship between test anxiety and academic achievement are dealt with. The result is that there is negative correlation between the two variables.

Another study was conducted by Tiegist (2010).The aim of Tiegist`s study was the effect of social anxiety disorder on Academic performance in Addis Ababa University.Tiegist noted in her study that socially anxious groups had lower GPA as compared to that of the non socially anxious participants. It is possible to say that the lower GPA of socially anxious groups was due to their socially anxiety.

A research study conducted by Cassady & Johnson (2002) indicated that cognitive test anxiety exerts a significant stable and negative impact on academic performance measures. Albero, Brown, Eliason & Wind (1997), on the basis of their research study, concluded that students having high-test anxiety had significantly lower scores.

2.7. Synthesis and Summary

Summary

From the above reviews and research findings, one may conclude the following points.

Test anxiety is described as an emotional component of human beings that Manifests itself in life endeavors in a form of worry and restlessness Olatoye (2007).

Test anxiety, according to Spielberger (1979), consists of two primary components: worry and emotionality. Worry includes personal thoughts regarding poor test performance and ultimate course or academic failure. Emotionality includes physiological components such as fear, panic, tension, and increased heart and respiration rates.

There are three types of test anxiety: -

- Trait test anxiety is characterized 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).
- State test anxiety: - characterized by subjective, consciously perceived feelings of tension and apprehension, and activation of the autonomic nervous system (Spielberger, 1972, p. 39).
- Situation Specific anxiety: - related to the general orientation of anxiety and certain situations.

Research on test anxiety has identified three models that explain the causes of test anxiety. These models were:-

Interference Model focusing more on the attention demands of anxiety on the cognitive system and the debilitating effects of self-related cognitions on performance because it distracted

people's attention and caused other unrelated thoughts. On the other hand Skill Deficit Model is caused by inadequate learning which results in poor performance and manifests in a form of emotion that result from an awareness of being unprepared for the test and study skills and inadequate test taking skill.

Information Processing model according to this model, anxiety potentially influenced the learning at three possible points: preprocessing; during and after processing; and prior to output. Test anxiety affects individuals in different ways, physically; individuals may have an increased heart rate, shortness of breath, shakiness, or an upset stomach. Emotionally, individuals may feel panic, fear and helplessness. Cognitively, individuals may have thoughts of failure and difficulties with concentration and memory. There are two types of test anxiety effects; one is Facilitating Effect stress can be a good a motivator helps to improve the progress of learning and performance and the other is Debilitating effect has a negative impact on student's motivation and his preparation before and during exams.

Prior to, or during an exam, as in any stressful situation, a student may experience physiological like (Headache/Stomachache, Susceptibility to illness, Poor sleeping habits or feeling tired) Emotional like (Fear of failure, Frustration/anger, Anxiety/panic, Doubt/hopelessness) and cognitive (Decreased ability to make decisions, Memory loss/forgetfulness, Limited attention span, Inability to concentrate, mental distraction).

Several treatments have been utilized in an attempt to reduce test anxiety. By dealing with behavioral and cognitive treatments of test anxiety (systematic desensitization was the most widely used behavioral technique for treatment of test anxiety), self controlled relaxation and desensitization

In terms of relationship between levels of performance and levels of test anxiety, most studies presented inconsistent findings. Test-anxiety, especially worry has impact on academic performance, and working memory (Eysenck, 2001).

Benjamin et.al., (1981) compared high, medium, and low test anxious students' retrieval process. Thus, test- anxiety contributed to academic achievement because of vulnerability to distraction and interference experienced by the students.

some studies showing that statistically significant inverse relationship between test anxiety and students' achievement since long time. Gaudry and Spielberger (1971) discussed that high test anxiety is considered as one of the main factor for low performance of students at university level.

Synthesis and Conceptual Model

Test Anxiety served as the conceptual basis for this study. Anxiety is a feeling of insecurity, inadequacy, and the result of unmet needs. When these feelings exist in examination situations, test anxiety is present.

Exam anxiety often involves apprehensions of performing at levels below those at which we'd like to perform, or even apprehensions of failure.

Although a number of researchers have studied the concept of test anxiety, many of the theoretical definitions they use to define their research vary. According to Nicaise (1995), test anxiety is an individual's physiological, cognitive, and behavioral responses that stimulate negative feelings about an evaluation.

The above literatures suggested that overwhelmingly supports an inverse relationship between test anxiety and academic performance.

Test anxiety is normal and some anxiety can be helpful, prompting you to be better prepared for the demands of your course. It simply varies from person to person.

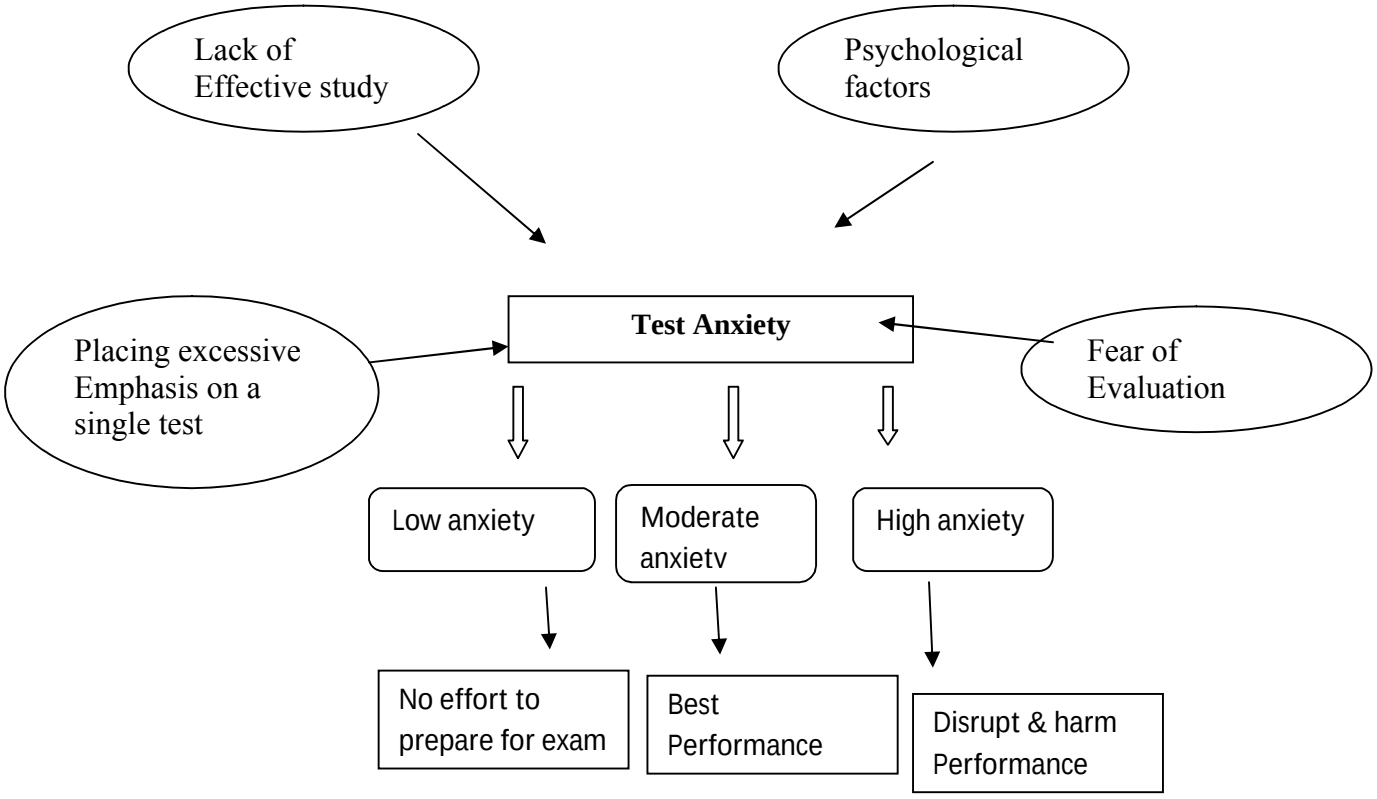

Figure 2:-Test Anxiety and causes

Test anxiety can happen by different factors like lack of effective study that make the students inefficient, psychological factors that disturb the students, fear of evaluation make them incapable and think about their failure rather than their effectiveness and the like.

Low-test anxiety means put little or no effort preparing for exams and this bring poor performance, moderate anxiety means work, prepare well, and perform best and high anxiety can disturb and harm performance and it becomes a problem.

III. Research Design and Methodology

The purpose of this study was to investigate the relationships between test anxiety and academic performance among AAIT final year regular program students. In addition, it aimed to find out and to see whether or not significance differences exist between academic performances of males and females students in relation to test anxiety.

In this chapter, the research design and methods used described, including research design, Participants of the study, Sampling technique of the population, data collection instruments, data collection procedures used and Pilot study, and method of data analysis.

3.1 Research Design

This study employed mixed-method approach, incorporating both quantitative and qualitative designs. In this study, the collected data were categorized as per their similarities and presented in table form. For the quantitative design 20 questionnaires was administered for the students and for qualitative design, the researcher interviewed four structured interview questions. The mixed methods approach was employed to analyze the information collected from different data collection instruments and various sources. In support of these conception, Creswell and Clark(2007:33) asserted the preference of mixed method approach as follow:

> "The combination of qualitative and quantitative data provides a more complete picture by nothing trends and generalization as well as in depth knowledge of participants perspectives. One type of evidence may not tell the complete story or the researcher may lack confidence in the ability of one type of evidence to address the problem. This all situations in which using only one

approach to address the research problem would be deficient A mixed methods design best fits this problem."

In the current study, mixed methods involved the use of varied procedures for data collection and multiple sources of data to evaluate the acceptability, integrity, and efficacy of the intervention. Mixed methods also were used to guarantee the integrity and credibility of the intervention findings (Lincoln & Guba, 1985). In the discussion of measures, first the quantitative measures used in this study will be reviewed, followed by the qualitative measures.

Correlation design was employed to investigate the relationship between the variable; test anxiety and academic performances**.** The design was applied because the purpose of the study is to examine relationships between the variables.

3.2 Methods

3.2.1 Participants

The study area is one of the Addis Ababa University faculties (Institute), Institute of technology. The reason to select institute of technology because of students in systematic academic subjects feel more anxiousness than in humanities. Physical science students have highest level of test anxiety when compared with other humanities (Evarson, 1993).

There are four departments of fifth year (final) year students in AAIT. The target population of the study was AAIT final year regular students.

The Population of the study was drawn from the regular final year students of AAIT. The reason to select final year students because they stay in the university and have the experience with test anxiety and its effects than other students in the institutes. The number of fifth year regular engineering students were as follows: Civil engineering 398 (108 female, 281 male),

Chemical Engineering 94 (5 female, 89 male), Mechanical Engineering 109 (20 female,89 male),and Electrical Engineering 171 (37 famale,134 male). According to Krejcie and Morgan sampling method a total number of 256 participants were originally involved in this study (*N*=256). All the participants were regular final year students enrolled in AAIT four departments. In the beginning of the questionnaire, students were asked for authority to release their ID. Participants who were not willing to reveal their Id were discarded from the list. The distribution of the final year students in the institutes from four departments; department of mechanical engineering, department of electrical engineering, department of chemical engineering, department of civil engineering.

3.2.2 Samples and Sampling Procedure

Data for this study collected from the four departments of AAIT administered to Civil, Electrical, Chemical and Mechanical department students of AAIT. There are four departments of final year comprised aggregate population of 763 (593male, 170 female) students.

To get the determined sample size for the present study, the method of sample size that was suggested by Krejcie and Morgan (1970) was applied to draw the sample of the study.

The formula for this sampling method is as follows:

$S=X^2NP\ (1-P)/d2\ (N-1)+X^2P\ (1-P)$

Where, S=sample size, X^2=Table Value of chi square for one degree of freedom at the desired confidence level (3.48)

N=Population size

P=Population proportion (assumed to be 0.50 this would provide maximum sample size)

D2=degree of accuracy expressed as a proportion

According to this technique from the total 763 students,256 of them were taken as a sample of the study (199 male,57 female). The actual number of students required for the study according to their department proportionally determined and the number of students was determined for each of the departments. Using this method 130 civil engineering students (94 male,36 female),57 Electrical engineering (45 male,12 female),32 chemical engineering (30male,2 female),and 37 mechanical engineering (30 male,7 female). Proportional stratified sampling technique was used to select sample students of the study from the four departments of AAIT.

Table 1. **General Characteristics of the Study Sample (Respondents)**

Department	Target Population			Sample		
	Male	Female	Total	Male	Female	Total
Civil Engineering	281	108	389	94	36	130
Electrical Engineering	134	37	171	45	12	57
Chemical Engineering	89	5	94	30	2	32
Mechanical Engineering	89	20	109	30	7	37
Total	593	170	763	199	57	256

3.2.3 Data Collection (Instruments)

The instrument used to collect descriptive data was a questionnaire that consisted of three parts. The first part was intended to collect personal information of the participants, such as their age, Sex (gender), ID No, Department and CGPA. The second part was a quantitative inventory, which is the Test Anxiety Inventory (Spielberger, 1980) Scale. The third consisted of qualitative data that is document mining regarding their academic performance (CGPA) of the final year students of AAIT from the respective concerned body or from the registrar of the institute. The test anxiety Scale aimed to measure the degree of test anxiety manifested by the subjects. Lastly, to investigate into participants' attributions of the causes and effects of test anxiety, open-ended interview questions were designed to obtain data for further clarity and credibility of the research to get in depth understanding of the issue and to explore the explanatory variables for the finding.

Demographic Information Form

Demographic Information Form was used to gather information about age, department, gender (sex), ID No and CGPA (Achievement scores were verified by the officials of concerned institutes or registrar).

The Test Anxiety Inventory (TAI)(Spielberger, 1980) is an instrument to measure test anxiety level of an individual. Professor Emeritus Dr. Charles D. Spielberger developed TAI based upon extensive and intensive research work (Spielberger, & Vagg, 1995; Bembenutty, 2009). Spielberger (1980) argues that the level of test anxiety of an individual is determined by the total score on TAI. Test Anxiety Inventory is a 5-point Likert type scale and the students have to

respond to the five options: (1) Strongly disagree, (2) disagree, (3) Undecided (4) Agree and (5) Strongly agree. The reliability values of alpha coefficient for subscales of original version of Test Anxiety Inventory (TAI) were: 0.96 for TAI-T, 0.91 for TAI-W and 0.91 for TAI-E. The instrument is designed for post secondary students and college students. Higher scores on TAI indicate higher levels of test anxiety in a testing situation. It was prepared in English and then it was translated in to Amharic with the help of Amharic and English teachers. Translation will make to avoid language barrier and to make it easily understandable by the participants.

1.1. ***Worry (W)****:* It refers to excessive preoccupation and concern about the outcome of a test, especially the consequence of failure.

1.2. ***Emotionality (E):*** It refers to an individual's behavioral reactions and feelings aroused by test situations.

1.3. ***Total Anxiety (T):*** This is the sum of W and E. It refers to the overall cognitive, affective and behavioral reactions to test/examination situations.

Academic Performance

In educational institutions, success is measured by academic performance or how well a student meets standards set out by the local government and the institution itself. In the current research project, the student's academic performance was determined by previously achieved CGPA. The Academic performance of the students GPA was received from the institute's registrar office.

Interview Questionnaires:-to explore the explanatory variables for the findings and deep understanding of the students.

The design of the interviews was based on the research objectives. Most of the interview questions conducted are support the questions in the questionnaire. The interviews were used to crosscheck the reliability of the response to the questionnaire. The interviewees were purposively selected from four departments and from each department three students selected and totally 12 respondents selected for the interview. .

In general the objectives of conducting the interviews are to determine whether test anxiety and is affected them in their academic performance and to asses attitudes, opinions and to know thought of students towards test anxiety.

3.2.4. Pilot Study and Data Collection Procedures

3.2.4.1. Pilot Study

The Test Anxiety Inventory (TAI)(Spielberger, 1980) was the basis for the development of the present study. The original scale maintains 20 items with the Likert scale from Strongly Disagree (1) to Strongly Agree (5).Assuming that an instrument which lasted for longer time might not be applicable to the present condition and some statements content was assessed to be inappropriate to the Ethiopian University system, adapting the scale was preferred instead of taking the whole scale. The subjects were randomly taken from Social science stream of AAU main campus 4th year students.

To minimize Language problem, the instruments were translated from English version to Amharic version. The translation was made contextually by the researcher and one Amharic version. The translation was made contextually by the researcher and one English language Senior post graduate student AAU.Then after, the researcher evaluated each of the translation by

comparing the original items with the translated items to ensure that the items of each scale were properly worded in the context of Amharic so as not to lose their original meaning. The instruments were administered for 40 (20 females and 20 males) respondents who were attending final year at AAU main Campuse.They were informed that they can ask clarification for vague items during the process.

After the responses of the subjects were scored, item total correlation and Chronbach alpha were computed to see the internal consistency of items of scale. The students selected as sample for pilot study were asked to fill the Amharic translated version of Test Anxiety Inventory (TAI). For pilot testing, the reliability coefficient of Test Anxiety Inventory (TAI) was determined by calculating Cronbach Alpha Reliability Coefficient. This value was found to be α =.87.

3.2.4.2. Data collection Procedures

Data collection procedures was completed by the researcher. Before administration of Test Anxiety Inventory (TAI), the participants were briefed about the nature and purpose of the study. Rapport was established by assuring them of the confidentiality about their personal information which would be used for research purpose only and kept confidential. A consent form was individually administered to each participant. TAI was individually administered to all the research participants to determine their test anxiety level. Moreover, the participants reported their grades in the very last exam. The participants were briefed about the nature and purpose of the study. Then the consent forms and TAI were distributed. Although a 5 to 10 minute time frame was recommended, 20 minutes were allotted for completion and collection of the TAI. The tool was administered on four consecutive days, one on each department, and was completed by

the student participants. The time frame was used to minimize any unintentional effects of the TAI on course examination performance. The researcher verbally explain the study to the students, invited each student eligible to participate in the study, and requested that students who desired to participate sign a consent form (Appendix A). The consent form cover letter explained participation, confidentiality, risks, benefits, and how each participant could obtain results of the study. The student participants were asked to complete the TAI, write their age in years on the consent form and their ID No and release their final course grade to the researcher. The signed consent forms were collected by the researcher.

Immediately after collecting the signed consent forms, the TAI was administered. No time limit for completion was imposed and all participants completed the TAI (within 15 minutes). These results were retained by the researcher and kept in a locked file until data collection was completed. At the end, student final course grades were obtained from institute's registrar and listed with the TAI results and gender for each participant. When course grades were matched with anxiety scores and gender, the list of names associated with each set of scores was destroyed in order to protect student confidentiality.

3.2.5. Method of Data Analysis

To analyze data Percentages, frequencies, standard deviations, Means, and Correlation, were used to describe the overall sample size selected and by gender and age as generated by SPSS to determine relationship and differences of test anxiety and academic achievement among gender, Pearson Correlation and *t* tests were used in this study. Student *t* test was used to determine if females taking the test were more anxious than males. The SPSS version 20 was used to perform independent sample t-test to determine gender differences in test anxiety level and academic

performance of the university students. Furthermore, Pearson Product Moment Correlation coefficient was performed to determine the relationship between test anxiety and academic performance of the research participants. Differences in test performance across these three groups (high, moderate and low-test anxious students) were evaluated via independent 1-way ANOVA. In addition the descriptive method of analysis of data was used to analyze the document mining and interview results of the study.

IV. DATA ANALYSIS AND DISCUSSION

4.1. Data Analysis

This chapter presents findings of the data analysis based on the data collected concerning test anxiety and academic performance. It contains three main sections. In the first section, the means and standard deviations of the dependent and independent variables for the female and male groups were given (t-Test is computed). In the second section, the correlation between test anxiety and academic performance were presented. Finally, the results of the interview questions were analyzed based on the response of the respondents.

Throughout this research, use 0.05 as a level of significance because;

> According to the electronic textbook *StatSoft "*A 0.05 level significance is the standard margin of error recognized in most areas of researchers, meaning that probability of error that is involved for most researchers A significance level of '0.05' is conventionally used in the social sciences, indicates that there is a 5% probability that the results are due to chance."

For this research, 256 questionnaires were distributed for 199 males and 57 female students of AAIT final year students. From the total distributed questionnaires, 23 questionnaires (9%) were not returned and 12 questionnaires (5%) were found to be incomplete. Hence, 221 questionnaires (86%) were properly filled, of which 49 (85.9%) by females and 172 (86.4%) by males. The mean age of the male students in this sample was 23.40 (St.de.=1.06) with a range from 22-26.The mean age for female respondents in this sample was 23.1224 (St.de.=0.88) with the range

from 22-25.The mean age for the entire sample was 23.34 (St.de.=1.03) with the range from 22-26.

Table 2:- Descriptive Statistics of test Anxiety Scores

Gender	N	Minimum	Maximum	Mean	Std. Deviation
Male	172	37	74	51.64	8.11
Female	49	36	78	55.67	11.38
Total	221	36	78	52.53	9.07

As indicated in Tables 2, test anxiety scores ranged from 36 to 78, with a mean score of 52.53 (s=9.07). The test anxiety scores of male ranged from 37 to 74, with a mean score of 51.64 (X=51.64, s=8.11) and test anxiety scores of female ranged from 36 to 78, with a mean score of 55.67 (X=55.67, s=11.38).This results indicated that female students are more test anxious than male students and female students standard deviation is higher than that of their male counterparts standard deviations.

Table 3 Descriptive Statistics of Academic Performance of AAIT Students

Gender	N	Minimum	Maximum	Mean	Std. Deviation
Male	172	2.46	3.64	3.13	0.31
Female	49	2.32	3.78	2.82	0.39
Total	221	2.32	3.78	3.06	0.36

As indicated in Tables 3, academic performance (GPA) ranged from 2.32 to 3.78, with a mean score of 3.0617 (S=0.36). GPA scores of male ranged from 2.46 to 3.64, with a mean score of 3.13 (*S*=0.31) and GPA of females ranged from 2.32 to 3.78, with a mean score of 2.82 (*S*=0.39).From this result even though the maximum academic performance score is achieved by female student, the mean academic performance of male students in AAIT is greater than female students academic performance.

Three levels of test anxiety (low, moderate, and high) were identified based on TAI scores to permit comparison with a previous study by Chapell et al. Students with TAI scores that were 1 SD or more above the mean study score were assigned to the high test anxiety group, students with a TAI score that was 1 SD or more below the mean study score were assigned to the low test anxiety group, and students with TAI scores between the high and low groups were assigned to the moderate anxiety group.

Table – 4:-Distribution of Test Anxiety among Students by levels of test Anxiety

Levels of Test Anxiety	Male		Female		Total	
	N	%	N	%	N	%
Low	23	13	6	12	29	13
Moderate	128	75	28	57	155	71
High	21	12	15	31	37	16

The result have shown that most of the students have greater extent of moderate level of anxiety (71%). Both female and male students' have greater ratio of moderate level of anxiety (57%, 75%). Male and female had relatively similar level of low anxiety. Female students have higher percentage in high level of test anxiety than male students.

Students with TAI scores that were 1 SD or more above the mean study score were assigned to the high test anxiety group, students with a TAI score that was 1 SD or more below the mean study score were assigned to the low test anxiety group, and Students with TAI scores between the high and low groups were assigned to the moderate anxiety group. To check the formula of M±1S.D was used to categorize the score of test-anxiety. Based on this formula the mean of test anxiety is 52.53 and the standard deviation is 9.07.Below the mean is 52.53-9.07=43.46 and above the mean 52.53+9.067=61.60.A students who have test anxiety between 43.46 and 61.60 have a moderate test anxiety scores and this was supported by the given data. A total of 29 (13%) respondents were considered as having low test-anxiety, while 155 (71%) of them had moderate test-anxiety and 37 (16 %) had severe test-anxiety. The mean and standard deviation of the test-anxiety scores were 52.53 and 9.07 respectively.

Table 5:- Means and Standard Deviations of GPA for the given Levels of Test Anxiety

Levels of Test Anxiety	Mean GPA	N	Std. Deviation
High	2.99	37	0.33
Moderate	3.08	155	0.36
Low	3.04	29	0.37

In table 5 The mean and Standard deviations of the students performance (GPA) is indicated for the given levels of test anxiety. The mean GPA for high-test anxiety students is lower than moderate and low-test anxious students. The moderate test anxious students have higher mean GPA than low test anxious and high test anxious students. Majority of the respondents 155 (70%) of students have moderate test anxiety with the academic performance (GPA) score of 3.08.

Table – 6:- Pearson Correlation analysis of respondents' test anxiety and academic performance scores

Gender	**N**	**R**	**P**
Male	172	-.084	0.001
Female	49	-.170	0.001
Total	221	-.171*	0.001

As shown in Table 6 (r = -0.171) test anxiety was negativity correlated with academic achievement, which indicates that academic achievement is low when test anxiety is high (the two variables are slightly inversely linear related). Similar relationship between test anxiety and academic achievement was revealed by other investigators (Yousefi et.al, 2010 & Vitasari, et.al. 2010).They found that individuals with high levels of anxiety tend to do worse on cognitive tests.

The strength (range) of relationship of the two variables is 17% that is quite weak in magnitude. Pearson correlation test at 95% confidence interval between test anxiety (TA) and GPA there is a significant opposite relationship. As the value of test anxiety increases the value of GPA decreases and as the value of test anxiety decreases GPA increases.

Table – 7:-Comparison between male and female students on test anxiety Score and students Academic Performance Equal Variance (Normality) assumed

	Gender	N	Mean	Df	Std. Deviation	T	P
GPA	Female	49	2.81	219	.39	-5.87	0.414
	Male	172	3.13		.31		
TAI	Female	49	55.67	219	11.38	2.79	0.001
	Male	172	51.64		8.11		

$H_o: X_{female} > X_{male}$

$X_a: X_{female} <= X_{male}$

The result given in Table 7 indicate that there is a significant gender difference in the test anxiety level of students at 95% confidence interval (t = 2.79; df=219;p = <0.001). The female students reported higher level of test anxiety mean as compared to the male student (Mean of female=

55.67 and Mean of Male=51.64). The female engineering students often tend to experience higher level of test anxiety than their male counterparts.

Again from the above table, there is an insignificant gender differences in the academic performance of engineering students (*t =-5.87, df =219, p □ 0. 414*). The male students and female students more or less have similar academic performance.

Table – 8:-Comparison between male and female students on test anxiety Score by levels of test anxiety Equal Variance (Normality) assumed

	Gender	N	Mean	Df	Std. Deviation	T	P
LTA	Female	6	38.33	27	1.86	-2.024	0.053
	Male	23	40.39		2.29		
MTA	Female	28	52.04	153	5.17	1.175	0.242
	Male	127	50.96		4.20		
HTA	Female	15	69.40	35	5.85	1.155	0.256
	Male	22	67.32		5.05		

The result given in Table 8 indicate that there is no a significant gender difference in the mean test anxiety level of students at 95% confidence interval in all levels of test anxiety for low test anxiety insignificant at (t = -2.024; df=27;p = >0.05),for moderate test anxiety level insignificant at (t = 1.175; df=153;p = >0.05) and for high test anxious students the difference between the two gender is insignificant at (t = 1.155; df=153;p = >0.05).

Table 9:-Descriptive Statistics of Students Academic performance with a given Levels of Tests Anxiety

GPA

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
LTA	29	3.04	.37	.07	2.90	3.18	2.32	3.78
MTA	155	3.08	.36	.03	3.03	3.14	2.32	3.78
HTA	37	2.98	.33	.05	2.87	3.10	2.32	3.43
Total	221	3.06	.36	.02	3.01	3.111	2.32	3.78

In this Descriptive Statistics box, the mean GPA for the LTA student is 3.04. The mean GPA for the moderate test anxiety (MTA) student is 3.08 and the mean GPA for the High-test anxiety (HTA) student is 2.98. The standard deviation for the low-test anxiety (LTA) student is 0.37, the standard deviation for the MTA student is 0.36 and the standard deviation for the HTA student is 0.33.

Table 10:-One Way ANOVA

GPA

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.313	2	.16	1.23	.30
Within Groups	27.79	218	.13		
Total	28.11	220			

The above ANOVA table shows that there is no significant variation among the performance of University students having different levels of test anxiety. That is levels of test anxiety did not

reveal a difference in academic performance. Thus, F value reads (2, 0.16=1.23, p>0.05).Furthermore, analysis of the overall mean (3.06) and SD (0.36) of the intention of GPA among the levels of students test anxiety show that no much deviation does exist.

Based on the answers compiled from the first question of the qualitative question (interview), it was found that lack of preparation for the tests and inefficient or inappropriate test preparation are some of the reasons that make learners anxious. Low self-confidence, fear of negative evaluation and fear of failure, the teachers are negative and prepare the exam to fire out the students and previous test experiences concluded with failure also make the students feel anxious. Besides, time limitation and stress during test administration also cause anxiety, since many students admit that they are not sure if they can finish the test within the time given. In addition, insufficient or unclear orientation from the lecturers concerning the material that covered in the exam and vague exam questions causes a considerable amount of anxiety. They also make complaints about inappropriate test techniques or the way the test is designed and the number of items included there. Students also admit that difficult course content and the large amount of information to be covered are other anxiety producing sources. Ultimately, the thought that students may forget what they have learned and as a result fail, makes them feel anxious.

Concerning the second question of the interview, he results show that test anxiety mostly causes negative effects. The subjects admit that test anxiety causes difficulty in retrieving from memory the information they have learned and decreases their concentration during the test, as a result of which they make more errors. It also prevents students from displaying their real knowledge and

abilities in the test and transferring their real performance to test results due to exam anxiety. In other words, it is an obstacle to efficient study and to an effective use of the knowledge already acquired. They say that test anxiety causes psychological problems as well. Among them we can mention an increased level of nervousness, lack of concentration, confusion, uncertainty, tension and negative emotions. The findings indicate that test anxiety makes students interested in tests and their results but not necessarily in the content of the course. Apart from these negative effects, it seems that test anxiety has a positive effect on the learners, since it is not a factor that causes them to study less.

The answers to the question "What do you suggest and recommend in order alleviating this test taking anxiety problem of the students?" shows that the teacher is the one who should play the most important role in reducing test anxiety. The students think that teachers should motivate them and provide more specific orientation and information concerning the material that will be tested. In other words, subjects point out that the teachers should inform the students on the content of tests and number of the questions before the administration. They also suggest that the teachers should avoid negative comments during tests and should not frequently remind them of the time left. In addition students insist that teachers should give them enough time to complete the test. Another aspect in order to alleviate test anxiety is related to the students. They admit that studying systematically and prepared well would make them less anxious during exams; give psychological counseling for those exam anxious students. According to them, the teachers should be aware of students' anxiety and try to understand them. The other issues the respondents raise is to alleviate test taking anxiety of students they suggest that the curriculum of higher education must be revised in order to reduce this problems.

4.2. Discussion

This part of the study was discussing the result of the present study in relation to some previous research findings and the research questions.

The main concern of this study was to examine the relationship between test anxiety and academic performance of AAIT students. Hence, the results of the data analyses are summed up with respect to the four research questions of the study discussed as follows;

From the total distributed 256 questionnaires 221 (86%) were properly filled by 49 female and 172 males. The test anxiety scores of those participant students were ranged from36-78 with the mean score of 52.53 and standard deviation of 9.067.Female students maximum scores of test anxiety is 78 and minimum score is 36 and male students maximum score was 74 with minimum score of 37.This indicate that female students are more test anxious than female students.

The academic performance of those students found to be with minimum score of 2.32 and maximum 3.78 with 0.35 standard deviation.

The levels of test anxiety were identified based on test anxiety inventory scores that were 1 SD or more above is high test anxiety, below low test anxiety and within the two range is moderate levels of test anxiety. Based on this 37 (16%) students have low test anxiety,155 (71%) have moderate levels of test anxiety and 29 (13%) have high test anxiety scores. From this, the majority of the students (respondents) 155 or (71%) of them have moderate levels of test anxiety.

With regard to test anxiety and academic performance, the result from the present study showed that 29 (13%) of the respondents had low test-anxiety of which (23 male,6 female) ,155 (71%) students had moderate test anxiety (128 male,28 female) and 37(16%) students had High test anxiety (21 male,15 female). Female students have higher percentage in high level of test anxiety than male students and male students have higher percentage of moderate levels of test anxiety.

The findings in Table 4 show the relationship between university students test anxiety and their academic performance. There is a significant weak negative correlation between students' GPA and TAI ($r=-0.171$, $p<.001$). Negative correlation between students' GPA and TAI suggests that GPA and TA are related constructs and are not independent of each other. This result supported by a research study conducted by Cassady & Johnson (2002),which indicated that cognitive test anxiety exerts a significant stable and negative impact on academic performance measures. As the value of test anxiety increases the value of GPA decreases and as the value of test anxiety decreases GPA increases. This is may be due to the fact that test anxiety causes difficulty in retrieving from memory the information they have learned and decreases their concentration during the test, because of which they make more errors. It also prevents students from displaying their real knowledge and abilities in the test and transferring their real performance to test results due to exam anxiety. In other words, it is an obstacle to efficient study and to an effective use of the knowledge already acquired. They say that test anxiety causes psychological problems as well. Among them we can mention an increased level of nervousness, lack of concentration, confusion, uncertainty, tension and negative emotions. The findings indicate that test anxiety makes students interested in tests and their results but not necessarily in the content of the course. Apart from these negative effects, it seems that test

anxiety has a positive effect on the learners, since it is not a factor that causes them to study less.

The Results of the present study indicated that there were statistically significant differences between males and females academic performances and levels of test anxiety. From table 5 the female students reported higher level of test anxiety mean as compared to the male student (Mean of female= 55.67 and Mean of Male=51.64) and there is an insignificant gender differences in the academic performance of engineering students (*t =-5.866, df =219, p □ 0.414*). The male students showed similar performance grades as compared to the female students. This finding was Consistent with the findings of Masson and associates (2004) Comparing the mean of test anxiety scores between two experimental groups of male and female students' shows that Female students have the highest test anxiety level. The female engineering students often tend to experience higher level of test anxiety than their male counterparts do; probably because of feelings of insecurity and threat to their self-esteem posed by the examinations and evaluation for performance of BSC degree. This may be happened for the reason that females experience higher test anxiety due to the very nature of anxiety.

The findings also show that the academic performance of High-test anxious students and low-test anxious students is lower than the moderate test anxious students. Gaudry and Spielberger (1971) discussed that high test anxiety is considered as one of the main factor for low performance of students at university level.

Test anxiety makes students interested in tests and their results but not necessarily in the content of the course. Apart from these negative effects, it seems that test anxiety has a positive effect on the learners, since it is not a factor that causes them to study less. Vogel and Collins (2002) investigated the effect of test anxiety on academic performance. They found that students with high-test anxiety as well as those students with low-test anxiety showed lower academic performance. Moreover, those students with moderate levels of test anxiety performed well.In addition to this Hancock (2001) investigated the effects of students' test anxiety He found statistically significant especially students with high anxiety level**,** performed poorly and were less motivated to learn and also Albero, Brown, Eliason & Wind (1997), on the basis of their research study, concluded that students having high test anxiety had significantly lower scores.

In this study by computing one way ANOVA the result shows that there is no significant variation in their academic performance (GPA) among the performance of University students concerning the levels of test anxiety. That is levels of test anxiety did not reveal a difference in academic performance. Furthermore, the overall mean of the students GPA among the levels of students test anxiety show that no much deviation does exist.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary

This chapter presents, summary of the research findings and the conclusions drawn visa-vis the research questions. Further, limitations and recommendations of the study and directions for future studies are addressed.

The purpose of the study was to investigate the relationship between test anxiety and academic performance of university students' at AAIT. In addition, there was a need to know if there is a significant difference in gender academic performance experienced by students having different levels of test anxiety.

Two instruments: questionnaire and structured interview were used to collect data. Accordingly, the major findings are summarized as follows ;

To test the relationship between the variables, five research questions were posed. Employing a mixed research design, data were collected through the TAT (Spielberger, etal., 1980) and compared to the final course grades and gender of 221(49 female and 172 male) final year engineering students in AAIT and interview (Survey questions).

Descriptive Data were analyzed by the use of SPSS version 20, the Pearson product moment correlation coefficient, means and standard deviation and one –way ANOVA computed.

From the results of the present study, there is significant opposite relationship between test anxiety (TA) and GPA, which indicates that academic performance is low when test anxiety is high.

Again, from this study there is a significant gender difference in the test anxiety level of students. From the result of independent t-test female students reported higher level of test anxiety mean as compared to the male student (Mean of female= 55.67 and Mean of Male=51.64) and again significant gender differences in the academic performance of engineering students that means male students showed higher grades as compared to the female students (Mean= 3.1319 and Mean 2.8155, respectively).

The students thought that lack of preparation for the tests and inefficient or inappropriate test preparation low self-confidence, fear of negative evaluation and fear of failure, the perception that the teachers are negative and prepare the exam to fire out the students and previous test experiences are the source of test anxiety. Inappropriate test techniques or the way the test is designed difficult course content and the large amount of information to be covered are the other source of test anxiety.

Since test anxiety is an obstacle to efficient study and to an effective use of the knowledge already acquired the students thought that teachers motivation, trying to create a relaxed atmosphere in the classroom and encouraging those students

5.2. Conclusion

Based on the above findings and discussion of the study the following conclusions have been reached.

- There are statistically significant gender differences in test anxiety level and academic performance of engineering students. The female engineering students reported higher level of test anxiety; but lower grades as compared to their male counterparts
- It is concluded that test anxiety has its impact on students' academic achievements but when we see male and female students separately, then it shows impact of test anxiety on both type of students but there is more impact on female students as compared to male students and its effect is correlated negatively.
- Test anxiety causes difficulty in retrieving from memory the information they have learned and decreases their concentration during the test, because of which they make more errors. It also prevents students from displaying their real knowledge and abilities in the test and transferring their real performance to test results due to exam anxiety.
- Lack of preparation for the tests and inefficient or inappropriate test preparation Low self-confidence, fear of negative evaluation and fear of failure, are the main causes of students test anxiety.
- It is concluded that test anxiety has its impact on students' academic performances but when we see male and female students separately, then it shows impact of test anxiety on both type of students but there is more impact on female students as compared to male students.

5.3. **Recommendations**

Although this study has contributed to the body of knowledge regarding the relationship between test anxiety and academic performance in university students, many questions remain unanswered. Based on the findings of this study and conclusions presented, the following recommendations can be presented;

1. Instructors should encourage test anxious students, understand their exceptional problems and establish a smooth communicational channel with their test anxious students in order to understand their difficulties and advise them accordingly. In addition to this, the university has to give appropriate guidance and counseling service for those test anxious students.
2. Facilitate forums for discussion that focus on test anxiety problems and sharing experience. Well-organized orientation schemes assertiveness training may help those students to build self confidence, exert an effort and motivation toward their education.
3. Conduct further research to examine the existence of gender differences in test anxiety and the impact of experience on test anxiety at different level of education. In doing this one can conclude other variables such as age, college type, method of teaching, exam type and the like to determine the variation in test anxiety of males and females and to identify mechanisms in reducing test anxiety. The more that is learned about test anxiety, the more practical applications toward treating test anxiety

should be investigated. More research is needed to investigate a student's strengths and weaknesses then taking an exam in order to develop effective treatments.

4. In order to alleviate ttest anxiety the students admit that studying systematically and prepared well would make them less anxious during exams; give psychological counseling for those exam anxious students. They also suggest that the teachers should avoid negative comments during tests and should not frequently remind them of the time left.

5. To effectively manage test anxiety, students can be helped by teachers, parents and educational administrators through use of cognitive, affective and behavioral strategies. It is further suggested that the students should be fully informed by the faculty and administration of departments about the nature of courses, duration of the semester, and level of commitment necessary for the successful completion of the course. The students with higher test anxiety must be identified and treated in order to increase their academic performance.
6. Finally, Engineering educators need to further investigate the types of variables that contribute to test anxiety in engineering students and the degree to which they do so. These variables could include study skills, coping mechanisms, or internal cognitions.

5.4. Limitations

Concerning this aspect, we can say that some limitations can be noted. The study is limited to the students of only one institution, namely the Addis Ababa Institute of Technology (AAIT), in "Addis Ababa" University. Secondly, the study is limited to the subject variables such as: grade and academic achievement scores of the students. Lastly, background education is not a variable. As a conclusion, considering the study is limited to test anxiety of AAIT final year students, further research should focus on more analytic issues such as teacher attitudes on test anxiety and feedback before and after the exam.

The sample was restricted to the students of AAIT only. Therefore, it is not possible to generalize these findings. The data may be collected from the whole country for the sake of generalize the results.

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APPENDIXES

Appendix A

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

SCHOOL OF PSYCHOLOGY

A questionnaire prepared to the study of the relationship between Test Anxiety and Academic performance of University students

Dear Respondents,

This questionnaire is prepared to collect data for a research. The research focuses in observing the relationship between test anxiety and academic performance of students.

This questionnaire consists of two parts: part one deals with the general information of respondents and parts two is used to measure the participants' level of test anxiety.

The information you are going to provide is used purely for the research purpose. Your answers are completely confidential and your name will not be written in this form. Therefore, assistance and genuine response are highly required for the success of the study. I cordially request your collaboration in responding to this questionnaire.

Thank you in advance

Appendix B

TEST ANXIETY INVENTORY FOR UNIVERSITY STUDENTS

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then encircle in the appropriate circle to the right of the statement to indicate how you generally feel. There is no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

Part one

Instruction:-Please provide your personal information indicated bellow

Sex---------- Age----------ID.No----------Department----------CGPA----------

1=Strongly disagree 2=Disagree 3=Undecided 4=Agree 5=Strongly Agree

No.	Items	1	2	3	4	5
1	I feel confident and relaxed while taking tests					
2	While taking examinations I have an uneasy, upset feeling					
3	Thinking about my grade in a course interferes with my work on tests					

4	I freeze up on important exams					
5	During exams I find myself thinking about whether I'll ever get through school					
6	The harder I work at taking a test, the more confused I get					
7	Thoughts of doing poorly interfere with my concentration on tests					
8	I feel very nervous when taking a test					
9	Even when I'm well prepared for a test, I feel very nervous about it					
10	I start feeling very uneasy just before getting a test paper back					
11	During tests I feel very anxious					
12	I wish examinations did not bother me so much					
13	During taking tests I am so tense that my stomach gets upset					
14	I seem to defeat myself while working on important tests					
15	I feel very frightened when I take a test					

16	I worry a great deal before taking an important examination					
17	During tests I find myself thinking about the consequences of failing					
18	I feel my heart beating very fast during important tests					
19	After an exam is over, I try to stop worrying about it, but I just can't					
20	During examinations, I get so nervous that I forget facts I really know					

Appendix C

Structured Interview Questions

- In your opinion what causes anxiety during exams? _____

  _____

- According to your observation and experience what are the factors that can create test taking anxiety? _____

  _____.

- In your opinion, how does anxiety affects students' academic performance and what are the effects?_____

  _____

- What do you suggest and recommend in order alleviating this test taking anxiety problem of the students?_____

  _____.

Appendix D (Amharic)

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Appendix E (Amharic)

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Declaration

I, here by, declare that this thesis is my original work and hasn't been presented in any other university. All the materials used in this thesis have been duly acknowledged.

Name : Amsalework Legesse

Signature_____

Date_____

This thesis has been submitted for the examination with my approval as a university advisor

Name : Dr.Mulu Nega

Signature_____

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