# RELATIONSHIPS AMONG TEST ANXIETY, LOCUS OF CONTROL AND ACADEMIC ACHIEVEMENT AMONG COLLEGE STUDENTS

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**Abstract**

This study is a correlational study designed to investigate the relationships among test anxiety, locus of control and students' academic achievement. From a population of 498 students registered in the Department of Curriculum Studies and Educational Technology, University of Port Harcourt, Nigeria for 2009/2010 and 2010/2011 academic sessions, a sample of 364 student volunteers participated in the studies. Four research questions and three hypotheses tested at 0.05 alpha level were designed to guide the study. The instruments for data collection were College Students' Test Anxiety Scale (CSTAS) and College Students' Locus of Control Scale (CSLCS) validated by experts in relevant fields. Their reliability coefficients obtained through test-retest method and Pearson product moment correlation technique were 0.73 and 0.78 for CSTAS and CSLCS respectively. The data generated from these instruments were analyzed using SPSS. It was found that 28.57%, 18.13% and 53.30% of the student sample had low, high and moderate test anxiety respectively; there was a weak, but significant negative relationship between test anxiety and students' academic achievement ($r= -0.22$, $p<0.05$); a weak, but significant positive relationship was found between internal locus of control and students' academic achievement ($r= 0.191$, $p<0.05$); there was a weak and insignificant negative relationship between external locus of control and students' academic achievement ($r= -0.081$, $p<0.05$). It was therefore recommended that students should start preparing for tests or examinations from the day a semester resumes rather than procrastinating studies until a test is at hand so as to avoid cramming and the attendant anxiety. The students must realize that hard work is a key to success and that success is determined by one's attitude. They should purge themselves of the feeling that success in one's life is a matter of luck.

**Keywords:** Test anxiety, performance anxiety, evaluational anxiety, nervousness, fear, apprehension, worry, internal or external locus of control, destiny, luck, chance

## Introduction

Education transforms individuals into problem solvers who evince knowledge and are capable of utilizing the acquired knowledge to provide solutions to a wide range of problems. A good level of education confers on a student a corresponding high level of metacognitive skills which in turn helps the student to have a good knowledge of himself as a cognitive processor, and knowledge of task and strategy variables necessary for effective learning (Hoe, Cheong and Yee, 2003).

However, sometimes, some students even at high educational level and with high level of metacognitive skills inexplicably fail to demonstrate the knowledge they have acquired during teaching and learning sessions. Such students attend classes, do their assignments but fail to perform in the days of reckoning (examinations) especially when the stakes are high. The students who have done all that is necessary but develop cold feet rather than confidence during examinations may be manifesting test anxiety.

Test anxiety is an uneasiness or apprehension experienced before, during or after examination because of concern, worry or fear of uncertainty. It was defined by Zeidner (1998) as a set of phenomenological, physiological and behavioural responses that accompany concern about possible negative consequences or failure on an examination or similar evaluative situation. It is a feeling that someone might have in a situation where performance really counts or where the pressure to do well is intense.

Test anxiety is not entirely bad. In fact a low level of test anxiety is normal and necessary among the students in order to maintain focus and to galvanize them into action preparing, plotting and perfecting strategies that will guarantee optimum success in the examinations. It is needed to motivate and help the students to stay mentally and physically alert (Birjandi and Alemi, 2010). However, high level of test anxiety is dangerous and can result in emotional or physical distress, concentration difficulties and emotional worries. It interferes with students' ability to prepare for and perform on tests.

Test anxiety or performance anxiety is common in nearly every aspect of human endeavour. Excellent players have deprived their countries or clubs of the opportunities to lift trophies during club or international sporting competitions by missing penalty shots as a result of performance anxiety. Some candidates seeking for jobs find it difficult to remember even their own names during interviews for highly paid jobs in such a situation

where good performance counts and pressure to do well is palpable (Putwain, Woods and Symes, 2010). It is performance anxiety that makes a professor sweat profusely and sound incoherent almost at the point of collapsing while presenting inaugural lecture with intimidating audience in attendance. A study conducted by DeCaro, Thomas, Albert and Beilock (2011) found that baseball players put into a high pressure condition had increased errors and decreased ability to recall details like the directions in which their bats were moving.

In schools, the incidence of test anxiety is common. Researchers reported that between 25 to 40 percent of students experience test anxiety (Cassady and Johnson, 2002). Students with disabilities and students in gifted education classes tend to experience higher rates of test anxiety and students who experience test anxiety tend to be easily distracted during a test, experience difficulty in comprehending relatively simple instructions and have trouble organizing or recalling relevant information (Zeidner, 1998). According to Nicaise (1995), debilitating test anxiety affects 10-30 percent of all students with a disproportionately higher prevalence in learning for disabled and minority students. Twenty percent of test-anxious students quit school before graduating because of repeated academic failures (Tobias, 1979). Hembree (1998) noted that 30% of students suffer from test anxiety and that high test anxiety is associated with low self-esteem, poor reading and mathematics achievement, failing grades, disruptive classroom behaviours, negative attitudes toward school, and unpleasant feelings of nervousness and dread that stem from an intense fear of failure. Sena, Lowe and Lee (2007) found that students with higher test anxiety obtain lower marks in examination. Chapell, Blanding, Siverstein, Takashi, Newman, Gubi and Mccain (2005) found a significant inverse relationship between test anxiety and grade point average among the students.

Other than test anxiety, a factor which probably affects students' academic achievement is locus of control. Locus of control was defined by Kirkpatrick, Stant, Downes and Gaither (2008) as a dimensional construct representing the degree to which individuals perceive reinforcing events in their lives to be the result of their own actions or fate. The construct, locus of control is a theory that accounts for how people perceive and explain successes and failures in their lives. Locus of control can be internal or external. Individuals with internal locus of control believe that the outcomes of their actions are results of their own abilities. They believe that hard work leads to positive outcomes. They also believe that every action has its own consequences and one's attitude determines one's altitude (Messer, 1971). They are believed by Rotter (1975) to exhibit two essential characteristics: high achievement motivation and low outer-directedness. External locus of control dowses the morale to work hard towards a goal and makes people

resign to their fate. Individuals with external locus of control attribute outcomes of events to external circumstances. They believe that many things that happen in their lives are not within their control. They blame others rather than themselves for any negative outcome. Shepherd, Owen, Fitch and Marshall (2006) investigated the relationship between internal locus of control and academic achievement using a sample of 187 students in grade 8-12. The result of the study showed that students who had higher GPA also had higher scores on internal Locus of control.

This study investigated the relationships among test anxiety, locus of control and students' academic achievement. Hence, the research questions and hypotheses designed to guide the study include;

**Rq1**: What is the proportion of students who have low, moderate and high test anxieties?

**Rq2**: What is the extent of relationship between test anxiety and students' academic achievement?

**Rq3**: What is the extent of relationship between internal locus of control and students' academic achievement?

**Rq4**: What is the extent of relationship between external locus of control and students' academic achievement?

**Ho1**: There is no significant relationship between test anxiety and students' academic achievement

**Ho2**: Significant relationship between internal locus of control and students' academic achievement does not exist.

**Ho3**: There is no significant relationship between external locus of control and students' academic achievement

## A brief review of literature

Anxiety is regarded as a general term for several disorders that cause nervousness, fear, apprehension and worry (Bouras and Holt, 2007). Seligman, Walker and Rosenhan (2010) defined anxiety as an unpleasant state of inner turmoil often accompanied by nervous behaviours such as pacing back and forth, somatic complaint and rumination. It is a feeling of worry, dread and uneasiness which people have as a result of over-reaction to a situation that is subjectively seen as menacing. Anxiety when it is mild is normal and helps to invigorate an individual and prepares the body physically, cognitively and behaviourly to detect and deal decisively with threats to survival, but severe anxiety can be extremely debilitating having serious impact on our daily lives.

Test anxiety, on the other hand, is a term synonymous with anticipatory anxiety, performance anxiety, situational anxiety, and evaluational anxiety and was defined by Zeidner (1998) as a combination of perceived physiological over-arousal, feeling of worry and dread, self-

depreciating thoughts, tension and somatic symptoms that occur during test situations. It was defined by Karatas, Alci and Aydin (2013) as subjective emotional state experienced before or during a specific evaluation relating to the act of completing the evaluation itself, the threat of failing and the perceived negative consequences. It can also be seen as a physiological condition in which people experience extreme stress, and discomfort during and/or before taking a test.

Pioneering work on test anxiety was credited to George Mandler and Seymour Sarason (Mandler and Sarason, 1952) during which they investigated the reasons why students prepared for examinations but failed to perform when it mattered most. Later Irwin Sarason conducted extensive study on the relationship between test anxiety and generalized form of anxiety (Sarason, 1960). Test anxiety is subjective and dependent upon situational variables such as levels of motivation, task complexity and practical consequences of high or low performance, and it varies markedly from one person to another. Extreme test anxiety leads to a vicious cycle of low self-esteem, depression, anger and feeling of hopelessness and poor academic grade (Zeidner, 1998). Repeated poor academic grade may lead to increased test anxiety and ultimately to a dropout (Zeidner, 1998).

Signs and symptoms of test anxiety which can manifest in test-anxious individuals as listed by Zeidner (1998) include restlessness, fidgeting, shaking, headache, sweating, racing thoughts, shortness of breath, blanking out and light-headedness (a feeling of passing out).

There are some factors which can precipitate test anxiety among the students. Some parents put pressure on their children by expecting nothing short of high grades from them. Two types of pressure are relevant here. One is the outcome pressure in which an individual‘s performance is influenced by the consequences of the testing results and the other is the monitoring pressure in which an individual’s performance is impacted due to the presence of an audience (Jones and Petruzzi, 1995). High expectation from parents in terms of grade is capable of putting too much pressure on children which can be counterproductive. Causes of test anxiety among students as outlined by Salend (2012) include fear of failure, procrastination for test preparation, previous poor test performance, low self-confidence as well as characteristics of test environment such as nature of the task, level of difficulty of the task, atmosphere, time constraints, examiner characteristics, mode of test administration and physical setting.

**Theories of test anxiety**

There are some theories that offer explanation of existence of test anxiety among students. Two test anxiety theories according to Jones and Petruzzi (1995) including explicit monitoring theory and distraction theory.

The explicit monitoring theory states that when a person is expected to perform a specific task perfectly, the pressure may cause an increased self-consciousness and inward focusing which can disrupt his ability to successfully perform the task. The distraction theory states that high pressure environment creates dual-task situations in which the person's attention is divided between the task at hand and unhelpful thoughts about the situation and possible negative consequences of poor performance. Working memory which is a system that actively holds strings of relevant information in the mind while inhibiting irrelevant information has attention as an important component. Working memory has limited capacity and the addition of stress and anxiety reduces the resources available to focus on the relevant information. Eysenck, Santos, Derekshan and Calvo (2007) proposed an alternative theory to distraction theory which they called attentional control theory. The attentional control theory assumes that anxiety primarily affects attentional control which is a key function of the central executive. Attentional control is the balance between the two attentional systems, the goal-directed system, influenced by the individual's goals, and stimulus-driven system, influenced by salient stimuli. Anxiety disrupts the balance between these two systems. The stimulus-driven system becomes stronger at the expense of the goal-directed system, thereby impairing the efficiency of the inhibition and shifting functions of the central executive.

Some suggestions have been made on forestalling test anxiety among students. Adequate and timely preparation is an essential ingredient towards reducing test anxiety. Students should start preparing for test from the commencement of a term or a semester by studying constantly and steadily rather than procrastinating study till a test is at hand. Constant and steady study helps students to cover the study materials under a relaxed atmosphere, thus remove the pressure to cover a lot of materials at a short period of time. Students who study only when examinations are at hand become desperate and resort to cramming which can adversely affect information coding and retrieval. So trying to master a semester's worth of materials a few days before the test is a bad way to learn and can produce anxiety. Students must avoid distractions and concentrate on their studies. They should strive to build up self-confidence and believe in their abilities to study for and pass their examinations. Parents should desist from setting a grade target too high for their wards to meet. It is also important students should avoid test anxious classmates (Zeidner, 1998).

**A review of empirical studies on test anxiety**

A longitudinal study by cassady and Johnson (2002) using a sample of 168 psychology undergraduate students showed that students with high-test anxiety had lower examination scores than students with average or low

text anxiety. Hembree (1988) collated 562 studies on the correlates, causes, effects and treatment of test anxiety in North America from 1952 through 1986. Major results showed that test anxiety scores were weakly, negatively and significantly related to grades in reading and English Language ($r = -0.24$, $p<0.05$) and foreign language ($r = -0.12$, $p<0.05$) and that females were more test anxious than the males as females experienced greater worries than males. Working with a sample of 65 female and 45 male undergraduate students from university of Isfahan, Iran who were in English Department, Rezazadeh and Tavakoli (2009) found that 11.8% of the students had high test anxiety, 73.60% had moderate test anxiety, while 14.5% of the students had low test anxiety. They found a significant negative correlation between test anxiety and students academic performance ($r = - 0.199$, $p < 0.05$). They also found that females rated significantly higher than the males on the test anxiety scale as females were more affected by pressure. Karatas, Alci and Aydin (2013) conducted a study on correlation among high school senior students' test anxiety, academic performance and points of university entrance examination using 194 (50.51% of them were males) high school senior students in Turkey. Data generated with 20-item test anxiety inventory of 5-point likert scale and analyzed using Pearson correlation coefficient technique showed that there was a weak but significant negative correlation between students' test anxiety and points of university entrance examination. A t-test analysis of the data showed a significant difference in test anxiety and GPA in favour of female students and in points of university entrance examination in favour of the male students.

**Locus of control**

The term locus of control of reinforcement as was originally used in 1954 by Julian B. Rotter who was the founder of locus of control theory is a theory used in personality psychology to refer to causation as perceived by individuals in response to personal outcomes or other events (Rotter, 1966). The word, "locus" in the term is a Latin word which means a location or place. A locus of control is a belief about whether the outcomes of our actions are contingent on what we do or on events outside our control (Shepherd, Owen, Fitch and Marshall, 2006). It was defined by Messer (1971) as a belief that one's destiny is controlled by oneself or by external forces such as fate, god or powerful others. Schulz and Schulz (1995) outlined factors that can influence locus of control as gender, age, family orientation, ethnic grouping, religion and socio-economic status. Locus of control can be internal, external or bi-focal (Jacobs-Lawson, Waddell and Webb; 2001). People who have internal locus of control believe that they have control over the events in their lives. When a person believes that his rewards or punishments depend on his own efforts (internal control), it is

most likely that he will strive to do those things that bring about rewards and minimize punishment (Messer, 1971). On the other hand, people who have external locus of control believe that they have no control over the events in their lives and that there are other individuals or external forces that control events in their lives. People with external locus of control tend to be more stressed and prone to clinical depression (Jacobs-Lawson, Waddell and Webb; 2001). People that have the combination of the two types of locus of control are referred as bi-focals. Those that have bi-focal characteristics are known to handle stress and cope with their diseases more efficiently by having the mixture of internal and external loci of control (Jacobs-Lawson, Waddell, Webb, 2001).

The results of the study conducted by Roddenberry and Renk (1998) revealed that individuals who had external locus of control were vulnerable to external influences and thus had a higher level of stress. Whyte (1978) investigated the relationship between locus of control and academic success of students enrolled in higher-education courses and found that students with internal locus of control believed that hard work and focus would result in successful academic process and they performed significantly better than students with external locus of control who believed that success depended upon luck or fate. Nowicki and Walker (1973) found that there was consistent positive relationship between internal locus of control and achievement scores for males while for females, this result was inconsistent because social desirability effects confounded the results of the correlation between achievement and locus of control for females. The study by Murray and Staebler (1973) failed to find achievement differences between internals and externals and suggested that locus of control was not necessarily a determinant of academic achievement. Wu (1975) conducted a study on children's sex, locus of control and academic achievement. A sample of 319 (164 boys and 155 girls) pupils in grades 4-6 from two elementary schools in Taiwan was used in the study. Results of the study showed that internal locus of control positively and significantly correlated with the academic achievement measure for boys, but for girls no significant correlation was found.

**Method**

From a population of 498 students registered in the Department of Curriculum Studies and Educational Technology, University of Port Harcourt, Nigeria for 2009/2010 (268 students) and 2010/2011 (230 students) academic sessions, a sample of 364 student volunteers participated in the studies (Information about the number of students in the department and their first semester results was obtained from the office of the Head of

Department). At the time of this study which was from June to August, 2013, these sets of students were in year 4 and year 3 respectively.

The instruments for data collection were College Students' Test Anxiety Scale (CSTAS) and College Students' Locus of Control Scale (CSLCS). CSTAS was adapted from test anxiety scale by Davison (2004) but modified by the researchers. CSLCS was adapted from Rotter (1966), but also modified by the researchers. CSTAS was a 40-item questionnaire while CSLCS was a 25-items questionnaire all in 4-point Likert scale format. These instruments were validated with the assistance of some experts from the Department of Curriculum Studies and Educational Technology and Department of Psychology, Guidance and Counselling, University of Port Harcourt.

Their reliability indices established by test-retest method and Pearson product moment correlation technique were 0.73 and 0.78 for CSTAS and CSLCS respectively. The maximum score obtainable by a student in CSTAS was 160 and for CSLCS it was 100. The minimum scores obtainable by a student from CSTAS and CSLCS were 40 and 25 respectively. Following the administration of test anxiety inventory, students whose scores fell above the upper quartile (75%) were regarded as high test anxious students; those whose scores fell below the lower quartile (25%) were regarded as low anxious students while those whose scores fell within inter-quartile range were regarded as students with moderate anxiety (Simpson, 2007). This method recommended by Simpson (2007) for placing students into high, low and moderate test anxiety groups was adopted in this study. So, a student whose score in CSTAS was greater than or equal to 120 was adjudged as having high test anxiety, a student whose score was less than or equal to 80 had low test anxiety while a student whose score was less than 120 but greater than 80 had moderate test anxiety. Similarly, 81 students whose scores in CSLCS fell within mean ± standard deviation were regarded as bi-focals (had neither internal nor external locus of control) and were not involved in determining the relationships between t internal/external loci of control and students' academic achievement. Data generated from these instruments were analyzed using SPSS and the results shown in the tables below. The average scores of students for the courses taken in the first semester examination served as students' academic achievement.

**Results**

**Rq1**: What is the proportion of students who have low, moderate and high test anxieties?

Table 1: Distribution of students based on their test anxiety ratings

| Test anxiety rating | Number of students | Percentage |
|---|---|---|
| Low | 104 | 28.57 |
| High | 66 | 18.13 |
| Moderate | 194 | 53.30 |
| Total | 364 | 100 |

Table 1 shows that 104 students representing 28.57% of the students had low test anxiety, 66 students representing 18.13% of the students had high test anxiety while 194 students representing 53.30% of the students had moderate test anxiety.

**Rq2**: What is the extent of relationship between test anxiety and students' academic achievement?

**Ho1**: There is no significant relationship between test anxiety and students' academic achievement.

Table 2: The relationship between test anxiety and students' academic achievement

| N | Alpha | DF | $r_{-cal}$ | $r_{-crit}$ | Decision |
|---|---|---|---|---|---|
| 364 | 0.05 | 362 | -0.22 | 0.129 | Ho rejected |

Table 2 shows that the calculated r-value is -0.22. The value was an indication that there was a weak negative relationship between test anxiety and students' academic achievement. The critical r-value at 0.05 alpha level and 362 degrees of freedom is 0.129 which is less than the absolute value of the r-calculated. Hence, the null hypothesis was rejected implying that there was a significant relationship between test anxiety and students' academic achievement.

**Rq3**: What is the extent of relationship between internal locus of control and students' academic achievement?

**Ho2**: Significant relationship between internal locus of control and students' academic achievement does not exist.

Table 3: The relationship between internal locus of control and students' academic achievement

| N | Alpha | DF | $r_{-cal}$ | $r_{-crit}$ | Decision |
|---|---|---|---|---|---|
| 135 | 0.05 | 133 | 0.191 | 0.149 | Ho rejected |

Table 3 shows that for the 135 students who had internal locus of control, the calculated r-value is 0.191. Thus, there was a weak positive relationship between internal locus of control and students' academic achievement. The value of r-calculated is greater than the critical r-value of 0.149 obtained at 0.05 alpha level and 133 degrees of freedom. Hence, the null hypothesis was rejected implying that there was a significant

relationship between internal locus of control and students' academic achievement.

**Rq4**: What is the extent of relationship between external locus of control and students' academic achievement?

**Ho3**: There is no significant relationship between external locus of control and students' academic achievement

Table 4: The relationship between external locus of control and students' academic achievement

| N | Alpha | DF | $r_{-cal}$ | $r_{-crit}$ | Decision |
|---|---|---|---|---|---|
| 148 | 0.05 | 146 | -0.081 | 0.166 | Ho rejected |

Table 4 shows that for 148 students who had external locus of control, the calculated r-value is -0.081. This shows that there was a weak negative relationship between external locus of control and students' academic achievement. The critical r-value obtained at 0.05 alpha level and 146 degrees of freedom is 0.166. The null hypothesis was then accepted as the absolute value of the r-calculated is less than the critical r-value, implying that there was no significant relationship between external locus of control and students' academic achievement.

**Discussion of the findings**

It was found that 28.57% of the students had low test anxiety, 18.13% of the students had high test anxiety while 53.30% of the students had moderate test anxiety. The finding that 18.13% of the students had high test anxiety is similar to that of Nicaise (1995) who found that debilitating test anxiety affected 10-30 percent of all students. However, these findings differ slightly with those of Rezazadeh and Tavakoli (2009) who found that 11.8% of the students had high test anxiety, 73.60% had moderate test anxiety, while 14.5% of the students had low test anxiety. The differences in findings may not be unconnected with differences in cultural or ethnic background as this study was conducted in a typical Nigerian University setting while that of Rezazadeh and Tavakoli (2009) was conducted in an Iranian university. Besides, the sample size of this study is 364 compared with that of Rezazadeh and Tavakoli (2009) which was only 110.

It was found that there was a weak but significant negative relationship between test anxiety and students' academic achievement. This finding is similar to those reported by Hembree (1988) and Rezazadeh and Tavakoli (2009) which revealed a significant negative correlation between test anxiety and students' academic performance. The reason why there was a negative relationship between test anxiety and students' academic achievement as reported in this study may be explained from the fact that test

anxiety gives rise to desperation which adversely affects information coding and retrieval.

It was found that there was a weak but significant positive relationship between internal locus of control and students' academic achievement. This finding is similar to the finding of Wu (1975) which revealed that internal locus of control positively and significantly correlated with the academic achievement for boys. The finding of a significant positive relationship between internal locus of control and students' academic achievement in this present study may be explained from the fact that people who are internally focused believe in success through hard work. Furthermore, people with internal locus of control believe that hard work and focus would result in successful academic process. They take their destinies in their own hands. They appear more prepared to take tests than people with external locus of control.

Finally, it was found that there was a weak insignificant negative relationship between external locus of control and students' academic achievement. This weak, negative and insignificant result could be explained from the fact that individuals who had external locus of control were vulnerable to external influences and thus had a higher level of stress (Roddenberry and Renk, 1998). There are also some factors which might conspire to confound the result of the relationship between external locus of control and students' academic achievement. Such factors include sickness or bereavement during examinations and lecturers arbitrary award of grades.

**Conclusion**

Majority of the students had moderate test anxiety. Only few had high or low test anxiety. Weak but significant negative relationship existed between test anxiety and academic achievement of the respondents. Similarly, a weak but significant positive relationship existed between internal locus of control and students' academic achievement, and the relationship between external locus of control and students' academic achievement was weak, negative and insignificant.

**Recommendations**

Parents should desist from setting a target of grade too high for their wards to meet. Students should start preparing for tests or examinations from the day a semester resumes rather than procrastinating studies until a test is at hand so as to avoid cramming and the attendant anxiety. The students must realize that hard work is a key to success and one's attitude determines one's success. They should purge themselves of the feeling that success in one's life is a matter of luck.

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