



Evaluation of Cognitive Test Anxiety and Academic Performance of Students in Public Secondary Schools in Rivers State

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ABSTRACT

The purpose of this study was to evaluate cognitive test anxiety and academic performance of student in public secondary schools in Rivers State. The experimental research design was adopted for the study. The population of the study was 650 respondents, while the Tsaro Yamen formula was used to obtain a sample size of 295 respondents. The stratified random sampling technique was adopted for the study. The mean was used to answer the research questions, while the inferential statistic of T-test analysis was used as the statistical tool to test the formulated hypotheses. A reliability coefficient of 0.85 was advanced using the Kudar Richardson approach. The result of the statistical analyses shows that a significant difference exist between failure anticipation as a variable of cognitive test anxiety and academic performance of male and female students in public secondary schools. Also, a significant difference was found between off-task behaviour, intrusive thought and academic performance of male and female students in public secondary schools. The study concluded that the phenomenon of cognitive test anxiety is common in students as they approach examination period, and this is regardless of their age, sex differences, and their schools' residential status. In addition, cognitive test anxiety has a significant positive effect on students' academic performance. It was therefore recommended among others that, there is a need for the curriculum and efforts towards guidance and counseling in schools to include strategies of coping with cognitive test anxiety, and also the development of guidebooks to help students deal with psychological stresses during preparation and undertaking of major examinations.

Keywords: Cognitive Test Anxiety, Academic Performance, Public Secondary School Students, Rivers State

INTRODUCTION

In Education, learners' outcomes and performance are evaluated and graded using examinations (Chinta, 2005). In fact, testing is common in everyday life, from school content-specific tests (that is, class tests and national examinations) to tests taken to move up in jobs status, thus adding a great deal of pressure to test performance and grades. Hence, in most cases, this leads many people to become anxious when presented with examinations (Huberty, 2010). This form of anxiety is known as cognitive test anxiety. Spielberger and Sarason (1989) define cognitive test anxiety as a situation-specific trait that refers to the anxiety states and worry conditions experienced during examinations. The level of cognitive test anxiety can fluctuate over time in response to both internal and external stimulation. Observable behaviors of cognitive test anxiety can be noticed during the completion process of a quiz, a test or an examination. Some of those behaviors might include perspiration, excessive movement and questioning of instructions.

A disruption or disorganization of effective problem-solving and cognitive control, including difficulty in thinking clearly, can also lead to cognitive test anxiety (Freidman & Bendas-Jacob, 1997).

These anxiety related behaviors during cognitive testing conditions may in one way or another affect academic performance of students. Indeed, a minimal amount of cognitive test anxiety is needed to mobilize human beings to respond rapidly and efficiently; but when in excess, it may foster poor response and even inhibit negative response (Simpson, Parker & Harrison, 1995). Hence, too much cognitive test anxiety during examination may interfere with students' concentration on the test, thus lowering their performance in examination (Cassady & Johnson, 2002).

In the current study, the following measures of cognitive test anxiety were considered: academic procrastination, locus of control and academic resilience. Academic procrastination involves the habits of studying lessons in the late night hours and at the last minute (Hess, Sherman & Goodman, 2000). Sirois and Pychyl (2002) study revealed that students who procrastinate had high stress, poor coping strategies and also avoidance behaviors. Those students who suffered from such avoidance coping styles resisted completing assignments and addressing other deadlines that eventually evoked tension and anxiety. Thus, such students are bound to experience high cognitive test anxiety and records low academic achievement. Locus of control is another correlate of cognitive test anxiety and academic a performance. Locus of control (or location of control) refers to people's very general, cross-situational beliefs about what determines whether or not they get reinforced in life. Another important correlate of cognitive test anxiety and academic performance considered in this study was academic resilience. Resilience usually refers to a measure of stress coping ability. It involves personal competence, trust in one's instincts, positive acceptance of change, control and spiritual influences (Connor & Davidson, 2003). Research evidence has indicated that personal resources like mastery, adaptability and emotional stability combine to produce resilience that would buffer negative effects of cognitive test anxiety on academic performance (Prince-Embury, 2005). Hence, learners with high academic resilience are expected to have low test anxiety and attain high standards of academic performance.

Majority of research work done on the effects of test anxiety on students' academic performance mainly indicates a negative relationship between cognitive test anxiety and academic performance (Huberty, 2010; & Parks-Stamm, Gollwitzer & Oettingen, 2008). This implies that increase in cognitive test anxiety lowers test performance of students. However, the findings in studies carried out by Ndirangu, Muola, Kithuka and Nassiuma (2009) and Vogel and Collins (2008) found no relationship between cognitive test anxiety and academic performance of students.

The above conflicting research findings call for more empirical studies to validate the relationship between cognitive test anxiety and academic performance of public secondary school students in Rivers State.

Statement of the Problem

Today, many students suffer from cognitive test anxiety when facing difficult academic tasks. According to Nelson and Harwood (2011), students with learning disabilities often face more anxiety than general education students. Different students respond differently to cognitive test anxiety. Teaching self-regulation in early childhood is important to reduce the development of school related anxiety at an early age (Zelazo & Lyons, 2012). Cognitive test anxiety can have a negative effect on the information processing system. People with cognitive test anxiety have difficulty storing and retrieving information. Some students are very difficult to formally or informally assess because of anxiety. Not all teachers understand the signs of cognitive test anxiety and the effects on their students.

Also, academic performance of public secondary school students in Nigeria has been declining over time. This has a negative reflection on the various programmes put in place to promote academic performance in the area. It will be interesting to investigate cognitive text anxiety as a contributing factor to student's performance among students in public secondary schools. It is this gap that the study seeks to fill, hence the need to investigate cognitive test anxiety and academic performance of public secondary school students in Rivers State.

Research Questions

The following research questions were raised to guide the study:

- (1) To what extent does failure anticipation enhance academic performance of male and female students in public secondary schools in Rivers State?
- (2) To what extent does off task-behaviour improve academic performance of male and female students in public secondary schools in Rivers State?
- (3) To what extent does intrusive thought motivate academic performance of male and female students in public secondary schools in Rivers State?

Hypotheses

The following null hypotheses were tested at 0.05 alpha level.

- Ho₁: There is no significant difference between failure anticipation and academic performance of male and female students in public secondary schools in Rivers State.
- Ho₂: There is no significant difference between off task-behaviour and academic performance of male and female students in public secondary schools in Rivers State.
- Ho₃: There is no significant difference between intrusive thoughts and academic performance of male and female students in public secondary schools in Rivers State.

Definition of Anxiety

Anxiety is a common phenomenon that constitutes a universal cause of poor academic performance among students worldwide. It is a common undisputable fact in human life's that influence an individual's accomplishment in numerous situations, an average level of anxiety is useful in sustaining people hardworking and being responsible of what they have to do (Kahan, 2008; & Donnelly, 2009). Anxiety was defined by Asadullapoor, Fati, and Gharaee (2010) as a feeling that is undesirable and unclear like when someone predicts a danger situation. Extreme level of anxiety impedes individual mental and physical health and also has a negative effect on their personal, social, familial, occupational, and educational performance. One of the broadest research areas in recent years has been test anxiety and its dimensions. It is a kind of anxiety which turn out especially during examination.

Anxiety is defined as "a painful or apprehensive uneasiness of mind usually over an impending or anticipated ill" (Merriam-Webster, 2012). Students experiencing academic anxiety feel apprehensive over academic tasks. Students can feel anxiety related to every academic task. Some may only feel anxiety related to test taking or other specific tasks. Anxiety is not always negative. Some students can be motivated by anxiety.

Concept of Cognitive Test Anxiety

According to Kennedy and Wigfield (2014), test anxiety is one of the most important aspects of negative motivation and has direct debilitating effects on school performance. Dusek (1980) defines test anxiety as "an unpleasant feeling or emotional state that has physiological and behavioural concomitants, and that is experienced in formal testing or other evaluative situations." As a teacher, it can easily be observed that test anxiety is a relatively stable predisposition in evaluative Studies show that "moderate levels of anxiety can lead to optimal performance on certain tasks; nevertheless, performance can deteriorate when anxiety is too high or low." Test-anxious children tend to receive low grades, poorer scores, and perform more poorly on tests (Ergene, 2011).

The initial used label of "worry" insufficiently represents the broad class of cognitive processes we associate with test anxiety, this dimension subsequently will be referred to as "cognitive test anxiety." Cognitive test anxiety is composed of individuals' cognitive reactions to evaluative situations, or internal dialogue regarding evaluative situations, in the times prior to, during, and after evaluative tasks. The thoughts that are commonly entertained by individuals dealing with high levels of cognitive test anxiety centers on (a) comparing self-performance to peers, (b) considering the consequences of failure, (c) low levels of confidence in performance, (d) excessive worry over evaluation, (e) causing sorrow for their parents, (f) feeling unprepared for tests, and (g) loss of self-worth etc.

Cognitive test anxiety affects performance in tests; therefore it affects academic achievements of students because tests are seen as an indicator of academic performance. Cognitive test anxiety is defined as “the type of performance anxiety resulting from fear of failure in an academic evaluation setting” (Ergene, 2011). Cognitive test anxiety has been overwhelmingly identified as a two-factor construct, consisting of the cognitive (often referred to as “worry”) and emotional (or affective) components. The prime view of the association between these two factors suggests the cognitive component that directly influences the performance of students in exams, while the emotionality component is associated but does not directly persuade test performance. The individual might experience a feeling of distress that their performances are being prudently observed out to be assessed (Cheraghian, Fereydouni, BarazPardejani & Bavarsad, 2008). Sometimes this can lead to low confidence or poor academic performance.

Cognitive test anxiety is an undesirable reaction toward evaluation. It is the most important problem that is faced by the students in their education worldwide (Khosravi & Bigdeli, 2008). This test anxiety is a psychological condition in which students experience extreme distress and anxiety in test situations. A little anxiety during exams is required that will help students to get motivated and learn. Mounting up so much of anxiety will not help the student to perform rather it will influence the academic performance negatively (Coon & Mitterer, 2009). The psychological symptoms that build up in students before a test includes restlessness, unusual body movements, difficulty in concentrating, insomnia, fatigue, muscle contraction, abdominal pain, and tremors (Porto, 2013). These symptoms have negative consequences on student lives and professional growth (Ferreira, Almondes, Braga, Mata, Lemos & Maia, 2014).

Cognitive test anxiety is “the set of phenomenological, psychological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situations.

Cognitive, or worry component and the emotional component are two distinctive components of test anxiety. He further asserted that worry refers to cognitive concerns about test performance. Thoughts of, or worrying about, failing an examination and internal self-statements regarding self efficacy are elements of the worry component (Sansgiry & Sail, 2006). Note that the worry emotionality distinction suggests that the physiological responses are indicators of the emotionality. These researchers suggested that there would be a negative correlation between worry and test performance, but emotionality and pulse rate would not be related to test performance.

Concept of Academic Performance

Academic performance is depicted as the outcome of education. It is generally thought that academic performance refers to how well a student is accomplishing his or her tasks and studies. Academic performance commonly measured by examinations or continuous assessment (Ward, Stoker, Murray-Ward, 1996). Academic performance is the knowledge obtained or skills developed in the school subjects usually designed by test scores or marks assigned by the teacher. Academic performance also entails the knowledge attaining ability or degree of competence in school tasks usually measured by standardized tests and expressed in a grade or units based on pupils’ performance. Greenwood Dictionary of Education defined academic performance as the attainment of knowledge, competencies, and higher-level status, as reflected in grades, degrees, and other forms of certification or public acknowledgement (Collins, & O’Brien, 2011).

National and international assessment studies also reflects on student’s performance. On the contrary, students take exams of various kinds and are placed into educational institutions according to the result of such exams. More importantly, the factor considered in the placement of students in university departments and by extending their future is the type of high school from which they graduated. The success achieved by Science high schools in students placement in the universities make such schools attractive and increases the importance of exams made for secondary school transition tests (Bal, 2011). In our educational system today and all over the world, exams or tests, as mentioned before, are used to determine students’ academic achievement. It is easily assumed that students’ academic performance is measured by classroom-based tests at school or some high-stake exams nationwide. Tests or exams are referenced to determine the academic performance of students. Various factors which affect students’

academic performance are said to be eminent, such as attitude, socioeconomic status, parents, peers, teachers, self-efficacy, motivation, ability, learning environment, test anxiety etc. (Noguera, 2003). Lastly, cognitive test anxiety has a significant effect on students' performance.

METHODOLOGY

This study adopted the experimental research design. The population of this study was 650 respondents which consisted of students from Community Secondary School Ahai Ogbakiri Emohua, Community Secondary School Rumuekini Obio-Akpor, and those in County Grammar School Ikwerre Etche, all in Rivers State. Since it was difficult to reach the exact number of students in the selected institutions, the Tsaro Yeman formula was used to obtain a sample size of 295 while the stratified sampling technique was adopted for the study. A structured questionnaire entitled "Cognitive Test Anxiety and Academic Performance" (CTAAP) with a four point rating scale was designed. The instrument was validated by two experts in Measurement and Evaluation. The Kuder Richardson approach was used to measure the reliability of the instrument which shows an acceptable level of reliability with a value of (0.85). The arithmetic mean was used to answer the stated research questions, while T-Test statistic was used in testing the formulated hypotheses at 0.05 alpha level.

RESULTS

Test of Hypotheses

Hypothesis I: There is no significant difference between failure anticipation and academic performance of male and female students of public secondary schools in Rivers State.

Table 1: T-test analysis of the difference between failure anticipation and academic performance of male and female students in public secondary schools

Variables	N	X	S.D	DF	Standard Error	t-cal	t-cri	Result
Male	295	43.962	6.997	323	0.462	11.710	1.88	Accept (HO ₁)
Female	295	40.289	6.340					

Source: Survey Data, 2017.

Decision:

Since the calculated t-value (11.710) is greater than the t-critical value (1.88) at 0.05 alpha level, the null hypothesis is hereby rejected and the alternate accepted. This implies that there is a significant difference between failure anticipation and academic performance of male and female students.

Hypothesis II: There is no significant difference between off task-behaviour and academic performance of male and female students in public secondary schools in Rivers State.

Table 2: T-test analysis of the difference between off-task behaviour and academic performance of male and female students in public secondary schools

Variables	N	X	S.D	DF	Standard Error	t-cal	t-cri	Result
Male	295	51.282	7.807	323	0.573	9.531	1.88	Accept (HO ₂)
Female	295	50.704	6.340					

Source: Survey Data, 2017.

Decision:

Since the calculated t-value (9.531) is greater than the t-critical value 1.88, the null hypothesis is hereby rejected hence the alternate which states there is a significant difference between off task-behaviour and academic performance of male and female students is accepted. This implies that a significant difference exist between off task-behaviour and academic performance of male and female students.

Test of Hypothesis III: There is no significant relationship between intrusive thoughts and academic performance of male and female students in public secondary schools in Rivers State.

Table 3: T-test analysis of the difference between intrusive thought and academic performance of male and female students in public secondary schools

Variables	N	X	S.D	DF	Standard Error	t-cal	t-cri	Result
Male	295	61.212	7.807	323	0.712	12.41	1.88	Accept (H ₀₃)
Female	295	56.492	8.223					

Source: Survey Data, 2017.

Decision:

Since the calculated t-value 12.41 is greater than the t-critical value 1.88, the null hypothesis is hereby rejected and the alternate accepted. This implies that there is a significant difference between intrusive thoughts and academic performance of male and female students in public secondary schools in Rivers State.

DISCUSSION OF FINDINGS

One of the major findings of this study was that there is a significant difference failure anticipation and academic performance of students. This implies that failure anticipation enhances the academic performance of students. However, the term “failure anticipation” is pretty straightforward. It simply means the expectation to fail. Perhaps the most difficult part of anticipating failure is that, in order to overcome it, you need to experience success (Ader & Erktin, 2010). According to him, there are four main causes of failure anticipation. The first is the complex nature of the environment in which most organizations operate. Complex systems are characterized by multiple linkages between causes and effects, many of which involve non-linearity and time delays. Moreover, many persons in such systems are constantly adapting their behavior in response to feedback about its results and observations about what others are doing (Bensoussan, 2012).

Also it was found that off-task behaviour significantly improves student’s ability to modify and improve their academic performance. This implies that the ability to motivate oneself in face of adversity is the hallmark of a perseverant individual, thus people who can put a positive spin on their negative emotions and end up as performers are prized in organizations. This finding is in line with the view of Beck (2005) that off-task behavior is a symptom of disengagement from a learning experience or activity. High levels of engagement are important for maintaining student motivation and maximizing students’ time-on-task. A number of automated approaches for diagnosing student engagement in some task have been proposed by researchers, including hidden Markov models (Beal, Mitra & Cohen, 2007), item response theory-based approaches (Beck, 2005), and other machine-learning based techniques (Walonoski & Heffernan, 2006). Finally, it was found that there is a significant difference between intrusive thoughts and academic performance of students. This implies that reading improves the academic performance of students. This finding is supported by Rachman (2003) that it interrupts the flow of thought, interferes in task performance and it is also associated with negative effect and difficulty to control one’s activities. This definition is consistent with conceptualizations offered by other researchers interested in this phenomenon. As stated, intrusive thoughts are the key component of Pure Obsessions. The three cognitive manifestations of intrusive thoughts: 1) harmful or aggressive obsessions, characterized by thoughts that one might lose control and cause significant injury to oneself or another person, such as stabbing, strangling, or suffocating people; 2) sexual obsessions, characterized by fear of committing or engaging in inappropriate sexual activities or sexual activities that one finds repulsive, such as thoughts of molesting children, having sex with religious figures, and homosexual or heterosexual ideations; and 3)

religious obsessions, characterized by fear of committing blasphemy, such as having perverse thoughts during prayers and shouting obscene language in places of worship. These intrusive thoughts, similar to intrusive thoughts in other anxiety and mood disorders, fall within a continuum of normalcy.

CONCLUSION

Based on the findings of this study, it can be concluded that the phenomenon of cognitive test anxiety is common in students as they approach examination period, and this is regardless of their age and sex differences, and their schools' residential status. In addition, cognitive test anxiety has a significant positive effect on students' academic performance. The findings are consistent with the conceptual framework that was initially developed to show the interaction of the variables in the study, in which case it was projected that high levels of cognitive test anxiety would lead to low levels of academic performance in students, and vice versa. In a nut share, it is indicated that externalizers experienced low levels of cognitive test anxiety. Nevertheless, failure anticipation, off-task behavior and intrusive task significantly enhance academic performance of public secondary school students.

RECOMMENDATIONS

It is therefore suggested that, there is a need for the curriculum and efforts towards guidance and counseling in schools to include strategies of coping with cognitive test anxiety, and also the development of guidebooks to help students deal with psychological stresses during preparation and undertaking of major examinations. The proposed KNEC law/bill on criminalizing cheating in national exam should not only dwell on punitive measures of results cancellation, fines or imprisonment of defaulters, but it should also incorporate preventive measures of giving guidelines on study skills and preparation for national exam to students, teachers, parents and other educational administrators and stakeholders.

There is also a need for increased awareness to parents, students, teachers and the community of the magnitude of the effect that positive family and school climate characteristics, and motivations bring to every student (both boys and girls) to nurture positive academic behaviors and personality (that is, LOC), hence averting stress and anxieties during exam periods.

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