

Learners' Characteristics and Cognitive Test Anxiety in Semester Examination among Students in National Open University of Nigeria

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ABSTRACT

The paper focused on how learners' characteristics influenced cognitive test anxiety among students of National Open University of Nigeria. The research design used for the study was cross-sectional survey, drawing on the population of 200,000 students at 200 to 400 levels, a sample of 460 were selected using simple sampling technique. Four hypotheses were tested at 0.05 level of significance. The instrument used for this study was Open and Distance Learners' Cognitive Test Anxiety Questionnaire (ODLCTAQ) constructed by the researcher. The reliability coefficient of the instrument was 0.83 using Cronbach Alpha statistics. Chi-square statistics was used to analyse the data in order to test the hypotheses. The findings showed that the influence of employment status on students' cognitive test anxiety was not significant ($\chi^2(6) = 3.028$; $P = .805$) but that students' academic discipline had significant influence on students' cognitive test anxiety ($\chi^2(12) = 25.942$; $P = .011$). Also, geopolitical zone of NOUN students had significant influence on cognitive test anxiety ($\chi^2(6) = 20.331$; $P = .002$). It is therefore recommended that management of National Open University of Nigeria should schedule well-spaced out examination timetable in order to take care of the students who are civil servants and those that work in the private companies to have more time to prepare for examinations so as to reduce their cognitive test anxiety. Faculties should put in place various means of reducing the cognitive test anxieties of the students through effective facilitations, discussions and practical sessions.

Keywords: Learners' characteristics, Cognitive test anxiety, Semester examination, Employment status, Geopolitical zones, Academic discipline

INTRODUCTION

Examination is the avenue used in the educational system to evaluate what the students have learnt at any level of education. Each institution, be it primary, secondary or tertiary, examinations are being held with all seriousness they deserve. At the tertiary level, examinations are always being conducted on students every semester to ascertain what they have attained within the period. As it is happening in conventional (regular) universities so it is in the open and distance system in which National Open University of Nigeria is a single mode. Examination is a period of anxiety for the students because of anticipated success or failure after the papers are written. In National Open University of Nigeria, examination modes are both essay (pen-on-paper) for all students from 300 level to postgraduates while 100 and 200 level students undertake the electronic examination through computer-based tests with objective questions (multiple-choice and fill-in-the blank). The Directorate of Examination and Assessment (DEA) conducts the examination with the study centres administering the examinations. Students are expected to converge at their respective study centres to sit for the examination according to the examination timetable which has

been drawn up for the purpose. Due to mode of instructional delivery of open and distance learning of the content coupled with the other learners' characteristics it is possible for the students to develop some state of uneasiness as the examination approaches.

Anxiety is generally a highly unpleasant affective state coming in form of fear which includes feelings of threats, uneasiness, tension and generalised feeling of apprehension (Theobald, Breitwieser & Brod, 2022). Kumar and Akoijam (2017) considered test anxiety to be various negative emotions a student may associate with while taking an examination. In most cases, the student is worrying about the difficulty of the test and consequences of failure. This state affects the responses of the students and leads to disruption that associates with poor performance in schools and negative thoughts and emotions (Shahjahan, Ahmed, Hadrami, Islam, Hossain, Khan, 2021). Zeidner (2007) opined that trait anxiety is the person's likelihood to be stressed by any given situation. Such learners would become stressed up at the thought of tests or difficult academic assignments without having to be in a situation where they are directly being tested. This makes people to manage all life's situations and not just academics. On the contrary, state of anxiety happens incidentally when learners feel that the examination is difficult or having the notion that they may not perform well in any course or subject. Malloy (2016) concluded that both learners' personal trait and state anxiety produce similar effects. Alam (2017) identified three types of anxiety: reality anxiety as emotional reaction to perception of danger in the external world; neurotic anxiety as effective reaction to perception of danger in the internal world and moral anxiety which is emotional reaction to perception of danger from superego. Each of these anxieties affects the state and comportments of examinees in one way or the other.

Peckrum (2004) saw test anxiety as anxiety subjectively relating to taking test and examinations, including the ones relating to the threats of failure in examination and the associated negative consequences. It was identified that such traits manifest in form of nervousness, worrying cognition, physiological activation, fearful facial expressions and impulses to escape. Kroener, Maier, Berger, and Susic-Vasic (2024) declared that test anxious students experience a reduced sense of self-efficacy, anticipated failure and experience intense emotional reaction at the very first sign of failure. Shafi (2017) corroborated that despite the prevalence of test anxiety, taking tests is a part of every student's life. This means that the focus of achievement testing is an integral part of educational system and the affective reactions of students is becoming more pronounced.

Learners' characteristics refer to the uniqueness and distinctiveness that learners have or exhibit during the course of learning. Learners characteristics focus on different aspects of personal family, professions, occupations, marital status, discipline of study, technological skills, motivations and so on. Duraku (2017) identified seven aspects that are cogent and distinctive. These aspects are technology resources, technology experience, study habits and skills, lifestyle factors, goals and purposes, learning styles and personal characteristics. All of them function together and not in isolation due to interrelationship that exists among them. Students need proper planning, curiosity, open minded-ness, mindful thoughts and know when to stop for them to succeed academically. Open and distance learners have personal characteristics that are demographic in nature. There are also attributes such as age, family size, qualifications, financial status that impact on grades and academic performance of the learners (Theobald, Breitwieser & Brod, 2022)).

A learner with stable habits and attitude is the one who is creative, resilient, adaptable, optimistic, nurturing, challenge seeking, and open to diverse viewpoints, able to embrace changes, collaborative and intrinsically motivated. Apart from these, learners also demonstrate skills and applications in solving complex problems, think critically, communicate effectively using a variety of media and technology, utilize multiple literacy skills, pursue a healthy lifestyle, mediate conflict peacefully and assume responsibility for learning (Wang, Wang & Peng, 2008). All these traits are essential for open and distance learners to possess for effective attainment of their learning goals.

Open and distance learning affords students to retain their employment while undergoing academic programmes. This is in line with the flexibility of the academic structure put in place to suit the working class and still develop them by attaining higher education at National Open University of Nigeria. Coupled with the employment commitment, such students need to create time to write tests and undertake examinations. For the students that are responsible for their own finances and even those of their families, 10-15 hours per week is often not enough. If this is the case, such students have the options of choosing online classes that allow for greater flexibility, working with your advisors and professors to schedule classes and assignments around your outside obligations, and applying for grants, scholarships, or stipends through your school or other organizations. Many of these can be found online and have relatively simple application processes. Yanbarisova (2015) identified two factors: work schedule and correspondence between the type of work and the future profession as being key to stable state of anxiety and performance of students. Students think of different levels of academic performance, different plans for the future, and somewhat different reasons for having entered an institution of higher education. This competition between meeting the demands of employment and fully preparing for tutor-marked assignments and examination will set the students in a state of unrest when examination is approaching. Consequently, the learners' characteristics (employment status, academic discipline, geopolitical zones) and cognitive test anxiety are the main focus of this study.

Statement of the Problem

Open and distance learning students like other students in other conventional universities are faced with a lot of challenges when undertaking examinations. Due to lack of physical contact with the facilitators and tutors, these students often approach the examination with fear and anxieties leading to a varied psychological instability, emotional imbalance and lack of confidence during the writing of the examinations. Apart from institutional challenges, ODL students have diversities in their characteristics in which some are personal while others are in form of habits, attitudes and skills. Demographic students' characteristics such as gender, age, employment status, programme of study, location and family background could influence modes of disorderliness (anxieties) when examination is going on. Therefore this paper examined students' characteristics like employment status, programme of study, mode of examination and geopolitical zones and how these influence the state of cognitive anxieties of National Open University of Nigeria students during the administration of semester examinations.

Hypotheses

1. There is no significant difference in cognitive test anxiety of undergraduate students National Open University of Nigeria based on employment status.
2. There is no significant difference in cognitive test anxiety of undergraduate students National Open University of Nigeria considering academic disciplines.
3. There is no significant difference in cognitive test anxiety of undergraduate students National Open University of Nigeria based on geopolitical zones.
4. There is no significant difference in cognitive test anxiety of undergraduate students National Open University of Nigeria cognizance of modes of examination.

METHODOLOGY

The research design for this study is cross-sectional survey on the population of National Open University of Nigeria 200 and 400 levels undergraduate students. Four geopolitical zones were selected using simple random sampling technique. These were Northwest, North Central, Southeast and Southwest. One study

centre was selected from each selected geopolitical zone. Students from four study centres namely Lagos, Abuja model, Enugu and Kaduna were used. The 200 level students were purposefully chosen because of their exposure to e-examination for two sessions and for 400 level students due to their exposure to pen-on-paper (POP) examination for two sessions. The sample used for the study was 460 selected through simple random sampling. Out of this sample, 253 were 400 level while 207 were 200 level students that sat for POP examination and e-examination respectively. These categories of students were not novices to either e-examination or pen on paper examination. The instrument used for this study was Open and Distance Learners’ Cognitive Test Anxiety Questionnaire (ODLCTAQ) constructed by the researcher. The instrument had two sections: Section A contained the learners’ characteristics such as name of study centre, geopolitical zone, gender, marital status, academic discipline, and educational level, mode of examination and employment status. Section B contained 27 cognitive test anxiety items to elicit the levels of anxiety of NOUN students during semester examination. This scale is on a four response format of Very typical of me, Quite typical of me, Only somewhat typical of me, and Not at all typical of me. The reliability coefficient of the instrument was 0.83 using Cronbach Alpha statistics. The researcher targeted the second semester examination period in 2019 to administer the questionnaire to the students from each of the four centres selected. Researcher administered the questionnaire at the Lagos study centres but at Abuja model and Enugu study centres, the Faculty of education helped to administer the questionnaire. The completed and retrieved questionnaire amounted to the number of sample used.

The copies of the completed questionnaires were scored using Very typical of me, 4; Quite typical of me, 3; Only somewhat typical of me, 2 and Not at all typical of me, 1. The scores were reversed for negatively worded items. The maximum test anxiety score obtainable was 96 as against 27 that was the minimum score obtainable. The students were categorized to High cognitive test anxiety (HCTA) if score was from 65 to 96, Moderate cognitive test anxiety (MCTA) if scored 33 to 64 and Low cognitive test anxiety (LCTA) if attained a score 0 to 32. The statistical tool used to analyse the data was Chi square forming the contingency tables with levels of students’ characteristics and cognitive test anxiety

RESULTS

The results of the analysis based on the stated hypotheses are presented as follows:

Hypothesis one: There is no significant difference in cognitive test anxiety of undergraduate students of National Open University of Nigeria based on employment status.

Table 1: Chi-square of cognitive anxiety and NOUN students’ employment status

Employment Status	Cognitive Test Anxiety Levels			Total
	LCTA (%)	MCTA (%)	HCTA (%)	
Not Employed	2(1.2)	120(70.6)	48(28.2)	170
Self Employed	0(0.0)	80(71.4)	32(28.6)	112
Civil Service	1(1.0)	69(68.3)	31(30.7)	101
Private companies/firms	1(1.3)	59(76.6)	17(22.1)	77
Total	4	328	128	460

$\chi^2(6) = 3.028; P = .805; \text{Cramer's } V = .057$

From Table 1, 31(30.7%) NOUN students who are civil servants had the highest cognitive test anxiety for examinations followed by those that were self-employed with 32(28.6%) having high cognitive test anxiety. Seventeen (22.1%) of the NOUN students used in the study that are working in the private companies had moderate cognitive test anxiety when writing semester examination. The χ^2 score of 3.028 with P value of

.805 and Cramer’s V value of .057 show that the significance There is no significant difference in cognitive test anxiety of undergraduate students of National Open University of Nigeria based on employment status of employment status was not significant. It also depicts that the relationship between employment status and cognitive test anxiety was very low and was not significant.

Hypothesis two: There is no significant difference in cognitive test anxiety of undergraduate students National Open University of Nigeria considering academic disciplines.

Table 2: Chi-square of cognitive anxiety and NOUN students’ academic discipline

Academic Disciplines	Cognitive Test Anxiety Levels			Total
	LCTA (%)	MCTA (%)	HCTA (%)	
Arts	2(2.7)	42(57.5)	29(39.7)	73
Education	0(0.0)	57(82.6)	12(17.4)	69
Social Sciences	1(.6)	107(68.2)	49(31.2)	157
Management sciences	1(.8)	88(69.8)	37(29.4)	126
Health sciences	0(0.0)	17(100)	0(0.0)	17
Law	0(0.0)	11(91.7)	1(8.3)	12
Agriculture	0(0.0)	6(100)	0(0.0)	6
Total	4	328	128	460
$\chi^2 (12) = 25.942; P=.011; \text{Cramer's } V = .168$				

Table 2 reveals that NOUN students from the Faculty of Arts had the highest cognitive anxiety with 29 (39.7%) having highest cognitive test anxiety followed by those from the Faculty of Social Sciences in which 49(31.4%) possessed high cognitive test anxiety. 37(29.4%), of the students from the Faculty of management sciences showed moderate cognitive test anxiety. NOUN students at the Faculties of Agriculture, Health sciences and Law had the lowest cognitive test anxiety in that order. It is also shown that $\chi^2 (12)$ value of 25.942 with a P value of .011 and Cramer’s V of .168 confirms that there was a significant difference in NOUN students’ cognitive test anxiety based on academic discipline and that there existed significant low positive relationship between academic discipline and students’ cognitive test anxiety.

Hypothesis three: There is no significant difference in cognitive test anxiety of undergraduate students of National Open University of Nigeria based on geopolitical zones.

Table 3: Chi-square of NOUN students’ cognitive anxiety and geopolitical zones

Geopolitical Zones	Cognitive Test Anxiety Levels			Total
	LCTA (%)	MCTA (%)	HCTA (%)	
South East	4(1.9)	152(69.4)	63(28.8)	219
North Central	0(0.0)	32(53.3)	28(46.7)	60
North West	0(0.0)	94(80.3)	23(19.7)	117
South West	0(0.0)	50(78.1)	14(19.7)	64
Total	4	328	128	460
$\chi^2 (6) = 20.331; P=.002; \text{Cramer's } V = .149$				

Table 3 shows that 28(46.7%) of the NOUN students from North central geopolitical zone had the highest cognitive test anxiety in examination as 63(28.8%) of students from South east zone followed by having

high cognitive test anxiety. Students from Southwest and Northwest zones had the lowest CTA. This implies that NOUN students from North Central had the highest CTA while those from Southwest had lowest cognitive test anxiety during examination. It is also discovered that the difference in cognitive test anxiety considering the geopolitical zone of NOUN students was significant ($\chi^2 (6) = 20.331; P=.002$) and there existed a significant low positive relationship between geopolitical zone and cognitive test anxiety (Cramer's V = .149).

Hypothesis four: There is no significant difference in cognitive test anxiety of undergraduate students in National Open University of Nigeria taking the cognizance of modes of examination.

Table 4: Chi-square of NOUN students' cognitive anxiety and geopolitical zones

Geopolitical Zones	Cognitive Test Anxiety Levels			Total
	LCTA (%)	MCTA (%)	HCTA (%)	
Pen-on-paper examination	0(0.0)	189(74.7)	64(25.3)	253
Electronic examination	4(1.9)	139(67.1)	64(30.9)	207
Total	4	328	128	460
$\chi^2 (2) = 7.093; P=.029; \text{Cramer's } V = .124$				

From Table 4, 64(30.9%) of NOUN students used for this study and sat for e-examination had higher cognitive test anxiety while 64(25.3%) of those that took the pen-on-paper examination had high cognitive test anxiety. It is therefore deduced that NOUN students that took e-examination (objective) had higher cognitive test anxiety than those that sat for pen-on-paper (essay). The Cramer's V value of .124 with $\chi^2 (2)$ of 7.093 and P value of .029 depicts that there was a significant difference in cognitive test anxiety of NOUN undergraduate students based on mode of examination. Also, there existed a significant low positive relationship between modes of examination and cognitive test anxiety.

DISCUSSION OF FINDINGS

It was discovered from this study that employment status has no significant influence on students' cognitive test anxiety and also a not significant positive relationship existed between them. General opinion of people is that National Open University of Nigeria was established for working class people who have opportunity to further their education. The new trends of having youths who are not working enrolling in the university due to bottlenecks confronted from admissions into the conventional universities is now prevailing. Determination to attain degree certificates by ODL students whether working or not made them not to be affected by test anxiety when taking tests or writing examinations. Chakraborty (2023) also concluded that cognitive test anxiety exerts a significant stable and negative impact on academic performance measures. Therefore, working or not working has nothing to do with the levels of cognitive test anxieties and both categories have courage to face semester examinations without being fearful, fidgeting or be in a state of instability as they write examinations.

Academic discipline had significant influence on students' cognitive test anxiety and that there existed significant low positive relationship between academic discipline and students' cognitive test anxiety. The pure and social science related courses have elements of quantitative nature and they often pose threats on ODL students where they seldom have contact with their lecturers. Quantitative based courses are not easy to assimilate without a teacher and students in that line feel uncomfortable and lack confidence to face examination without being afraid. Law and arts academic programmes could be read up and easily understood by students without assistance from any instructors. When students are motivated on discipline

to discipline performance is usually improved due to low test anxiety. Balogun, Balogun & Onyencho (2017) discover that achievement motivation significantly moderated the relationship between test anxiety and academic performance

Geopolitical zone of NOUN students had significant influence on cognitive test anxiety and there existed a significant low positive relationship between geopolitical zone and cognitive test anxiety. NOUN students from North central and followed by those from South east had high cognitive test anxiety during examination. The characteristic nature of NOUN students at the North Central zone generally and Abuja that has the bulk of the students specifically are prone to busyness that have been influenced by national capital activities which affect their times of studying when preparing tests and examinations. It is difficult for them to cope with the city challenges like traffic jams, workplace, environmental influences and high population which affect their time of studying for examinations and resulted in the development of phobia towards test and examination. Most of the South East NOUN students combine business with academics. Such students spend most of their times in business transactions at the expenses of serious studying of their course materials and causes inadequate preparation for examinations. The more the NOUN students are committed to business activities, the greater the level of cognitive test anxiety during examinations.

There was a significant influence of mode of examination on NOUN students' cognitive anxiety. Also, there existed a significant low positive relationship between modes of examination and cognitive test anxiety. The outcomes of this study corroborate Malloy (2016). that found out that a relationship exists between psychological characteristics and anxiety of distance learners. This supported the findings of Nakayama, Yamamoto & Santiago (2007) that learner characteristics had impact on students' online assimilations and performance.

This is revealed in the fact that students that sat for e-examination often had higher test anxiety than those that took pen-on-paper examination. Since the e-examination involves the use of computer, open and distance learners are skeptical about not having enough skills in handling computers to write examination, fear of technical problems which the systems might develop during the examination, tendency of computers to log them out before the end of the time allotted for paper and power failure that might disrupt the examination. These challenges are not common to the taking of essay mode of examination. When the mode of examination use for open and distance learning students are less challenging, it is also realised that the cognitive test anxiety would be drastically reduced. But if the mode of examination is surrounded with a lot of envisaged problems by the students, it is likely going to raise their anxiety for such an examination.

CONCLUSION

It has been established from the study that students' mode of employment, geopolitical zones and academic discipline negative influence on NOUN students' cognitive anxieties. Students that took electronic examination had higher cognitive test anxiety than those that sit for pen-on-paper examinations. It becomes very imperative for management of National Open University of Nigeria to look inwards into the conduction of semester examinations in order to reduce as much as possible the cognitive anxiety of the students.

RECOMMENDATIONS

In view of the findings of this study, the following are recommendations

1. Students who are civil servants and those that work in the private companies should seek for permission from their employers to have more time to prepare for examinations so as to reduce their cognitive test anxiety
2. Faculties of Arts and Social science should put in place various means of reducing the cognitive test anxieties of the students through effective facilitations, practical sessions and well-paced out

examination time table.

3. NOUN management should assist students from North East and North Central study centres to ensure that security measures are put in place during examination period in order to make students have rest of mind when writing semester examination.
4. Open and distance learning institutions should conduct e-examinations in such a way that would not generate cognitive test anxiety on students by providing workable computers, consistent power supply and quality test items.

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