

RELATIONSHIP BETWEEN TEST ANXIETY AND INTEREST OF STUDENTS IN ELECTRICAL INSTALLATION WORK PRACTICAL IN TECHNICAL COLLEGES IN FEDERAL CAPITAL TERRITORY, ABUJA

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Abstract

The study investigated the relationship between test anxiety and students' interest in Electrical Installation and Maintenance Work (EIMW) Trade Practical in Technical Colleges in Federal Capital Territory (FCT), Abuja. The study adopted correlation research design. Three research questions and three hypotheses guided the study. The population for this study comprised of 111 EIMW students in all Government Technical Colleges in FCT, Abuja of Nigeria. The entire population was used for the study. EIMW Test Anxiety Scale (EIMWTAS) and EIMW Interest Inventory (EIMWII) were the instruments used for the study. The EIMWTAS and EIMWII were subjected to reliability analysis using Cronbach Alpha to determine their internal consistency and reliability index of 0.93 and 0.91 were obtained for the instruments respectively. The data collected was analyzed using mean and regression analysis at 0.05 level of significance. The results showed that there was a significant low relationship between students' test anxiety and students' interest in EIMW Practical in Technical Colleges and gender significantly moderates the prediction of students' interest in EIMW. Consequently, it was recommended among other things that; early intervention and proactive prevention programmes that would aid the reduction of anxiety and nervousness in students be developed and implemented so as to increase students' interest in EIMW Practical and students.

Keywords: Anxiety, Text anxiety, Interest, gender

Introduction

Practically all workers in the field have, at one time or another, been concerned with the stimulus that elicits anxiety. Anxiety is a situation in which an individual is in a constant state of worry or is always nervous regardless of normal actions (Hayes and Strosahl, 2004). He added that this state of anxiety eventually leads to anxiety disorders which are then regarded as emotional or psychological health conditions. Anxiety is a general feeling of apprehension or dread accompanied by predictable physiological change, increased muscle tension, shallow rapid breathing, cessation of digestion, increased perspiration and drying of mouth- state of psychological disorders (Chukwu, 2011). Anxiety and anxiety related disorders are one of the most common mental reasons for seeing medical professionals today (Hayes and Strosahl, 2004). They added that, this is reason why statistics reveal that about quarter of people in the society have exhibited symptoms of anxiety disorders.

Anxiety is defined in terms of expressive behavior, general level of activity, and a whole class of diagnostic, behavioural and physiological symptoms. While these three general classes of variables- antecedent, organism and consequent- provide a general overview of the extent of the problem of anxiety, they are like most categories in the behavioural science, hardly mutually exclusive. Anxiety causes an individual to borrow from future problems and therefore, suffers the present fear. Anxiety is a general feeling of apprehension or dread accomplished by predictable physiological changes (Chukwu, 2011). Anxiety is an aspect of emotions in which there is fear and uncertainty about the future. For those who suffer from examination anxiety, psychological symptoms such as sweaty palms, nausea, muscle contractions, difficult breathing, tiredness in the throat, headaches, heart palpitations, restless behaviours, forgetfulness and a temporary boost in one's heart rate are familiar (Adewale, 2011).

Test anxiety is the anxiety aroused in evaluative situations, especially by the variety of tests administered in most educational institutions (Chukwu, 2011). It is the feelings of fear, anxiety and nervousness associated with bodily symptoms that interfere with solving Electrical Installation and Maintenance Work (EIMW) Trade problems in classes, courses, examination, tests and also in daily activities that may involve practical. From all indication test anxiety appears to be a force confronting students.

Mkpaoro (2006) pointed out that if stressful conditions and consequent test anxiety are not too high; performances of various kinds such as interest are enhanced. She added that if anxiety level is high, there is the tendency that performance breaks down and an inappropriate behavior is observed. The level of anxiety a student have for a situation also depend on the interest the student have for that situation. Hence, the anxiety can influence the interest of students in school subjects like Mathematics, Physics, chemistry, biology English language and EIMW Trades.

Interest is one of the personality qualities which has attracted many definitions and meaning from various scholars in different disciplines like psychology, social psychology, sociology and social science to mention but a few. Although the term is frequently used, it is still in semantic flux. According to Obodo (2002) interests are the determinants of success second in importance to intelligence. This means that interest in any endeavour will definitely lead to success in such an endeavour. Interest involves a sense of concern with and curiosity about something, for instance, students having an interest in technology subjects (Owodunni, 2011). Students' interest in learning are associated with students' anxiety to learn. Interest is fundamental in any individual's choice task. It consists of feelings and tendencies towards concrete matter. A characteristic feature of interest is a manifestation of a different preference toward actions, events or plans. A student's interest in academic achievement will induce him to behave and act in a certain way towards his studies. Interest can therefore be viewed as an emotionally- oriented behavioural trait which determines pupils' vim and vigor in tackling educational programmes or other activities (Ale, 2002).

Interest is an important variable in learning because when one becomes interested in an activity, one is likely to be more deeply involved in that activity. Teaching EIMW Practical in an interesting manner will enhance better learning by students. There is therefore the need to adopt strategies, meaningful materials and ideas that will generate and sustain students' interest in EIMW practical. In other words the phobia for EIMW practical will likely and naturally aggravate anxiety any time a test on EIMW Trade Practical is mentioned.

Hembree as referred in Chukwu (2011) argued that test anxiety in practical activities is directly connected with class avoidance and nervousness during practical activities. The author stress further that an anxious child is one who is unduly concerned about neither understanding what his teacher is saying nor what his teacher expects of him, who normally experience tension when called upon to answer questions and who suffers acute distress before and during school examination. Tobias as referred in Chukwu (2011) defines test anxiety in subject like EIMW Trade Practical as feelings of tension and anxiety that interfere with the manipulation of numbers and the solving of EIMW problems in a wide variety of ordinary life and academic situations and can cause one to forget and loose one's self-confidence in a test condition.

Factors that can create test anxiety are parents, friends or teachers that may pass their biased ideas to the students to make them believe that there is a connection between grade and self-worth. The fear of alienation by parents, family or friends due to poor grades induces, anxiety on the students making them feel that they are not in control.

Gender is another factor that can influence student interest in EIMW Trade Practical. Sex is the psychosocial aspect of maleness and femaleness (Edebor, 2002). As a factor in EIMW Trade Practical interest, sex has remained inconclusive because Reyes and Stanicas referred by Jahun and Mommoh (2001) reported that male students achieved at higher level than female students in Mathematics and Jahun in Jahun and Mommoh reported that girls performed better than boys in their interest tests. Ugwu in Etukudo (2002) investigated the extent which boys and girls respond to test anxiety and reported that there were no gender differences in interest in relation to test anxiety. It is possible that if these students are highly motivated despite their gender differences and their test anxiety, they can record high level of academic achievement in EIMW Trade Practical.

In other words the phobia for EIMW trade concepts may likely and naturally increase anxiety any time test on EIMW Trade Practical is mentioned. While building of interest of students in EIMW Trade Practical may likely help the students to develop high opinion of competence and confidence, which is believed to translate into quality academic achievement. It is therefore in a bid to authenticate the above beliefs and support existing findings by aforementioned researchers that this present study is geared towards establishing relationship between test anxiety and interest of students in EIMW Practical.

Statement of the Problem

There is generally poor attitude by students in EIMW Trade Practical and this has been a thing of great concern to technical and vocational educators, parents and government. The students lack interest in EIMW Practical and as well show great sign of anxiety whenever test in EIMW Practical in particular is given to them. Supporting the existence of problems in school subjects in a number of countries, the International Commission on Instruction as referred in Chukwu (2011) stated that 'students do not seem to perform well as expected in tasks involving the solutions of Practical problems. The problem of this study therefore can be summarized in this question; what is the relationship between test anxiety and interest of technical colleges' students in EIMW Practical in FCT?

Aim and Objectives of the Study

The aim of this study is to investigate the relationship between test anxiety, and interest of students in EIMW practical in Technical Colleges in Federal capital Territory, Abuja'. Specifically, the study sought to determine:

1. The relationship between test anxiety and interest of students in EIMW Practical in Technical Colleges.
2. The mean test anxiety scores of male and female students in EIMW Practical in Technical Colleges
3. The mean interest scores of male and female students in EIMW Practical in Technical Colleges.

Research Questions

In this study the following research questions were investigated:

1. What is the relationship between test anxiety and interest of students in EIMW Practical in Technical Colleges?
2. What is the mean test anxiety score of male and female students in EIMW Practical in Technical Colleges?
3. What is the mean interest score of male and female students in EIMW Practical in Technical Colleges?

Hypotheses

The following hypotheses are formulated and tested at 0.05 alpha levels.

HO₁: There is no significant relationship between test anxiety and interest of students in EIMW Practical in Technical Colleges

HO₂: There is no significant difference in the mean test anxiety scores of male and female students in EIMW Practical in Technical Colleges

HO₃: There is no significant difference in the mean interest scores of male and female students in EIMW Practical in Technical Colleges.

Research Methods

The study adopted a correlational survey research design. The study established the nature of relationship between the criterion variable (students' test anxiety) and the predictor variables (interest of TC students in Electrical Installation and Maintenance works (EIMW) Trade practical). According to Nworgu (2006), correlational survey study is the type of study that seeks to establish the relationship that exists between two or more variables. This study was carried out in Federal capital Territory (FCT), Abuja, Nigeria. FCT has 3 Government Science and Technical Colleges (GSTC). These GSTC include: -GSTC, Garki, GSTC Kwali and Federal science and Technical Collge, Orozo. The population for this study consists of all the Year Two students (NTC II) of EIMW in these GSTC.

Out of the schools in the three technical colleges, two technical colleges were randomly selected for the study and one intact class each were assigned to experimental and control groups through balloting. In all, there were 56 students (44 male and 12 females) for experimental group and 62 (49 male and 13 female) to control group. The instruments used for data collection were Electrical Installation and Maintenance Work Practical Test Anxiety Scale (EIMPTAS) and Electrical Installation and Maintenance Work Practical Interest Inventory (EIMPII). The EIMPTAS and EIMPIIS are four- point rating scale twenty item scale that the researcher constructed to measure EIMWP Trade Practical test anxiety and EIMWP interest. The students were requested to indicate their level of agreement or disagreement with various items. Each instrument has two sections. Section A is on personal data of the students and section B measured the students' test anxiety or students' interest. The two instruments were scored in the order of Strongly agree (SA) -4, Agree (A) -3, Disagree (DA) -2, strongly disagree (SD) -1 for positively cued items and in the reverse other for negatively cued items. For EIMPTAS, responses to items 1, 2, 4, 8, 9, 11, 14, 18, are positively cued while responses to items 3, 5, 6, 7, 10, 12, 13, 15, 16, 17, 19, 20 are negatively cued. For EIMPII, responses to items 1, 2, 4, 5, 8, 9, 10, 12, 13, 15, 16, 18, 20, are positively cued while responses to items 3, 6, 7, 11, 14, 17, 19, are negatively cued. For both EIMPTAS and EIMPII, the mean score is 2.50. Scores from 1.00-1.49 was classified as very low test anxiety while scores from 1.50-2.49 was classified as low test anxiety or low interest, scores from 2.50-3.49 was classified as moderate test anxiety or moderate interest and scores from 3.50 and above were classified as high test anxiety or high interest. This implies that values from 3.50 and above show high test anxiety or high interest which leads to low academic achievement or interest. The total score obtained by each student was taken as an index of the students' test anxiety or interest level for EIMW Trade Practical.

The two instruments were validated three expert in EIMW Trades education and two experts in measurement and evaluation from Federal University of Technology, Minna. The instruments were trial tested by administering them on 30 EIMW students in GSTC Minna, Niger State. The data obtained were used for the calculation of the reliability indices. Cronbach's Alpha was used to calculate the reliability indices of the two instruments. Reliability indices of both were found to be 0.84 and 0.69 respectively. These were considered to be high enough for a good internal consistency.

The researcher administered copies of EIMPTAS and EIMPTII as pretest before practical class session and posttest after four contacts of two hours each practical session to the students in the three GSTC schools involved in the study. All the copies of the instruments administered were collected back at the spot. The students' responses were then scored and the data generated were used for statistical analysis.

The data collected was analyzed using Pearson's Product moment Coefficient (r) for research questions 1 and 2 because relationship between two variables are being sought for. Also mean and standard deviation were used to answer research questions 3, 4 and 5. Test of significance of correlation coefficient in hypotheses 1 and 2 was tested at 0.05 level of significance while independent samples t-test was used to test hypotheses 3, 4, and 5 at 0.05 level of significance.

Results

Research Question One and Hypothesis One

RQ1: *What is the relationship between test anxiety and interest of students in EIMW Practical in Technical Colleges?*

HO₁: *There is no significant relationship between test anxiety and interest of students in EIMW Practical in Technical Colleges*

Table 1: Correlation between test anxiety and interest scores of students in EIMW Practical in Technical Colleges

Test variables		r	interest
Test Anxiety	Pearson correlation	1	-.674**
	Sig. (2-tailed)		.000
	N	105	105
Interest	Pearson Correlation	-.674**	1
	Sig. (2-tailed)	.000	
	N	105	105

** . Correlation is significant at the 0.05 level (2-tailed).

Table 1 reveals that the correlation between the variables is $-.674$ with a probability value of $.000$. This implies that there exist a high negative relationship between test anxiety and students' interest in EIMW Trades Practical. A probability value of $.000$ at $.05$ level of significance shows that there is a significant relationship between test anxiety and students' interest in EIMW Practical. Hence, the higher the test anxiety, the less the students' interest in EIMW Trades Practical.

Research Question Two and Hypothesis Two

RQ2: *What is the mean test anxiety scores of male and female students in EIMW Practical in Technical Colleges?*

HO₂: *There is no significant difference in the mean test anxiety scores of male and female students in EIMW Practical in Technical Colleges*

Table 2: t-test analysis of the difference in the mean test anxiety scores of male and female students in EIMW Practical in Technical Colleges.

	Number			Df	t-cal	Sig. (2-tailed)
Gender		Mean	Deviation			
Male	93	82.34	11.97			
Female	25	78.38	12.34	118	1.987	.031

Table 2 reveals that Male students had mean test anxiety score of 82.34 with a standard deviation of 11.97 while the female students had mean test anxiety score of 78.38 with a standard deviation of 12.34. Independent samples t-test analysis shows that the probability associated with the calculated value of t (1.987) is .031. Since the probability value of .031 is less than .05 level of significance, the null hypothesis is rejected meaning that there is a significant difference in the mean test anxiety of male and female students with the male students having high test anxiety.

RQ3: What is the mean interest scores of male and female students in EIMW Practical in Technical Colleges?

HO₃: There is no significant difference in the mean interest scores of male and female students in EIMW Practical in Technical Colleges.

Table 3: t-test analysis of the difference in the mean interest scores of male and female students in EIMW Practical in Technical Colleges

	Number			Df	t-cal	Sig. (2-tailed)
Gender		Mean	Deviation			
Male	200	73.56	11.20			
Female	188	76.03	12.07	116	-1.86	.012

Table 3 reveal that Male students had mean interest score of 73.56 with a standard deviation of 11.20 while the female students had mean interest score of 76.03 with a standard deviation of 12.07. Independent samples t-test analysis shows that the calculated value of t (-1.86) has a probability value of .012. Since the probability value of .012 is less than .05 level of significance, the null hypothesis is rejected meaning that there is a significant difference in the mean interest scores of male and female students in favour of the female students.

Discussion of Results

The study revealed that there was a high negative relationship between test anxiety and students interest in EIMW Practical. It means that the higher the test anxiety, the less the students' interest in EIMW Practical. This means that students who have high test anxiety tend to show less interest and the students who have low test anxiety show high interest. The magnitude of their association also

revealed a very high relationship between the two variables anxiety and interest. Also, the degree of association or linkage between anxiety and interest was found to be -0.081 and the percentage of association ($r^2 \times 100$) was 82.8%. This indicates the magnitude of their association showing a very high relationship between the two variables anxiety and interest. The degree of their lack of association is 0.165 while the percentage reduction in error of prediction (r^2) for anxiety and interest was found to be 0.672.

In a nutshell, the relationship between test anxiety and interest was statistically significant. The magnitude of the relationship was high and percentage of prediction of one variable from another was also high. This finding has clearly shown that students with negative interest to EIMW Practical are more anxious than those with positive interest to it. The finding is similar to the work of Chukwu (2011) and Skemp found in Mkpaoro (2006) who conducted a study on relationship between test anxiety and interest and agreed that students with positive interest to Mathematics have less test anxiety on the subject and that test anxiety has negative correlation with Mathematics. This also in agreement with the findings of Jon-Chao, Ming-Yueh, Tsui-Fang, Yu-Ju, (2013) who conducted a survey to examine participants' test anxiety and interest in using their new computer-assisted game. According to the survey, students felt this new programme is interesting and would like to play again in the future. Also those students whose degree of anxiety lowered complete the test, and as such tend to have greater interest in playing the game.

However, the finding of this research is contrary to the finding of Mkpaoro (2006). His study showed that students with positive interest in Mathematics are more anxious than those with negative interest to the subject, and that test anxiety has a positive correlation with interest.

There is a significant difference in the mean test anxiety of male and female students with the male students having high test anxiety. This means that the male students' test anxiety was higher than that of their female counterparts. The result of this finding is in line with that of Edebor (2002) and Chukwu (2011) who carried out study on test anxiety and discovered that there was a significant difference in female students' test anxiety and their academic achievement. On the analysis, the result of this study shows high level of test anxiety in the males. The influence on this finding could be as result of certain intervening variables such as students' family background, learning environment and sex. According to Philip in Mkpaoro (2006), sex of students can make him/her have either higher or low level of Anxiety in a subject having compared himself with his or her peer groups. Nevertheless the finding of this research is in contrast to the finding of Nadeemetal (2012), who in their study discovered that female students had more test anxiety compared to the male students.

There is a significant difference in the mean interest scores of male and female students in favour of female students. This finding is similar to that of Mgbajiaka in Mkpaoro (2006) who conducted a study on the interest and attitude of male and female students towards biology and discovered that the female students have high interest in the subject. This result is also in line with the findings of Mkpaoro (2006) which stated that students with positive interest to Mathematics have less anxiety on the subject and that anxiety has negative correlation with the subject. The main reason why the male had more anxiety is because their female counterparts had more interest and as such less anxiety. It therefore follows that the difference in male and female participation and grasping of a topic like EIMW Practical could be more of psychological factors in the nature of perception and interest. Interest towards something consists of a person's collection of facts about the concept, which may enable him to feel antipathy towards it, and it will manifest in either acceptance or avoidance of the concept.

At this point the researcher wish to point out that positive interest will lead to persistence and better academic achievement. Odogwu (2002), Opined that girls EIMW Practical marks are likely to be more predicable because of their interest than that of the boys. In addition he noted that correlation between interest and academic achievement varies with grade level.

Conclusion

This study determined the relationship between test anxiety and interest of Technical College students in EIMW Practical in FCT. The study concluded that there exist a high negative relationship between test anxiety and students interest in EIMW Practical. Hence, the higher the test anxiety, the less the students interest in EIMW Practical. This means that students who have high test anxiety tend to show less interest and the students who have low test anxiety show high interest. In addition, it was discovered that male students had more test anxiety than the female students, and since interest is highly negatively related to test anxiety, the female students with higher interest could not have had more test anxiety than their male counterpart. This is therefore the major reason why the female students had more interest than the male students, while the male students had more anxiety which were clearly seen in their high academic achievement in Technical Colleges EIMW Practical.

Recommendations

Based on the findings from this study, the following recommendations were made:

1. Since, there exist a high negative relationship between test anxiety and students' interest in EIMW Practical, it is worthwhile to find out the source and level of test anxiety these students have. If they are not really interested in acquiring knowledge but in passing their test, there is therefore an urgent need for teachers and other bodies concerned to seek a way to reverse the trend.
2. There is need for proper orientation to be given to the students in the area of EIMW Practical by the school management, government and professional bodies as to the importance of EIMW Practical to national development. This will increase their positive anxiety rates, which will leads to increase in their interest and academic achievement in EIMW Practical.

References

- Adewale, J.G. (2008). Effect of Brainstorming on Students' Achievement in Junior Secondary school Mathematics: An Effort in making schools effective. *Journal of sociology and Education in Africa. & (1), 203-218*
- Adewale J.G. (2011). Teacher factor on students' anxiety in Junior secondary school mathematics; A study in school Effectiveness. *African Journal of Science, Technology and mathematics education. 1 (1), 1-16.*
- Ale, S.O. (2002). An Address of Welcome for Summit Workshop at national mathematics Centre Abuja 12th to 5th October
- Chukwu, L. O (2011). Relationship among test anxiety, academic achievement and interest of senior secondary school students in geometry in Enugu state, Unpublished M.Ed thesis, University of Nigeria, Nsukka, Enugu State
- Edebor U. F. (2002). Relationship between Anxiety, Self-concept and Academic Achievement in Biology. Unpublished M.Ed Thesis. Uniport.
- Etukudo, U. E (2002). The Effect of Computer Assisted Instruction on Gender and Performance of Junior Secondary Students in Mathematics. *ABACUS Vol.27 (1) 1-8.*
- Hayes, S. and Stroschal, K. (2004). *A practical Guide to Acceptance and commitment therapy*: Springer Melissa J. Bell, Demand media Inc

- Jahun I .U. and Mommoh J.S. (2001): the Effects of Environment and sex on the Mathematics achievements of Junior Secondary School Three Students in KwaraState. *ABACUS Vol.26(1).53-58.*
- Jon-Chao Hong (2013). The Relations Between Students' Anxiety And Interest In Playing. An Online Game Department Of Industrial Education, National Taiwan Normal, University tcdahong@gmail.com
- McDonald, A. S. (2001). The Prevalence and Effects Of Test Anxiety In School Children. *Journal of Educational Psychology. 21: 89-101.*
- Mkpaoro I.E. (2006): The Relationship among Test Anxiety, Academic Achievement and Interest of Students in Senior Secondary Mathematics in River State. *An Unpublished MED Thesis UNN.*
- Nadeem M, Akhtar A, Saira M, and Syeda U, Zaidi I.(2012) Impact of Anxiety on the Academic Achievement of Students Having Different Mental Abilities at University level in Bahawalpur (Southern Punjab) Pakistan, *International Online Journal of Educational Sciences, 2012, 4 (3), 519-528*
- Nwachukwu T.A (1999), *Psychology of Learning* Nsukka : Ike and Awice.
- Nworgu, B.G. (2006): *Educational Research: Basic Issues & Methodology 2nd Edition.* Nsukka University Trust Publishers.
- Obodo, G.C. (2002): Developing Positive Attitude and Interest of Mathematics Students in Nigeria Secondary Schools. A paper presented at NMC Abuja during the summit workshop 4-6th October.
- Owodunni A. S. (2011). Effects of Reflective Inquiry Instructional Techniques on students achievement and interest in Technical Colleges in Lagos State. *Unpublished PhD thesis, University of Nigeria Nsukka*