RELATIONSHIP BETWEEN EXAMINATION ANXIETY AND STUDENTS' ACADEMIC PERFORMANCE IN A PSYCHOLOGY COURSE

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Abstract

The relationship between examination anxiety and the academic performance of 150 university diploma students in a psychology course was investigated. A correlation survey design was utilized and data generated were analyzed with the Pearson Product Moment Correlation coefficient and Multiple regression statistic. It was found that though there was a negative relationship between examination anxiety and academic performance in the psychology course, the relationship was not significant at the .01 level of significance. Also, sex and course of study of the students did not significantly affect the relationship between their examination anxiety and academic performance in the psychology course. (Nigerian Journal of Professional.

. Examination Anxiety, which is also called "Test Anxiety" in research literature, is a state of uneasiness, worry or feelings of uncertainty about an impending or ongoing evaluation program. Studies have shown that a high level of examination anxiety leads to poor academic achievement (Sweetnam, 2002; Austin, Partridge, Bitner and Wadlington, 1995; Cassady, 2001). Sweetnam (2002:2) posits that examination anxiety "affects both high achievers and low achievers with similar results: poor performance at evaluation time in school". In a study by Musch and Broder (1999), the relative effects of Test Anxiety, study Habits and Mathematics skills on performance in a statistics examination were investigated. The aim of their study was to compare Test Anxiety Models as predictors of performance in examination. Their subject consisted of sixty-six (66) undergraduates enrolled in introductory statistics course at the University of Bonn. By using hierarchical multiple regression analysis on the data generated, they found that both test anxiety and academic skills (mathematics skill) contributed significantly to performance in a statistics examination. They, therefore, concluded that the academic performance of highly test-anxious students is affected both directly, by their lack of knowledge, and indirectly, by the cognitive distraction created by task-irrelevant thinking in the test situation itself. Three (3) models have been identified to explain the theory of examination anxiety and how it affects academic performance. These models are:

1. Interference Model (Sarason, 1988 and Wine, 1980)
2. Deficit Model (Birenhaum and Pinku, 1997)
3. Interference Deficit Model or Between Theory (pluralistic) approach (Musch and Broder, 1999).

The Interaction between these three models is represented in figure 1.

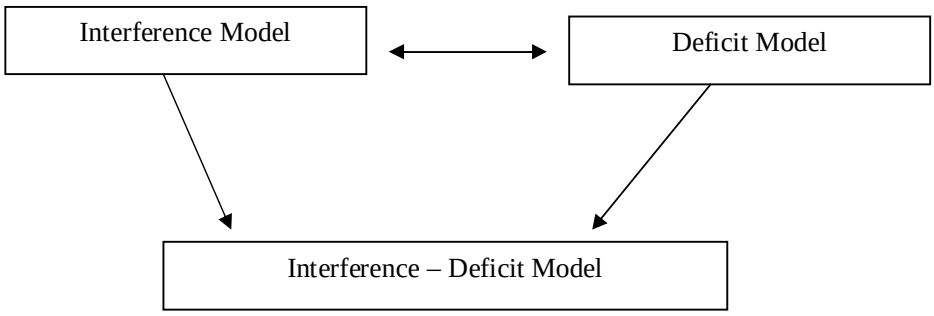

Fig. 1: Model of Relationship between Examination Anxiety and Academic Performance.
Source: Diagrammatic Representation of Ideas from Musch and Broder (1999).

The Interference Model: This refers to the test anxious student as one who knows the course material, but freezes up during examinations and therefore fails to recall learned material (Hembree, 1990). In the Wine, (1980) explanation of this model, students with high levels of test anxiety tend to divide their attention between task (test-taking demands) and negative self-pre-occupation (worry and emotions) under examination conditions hence performance is interfered with. The poor academic performance of highly test-anxious students was therefore seen as a consequence of this interference of negative thoughts and emotions during the period of examinations.

The Deficit Model on the other hand, accounts for the low academic performance of the highly test-anxious students in terms of a deficit or insufficient knowledge of the course material due to poor study habits or other variables in addition to the meta-cognitive awareness of this insufficient knowledge at the time of taking examinations (Birenhaum and Pinku, 1997). The thrust of the Deficit model is that poor academic performance is the outcome of inadequate mastery of course material rather than interference in recalling material that has been thoroughly learned. In other words, test anxiety does not cause poor academic performance rather it is just an emotional reaction that accompanies the awareness of being inadequately prepared for the examination (Musch and Broder, 1991).

The Deficit Model does not see either of the two models (Deficit or Interference) as mutually exclusive. Benjamin Mckeahie, Lin and Holinger (1981) conceptualized the two models as complementary rather than contradictory. This line of thought was further corroborated by the Navch-Benjamin, Mckeachie and Lin (1987) study in which they discovered two types of test-anxious students-those with poor study habits who have problems understanding, organizing and recalling material, and those with good study habits whose major problem is recalling information during examinations.

Purpose of the Study

The purpose of the present study is to further investigate the relationship between examination anxiety and academic performance while taking into cognizance the sex and course of study of the students.

Research Questions

The research questions that guided the study were:

1. What is the nature of the relationship between examination anxiety and academic performance of students in a psychology course?

2. Does the sex of the students affect the relationship between their examination anxiety and academic performance?
3.
4. Does the course of the students affect the relationship between their examination anxiety and academic performance?

Research Hypotheses

The following null hypotheses were tested in this study.

Ho_1: There is no significant relationship between students' examination anxiety and their academic performance in a psychology course.

Ho_2: There is no significant predictive correlation among students' examination anxiety, sex and their academic performance in a psychology course.

Ho_3: There is no significant predictive correlation among students' examination anxiety, course of study and academic performance in a psychology course.

Method of the Study

Population and Sample of the Study: The population of the study consisted of 1,500 first year Diploma students of the Institute of Education, Delta State University, Abraka in the 2001/2002 Academic Session. From this population, a sample size of 150 students (60) males and 90 females were selected by means of proportionate stratified random sampling technique from five course areas Viz: PHE = 10; Chemistry = 22; Nursery Education =22; Biology =41; and Mathematics = 55 the study was a correlation survey design.

Research Instrument

The Test Anxiety Inventory (TAI) by Spielberger (1980) was used to measure the examination anxiety level of the students. TAI is a 20 –item self-report scale that measures individual differences in test anxiety as a situation specific personality trait. Subjects responding to TAI are instructed to indicate how they generally feel on a four (4) point frequency rating scale of Almost never" "Sometimes", often" "Almost Always. TAI measures both worry and Emotionality components of examination anxiety and the reported correlation coefficients of TAI with test anxiety scale by Mandler and Sarason (1952) is 0.82 for males and 0.83 for females. TAI is a standardized instrument that is used worldwide to measure examination anxiety including Nigerian Students (Morakinyo, 1986).

Data Collection

TAI was administered to the subjects in a classroom situation towards the end of their second semester in early 2003 close to the end of semester examination when examination anxiety was believed to have been aroused in the students. The TAI was scored and the students' scores on the TAI were matched with their academic performance in the compulsory psychology course, which all the students took in that semester.

Data Analysis Result

Ho_3: There is no significant relationship between students' examination anxiety and their academic performance in a psychology course.

This hypothesis was tested with the Pearson Product Moment Correlation and Bivariate Regression as presented in Table 1, 2, 3 and 4.

Table 1: Descriptive Statistics of Anxiety and Academic Performance

	Mean	Std Deviation	N
Anxiety	39.47	10.35	150
Performance	40.15	13.70	150

Table 2: Correlation of Anxiety and Academic Performance

	Anxiety	Performance
ANXIETY Pearson Correlation	1.000	-040
Sig. (2-Tailed)		.626
Sum of Squares and	15955.393	
Cross-Products	107.083	-848.413
Covariance		-5.69
N	150	150
PERFORMANCE: Pearson Correlation	-040	1.000
Sig. (2-Tailed)		626
Sum of Squares and	-848.413	27960.773
Cross-Products		
Covariance	-5.694	187.656
N	150	150

Table 3: ANOVA[b] of Anxiety and Academic Performance

Model	Sum of Square	Df	Mean Square	F	Sig
Regression	45.114	1	45.114		
Residual	27915.660	148	188.619	..239	.626[0]
Total	27960.773	149			

a. Predictors (Constant), ANXIETY
b. Dependent Variable: PERFORMANCE

Table 4: Coefficient [a] of Anxiety and Academic Performance

	Unstandardized Coeffieient		Standardized Coefficient			95% confidence for 8		Correlation	
Model 1									
	8	Std Error	Beta	1	Sig	Lower Bound	Upper Bound	Zero-order	Partial
(Constant	42.246	4.436-	-040	9.524	.000	33.480	51.012	-.040	-.040
ANXIETY)		5.317E-02.	109	-.489	.626	-.268	.162		

Dependent Variable: Performance. The data in Table 2 show a negative correlation between examination anxiety and academic performance (Pearson r = -0.040). This relationship is not significant at the 1-tailed but significant at 2-tailed. Tables 3 and 4 show the regression summary of the F-ratio and t-values. The F-ratio of 239 is not significant. Therefore, the null hypothesis that there is no significant relationship between students' examination anxiety and their performance in a psychology course is upheld. Research Question 1 is also answered by the indication of negative correlation between anxiety and academic performance.

Hypothesis 2: There is no Significant Predictive Correlation among Students' Examination Anxiety, Sex and their Academic Performance in a Psychology Course**.**

The above Hypothesis was tested with the Multiple Regression Statistics as Presented in Table 5.

Table 5: Regression Summary of Correlation among Examination Anxiety, Sex and Academic Performance of Students.

Equation number	1		
Dependent variation	PERFORMANCE		
Listwise Detection of missing Data			
Multiple R	-04223		
R Square	-00178		
Adjusted R Square	-01180		
Standard Error	13.77934		
	Analysis of Variance		
	DF	Sum of Squares	Mean Square
Regression	2	49.865	24,93246
Residuals	147	27910.908	189.87013
F =	13131	sign F= .8770	

Variables in the equation

Variable	B	SETB	Beta	T	sig T
ANXIETY	-054381	-109354	-041080	-497	.6197
SEX	.370229	2.34006	.013068	.158	.8745

Correlation Matrix of Parameter Estimates

	ANXIETY	SEX
ANXIETY	1.0000000	-0697960
SEX	-.0697960	1.0000000

Covariance Matrix of Parameter Estimates

ANXIETY	.0119583	-.0178631
SEX	-.0178631	5.4775005

Data in Table 5 show that anxiety and sex jointly accounted for less than 1% (0.178%) of the variance in academic performance (R^2 = .00178 and Adjusted R^2 = - .01180 which is -1.18%). The F-ratio of 13131 is not significant and the same with the t-value for each of the independent variables (anxiety and sex). Therefore, there is no significant predictive correlation among the variables of examination anxiety, Sex and students' academic performance in a psychology course. The second research question that seeks the effect of sex of students on the relationship between their examination anxiety and academic performance is also answered in the negative. There is no significant effect of sex on the relationship between examination anxiety and academic performance

Hypothesis 3: there is no significant predictive relationship among students' examination anxiety, course of study and academic performance in a psychology course.

The above hypothesis was tested with multiple regression statistic as presented in Table 6.

Table 6: Regression Summary of Correlation Among Examination Anxiety, Course and Academic Performance of Students.

Equation number	1				
Dependent variation	PERFORMANCE				
Listwise Detection of missing Data					
Multiple R	.09547				
R Square	-00911				
Adjusted R Square	-00437				
Standard Error	13.72865				
	Analysis of Variance				
	DF	Sum of Squares	Mean Square		
Regression	2	254.840	127.42020		
Residuals	147	27705.933	188.47573		
F =	.67606	Dignif F= .5102			
Variable	B	SETB	Beta	T	sig T
ANXIETY	-037903	.109646	-0028632	-346	.730
Course	.935696	.887025	-087372	1.055	.29
(Constant)	45.129840	5.209426			

Correlation Matrix of Parameter Estimates

	ANXIETY	SEX
ANXIETY	1.0000000	-1320345
Course	-.1320345	1.0000000

Covariance Matrix of Parameter Estimates

ANXIETY	.01202225	-01284151
Course	-01284151	.78681294

Data in Table 6 show that anxiety and course of study accounted for 0.911% of the variance in academic performance (R^2 = .00911 and Adjusted R^2 = - .000437 or -.437%). The F-ratio and t-values are not also significant. Therefore, there is no significant predictive correlation among students' examination anxiety, course of study and their academic performance in the psychology course. The third research question is also answered in the negative.

Discussion of Findings

The major findings of this study are:

1. There was no significant relationship between students' examination anxiety and their academic performance in a psychology course.
2. Examination anxiety and sex of students did not significantly affect their academic performance in a psychology course.
3. Examination anxiety and course of study of students did not significantly affect their academic performance in a psychology course.

The above findings of this study seem to contradict the result of previous researches on the relationship between examination anxiety and academic performance such as those of Sweetnam, (2002); Spielberg and Vagg (1987, 1995); Mush and Broader (1999); Elliot, McGregor and Gable (1999). Whereas, these previous studies found examination anxiety as having a strong negative

relationship with academic performance, our present study is suggesting that such a relationship though negative is not significant. One reason for the result of the present study could be the method adopted for the study. The subjects were randomly selected from the population and the TAI was administered to them and their TAI scores were correlated with their academic performance in a psychology course while taking into cognizance their gender and course of study or department. This method is rather straightforward and simplistic compared to the more rigorous experimental designs such as a Grade Point Average (GPA) or Cumulative Grade Point Average (CGPA) would provide a much clearer picture. It is note-worthy, however, that the results of the present study suggest a negative relationship between examination anxiety and academic performance. The effects of other potent variables such as study habits, motivation and intelligence, which was not investigated in this present study, may have also accounted for the findings of this study.

Conclusion and Recommendations

This study investigated the relationship between examination anxiety and students academic performance in a psychology course. It was found that though the relationship between examination anxiety and students' academic performance in the psychology course was negative; such a relationship was not significant. Also, the gender and course of study of the students did not significantly affect this relationship between anxiety and performance in the psychology course.

It is therefore, recommended that the effects of examination anxiety on the academic performance of students could be as a result of other potent variables such as study habit, motivation or level of intelligence acting in consonance with examination anxiety to bring about negative impacts on academic performance. Therefore, the present study seems to land credence to the Defect Method or Theory of the relationship between examination anxiety and academic performance.

References

Austin, J. S., Partridge, Bitner, J. & Willington E. (1995) *Prevent school failure: Treat test anxiety, preventing school failure* 40(1) 10-13.

Benjamin, M., McKeachie, W., Lin, Y. & Holinger, D. (1981). Test Anxiety: Deficits in Information Processing, *Journal of Educational Psychology*73 (3) ,81-6-824.

Birenhaum, M. & Pinku, P. (1997). *Effects of text anxiety, information organization and testing situation on performance on two test formats.* Contemporary Education.

Cassady, J. C. (2001). The Stability of Undergraduate Students' Cognitive Test, Anxiety Levels, *Practical Assessment, Research and Evaluation.* 7(20),38-50.

Hembree, R. (1990). The Nature, Effects and Relief of Mathematics Anxiety. *Journal of Abnormal and Social Psychology,* 47(3),228-229.

Handler, G. & Sarason, S. (1952). A Study of Anxiety and Learning. *Journal for Research for Mathematics Education,* 21(4),34-46.

Morakinyo, A. (1986). Improving Academic Performance Via Anxiety Reduction. *Nigerian Journal of Educational Psychology* 4(1) 79-83.

Musch, J. & Broder, A. (1999). *Test* Anxiety Versus Academic Skills: A Comparison of Two Alternative Models for Predicting Performance in Statistics Exam. *British Journal of Educational Psychology,* 69(1),105-116.

Naveh-Benjamin, M. McKeachie, W. & Lin, Y. (1987). Two Types of Test Anxious Students; Support for Information Processing Model. *Journal of Educational Psychology,* 79(2),131-136.

Sarason, I.G. (1988). Anxiety, Self-Proccupation and/attention. *Anxiety Research International Journal.* 1(1),3-8.

Spielberger, C. D. (1980). *The Preliminary Professional Manual for Test Anxiety Inventory.* PoloAlto, C. A. Consulting Pschologists Press Inc.

Spielberger, C. D & Vagg, P.R. (1995). *Test Anxiety: Theory Assessment and Treatment* Washington D.C. Taylor Francis, 3-14.

Spielberger, C. D. Vagg, P.R. (1987). The Treatment of Test Anxiety: A Transactional Process Model. In R. Shwarzer, H.M.: Vander Plocg & C.D. Spielberger, (Eds.) *Advances in Test Anxiety Research* (5) Lisse: Swetsand Siethiger, 179-187.

Sweetam, K. R. (2002). *Test taking strategies and student achievement* Cloquct, Minncsola; Running Head.

Wine, J. D. (1980). Cognitive Attention Theory of Test Anxiety. In I.G. Sarason (Ed). Test Anxiety: *Theory, Research and Applications,* Hillsdale, N.J. Erlbaum, 349-385.