

Full Length Research Paper

Effect of test anxiety, gender and perceived self-concept on academic performance of Nigerian students

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190 students randomly selected from senior secondary schools in Akwa Ibom State, Nigeria participated in this study. The instruments used for the measurement of the construct included Spielberger (1980) Test Anxiety Scale, Hudson (1982) Self-Esteem scale, and gender through demographic data. A 2x2x2 factorial design was adopted in this study while a three way analysis of Variance (ANOVA) for unequal sample sizes was used for data analysis. The result showed that the subjects with low anxiety performed better than those with high anxiety [$F(1, 182) = 3.87, p < .05$], subjects with high self concept performed better than those with low self concept [$F(1,182) = 7.59; p < .05$] and female gender performed better than the male gender [$F(1,182) = 16.99; p < .05$]. In addition, there was an interaction of anxiety and self concept [$F(1, 182) = 10.69; p < .05$]; anxiety and gender [$F(1, 182) = 5.13, p < .05$] and anxiety, self concept and gender [$F(1, 182) = 7.76; p < .05$]. It is recommended that the blood pressure of students be tested with their emotions calm down by psychologists before the commencement of exams. Also, psychologists should be used to employing conditioning, behaviour modification, counselling and modelling to build self concept in students.

Key words: Anxiety, gender, self concept, academic performance.

INTRODUCTION

In Nigeria, academic excellence, qualifications and high performance attainment have been regarded very seriously as the parameters for recruitment, placement and advancement in both public and private sector organizations. More importantly, these parameters are also highly adopted in selection of candidates for admission into tertiary institutions and colleges. Due to this high premium placed on academic performance, individuals do everything possible to obtain excellent results. This no doubt places those concerned, particularly students at varying levels of anxiety and tension in the process, since success in examinations may implicitly be synonymous in work and life.

Fianu (1981) asserted, "the structure of the educational

system tends to give legitimacy to the inordinate premium put on academic performance as the criteria for recruitment and success in life. Because of the importance attached to tests and their grades as predictive factors, anxiety has been raised in the minds of those concerned. Davidson and Sarason (1960) rightly pointed out in their study that test anxiety is caused by parents who criticize and expect perfection from their children. Based on this expectation and the society's demand for excellence, the children on their part strive to compete and excel. This urge to excel results in high anxiety which may also result in negative test performance.

According to Mary (1950), anxiety is a vague apprehension or uneasiness (which cannot be explained) and

a high level of emotionality. It is characterized by feelings of uncertainty and helplessness. Seligman et al. (2001) defined it as a physiological state characterized by cognitive, somatic, emotional and behavioural components which combine to create sweating, dizziness, headaches, racing heartbeats, nausea, fidgeting, drumming on a desk, fear, apprehension and worry. Furthermore, Spilberger and Sarason (1989) saw test anxiety as a situation specific trait that refers to the anxiety states and worry conditions that are experienced during examinations.

Another factor that predisposes individuals to negative or positive academic performance is the perception of one's self concept. Rhonda (1991) observed that the study of self concept is vital in the field of psychology and is widely accepted as a desirable educational goal which is frequently posited as a mediating variable that facilitates the attainment of other desired outcomes such as academic achievement. Burns (1979) pointed out that self concept is a composite image of what we think, we are, what we think, we can achieve, what we think others think of us, and what we would like to be. In line with the foregoing, Olowu (1990) held the view that self concept is the system of perceptions which the organism formulates of the self in awareness of its distractive existence.

Turning to gender, Myers (2002) defined gender as the characteristics, whether biological or socially influenced, by which people define male or female. Interest in the impact of gender on academic performance has attracted mixed reports. While some proposed that males perform better than females in academics, others argue that the reverse is the case, and still others say that the difference in performance between the two is insignificant. By and large, this research is targeted at uncovering the role played by anxiety, self concept and gender in enhancing or debilitating academic performance.

LITERATURE REVIEW

Several studies have linked high anxiety to academic performance. Mandler and Sarason (1952) developed a test anxiety scale based on items such as acceleration of heart beat, uneasiness and worry before and during testing. Their result in general implied that high anxiety interfered with test performance while low anxiety appeared to prove helpful. Wine (2003) discovered that in tasks in which evaluation test was needed, low test anxious students seemed to perform better than high test anxious individuals. Furthermore, Alpert and Herber (1960) in their study of the influence of anxiety on academic performance found out that debilitating anxiety interferes with performance in examinations, while facilitating anxiety enhances academic performance. Davidson and Sarason (1960) in a study also discovered that the urge to excel as a result of parent's high expectations may result in high anxiety which invariably

results in negative test performance of their wards.

In relation to self concept, Iroegbu (1990) reported that students who scored low on a measure of self concept saw themselves as less competent and also learned to read with greater difficulty than other children. Irwin (1999) summarized his research findings by stating that positive self concept is not only more important than studying, but that it is a central fact when considering optimal academic performance. Likewise, Brookover et al. (1997) demonstrated that a positive significant correlation between self concept and academic performance existed, even when intelligence score were controlled. A successful student sees himself in essentially positive ways. Also, Multon et al. (2007) found out that self concept beliefs are related to academic performance and account for approximately 14% of the variance in student's academic performance. Similarly, in a study involving post-graduate students, Lane and Lane (2001) reported that self concept to cope with the intellectual demands of the programme predicted 11.5% of the variance in performance in a complex task.

In relation to gender research finding in this area has been mixed. Mednick and Thomas (1998) observed that achievement motive is difficult to arouse in women and so their academic performance is probably lower than that of men. However, other researchers found no sex differences or a higher score on success avoidance for men than for women (Elizux, 1994; Tresemester, 1993). It has also been found that females score higher on average than males on test of verbal abilities (Halpern, 1992; Stumpt, 1995). On the other hand, males score higher on average than females on test of mathematical ability (Hyde et al., 1997; Halpern, 1992; Stumpt, 1995). According to Powell (1999), girls perform better at all grade levels including arithmetic than boys and that girls perform better than boys in the primary grade in all subjects.

From the foregoing, it could be seen that test anxiety, perceived self concept and gender are all factors that can affect academic performance. Several researchers have studied these constructs as separate entities, but the present study seeks to go beyond that by articulating the three constructs in one singular study in order to uncover if there are interaction effects amongst the three independent variables, apart from clarifying the inconsistencies and controversies.

HYPOTHESES

The following hypotheses would therefore be tested in the course of the study:

1. There would be a significant effect of test anxiety on academic performance.
2. There would be a significant effect of self concept on academic performance.

Table 1. 2 x 2 x 2 ANOVA summary table of the effect of test anxiety, gender and perceived self- concept on academic performance of Nigerian students.

SOV	SS	DF	MS	F-RATIO	P
A (Anxiety)	34.66	1	34.66	3.87	<.05
B (Self Concept)	67.99	1	67.99	7.59	<.05
C (Gender)	152.21	1	152.21	16.99	<.05
AB (anxiety self concept.)	95.77	1	95.77	10.69	<.05
AC (Anxiety and Gender)	46.00	1	46	5.13	<.05
BC (Self Copt. and gender)	23.33	1	23.33	2.60	>.05
ABC (Interaction)	69.55	1	69.55	7.76	>.05
S/ABC (Error)	1629.94	182	8.96		
T (Total)	2119.45	189			

Key: Sov, Source of variation; SS, Sum of squares; DF, Degree of freedom; MS, Mean squares; P, Probability level.

- There would be a significant effect of gender on academic performance.
- There would be a significant interaction effect of the variables on academic performance.

METHODOLOGY

Participants

The samples used for this study were 190 subjects drawn from the senior secondary schools in Akwa-Ibom State of Nigeria. The age range of the subjects was between 15 – 20 years of age.

Instruments

The instruments utilized in this study were Spielberg (1980) Test Anxiety Scale ($r=.80$ and $.60$, test-retest reliability on two different samples of students, at different times). A 20-item liker type scale has four point scoring format 1-4. A score of 41 – 80 indicates high test anxiety while a score of 0 – 40 indicates low test anxiety. Self concept as measured with index of Self Esteem Scale has an alpha of $.93$ and a test retest coefficient of $-.92$ (Hudson 1982). It has a likert type scoring format from 1 – 5, with a baseline score of 30.39 for males and 32.04 for females having high self esteem, and higher scores than these indicating low self esteem. Results of raw scores of the students in their Senior Secondary School National Examination were used as indices of their academic performance while the demographic data provide information on gender.

Procedure

The battery of tests was administered to the subjects based on the simple random sampling technique. All respondents who were randomly selected in their schools took part in the research willingly and not out of compulsion.

Design and Statistics

A 2 x 2 x 2 factorial design was used for the study while a three way Analysis of variance (ANOVA) for unequal sample sizes was adopted for the analysis of the data. The f test was used for the test of significance of the results.

RESULTS

Result in Table 1 showed that there was a statistically significant effect of test anxiety on academic performance $\{F(1,182) = 3.87, P <.05\}$. The first hypothesis was therefore accepted, meaning that students with low anxiety performed better than students with high anxiety. Furthermore, there was also a statistically significant effect of self concept on academic performance $\{F(1, 182) = 7.59, P <.05\}$. The second hypothesis was also accepted implying that students with high self concept performed better in examinations than students with low self concept.

In addition, it was discovered that gender also had a statistically significant effect on academic performance $\{F(1, 182) = 16.99, P <.05\}$. The direction of the results showed that the female gender scored higher than the male gender in academic performance, and thus the third hypothesis was accepted. This means that females performed better than males in examination.

Finally, there were series of interaction effects noticed which were significant, that is, anxiety and self concept $\{F(1, 182)=10.69, P <.05\}$; anxiety and gender $\{F(1,182) =5.13, p <.05\}$; anxiety, self concept and gender $\{F(1,182) = 7.76, P <.05\}$. However, there was no statistically significant interaction between self concept and gender on academic performance $\{F(1, 182) =2.60, P >.05\}$. This means that low anxiety and high self concept increase academic performance. Also low anxiety, high self concept and female gender interact to bring about better academic performance.

DISCUSSION

The findings of this study have confirmed the fact that high test anxiety is a major factor that leads to poor academic performance. This is because as Seligman et al. (2001) pointed out, anxiety is a physiological state characterized by cognitive, somatic, emotional and

behavioural components which combined to create sweating, dizziness, headaches, racing heartbeats, nausea, fidgeting, fear, apprehension and worry. There is certainly no doubt that one under this form of intense pressure is bound to be disorganized and make mistakes which invariably translates to poor academic performance. This result is quite in line with the study of Mandler and Sarason (1952) who found out that high anxiety interfered with test performance while low anxiety appeared to be helpful. Also Wine (2003) in affirmation, through his own study discovered that on tasks in which evaluative tests was needed, low test anxiety students seemed to perform better than high test anxiety individuals.

In terms of self concept, the result showed that individuals with high self concept performed better than those with low self concept. This result is in line with the findings of Irwin (1999) who stated that positive self concept is a central fact when considering optimal academic performance. In addition, this finding is also supported by the findings of Brookover et al. (1997) who demonstrated that a positive significant correlation between self-concept and academic performance exists, even when intelligence scores are controlled. Thus, the way one sees himself is very critical to how he approaches his work, his determination and the energy that goes into his impetus to succeed.

Gender has also been found to have an effect on academic performance. However, most surprising is the fact that the female gender performed better than the male gender in academic performance. Although the issue of findings in respect to gender and performance has been controversial, generally, with some maintaining that males are better, and others insisting that females were better. This study is not excluded from this controversy. Nevertheless, this finding is supported by the findings of Powell (1999) who found out that girls' performance are better than boys in the primary grades in all subjects. Apart from the main findings, the interactions of anxiety, self concept and gender which were significant is a pointer to the fact that academic performance is not just a gender issue alone, but it is brought about by an array of constructs acting in combination. In conclusion therefore, academic performance, just like any other observed behaviour in psychology cannot be an antecedent of one factor, but largely determined by a wide range of factor, overt and covert, operating within and outside the learning environment.

RECOMMENDATIONS

1. Anxiety levels of students should be examined through the use of BP. Apparatus and other psychological techniques, and those found to be under high anxiety calmed down before commencement of examinations.
2. Efforts should be made by psychologist, teachers and parents to improve the self concept of students through

modelling, conditioning, mentoring and behaviour modification.

3. Academic performance is not a gender issue. Both genders should be encouraged to excel in academic performance, and equal opportunities provided for both genders.

REFERENCE

- Alpert R, Harber RN (1960). Anxiety in Academic Achievement Situations. *J. Abnormal Soc. Psychol.* 61:207-215
- Brookover WB, Thomas EL, Patherson M (1997). *Self concept of Ability and School Achievement III.* Michigan. Educational Publishing Series.
- Burns RB (1979). *The self Concept. Theory, Development and Education* London. Holt, Rinebert and Winadon
- Davidson KS, Sarason SB (1960). *Anxiety in Elementary Children.* New York. John Willey.
- Elizunr DA (1994). Sex Difference in the Development of verbal and Mathematics Constructs: The High Schools and Beyond Study. *American Edu. Res. J.* 26(3):282-394.
- Halpern DF (1992). Difference in Mental Test Scores, Variability, and Numbers of High Scoring Individuals. *J. Soc. Sci.* 269:41-45.
- Hudson WW (1982) *Index of Self Esteem: The Clinical Measurement Package.* A Field Manual Chicago. Dorsey Press.
- Hydes JS, Fennema E, Lamon SJ (1997). Gender Differences in Mathematics Performance: A Meta-Analysis. *Psychol. Bull.* 10:139-153.
- Iroegbu TC (1990). Self-Esteem as a Critical factor in Learning. *Nig. J. Edu. Psychol.* 2(1).
- Irwin FS (1999). Sentence Completion Responses and Scholastic Success or Failure. *J. Counsel. Psychol.* 14:269-271.
- Fianu S (1981). *Elitism and Education: Social Values and the Problem of Vocational Technical Education,* Ph.D. Thesis. Harvard University School of Education, U. S. A. Cambridge.
- Lane J, Lane AM (2001). *Self Efficacy and Academic Performance.* *Soc. Behav. Pers.* 29:287-294.
- Mandler G, Sarason S (1952). *A Study of Anxiety and Learning.* *Nig. J. Edu. Psychol.* 2:3-6.
- Mary R (1950). *The Meaning of Anxiety.* In: David S (Ed). *International Encyclopaedia of the Social Sciences.* Vol. 1 New York. Macmillan Press.
- Mednick F, Thomas L (1998) *Gender – Related Differences in the College Board's Advanced Placement and Achievement Test.* *J. Edu. Psychol.* 88L353-364.
- Multon KD, Brown SD, Lent RD (2007). *Relation of Self-Efficacy Beliefs to Academic Outcomes: A Meta-Analytical Investigation.* *J. Counsell. Psychol.* 38:113-118.
- Myers DG (2002). *Social Psychology (7th Ed).* New York. McGraw-Hill.
- Olowu AA (1990). *The Etiology of the self: Contemporary Issues in Self-Concept Studies.* Ibadan Shaneson C. I. Ltd.
- Powell GN (1999). *The Effect of Sex and Gender on Recruitment.* *Acad. Mange. Rev.* 12:731-743.
- Rhonda C (1991). *Effect of Internally Focused Feedback and Attribution Feedback on Enhancement of Academic Self.* *J. Edu. Psychol.* 83:17-27.
- Seligman ME, Walker EF, Rosenthal DL (2001) *Abnormal Psychology.* New York Norton Inc.
- Spielberger CD, Sarason IG (1989) *Stress and Anxiety.* Vol. 129. Washinton. Hemisphere Publishing Cooperation.
- Spielberger CD (1980) *test Anxiety Inventory: Preliminary Professional manual.* Palo Alto Consulting Psychology Press.
- Stumpt H (1995) *Gender Differences in Performance on Tests of Cognitive Abilities: Experimental Design Issues and Empirical Results.* *Learn. Ind. Diff.* 7:275 288.
- Tresemester D (1993) *Current Trends in Research on Fear of Success* New York. Guilford Press.
- Wine J (2003) *Test Anxiety and Direction of Attention.* *Psych. Bulletin.* pp.92-104.