

INFLUENCE OF SELF-ESTEEM AND TEST ANXIETY ON ACADEMIC PERFORMANCE OF PRE-SERVICE SCIENCE TEACHERS IN TARABA STATE

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ABSTRACT

Self-esteem and test anxiety is aspect of life that accompanies academic activities in most institution of learning. This research found out the influence of self-esteem and test anxiety on academic performance of pre-service science teachers in Taraba State. A survey design was used for the study. The population was 497 pre-service science teachers out of which 150 students were sampled out for the study. Four objectives, four research questions and four hypotheses guided the study. Data was collected using Self-esteem and Test anxiety questionnaire (SETAQ) whose reliability co-efficient was found to be 0.77 using Spearman Brown correlation. Mean and Standard deviation were used to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. The results of the analysis showed among others that self-esteem and test anxiety significantly predicts pre-service science teachers academic performance in Taraba State University. In order to improve self-esteem, the paper recommends mentoring, modeling, behavior modification among others.

Keywords: *academic Performance, Pre-service Teacher, Self-esteem, test anxiety and Gender.*

INTRODUCTION

Recently, concern has been raised over the continuous decline in the academic performance of students in Nigeria. Research has revealed that various factors such as family socio-economic status (Akinleke, 2012), school factors (Marks, Millan & Hillman, 2011) and social support (Quamma & Greenberg, 2016) influence academic performance. There could also be other factors that could influence students' performance apart from the reported ones. Such factors could include self-esteem and test- anxiety.

Self-esteem is an individual's subjective evaluation of their self worth. Self-esteem is used to describe a person's overall sense of self-worth or personal value. In other words, how much you appreciate and like yourself. Self-esteem is often seen as a personality trait, which means that it tends to be stable and enduring. Fathi-Ashtiani, Ejei, Khodapanahi and Tarkhorani (2007) noted that self-esteem plays an important role in the educational function of students. The authors described self-esteem as a person's opinion of him/herself, that is, the extent to which an individual sees himself as capable, worthy or efficient. Brookover, Patterson and Thomas (2010) concluded that a significant positive relationship was found between Self-esteem of ability and grade point average; this relationship persisted even when measured intelligence was controlled. Specific Self-esteems of ability related to specific areas of academic achievement were found; in some areas these were better predictors of achievement in the subject than general Self-esteem of ability. Self-esteem was significantly and positively related to the perceived evaluation of significant others. Finally, the researchers agreed with the views that one's perception, believe and judgment of himself (self-esteem) influences the way he or she behaves and responds to academic activities and to learning in general. Aryana (2010) concludes that students who feel more

confident about themselves are not apprehensive and they have higher academic achievement in contrast to those who do not have confidence in themselves. In the same vein, Naderi, Abdullah, Aizan, Sharir and Kumar (2010) noted that research has consistently shown a positive correlation between how people value themselves and the level of their academic attainments. Just as Aryana (2010) noted that “today, self-esteem is receiving increasing attention as one of the influential factors which affects student’s academic achievement”.

Individuals with high levels of self-esteem tend to experience positive self-experiences (Peng et al., 2019), high-quality interpersonal relationships (Cameron and Granger, 2019), and better physical and mental health (Li et al., 2010). Guay, Marsh, and Boiving (2013) described academic self-esteem as how Pre-service science teachers do school work or feel about themselves as learners. Similarly, Amini (2014) discovers a positive and significant relationship between self-esteem and academic achievement. Self-esteem is an emotional factor that deals with how individuals view themselves with respect to their abilities and capabilities. This implies that those who feel confident and have high self-esteem could achieve more, while those who lack confidence in themselves could achieve less. Those that lack confidence usually worry about the outcome or result of the task they have undertaken and this feelings could lead to anxiety. Filippello et al (2019) posits that adolescent self-esteem positively predicts academic engagement. He added that high levels of self-esteem can increase the academic engagement of adolescents. Individuals with high levels of self-esteem set stricter standards and only consider themselves “good enough” when they met those standards, resulting in positive self-evaluation and increasing academic engagement. Akinleke (2012), in his study to discover how test anxiety and self esteem affect academic performance of students. Students were given two questionnaires that took between forty and forty five minutes to complete. The study was carried out in a classroom environment during regular school hours. After collecting information from the students through questionnaires, their comprehensive Grade Point Averages (GPA) in previous year were also collected. This GPA data were then compared to the scores obtained from the questionnaires. This study discovered that overall, low anxiety students had higher GPAs than high anxiety students and that there is a positive relationship between self esteem and academic performance.

Anxiety is your body’s natural response to stress. It’s a feeling of fear or apprehension about what’s to come. The first day of school, going to a job interview, or giving a speech may cause most people to feel fearful and nervous. But if your feelings of anxiety are extreme, last for longer than six months, and are interfering with your life, you may have an anxiety disorder (Kimberly, 2018). Anxiety could be defined as the response to some as yet unrecognized factor, either in the environment or in the self, this implies that anxiety is inborn and Cizek and Burg (2006) opined that among the diversity of academic experiences associated with emotions, test anxiety has a long educational history that warrants ongoing attention today sums the way we either consciously or unconsciously react to things around us especially the ones with uncertainties. Seligman, Walker and Rosenhan (2011) 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.

Anxiety can also rise amongst students about to be examined. Test anxiety is a psychological condition in which people experience extreme distress, discomfort, and anxiety in testing situations (Akinsola & Nwajei, 2013). It is a feeling of worry, apprehension, nervousness or uneasiness that occurs when a student encounters test or examination in any form and at any level (Onyeizugbo, 2010). Pre-service science teachers who felt positive about themselves had fewer sleepless nights, were friendlier and tend to perform better academically in contrast to students with a low self-esteem that tend to be unhappy, less friendly and were more susceptible to depression, which were correlated with lower academic achievement (Ali Fathi-Ashtiani, JavadEjei, Mohammad-Karim Khodapanahi and Hamid Tarkhorani 2007).

Ndirangu, Muola, Kithuka and Nassiuma (2018) described test anxiety as “the hyper-arousal condition that results in physiological, emotional and intellectual changes that prevent the effective use of the previously learned information, while taking an examination”. According to them, test anxiety has two subcomponents: emotionality and cognition. The emotionality subcomponent suggests the physical arousal in relation to performance (Bembenutty, 2018) while the cognitive component signifies the worry that hinders attention, concentration and effective information processing (Mathews, Zeidner & Roberts, 2016). This is true because students are mechanically pressed to make high scores since their examination grades are used to determine their class of degree and to some extent their placement in the labour market. As a result, their yearning and anxiety might increase.

Remarkably, some researchers have demonstrated that the best way to tackle anxiety and to improve students’ performance is to boost their self-esteem because it plays important role in academic achievement which is usually measure with test and examinations (Stan, Yifeng, & Mark 2015). Academic performance is the extent to which a student, teacher or institution has attained their short or long-term educational goals. Completion of educational benchmarks such as secondary school diplomas and bachelor's degrees represent academic achievement. Academic performance is commonly measured through examinations or continuous assessment but there is no general agreement on how it is best evaluated or which aspect are most important-procedural knowledge such as skills or declarative knowledge such as facts. Furthermore, there are inconclusive results over which individual factors successfully predict academic performance, elements such as test anxiety, environment, motivation, and emotions require consideration when developing models of school academic performance.

Academic performance is important because it is strongly linked to the positive outcomes we value. Adults who are academically successful and with high levels of education are more likely to be employed, have stable employment, have more employment opportunities than those with less education and earn higher salaries, are more likely to have health insurance, are less dependent on social assistance, are less likely to engage in criminal activity, are more active as citizens and charitable volunteers and are healthier and happier (Annie, Howard, & Mildred 2016). Academic performance is important because working people will need higher levels of education to tackle the technologically demanding occupations of the future. Now a day you need a post-secondary education in order to get a job. Academically successful adolescents have higher self-esteem, have lower levels of depression and anxiety, are socially inclined, and are less likely to abuse alcohol and engage in substance abuse. Positive self-esteem and self-confidence are critical factors in commitment to academic success. In fact, several studies have shown that male attributes are positively correlated with self-esteem for both men and women, whereas the link

between female attributes and self-esteem has been much weaker and less consistent (Gebauer, Wagner, Sedikides, & Neberich, 2013).

Educational tests are the major tools for measuring academic achievement. Although varying methods of evaluation are used in school settings, tests will remain the most commonly used method of assessment (Keogh and French, 2011). Aryana (2010) concludes that students who feel more confident about themselves are not apprehensive and they have higher academic performance in contrast to those who do not have confidence in themselves. This implies that the construct could play a role in educational attainment of biology pre-service teachers.

A pre - service teacher is a student undergoing training in the pedagogies of the processes in the teaching and learning. Van (2011) opines that pre-service science teacher education is the education and training provided to science student-teachers before they have undertaken any teaching. In-service teacher education provides learning opportunities for practicing teachers. The study of Ojediran and Oludipe (2016) examined the impact of test anxiety and gender on Nigerian pre-service science education students, and disclosed that at low test anxiety, pre-service science students performed better with CGPAs than their high-test anxiety colleagues; female pre-service science students exhibited lower test anxiety than male pre-service students. Pre-service students are also known as teacher candidates, this term is used to describe student teachers who are enrolled in a teacher preparation program and working toward teacher certification. It was shown in another study that the females had a higher mean score on test anxiety than the males but the mean difference was not statistically significant. The study showed further that female participant had a higher and significant mean achievement score than males (Timothy, 2015). Sideeg (2015) also found out that text anxiety is significantly higher than the critical value that was set. It was discovered further that text-anxiety significantly correlates with students' academic achievement. The negative correlation uncovered in the study showed that there is a strong association between these psychological construct. Further findings indicate a statistically significant effect of gender differences and type of study on the levels of text anxiety.

Another study carried out by Iroegbu (2013), showed that the subjects with low anxiety and female gender performed better than the male gender. In addition, there is a significant interaction between anxiety and gender as well as anxiety, self-concept and gender on academic performance. Effective teacher learning and professional development is important for student academic performance. Teacher learning is a continuous process that promotes teachers' teaching skills, master new knowledge, develop new proficiency, which in turn help improve students' learning. It is therefore important to investigate the effects of self- esteem and test-anxiety of biology pre-service teachers since research has shown that the constructs have a role to play in academic performance.

Statement of the Problem

Examination record in science education department Taraba State University revealed the achievements of pre-service biology teachers is low. This could lead to low turnout of biology teachers which the state and the nation at large are in need of for the scientific and technological development of the nation. The researchers were motivated to find out whether the student teachers' self-esteem and test-anxiety have anything to do with the student teachers' predicament since research have shown the relationship between the

concepts under study and student's achievement. More so not much work has been done in that area in Taraba State, Nigeria.

Purpose of the Study

The purpose of this study is to investigate the relationship between test anxiety, self-esteem and academic performance. Specifically the study intends to:

- i. Find out the level of self-esteem of the Pre-service science teachers in Taraba State University,
- ii. Find out the level of test anxiety of the Pre-service science teachers in Taraba State University,
- iii. To find out the interactive effect of Self-esteem and gender on Pre-service science teachers' academic performance,
- iv. To explore the interactive effect of Test Anxiety and gender on students' academic performance.

Research Questions

1. What is the level of self-esteem of the Pre-service science teachers?
2. What is the level of test anxiety of the Pre-service science teachers?
3. What is the interactive effect of Self-esteem and gender on Pre-service science teachers' academic performance?
4. What is the interactive effect of Test Anxiety and gender on students' academic performance

Hypotheses

- H0₁ There is no significant effect of low self-esteem in the academic performance of pre-service teachers compared to low esteem counterparts in Taraba State.
- H0₂ There is no significant trace of test anxiety among Pre-service science teachers in Taraba state.
- H0₃ There is no significant interactive influence of Self-esteem and male on Pre-service science teachers' academic performance compared to their female counterparts.
- H0₄ There is no significant interactive influence of text anxiety and male on students' academic performance compared to their female counterparts.

METHODOLOGY

The research design adopted for this study was survey research design. The research covers Jalingo Education Zone. Jalingo education zone comprised of 3 Local Government Areas, namely: Ardokola, Lau and Jalingo local government. Using a purposive sampling, Ardokola one of the Local Government Areas in the zone was sampled out for the study. The choice of Ardokola LGA was due to the fact that the state university is cited in the LGA. Using random sampling, faculty of education was sampled out with a population of 497 pre-service science teachers. A random sample of 150 students out of which 72 are females and 78 are males. The instruments used for the study were a structured questionnaire titled Self-Esteem and Test Anxiety Questionnaire (SETAQ) and Academic Achievement questionnaire constructed by the researchers. It consisted of two sections (A. & B). Section A had 15 items for students' self-esteem and 17 items for test anxiety. The questionnaire consists of 32 items that was designed in Likert's -point response format, which ranged from Agree

(1), Strongly Agree (2), Disagree (3) to Strongly Disagree (4). The instrument was validated by three experts in biology education from the department of science education. Using spearman Brown's statistical analysis, a reliability co-efficient of 0.77 was obtained. Based on the scores they obtained on the self-esteem scale, students were rated to have either low or high self-esteem level. A mean score of 2.7 and above is regarded as high level of self-esteem (H) while a mean score below 2.7 is rated as low level of self-esteem (L). In the same way in the Anxiety Inventory, students were rated to have either low or high test anxiety level. A mean score below 2.5 is rated as high level of test anxiety (H) while a mean score of 2.5 and above is rated as low level of test anxiety (L).

RESULT

Research Question 1: What is the level of self-esteem of the Pre-service science teachers?

Table 1: mean and standard deviation analysis on pre-service teacher's Self Esteem

S/N	ITEMS	N	Sum	Mean	Mean Square	Std. Deviation	Remarks
1.	I feel I do not have much to be proud of	150	307.00	2.0467	4.0934	1.15472	L
2.	I wish I could have more respect for myself	150	251.00	1.6733	3.3466	.74633	L
3.	I certainly feel useless at times	150	398.00	2.6533	5.3066	1.14098	L
4.	At times I think I am not good at all	150	393.00	2.6200	5.24	1.12130	L
5.	I easily feel hurt when I am criticized	150	287.00	1.9133	3.8266	1.01622	L
6.	I often don't feel accepted and appreciated even by those who know me well	150	333.00	2.2200	4.44	1.10441	L
7.	I sometimes think that I am not fun to be with	150	336.00	2.2400	4.48	1.10326	L
8.	Even if I try to trust more on my own capacities, I am always afraid to deal with new situations	150	304.00	2.0267	4.0534	1.06151	L
9.	I feel people don't like me	150	411.00	2.7400	5.48	1.02604	H
10.	I don't think I am a creative person	150	434.00	2.8933	5.7866	1.04366	H
11.	I feel other people are better off or more fortunate than me	150	356.00	2.3733	4.7466	1.10852	L
12.	I often feel too shy even if I don't look like that to other people's eyes	150	312.00	2.0800	4.16	1.10229	L
13.	All in all, I am inclined to feel that I am a failure	150	476.00	3.1733	6.3466	.97448	H
14.	I find it difficult to make friends	150	413.00	2.7533	5.5066	1.09260	H

15. I feel I would have been better in business than in school	150	392.00	2.6133	5.2266	1.66603	L
Valid N (listwise)	150					

$$\Sigma = \mu/n = 0.17422$$

Total mean divided by the total items gives 0.17422. Indicating that the majority of the student that participated in the research have low self-esteem. The result showed that items 1, 2, 3, 4, 5, 6, 7, 8, 11, 12 and 14 indicated low self-esteem with the mean score of 2.0467, 1.6733, 2.6533, 2.6200, 1.9133, 2.2200, 2.2400, 2.0267, 2.3733, 2.0800, 2.6133 respectively, while items 9, 10, 13 and 14 indicated high self-esteem with the mean score of 2.7400, 2.8933, 3.1733 and 2.7533 Respectively. Therefore the hypothesis which states that "What is the level of self-esteem of the students" was accepted since the majority of the items showed low level of self-esteem.

Research Question 2: What is the level of test anxiety of the Pre-service science teachers?

Table 2: mean and standard deviation analysis on Test Anxiety Level

S/N	Items	N	Sum	Mean	Mean Square	Std. Deviation	Remarks
1.	I have visible signs of nervousness such as sweaty palms, shaky hands and so on right before a test	150	331.00	2.2067	4.4134	1.13691	H
2.	I read through the test and feel that I do not know any of the answers	150	385.00	2.5667	5.1334	1.10166	L
3.	I panic before and during a test	150	357.00	2.3800	4.76	1.07235	H
4.	My mind goes blank during a test	150	394.00	2.6267	5.2534	1.08403	L
5.	I remember the information that I forgot once I get out of the testing situation	150	299.00	1.9933	3.9866	1.27704	H
6.	I have trouble sleeping the night before a test.	150	329.00	2.1933	4.3866	1.07252	H
7.	I make mistakes on easy questions or put answers in the wrong places	150	336.00	2.2400	4.48	1.04708	H
8.	The closer I am to a major exam, the harder it is for me to concentrate on the material	150	377.00	2.5133	5.0266	2.82305	L
9.	When I study for my exams, I worry that I will not remember the materials on the exam.	150	366.00	2.4400	4.88	1.07741	H
10.	I worry so much before a major exam that I am too worn out to do my best on the exam	150	360.00	2.4000	4.8	1.07441	H
11.	I feel out of sorts or not really myself when I take important exams	150	359.00	2.3933	4.7866	1.02254	H
12.	I feel that my mind sometimes wanders when I am taking important exams.	150	305.00	2.0333	4.0666	1.30778	H
13.	After an exam, I worry about whether I did well enough	150	284.00	1.8933	3.7866	.95641	H
14.	After taking a test, I always feel I could have done better than I actually did	150	281.00	1.8733	3.7466	.96445	H
15.	During accurate examination, I get so nervous that I forget the facts that I really know	150	334.00	2.2267	4.4534	1.07533	H
16.	The harder I work at taking a test or studying for one, the more confused I get	150	394.00	2.6267	5.2534	1.34886	L
17.	I think I could do much better on tests if I could take them alone and not feel pressed by a time limit	150	281.00	1.8733	3.7466	.98510	H

Valid N (list wise)

150

$$\Sigma = \mu / n = 0.124887$$

Table 2 shows the test anxiety level of the students that participated in the study. It showed that majority of the students indicated signs of high test anxiety. 13 items showed mean score lower than 2.5 indicating signs of high test anxiety while 4 items indicated means score above 2.5. The hypothesis which states that students would have low level of test anxiety was therefore not accepted because the responses were in the favor of high test anxiety signs.

Research Question 3: What is the interactive effect of Self-esteem and gender on Pre-service science teachers' academic performance?

Table 3: Independent samples t-test for female and male participants

	Gender	N	Mean	Mean Gain	Std. Deviation	Sig. (2-tailed)
Level of Self Esteem	Female	72	20.6511	2.6489	2.3382	.07889
	Male	78	18.0022		1.0234	.05968

There is an interactive effect between the levels of self-esteem according to gender: male students have significantly higher level of self-esteem. In other words, the hypothesis which states that "There will be no significant interaction effect of Self-esteem and gender on students' academic performance" is rejected since the mean gain which is 2.6489 is significantly higher than the critical level of 0.5.

Research Question 4: What is the interactive effect of Test Anxiety and gender on students' academic performance?

Table 4: Independent samples t-test for female and males participants

	Gender	N	Mean	Mean Gain	Std. Deviation	Sig. (2-tailed)
Level of Test Anxiety	Female	72	17.0197	1.9804	1.11789	.06498
	Male	78	19.0001		.90993	.05055

The result showed a significant difference between levels of test anxiety according to gender difference: female students have significantly higher level of test anxiety with a mean gain of 1.9804 which is higher than the critical level of 0.5. This result shows that the hypothesis which states that "There would be a significant interaction effect of test anxiety and gender on students' academic performance" was not accepted.

DISCUSSION

Findings of the study showed that students who experience high test anxiety were more likely to have low academic performance. This result is in concordance with findings by Onyeizugbo (2010); they found that high level of test anxiety is associated with lower

academic performance. The findings of this study have confirmed the fact that high test anxiety is a major factor that leads to poor academic performance. There is certainly no doubt that one under this form of intense pressure of anxiety is bound to be disorganized and make mistakes which invariably translates to poor academic performance.

In terms of self-esteem, the result showed that individuals with high self-esteem performed better than those with low self-esteem. This result is in line with the findings of Filippello et al. (2019) who stated that positive self-esteem is a central fact when considering optimal academic performance. In addition, this finding is also supported by the findings of Amini (2014) 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. In another related study by Akinleke (2012) on level of self-esteem and personal achievements, that is also in line with the finding of this study noted that, "students with positive self-esteem could achieve far more difficult task than students with low or negative self-esteem". The result clearly showed that the level of self-esteem would influence students' achievement. The findings also agrees with the study of Ojediran and Oludipe (2016) which disclosed that at low test anxiety, pre-service science students performed better with CGPAs than their high test anxiety colleagues; female pre-service science students exhibit lower test anxiety than male pre-service students. with CGPAs than their high test anxiety colleagues; female pre-service science students exhibited lower test anxiety than male pre-service student. The finding also agrees with the study of [Ojediran and Oludipe \(2016\)](#) which disclosed that at low test anxiety, pre-service science students performed better with CGPAs than their high test anxiety colleagues; female pre-service science students exhibited lower test anxiety than male pre-service students. The finding also agrees with the study of [Ojediran and Oludipe \(2016\)](#) which disclosed that at low test anxiety, pre-service science students performed better with CGPAs than their high test anxiety colleagues; female pre-service science students exhibited lower test anxiety than male pre-service students. Nevertheless, this finding is supported by the findings of Iroegbu (2013) which indicates that there is a significant interaction between anxiety and gender as well as anxiety, self-concept and gender on academic performance. This means that it 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.

CONCLUSION

Based on the research findings, it could be concluded that the test anxiety of students significantly predicts their academic performance. That is, students with low test anxiety performed significantly better than those with average and high test anxiety. The result also showed that there exists a significant relationship between self-esteem of students and their academic performance. Gender has also been found to have an effect on academic performance in the favour of female folks.

RECOMMENDATIONS

1. Efforts should be made by psychologist, teachers and parents to improve the self-concept of students through modelling, conditioning, mentoring and behaviour modification.
2. Lecturers should encourage students to practice group study especially during/towards examination period in order to reduce text anxiety.
3. Both genders should be encouraged to excel in academic performance, and equal opportunities provided for both genders.
4. The stakeholders in education should formulate policies that help students to cope with anxiety and also initiate programs that will assist the process of learning and mastering challenges as such would result in higher academic achievement.

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