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Correlation between Anxiety Level and Academic Performance of BS Biology Freshmen Students

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ABSTRACT

Anxiety is an unpleasant state that is associated with feeling of uneasiness, apprehension, and heightened physiological arousal. According to Freud, it arises when there is an unconscious conflict between the id's and superego's desire regarding how to satisfy a need; the ego, caught in the middle, reacts by creating a feeling of anxiety. Anxiety is differentiated into (a) State Anxiety, it is a transitory emotional reaction to the individual's perception of a threatening or dangerous situation, and (b) Trait Anxiety, it is a relatively stable tendency to interpret situations as a threatening or dangerous and to react to them with anxiety. Studies have shown that the level of anxiety of the students affect their academic performance. The present undertaking attempted to assess the anxiety level of college freshmen students and relate the results in terms of the age, gender and academic performance. The results of the study showed that State and Trait Anxiety level of the respondents is moderate. Furthermore, the anxiety (state and trait) level showed significant difference in terms of the gender, but failed to show significance to such variable as age of the participants. Likewise, the results showed no significant difference in State and Trait Anxiety level and the GWA. The low and negative correlation between State Anxiety and GWA suggest that the higher the academic performance of the students, there would be lower manifestation of State and Trait Anxiety.

Key word: Anxiety, State Anxiety, Trait Anxiety, academic performance, STAI

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INTRODUCTION

Freshmen students entering university for the first time may experience some kind of anxiety brought about by varied factors such as academic pressure, responsibilities and social adjustment in a new environment. Any circumstances that threaten the individual in that environment may result to a kind of stress or anxiety and if kept unabated may result to an inner conflict.

Generally, anxiety is defined as unpleasant emotion characterized by worry, apprehension, dread and fear in varying degree. It exists when a person is weary, but does not know the reason at all. When this feeling persists out of proportion and remained unchecked, then the anxiety becomes a phobia. The people experiencing this kind of behaviour are easily agitated, restless and may indulge in purposeless or aimless activity. They may also experience some physiological discomforts which occur unexpectedly with or without being aware of it, such as increase in heart rate and blood pressure, dizziness, stomach discomfort, perspiration and other physiological manifestations.

The above cited behavioural manifestations are being referred to as anxiety, classified either a state anxiety or trait anxiety. State anxiety is temporary in nature and only evident in a specific situation, while trait anxiety is an enduring characteristic of a person, a fairly stable characteristic with pervasive effects or is evident in diverse aspects of a person's life (Cizek 2006).

The level of stress exists and may persist for long, when it remained uncorrected one may experience the symptoms of anxiety. Stress built up over time until it reaches a point where coping with it seems difficult. Those with anxiety problems have a style of coping with stressful events which persistently aggravate the problem. They make unreasonable demands and would go through a kind of denial that the problems do not exist. However, this persistent behaviour of denial is indeed very stressful and may further aggravate the situation (Bermis, 2008).

Anxiety may develop during their adolescence stage when they are predisposed to a kind of environment they were situated, particularly at home and family. Sometimes, overly critical parents whose high expectations could give a negative feeling on the children. Parents who are self-critical

and anxious about the failure of their children because they failed to meet their expectations. Perhaps, there are parents who are overly protective and would always give a notion that the environment is not safe. Above all, the greatest challenge a child may encounter in his/her life is the fear of being abandoned by their parents (Bermis, 2008).

Anxiety is universal and everyone experiences this feeling in varying degree. It is an emotional reaction characterized by fearful anticipation of an unpleasant event in the future. Fear is a reaction to a real external danger that threatens the person with possible injury and has no real external stimulus but the individual himself.

Worry may give rise to anxiety. It is more often imaginary than real and a generalized emotional state rather than specific one. In short, the individual is not anxious about specific things. Worry for students relates primarily to cognitive concerns about the consequences of failure. Students who think or verbalize a negative or pessimistic expectation manifest worry.

One of the most threatening events that may cause anxiety among the students today is examination. When students develop an extreme fear of performing poorly on an examination, they may experience anxiety. Test anxiety is a major factor contributing to a variety of negative outcomes including psychological distress, academic underachievement, academic failure, and insecurity.

Although many students have the cognitive ability to do well on examinations, they may not be able to do so because of a high level of anxiety.

Statement of the Problem

The main purpose of this study is to assess the Anxiety Level of College Freshmen B.S. Biology students at Rizal Technological University and relate the results to the Academic Performance.

Specifically, this study sought to answer the following questions:

1. What is the anxiety level of the respondents in terms of the:
 - a. Anxiety "State"
 - b. Anxiety "Trait"
2. How do the respondents differ in anxiety when grouped according to age and gender, and the academic performance?
3. Would there be correlation between Anxiety before and after taking an examination?

Theoretical Framework

In the Psychoanalytic Theory, Sigmund Freud explains that anxiety and the source of that danger can either come from external or internal stimuli. Freud also formulated the concept of defense mechanisms in order for the individual to protect himself from frightening impulses or situations. It is a challenge for the students on how they can cope with different situations.

This study is also anchored to the Harry Stack Sullivan point of view which focused on self-system and explains anxiety as a product of interpersonal relations being transmitted originally from mother to the infant and later in life by threats to one's security. The experience of tension that results from real or imaginary threats vary and influence in large amounts the efficiency of the individuals in satisfying their needs, disturbs interpersonal relations and produces confusion in thinking. It also varies in intensity depending upon the seriousness of the threat and the effectiveness of the security operations of an individual.

Hypotheses

1. There are no significant differences in anxiety among the respondents when grouped according to variables such as age and gender.
2. There is no significant difference between the level of Anxiety and the academic performance.
3. There is no significant difference between the Anxiety level of the students before and after taking the examination.

Significance of the Study

The result of the present work may give an insight to school administrator, guidance counselor, and faculty members such important channel in dealing with the general behaviour of incoming freshmen to the university. Likewise, it may help in the formulation of school program that will enhance effective academic and social experiences among them.

MATERIALS AND METHOD

A. Respondents

The respondents were purposively selected which is composed of the forty four freshmen students enrolled in Bachelor of Science in Biology, Major in Biotechnology, 2nd Semester, School Year 2012-2013.

B. Research Design

The study used the Correlation design which shows the relationship between the variables such as age and gender, in relationship to another variable such as the academic performance.

C. Research Instrument

The instrument used in the conduct of the study is the State-Trait Anxiety Inventory (STAI) which was adopted by Charles D. Speilberger (1983). The instrument measured the level of anxiety of the student respondents. It includes two forms: (1) STAI Anxiety State (A-State). The form is consists of 20 statements/questions which measure their feelings at a particular time and, (2) STAI Anxiety Trait (A-Trait). Similarly, it consists of 20 statements/questions that ask the general feeling of the student respondents.

The grade weighted average (GWA) during the preceding term was used to determine the academic performance of the respondents.

D. Statistical Analysis of Data

The significance of the result of the study was evaluated using the (a) Student's t-test and (b) Pearson Product Moment Correlation. (Mean ±S.D.)

RESULT

The results of the study are reflected in a form of matrix for easy interpretation and understanding of the data.

Table 1: Distribution of the Respondents According to Gender

Gender	Frequency	Percentage
Male	11	25.0%
Female	33	75.0%
Total	44	100%

Table 1 reflects the distribution of the respondents according to gender. As shown, there were 11 male students in the class which represented twenty five per cent (25%), while, the female respondents composed of thirty three students, and comprising seventy five per cent (75%) of the total respondents.

Table 2: Level of Anxiety of Male Respondents

Level of Anxiety	State Anxiety		Trait Anxiety	
	Frequency	%	Frequency	%
Low	2	18.18	1	9.10
Moderate	8	72.73	9	81.82
High	1	9.10	1	9.10
Total	11	100%	11	100%

It could be gleamed from Table 2 that seventy-two and seventy-three hundredths per cent (72.73%) of the male respondents exhibited a moderate of State Anxiety. Similarly, 81.82% of the respondents showed a moderate Trait Anxiety.

Table 3: Level of Anxiety of Female Respondents

Level of Anxiety	State Anxiety		Trait Anxiety	
	Frequency	%	Frequency	%
Low	5	15.15	8	24.24
Moderate	27	81.82	20	60.61
High	1	3.03	5	15.15
Total	33	100%	33	100%

Table 3 reflects the level of State and Trait Anxiety of the female respondents. As shown, the level of both State and Trait Anxiety are moderate with a percentage as 81.82% and 60.61 %, respectively.

Table 4: Correlation between Profile and State Anxiety

	Computed Pearson "r"	Interpretation	Computed P-value	Interpretation
Age	-0.058	Low Relationship	0.710	Not Significant
GWA	-0.121	Low Relationship	0.431	Not Significant

*NS = not significant at $\alpha = 0.05$, if p-value > 0.05; ** S= significant if p-value < 0.05

Table 4 shows the relationship between anxiety and profile of the respondents. State anxiety is not significantly related to age, $r = -0.058$, computed $p = 0.710 > 0.05$. Likewise, GWA is also not significantly related to age with $r = -0.121$, computed $p = 0.434 > 0.05$. This means that the age of the respondents is not affected by state anxiety. The low negative correlation between state anxiety and age, suggest that the younger the respondents, the higher is their state anxiety level. With regards to GWA and state anxiety, computed $r = -0.121$, shows that there is also a low relationship. The computed $p = 0.431$ is greater than 0.05. The GWA is not significantly related with trait anxiety. This implies that the lower the GWA the higher is their state anxiety.

Table 5: Correlation between Profile and Trait Anxiety

	Computed Pearson"	Interpretation	Computed P- value	Interpretation
Age	-0.125	Low Relationship	0.434	Not Significant
GWA	-0.062	Low Relationship	0.697	Not Significant

*NS = not significant at $\alpha = 0.05$, if p-value > 0.05; ** S= significant if p-value < 0.05

Table 5 shows the correlation between profile and Trait Anxiety. Similarly, age and trait anxiety have low relationship with computed $r = -0.125$. The computed P-value is $0.434 > p = 0.05$, therefore age is not significantly related with trait anxiety.

Table 6: Significant Difference between Gender and State Anxiety

Gender	Mean	Variance	Computed t-value	Tabular value ($\alpha = 0.05$) d.f. =15
Male	2.55	0.1005	0.974	2.1314
Female	2.546	0.0748		

As shown in Table 6, the Computed t-value is arrived at 0.974 which is lower than tabular value which is 2.1314. Henceforth, the gender is significantly related with the state anxiety of the respondents. Likewise, the data showed a difference in the state anxiety between male and female.

Table 7: Significant Difference between Gender and Trait Anxiety

Gender	Mean	Variance	Computed t-value	Tabular value ($\alpha = 0.05$) d.f. =15
Male	2.3818	0.2676	0.511	2.1314
Female	2.5008	0.2368		

In Table 7, the significant difference between the Gender and Trait Anxiety was determined. The Computed t-value is arrived at 0.511 and is lower than tabular value which is 2.1314. Therefore, the result showed that the gender is significantly related with the trait anxiety. Also, there is a difference in the trait anxiety between male and female.

Table 8: Correlation between Anxiety before and after the examination

	Computed "r"	Interpretation	Computed P - value	Interpretation
State Anxiety	-0.101	Low Relationship	0.514	Not Significant
Trait Anxiety	-0.260	Low Relationship	0.089	Not Significant

Table 8 reflects the correlation between Anxiety before and after the examination. As shown, the computed r between state anxiety before and after the examination is -0.101 which means that there is a low relationship. The computed p -value is 0.514 which is higher than $p = 0.05$ thus the state anxiety is not significantly related in before taking and exam after taking the examination. Similar result was obtained with trait anxiety.

DISCUSSION

Anxiety is an unpleasant state that is associated with feeling of uneasiness, apprehension, and heightened physiological arousal, such as increased heart blood pressure, increased heart rate, sweating and other physiological manifestations (Getzfeld, 2006). It is a recognition/acceptance directly or indirectly that event or events which one is confronted to lie outside the range of convenience of one's construct system. In addition, it is a feeling of uneasiness or tension without a known cause. Furthermore, anxiety in an aversive emotional experience such as feelings of nervousness, worries, agitation and panic (Burger, 2000). Anxiety has been conceptualized as a stimulus, motive, an emotional state, with the subjectively experienced quality of fear as a closely related emotion. The emotion is unpleasant, future oriented, disproportional to the threat and includes both subjective and manifest bodily disturbances (Ballesteros, 2005). Psychologically, anxiety is a subjective state of apprehension, uneasiness and in its most extreme condition can cause one to feel detached from him/her real situation.

Anxiety is differentiated as state anxiety defined as a transitory emotional reaction to the individual's perception of a threatening or dangerous situation, while trait anxiety is a relatively stable tendency to interpret situations as a threatening or dangerous and to react to them with anxiety (Ballesteros, 2005). Individuals who manifest an anxiety trait tend to have an attitude reflecting their perception of certain environmental stimuli and situations as dangerous or threatening, while a person experiencing state anxiety feels tension or worry or might enter a state of restlessness. In such moments, the individual may feel very tense and easily react or over-react to external stimuli (Kaplan & Sacuzzo, 2001).

Experts noted that there are great differences in emotion regulation between those individuals that rate low, medium, and high-on test anxiety; and how these individuals "map emotions" during stressful situations (Schutz & Schwanenflugel, 2002). This mapping may hinder the use of working memory under stress and anxiety levels rise, limiting the mind's ability to use other functions. As stress and anxiety levels rise for test anxious students, the focus has a tendency to be on self, instead of the task at hand which is the test. However, to some an over awareness can result in a viscous cycle in the anxious testing situation, limiting the individual's ability to focus or to use the necessary energy needed for the test. An over awareness of test anxious student's progress in the test situation, subsequently causes decreased performance on the test itself.

It was stated that 'test anxious' students are characterized by a particularly low response threshold for anxiety in evaluative situations, tending to view test situations as personality threatening. They tend to react with extensive worry, mental disorganization, tension, and physiological arousal when exposed to evaluative situations (Vagg, 2005).

Reports showed that some at risk students experienced high level of anxiety and it have an impact on test performance (Kocher, 2008). The result of the present work confirms similar observation as reported among freshmen university students who showed moderate mathematics level of anxiety (Beleta, 2008). An investigation on the effect of test anxiety to the academic performance revealed that the students with low test anxiety perform less compared to those students with moderate level of test anxiety performed best in the test (Vogel & Colins, 2004). Somehow, the above cited observations were not demonstrated from of the result of the present study. When the anxiety survey questions were administered among the respondents, before and after taking the test, the result showed no significant difference. It appears that test anxiety could be the result of the process of evaluation itself, no matter where or how the testing situation is implemented (Cassedy, 2001).

Somehow, the essence of time is important before the freshmen university student will get accustomed to the condition and become acclimatized to their present situation. Although the student respondents of the study are freshmen, yet the study was conducted on their second term in the university. Maybe, they have already made adjustment and now adapted to the new environment. The reason why the level of state and trait anxiety failed to establish relationship with

their academic performance, could be explained by the fact that the expectations on cognitive test anxiety is relatively stable (trait-like) construct, and the level of anxiety among students would reflect a higher degree of similarity within subjects over time (Cassedy, 2001). In this conceptualization, individuals with high level of cognitive test anxiety generally hold heightened levels of anxiety, but in evaluative situations, their state anxiety also elevates.

The result of the present study showed a significant difference between the level of state and trait anxiety and the gender of the respondents. This observation can be substantiated by the findings that the rate of anxiety disorder among children reported a range from 6% to 20%. Girls are somewhat more likely than boys to report an anxiety disorder such as phobia, panic disorder, agoraphobia, and separation anxiety disorder (Connolly, 2006). The major source of anxiety among adolescent boys include unpopularity, sex, immoral activity, religion, vocation and among others. However, it was reported that the degree of concern over specific problems tend to lessen as the boys become older (Meissner et al., 2001). Similarly, no significant difference was noted among respondents as far as age is concerned.

The finding of the study established a significant difference between the level of state and trait anxiety and the gender of the respondents. In the understanding the adolescent's outlook in life and its problem, maybe, it is helpful to have some indication of the problem areas which are sources of anxiety for him. The forces which combine to create these anxiety areas are multiple and form a dynamically shifting constellation not only in terms of the adolescent's own development and maturation, but also in terms of the social and cultural context in which that growth occurs.

A study investigated the interrelationship among academic stress, anxiety, time management and leisure satisfaction among 249 undergraduates by age and gender. Time management behaviours had a greater buffering effect on academic stress than leisure satisfaction activities. Significant gender differences existed among all the measures. Female had more effective time management behaviour's than males but also experienced higher academic stress and anxiety. Males benefited more than female from leisure activities. Anxiety, time management and leisure satisfaction were all predictors of academic stress in the multivariate analysis. Anxiety reduction and time management in conjunction with leisure activities may be an effective strategy for reducing stress in college students (McKean et al, 2000)

Apparently, anxiety is believe not only psychological, but it could be biological in nature. Expert emphasized the underlying science of anxiety and argued that it grows out of a response that is hardwired in the brain. It was further argued that, there is a genetic component in anxiety which tantamount to saying that there seems to be people who are born worriers. A laboratory scan done on the brain revealed differences on the patients suffering from anxiety disorder (Kuger, 2002).

Thus far, whatever underlying factors affecting anxiety among individuals, particularly university students, their existence is a reality and therefore should not be undermined.

CONCLUSION

In view of the results of the present undertaking and arguments at hand, the study established the following:

1. The level of state and trait anxiety of the respondents was moderate.
2. There is no significant difference in anxiety (State and Trait) among the respondents when grouped according to variable such as age. However, a significant difference was noted between anxiety (State and Trait) and gender.
3. There is no significant difference between the level of Anxiety and the academic performance.
4. There is no significant difference noted between the Level of State and Trait Anxiety among the respondents before and after taking the examination.

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