Effect of Physics anxiety on Academic performance of Physics education Students in Federal university of Agriculture, Makurdi, Benue State

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Abstract: ***This*** **research is on the effect of physics anxiety on the academic performance of physics education students in Federal University of Agriculture, Makurdi, Benue State. The researcher used descriptive survey design to carry out this research. The purpose of the study was to determine if there is physics anxiety among students of physics education in Federal University of Agriculture, Makurdi, determine the factors that cause physics anxiety among the students, and to examine the relationship between physics anxiety and academic performance of the same students of physics education in Federal University of Agriculture, Makurdi. The work used both primary and secondary sources of data. The total population of the studies is 2000 students and the researcher used stratified random sampling to determine the sample size and the sample size was 400. Therefore, 400 Copies of questionnaire were administered but only 300 were recovered and analyzed. The researcher used chi-square statistical tool to analyses the hypothesis. Findings revealed that, there was physics anxiety among physics education students of federal university of agriculture, Makurdi and stress, fear, family background are some of the causes of anxiety in physics. There is a significant relationship between physics anxiety and students' academic performance in Federal University of Agriculture, Makurdi, Benue State which means students with negative anxiety will perform poorly compared to students with positive anxiety. Based on the findings of this study the following were recommended, the university should provide the students with adequate facilities to enable effective learning of physics, students should feel free to express themselves so that the teacher will know their anxiety level and help to reduce it, the university should provide more lecture venues in order to reduce over population which can also cause anxiety, physics teachers should be motivated properly for effective teaching and students should improve on their study habit in order to boost their academic performance.**

Keywords: **Academic, education, effect, performance, physics anxiety**

I. INTRODUCTION

According to English dictionary, Physics as a subject matter deals with the study of properties and interactions of space, time, matter and energy. That is to say, physics help us to know the physical and chemical properties in relation to space, time, matter and energy. But many students looked at physics as an abstract course as such, this create impression of fear of physics in them leading them to poor performance in their academics. Such a student needs courage, boldness and attentiveness in lecture hall in other to deal with this fear factor so that the aim of his/her study will not be defeated.

Looking at anxiety, is a feeling of uneasiness and worry, usually generalized as an overreaction to a situation that is only subjectively seen as menacing (harm or damage). It is often accompanied by muscular tension, restlessness, fatigue and problems in concentration. Normally considered to be appropriate, when anxiety is experienced regularly the individual may suffer from an anxiety disorder. Anxiety is closely related to fear, which is a response to a real or perceived immediate threat; anxiety involves the expectation of future threat. Reaction can either be negative or positive base on the state of the student and this determine the academic performance of the student. Student with negative reaction towards learning will perform very poor while those students with positive reaction towards learning will perform very well. As the academic performance of physics education student suffer, the anxiety level related to certain academic tasks increases (Huberty, 2012). This explained the significant relationship between anxiety and academic performance of a physics education student.

Performance refers to the ability to execute, achieve or accomplish a specific task required by student. The accomplishment of a given task measured against preset known standards of accuracy, completeness, cost and speed. In contract, performance is deemed to be the fulfillment of an obligation, in a manner that releases the performer from all liabilities under the contract. Therefore, the level of anxiety determines the academic performance of student; that is, high level of anxiety leads to poor academic performance and vice versa. Anxiety is cause of poor academic performance among physics education students in federal university of agriculture, Makurdi. Anxiety is the most prevalent mental health disorder (33.7%) and is a growing worldwide concern, with considerably impact upon cognitive function (Vytal et al, 2013; Bandelow, 2015). Statistics show that 74% of student suffer from anxiety (Aronin et al, 2018), which negatively impacts their learning through influence on working memory, leading to poor academic achievement (Hashempour, 2014).

Spielberger defined anxiety as "a subjective feeling of tension, apprehension, nervousness and worry associated with arousal

of the autonomic nervous system" (Vitasari et al., 2010). Anxiety lead to self-discouragement, lack of comprehension by the student and this greatly contribute to the poor performance of student either in test or examination. It is a physical and psychological state, portrayed by physical, emotional and cognitive changes which can occur in either presence or absence of psychological stress (Afolayan et al., 2013). The physical state of a student can be identified through the outcome of his/her result while the psychological state can be identified by the actions and behaviors displayed by the student. Although, an optimal level of anxiety is considered a motivation for high academic performance (Singh, 2015), a high level can threaten students' mental and physical health and have negative effects on their social and academic performance (DordiNejad., 2011).

Students with excessive anxiety may experience genuine problems during their academic study. They may experience sudden disabilities associated with anxiety during tests, examinations or oral presentations/assessments. Changing attitude about physics anxiety will require support from parents, teachers and society. If negative attitudes are not changed, physics education student's academic performance will be greatly affected. Physics education students of federal university of agriculture, Makurdi need to recognize the cause of anxiety and provide possible solutions to them. Treating physics anxiety as a separate concept might contribute to gaining knowledge about the complex interaction between the anxiety felt towards physics and performance of the student (Sahin, 2014). A cross-sectional study which measure physics education students' anxiety towards research concluded that academic support significantly reduced the level of anxiety and improved academic performance through helping students to develop "higher self-expectations and a greater sense of self-perceived control academic outcomes for future academic success" (Maharajan et al., 2017). They can become more informed about the effects of examination anxiety by reading related literatures and attending workshops and conferences on the topic. Rajiah and Saravanan, recommended the use of psychological service, relaxation therapy and systematic desensitization to reduce tests anxiety among physics education students as to prove effective during the study.

However, sometimes, some students even at high educational level and with high level of Meta cognitive skills inexplicably fail to demonstrate the knowledge they have acquired during teaching and learning processes. Such student attends classes, do their assignments but fail to perform in the day of reckoning (Examinations) especially when the stakes are high. The students who have done all that are expected but develop cold feet rather than confidence during examinations may be manifesting test anxiety. Examination anxiety which is also called test anxiety in research literature is an uneasiness or apprehension experienced before, during and after examination because of concern, worry or fear of uncertainty. A low level of test anxiety is normal and necessary among the students in order to maintain focus and to galvanized them into action preparing, plotting and perfecting strategies that will guarantee optimum success in the examinations. However, when the anxiety or level of arousal exceeds that optimal level, the result is decline in academic performance.

Some candidates seeking for jobs find it difficult to remember even their own names during interviews for highly paid jobs in such a situation where good performance counts and pressure to do well is necessary (Putwain, Woods and Symes, 2010). It is performance anxiety that makes a professor seat profusely and sounds incoherent almost at the point of collapsing while presenting inaugural lecture with intimidating audience in attendance. In contrast to fear, anxiety involves a more general or diffused emotional reaction beyond simple fear that is not of proportion to threats from the environment.

In this paper, the researcher will use the concept of academic anxiety to highlight uncomfortable student feeling toward challenging academic tasks (I.e. exams, presentations, assignments, competitions and interviews). The author concluded that feeling discomfort and anxiety in the classroom does not enhance learning of any kind.

Statement of the problem

Effective and efficient teaching methods that could help improve student's performance in physics are most desired. Teaching is effective and efficient when students are taught the right content, having enough learning materials and high ratio of teachers' time on the teaching activity. This requires a lecturer to have passion in sharing knowledge with students while motivated with school management system. Mtitu (2014) also identified that, for effective and efficient teaching, learner centered methods that require lecturers to actively involve the students in the teaching and learning process must be applied.

The number of physics lecturers was increased compared to before and were provided with frequent seminars and workshops that emphasized on the application of competence based teaching methods. This has drawn the interest of educationists and they tend to shift the blame on the teaching methodology adopted by the lecturers and lack of fund from the government to provide quality textbooks. Poor study habit among students contribute to the massive failure recorded in just concluded examination. Because of poor study habit among students, the issue of examinations malpractice, failure, school drop- out among others is on the increased. Therefore, the main problem of this study is to examine the effects of physics anxiety on academic performance of physics education students at federal university of agriculture, Makurdi.

Purpose of the study

The general purpose of this study is to determine the effects of physics anxiety on the academic performance of physics education students in federal university of agriculture, Makurdi, Benue state. Specifically, the aims of this study are;

i. To determine if there is physics anxiety among students of Federal University of Agriculture, Makurdi.
ii. To determine the factors that causes physics anxiety among students of Federal University of Agriculture, Makurdi.
iii. To determine the relationship between physics anxiety and academic performance of students of Federal University of Agriculture, Makurdi.

Research Questions

The study was aimed to answer the following research questions;

i. Is there physics anxiety among students of Federal University of Agriculture, Makurdi?
ii. What are the factors that cause physics anxiety among students of Federal University of Agriculture, Makurdi?
iii. Is there significant relationship between physics anxiety and academic performance of students inFederal University of Agriculture, Makurdi?

Hypotheses

There is no significant relationship between physics anxiety and academic performance of students in Federal University of Agriculture, Makurdi.

III. METHODOLOGY

A descriptive survey design was used for the study, as the study will seek the opinion of the respondents on their perception on the effects of physics anxiety on academic performance of physics education students in Federal university of agriculture, Makurdi, Benue state. Thus, with this design, both systematic and objective collection and analysis of data will be adopted to elicit responses from the participants in order to find solution to the problem under investigation.

This research work was carried out in Federal University of Agriculture, Makurdi, Benue State, Nigeria.

The targeted Population of the study comprised all the physics education students of federal university of agriculture, Makurdi, Benue state with the population of 2000 respectively. The participant in this research comprises of only physics education students of the above-mentioned university.

This study covers 2000 physics education students of Federal University of Agriculture, Makurdi, Benue State. Proportionate stratified sampling technique was used in drawing the respondents involved in the study. Fifteen percent (15%) of the population were randomly drawn. The sample size for the study will be 300. Out of the total population of 2000 respondents, 300 respondents were drawn from the total population.

The instrument for data collection was a structured questionnaire designed by the researcher, titled "effect of physics anxiety on the academic performance of physics education students in Federal University of Agriculture, Makurdi, Benue State". The instrument was designed to answer the three (3) research questions and is made up of three sections. Section 'A', section 'B' and section 'C'. Section A sought information on if there is physics anxiety in Federal University of Agriculture, Makurdi, Benue State. Section B sought information of the causes of physics anxiety on physics education student of Federal University of Agriculture, Makurdi, Benue State. Section C sought information of the relationship between physics anxiety and academic performance of physics education students of Federal University of Agriculture, Makurdi, Benue State. The instrument was based on a four-point modified Likert scale of strongly agree (4 points), agree (3 points), disagree (2 points) and strongly disagree (1 point).

The instrument will be subjected to face validation to determine its adequacy, appropriateness for the study and for its proper wordings. This will be done by presenting the instrument to experts in Educational management department for content and accuracy.

The primary source is generated from respondents through questionnaires. In this research work, data was generated through administered questionnaire to respondents. The structured/ closed-ended questions refer to those questions that have range of answers provided by the researcher for respondents to choose from. While the unstructured/open ended questions are those questions, which require respondents to provide answers themselves.

The data collected will be analyze using mean and standard deviation (SD) to answer the research questions while the hypothesis will be analyze using Chi-Square at 0.05 level of significance. The decision level will be determined by the use of criterion mean of 2.50 for clusters A, B, and C respectively. If the calculated value (X^2_{cal}) is less than the tabulated value (X^2_{tab}) the hypothesis is accepted otherwise, you reject the hypothesis.

IV. RESULTS

The result of the study is presented based on the research questions and research hypotheses.

Research question 1**:** Is there physics anxiety in Students of Physics Education in Federal University of Agriculture, Makurdi?

Table 1: Responses of Physics Education students in Federal university of Agriculture, Makurdi

S/N	Items	(4) SA	(3) A	(2) D	(1) SD	Total	$\sum fx$	$\bar{x}$	Decision
1.	I never seem to be fully prepared to take physics tests.	83	118	30	69	300	815	2.72	A
2.	I cannot relax physically before a physics test.	40	200	36	24	300	85`6	2.85	A
3.	I mentally freeze up on important test In physics	55	150	65	30	300	810	2.70	A
4.	Room noises bother me.	70	40	110	80	300	700	2.33	R

Source: Fieldwork (2020).

The data on table 1 shows the responses of the respondents used in the study. Based on the study, the respondents had the mean rating of 2.72, 2.85, 2.70 and 2.33. From item 1, the respondents agreed that 'I never seem to be fully prepared to take a physics test' will lead to anxiety in federal university of Agriculture, Makurdi. Based on the second item, the students agreed that 'I cannot relax physically before a physics test' will lead to anxiety in Federal University of Agriculture, Makurdi. In item 3, the respondents agreed that 'I mentally freeze upon important physics test' will lead to anxiety in Federal University of Agriculture, Makurdi. Finally, in item 4, the respondents rejected the fact that 'noisy environment affect my studies for physics examination' lead to anxiety in Federal University of Agriculture, Makurdi.

*Research Question 2***:** What are the factors that cause physics anxiety among students of Federal University of Agriculture, Makurdi?

Table 2: Responses of Physics education students In Federal university Of Agriculture, Makurdi

S/N	Items	(4) SA	(3) A	(2) D	(1) SD	Total	$\sum fx$	$\bar{x}$	Decision
1.	I have hollow, uneasy feeling before taking a test in Physics	66	180	34	20	300	892	2.97	A
2.	Tests do not really show how much aperson knows.	102	120	44	34	300	934	3.11	A
3.	Some people I know will be amused if I score low and this bothers me.	51	60	89	100	300	662	2.21	R
4.	If I do not do well on a test, I guess it will mean I am not as smart as I thought I was.	87	50	75	88	300	736	2.45	R
5.	I often fell the need to cram before test.	90	140	40	30	300	890	2.97	A

Source: field work (2020)

The data on table 2 shows the responses of the students in line with the research question 2 used in the study. Based on the study, the respondents had the mean rating of 2.97, 3.11, 2.21, 2.45 and 2.97; meaning that the students agreed that 'I have uneasy feeling before taking a test on physics' causes anxiety in Federal University of Agriculture, Makurdi from item 1. In item 2, the respondents agreed that 'Physics examination do not really show how much a person knows' and this causes anxiety among physics education students in Federal University of Agriculture, Makurdi. Base on item 3, the respondents rejected the opinion that 'some people I know will be amused if I score low in physics examination' and this causes anxiety among physics education students in Federal

University of Agriculture, Makurdi. In item 4, the students rejected the opinion that 'if I don't do well upon physics test, I guess it will mean I am not as smart as I thought I was' which causes physics anxiety in Federal University of Agriculture, Makurdi. Finally, in item 5, they students accepted the opinion that 'when preparing for physics examination, I often feel the need to cram' which causes physics anxiety in Federal University of Agriculture, Makurdi.

Research Question 3: Is there any relationship between physics anxiety and academic performance of physics education students of Federal University of Agriculture, Makurdi?

The data on table 3 below shows the responses of the students in line with the research question 3 used in the study. Based on the study, the respondents had the mean rating of 2.65, 3.08, 2.72, 2.18 and 2.85; meaning that the students agreed that there is a significant relationship between hard working and academic performance of physics education students in Federal University of Agriculture, Makurdi from item 1. That is, the harder they study, the more confused they become. From item 2, the students agreed that there is a significant

relationship between friends and academic performance of physics education students in Federal University of Agriculture, Makurdi. That is, friends will be disappointed if a student score low in a physics test. From item 3, the students agreed that there is a significant relationship between body and academic performance of physics education students in Federal University of Agriculture, Makurdi. That is, the muscles of a student tensed up in certain areas of the body when taking a physics test. From item 4, the students rejected that there is a significant relationship between parents and academic performance of physics education students in Federal University of Agriculture. That is, if a student score low in physics examination, his/her parent will be very disappointed. In item 5, the students agreed that there is a significant relationship between mental balance and academic performance of physics education students in Federal University of Agriculture, Makurdi. That is, when a student do not feel confident and mentally relaxed before taking a physics examination, this will make the student underperform.

Table 3.Responses of Physics Education Students In Federal University of Agriculture, Makurdi

S/N	Items	(4) SA	(3) A	(2) D	(1) SD	Total	$\sum fx$	$\bar{x}$	Decision
1.	The harder I work on some test items, the more confused I get.	70	122	40	68	300	794	2.65	A
2.	My friends will be disappointed in me if my score is low.	130	80	35	55	300	925	3.08	A
3.	My muscles tensed up in certain areas of my body when I take a test.	138	33	37	92	300	817	2.72	A
4.	If I score low, my parents will be very disappointed.	66	39	77	118	300	653	2.18	R
5.	I do not feel confident and mentally relaxed before a test.	101	91	68	40	300	855	2.85	A

Testing of Hypotheses

Hypotheses: There is no significant relationship between physics anxiety and academic performance of physics education students of Federal University of Agriculture, Makurdi.

Table 4:Chi-Square Statistics for Significance Relationship

Variables	O	E	O-E	$(O-E)^2$	$\frac{(O-E)2}{}$	T_{cal}	T_{tab}	DF	Sig
Item1(table 2)	66 180 34 20	79.33 79.33 79.33 79.33	-13.00 100.67 -45.33 -59.33	169 10134.45 2054.81 3520.05	89.67 127.75 25.90 44.37	287.69			
Item 2 (table 2)	102 120 44 34	140.67 140.67 140.67 140.67	-38.67 -20.67 -96.67 -106.67	1495.37 427.25 9345.09 11378.49	10.63 3.04 66.43 80.89	160.99	12.59	6	0.05
Item 3 (table 3)	70 122 40 68	40.67 40.67 40.67 40.67	29.33 81.33 -0.67 27.33	860.25 6614.57 0.45 746.93	21.15 162.64 0.01 18.37	202.17			
						650.85			

Source: Fieldwork (2020)

The results on the above table showed that the calculated value of chi-square (i.e 650.85) is greater than the tabulated or critical value (i.e 12.59) at 0.05 level of significance. Therefore, the hypotheses is rejected confirming the theory of significant level of testing. Thus, this implies that there is a significant relationship between physics anxiety and academic performance of physics education students of Federal University of Agriculture, Makurdi, Benue State. This indicate that when anxiety is found among the student of Federal University of Agriculture, Makurdi, there academic performance will be affected either positively or negatively depending on the nature of the anxiety. If the anxiety is positive, they will perform better but when it is negative, they will perform poorly.

V. CONCLUSION

The study was conducted primarily to examine the effect of physics anxiety on academic performance of physics education students in federal university of agriculture, Makurdi, Benue State.

Academic anxiety is one of the important factors to detraining the academic achievement of students so there is need to manage academic anxiety to improve the academic performance. There are so many factors that increase anxiety among students that affect academic activities in so many ways. However, there are ways to reduce anxiety in students while parents, lecturers, students should have known and should followed that's why future generation achieve their target & able to face their life with courage. This paper helps to know more about academic anxiety, component of academic anxiety and ways to manage academic anxiety in class. Social and physics anxiety can have a negative effect on a student's academic performance. Teachers and parents can learn to recognize the signs of anxiety in students. If teachers and parents help students learn to control anxiety early, more serious academic problems related to physics anxiety can be avoided.

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