

Effects of Systematic Desensitization on Examination Phobia of Computer Engineering Students in Nigeria

Joachim Chinweike Omeje¹, C. I. Oparanozie¹, Victoria Ogwa Adikwu², Mkpoikanke Sunday Otu^{1*}, Nneka Charity Nwosu¹, Anthonia Olunwa Aneke¹, Petronilla Ngozi Omeje¹, Eberechukwu Francisca Chigbu¹, Doris Chika Egeonu¹, Victor Sunday Ezema¹, Nwobodo Patience¹ and Ozoemena Lilian Chijioke¹

¹*Department of Educational Foundations, Faculty of Education, University of Nigeria, Nsukka, P.M.B. 410001, Nsukka, Nigeria*

²*Department of Counselling and Educational Psychology, University of Abuja, Abuja, Nigeria*
mkpoikanke.otu@unn.edu.ng

Abstract

The study explored effects of systematic desensitization on examination phobia of computer engineering students. Two research questions and one hypothesis guided the study. True experimental research design was adopted for the study. Voluntary sampling technique was used to compose a sample of 60 students used for the study. The instruments for data collection were Student Examination Phobic Traits Identification Questionnaire (SEPTIQ) and Examination Phobia Manifestation Scale (EPMS) developed by the researcher. The data collected for research were analyzed using descriptive statistics of mean and standard deviation while the hypothesis raised in the study was tested at $P < 0.05$ level of significance using ANCOVA. Results showed that computer engineering students exposed to treatments using systematic desensitization had significant reduction on their examination phobia manifestation than those not exposed. In addition, gender was not found to be a significant factor influencing the manifestation of examination phobia. Based on the findings, discussion was made. The educational counselling implications of the findings were highlighted. Subsequently, conclusion and recommendation were proffered.

Keyword: *Systematic desensitization, examination phobia, computer engineering students*

1. Introduction

Examination has remained a part of the educational system for ages and it is the major source of measuring the abilities of students. It can be said that educational system is an empty vase without examinations (Sufiana & Gangestad, 2000). The authors further stated that examination is the process of analysis, identification, education and interpretation in any type of academic evaluation conducted to measure and assess the students' academic performance. Examination plays a very important role in the assessment of the student's abilities and it is the only tool for the evaluation of teaching-learning process. Teachers use it to analyze the strengths and weakness of students. The effectiveness of curriculum and performance of teachers can also be judged through examination. Examinations are employed to bring about qualitative improvement in education (Sufiana & Gangestad, 2000).

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* Corresponding Author

The basic aims of examination are to test achievement, provide goals or incentives for the students and for selection into jobs or higher education, while the possible outcome of an examination is success or failure. Success is positive because it brings joy, glory and praise from teachers and parents. Failure being negative brings sorrow, ill feelings and shame. Failure goes with unpleasant consequences like conflict between teachers and students, parents and teachers and as such students try to avoid failure by all possible means (Akbar, 2016).

Although examinations are necessary and no educational system can be complete without it, it is an admitted fact that some students develop fear and anxiety about the uncertainty of the outcome of their performances and consequently are unable to participate adequately in a given examination. Some fall ill before starting of examination, dodge examination by faking ill health, avoid school, indulge in one form of examination malpractice or the other or visit hospitals mostly during examination period. (Njoku, 2000). For students' fear of examination, psychologists such as Agulana and Nkwocha (1999); use different terms like examination phobia, fear of examination or anxiety which is frowned at by parents, teachers, students, educational authorities and the society at large. In this study the concept examination phobia will be used.

Phobia is the fear or anxiety disorder which causes avoidance and panic. The term is derived from Greek word "phobus", which means 'fear' 'terror' 'panic' but phobia is more than this since all persons experience fear of terror occasionally. Fear is a common type of anxiety disorder intense fear that is characterized by fear of a specific situation or object (Andrew, 2003). The author further stated that phobias are thought to be learned emotional responses. It is generally believed that phobia occurs when fear resulting from an original threatening situation is transmitted to another similar situation. The defining feature of phobia that may require attention is that it causes frequent, severe and intense anxiety. This may occur in examination situation thereby resulting in examination phobia.

Examination phobia is operationally looked at as fear of examination which is a self-damaging factor which negatively affects the students and their performance. These are abnormal behavioural manifestation. Early identification of and appropriate intervention for these students suffering from examination phobia would go a long way towards helping them change these abnormal behavior (Oparanozie, 2016). Furthermore, she noted that females manifest examination phobia more than their male counterparts. They further noted that as a means of escaping from such situations both gender resorts to examination malpractices.

Since examination phobia has negative effects on students, there is the need for appropriate long term or permanent solution to the devastating effect of examination phobia on the personality of students involved in it. It is indisputable that some of the students who suffer from examination phobia end up not performing well either in internal or external examination. This ugly development should not be allowed to continue hence the need for utilizing appropriate behavioural techniques in addressing the problem.

Inappropriate behaviour can be minimized or extinguished through behaviour intervention or modification. Different types of behaviour modification techniques like psychodrama, role therapy, relaxation training, aversive therapy, reinforcement, systematic desensitization as well as cognitive restructuring have been used for intervention on maladaptive behaviour among school children (Nickarson 2002). Drowetsky (1997) categorically stated that behavioural technique corrects problems such as aggression, phobias, shyness and poor study habits.

Systematic desensitization is a technique used to treat phobias and other extreme or erroneous fear based on principles of behaviour modification. It is a therapeutic intervention that reduces the learned link between anxiety and objects or situations that are typically fear producing (Sheyl, 2009). The author further noted that systematic desensitization is a type of behavioural therapy used in the field of psychology to help

effectively overcome phobias and other anxiety disorders. To begin the process of systematic desensitization one must first be taught relaxation skills in order to extinguish fear and anxiety responses to specific phobias. Systematic desensitization technique is based on the principles of classical conditioning and the premise that what has been learned (conditioned) can be unlearned. Systematic desensitization is effective in reducing anxiety and panic attacks associated with fearful situations (Sheyl, 2009). Systematic desensitization usually starts with imagining oneself in a progression of fearful situations and using relaxation strategies that compete with anxiety. Once an individual can successfully manage anxiety while imagining fearful events he or she can use the technique in real life situation. Operationally, systematic desensitization is a behavioural modification technique used in the field of psychology to help reduce anxiety and panic attacks that are typically fear producing (Oparanozie, 2016).

Gender refers to the socially constructed roles, behaviours, activities and attributes that a particular society considered appropriate for men and women. These distinct roles and behaviours ascribed by the society or culture give rise to gender inequalities (World Health Organisation, 2014).

A number of factors accounted for the choice of systematic desensitization in the present study. Among them is that phobia especially examination phobia is a behavioural problem; and it seems most appropriate that behaviour modification techniques be employed in taking care of them. Therefore, there is need to explore through empirical study, the use of systematic desensitization on examination phobia of computer engineering students in Nigerian Colleges of Education.

1.1 Statement of the Problem

Examination phobia is one of the major psychological traumas suffered by students. The effects could be frustrating and if not carefully handled could lead to a great damage to the total well being of the victim. Diminishing intellectual performance of students is caused by fears in the students before and during examinations. Furthermore, in Owerri municipal Council of Imo State, most teachers are authoritarian and believe in using punishment in the upbringing of the students. This evokes fear in the students and may bring about skips of lesson and low attendance to class activities. This lack of participation brings about lack of knowledge which results to poor academic performance and hence fears of participating in examination. This results in school phobia and in turn develop examination phobia in the students.

The use of behaviour modification technique such as systematic desensitization has been found to be effective in managing drug abuse among students. Whether systematic desensitization will be effective in developing self confidence among students during examination needs to be empirically established. The question which this study addresses is: what is the effect of systematic desensitization on examination phobia of computer engineering students?

1.2. Purpose of the Study

The main purpose of the study was to determine the effects of systematic desensitization on examination phobia of computer engineering students. Specifically, the study sought to find out:

1. Effect of systematic desensitization on examination phobia of computer engineering students.
2. The influence of gender on students' manifestation of examination phobia when exposed to systematic desensitization.

1.3. Research Question

The following research questions guided the study:

1. What is the effect of systematic desensitization on examination phobia of computer engineering students?
2. What is the influence of gender on student's manifestation of examination phobia as measured by examination phobia manifestation scale when exposed to systematic desensitization?

1.4. Hypothesis

The following null hypothesis were formulated to guide the study and were tested at 0.05 level of significance: There is no significant difference between the pre test and post test mean scores on examination phobia of computer engineering students due to systematic desensitization effect.

2. Methods

2.1. Design:

The research design is true experimental research design. According to Shuttleworth (2008), it is regarded as the most accurate form of experimental research in that it tries to prove or disprove a hypothesis mathematically with statistical analysis. In using the true experimental design, the sample groups must be assigned randomly and there must be a viable control group, only one variable can be manipulated and tested and finally the tested subjects must be randomly assigned to either control or experimental groups.

2.2. Area of the Study

The study was carried out in southeast Nigeria.

2.3. Population of the Study

The population of the study consists of all computer engineering students in southeast Nigeria.

2.4. Sample and Sampling Techniques

The sample for the study was 60 computer engineering students from colleges of education, southeast Nigeria. Purposive random sampling technique was used. Thirty computer engineering students were drawn using Students Examination Phobic Trait Identification Questionnaire (SEPTIQ). A bench mark of 2.50 was used to determine one with or without examination phobia. This gave a composed sample of 60 students that were used for both the experimental and the control. Random sampling was used to assign the 30 students to experimental group for systematic desensitization and 30 students to the control for the same group. School A was for experimental on systematic desensitization, while school B, was the control group.

2.5. Instrument for Data Collection

The study made use of two instruments viz Student Examination Phobic Trait Identification Questionnaire (SEPTIQ) and Examination Phobia Manifestation Scale (EMPS). The SEPTIQ was administered on SS 2 students of the sampled school to help in identifying the students that manifest examination phobia. It has a 4 point rating response of Always, Often, Sometimes and Never. It consisted of 10 items and assigned weight of

4.3.2 and 1 point respectively. The students were required to indicate their response on 4 point scale showing their degree of agreement or otherwise to each statement.

The second instrument for the study was Examination Phobia Manifestation Scale (EPMS) developed by the researcher. It consisted of 12 items generated directly from the review of related literature carried out by the researcher. The questionnaire items were used for both the pretest and post-test on both treatment and control groups. However, the items of the instrument were reshuffled during the post-test to make it look different from the pre-test. This helped to prevent memory effect of pre-test.

The EPMS was divided into two parts 1 and 2. The part I is on the personal data of the subjects such as gender, class and school. The part 2 is the questionnaire section discussing examination phobia manifestations among secondary school students. The EPMS is a 4 point rating scale of Always (A), Often (O), Sometimes (S) and Never (N). It has assigned weight of 4.3.2 and 1 point respectively. The students were required to indicate response on 4-point scale showing their degree of agreement or otherwise to each of the statements.

The face validation of SEPTIQ and EPMS were ascertained by the researcher. This was done by giving initial draft to three experts from Faculty of Education University of Nigeria, Nsukka. In order to determine the reliability of the instruments, the validated instrument for Students Examination Phobic Trait Identification (SEPTIQ) and Examination Phobia Manifestation Scale (EPMS) were subjected to reliability testing on a representative of 30 SS II students from Owerri North Local Government Area which was outside the Owerri Municipal Council of Imo State. The reliability testing enabled the researcher to generate the relevant data for measuring the internal consistency of the instrument.

The relevant reliability estimates were established for the instruments (SEPTIQ) and (EPMS). This was done using Cronbach alpha method to measure the internal consistency coefficient. The values obtained were 0.73 and 0.95 for the (SEPTIQ) and (EPMS) respectively. Cronbach alpha was used based on the ground that the items have no right or wrong answers and they were not dichotomously scored.

2.6. Experimental Procedure

The experimental procedure was carried out in three phases viz: Pre-treatment Phase, Treatment Phase and Post-treatment Phase.

2.7. Control of Extraneous Variables

This study being an experimental research involved a realistic manipulation of the independent variable (Systematic desensitization) by the researcher under a carefully controlled condition which was very necessary in a field experiment. This was made possible by the researcher controlling some extraneous variable such as Hawthorn effect, subject's variability, pre-test, post-test effect, instability of instrument among others which may otherwise have effects on the variables under study.

2.8. Method of Data Collection

On commencement of the treatment, the researchers visited the sampled colleges and explained the purpose of the study to the school head (principal). The researchers handed over copies of the instrument to each of the research assistants for immediate pre-testing of the student participants. The researcher went back later in the day and collected the filled questionnaire from various research assistants after computer engineering students responses. This ensured a high return rate after the pretest. At the end of the treatment the researcher distributed the same number of copies of the questionnaire with renumbered items to the research assistants who administered them to the student participants as post-test. The researcher collected them back later in the day so as to ensure a high return rate.

2.9. Method of Data Analysis

The data collected by administering the research instrument were analyzed based on each research question and hypothesis. Descriptive statistics such as mean and standard deviation were used in answering the research questions.

Analysis of covariance (ANCOVA) was used to test the hypotheses at $P < 0.05$ level of significance. ANCOVA was also used to determine if there would be any significant difference in the mean score of the groups.

3. Results

3.1. Tables 1. Mean and Standard Deviation of Respondents' Scores on the Effect of Systematic Desensitization on Examination Phobia

Group	Pre-test			Post-test	
	N	Mean	SD	Mean	SD
Experimental	30	42.00	2.37	16.90	2.36
Control	30	35.30	9.20	35.20	8.98

Table shows that the experimental group had a pre-test mean score of 42.00 with a standard deviation of 2.37 and a post-test mean score of 16.90 with a standard deviation of 2.36. For the control group, their pre-test mean score is 35.30 with a standard deviation of 9.20 and a post-test mean score of 35.20 with a standard deviation of 8.98. The experimental group is lower than those of the control group as there was a higher decrease in the post-test mean score of the experimental group than those of the control group. This may be as a result of the treatment.

3.2. Tables 2. Mean and Standard Deviations of Respondents with Examination Phobia as Measured by Examination Phobia Manifestation Scale

Experimental Group	N	Mean	SD
Systematic Desensitization			
Male	15	17.8667	1.80739
Female	15	15.9333	2.52039
Control			
Male	15	42.6871	3.56659
Female	15	26.5669	6.16685

Data in Table 2 above shows that the males in Systematic Desensitization group had a mean score of 17.87 with a standard deviation of 1.81 while males in the Control group had a mean score of 42.67 and standard deviation of 3.57. The females in Systematic desensitization group had a mean score of 15.93 with Standard deviation of 2.52 while females in the Control group had a mean score of 26.57 with Standard deviation of 6.17. The above results show that both the males and females in the treatment groups benefited immensely from the treatment compared to the male and female in the Control group.

Hypothesis: There is no significant difference between the pre-test and post-test mean score of students due to systematic desensitization effect on examination phobia.

3.3. Tables 3. Analysis of Covariance of the Effect of Systematic Desensitization on Examination Phobia by Treatment and Gender

Source	Type III sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	7130.380 ^a	4	1782.595	246.048	.000
Intercept	19.300	1	19.300	2.664	.108
Pre-test	745.663	1	745.661	102.922	.000
Group	5313.633	1	5313.633	733.429	.000
Gender	65.174	1	65.174	8.996	.004
Group * gender	1.643	1	1.643	.227	.636
Error	398.470	55	7.245		
Total	48245.000	60			
Corrected Total	7528.850	59			

The analysis in Table 3 above shows that the probability associated with the calculated value of F (733.429) for the effect of systematic desensitization on management of examination phobia among students is .000. Since the probability value of .000 is less than the .05 level of significance ($P < .05$), the null hypothesis was rejected. Thus, there is a significant difference between the pre-test and post-test mean scores of students due to systematic desensitization effect on management of examination phobia.

4. Discussion

The findings of this study were discussed in line with the research questions and hypothesis raised in the study. The result of the study showed differences in the pre-test result of the treatment and control groups. These differences in the pre-test results provided basis on which it could reasonably be assumed that both the treatment and control groups had an equivalent entry examination phobia at the commencement of the treatment. The overall result indicates that students exposed to treatment using systematic desensitization had significant improvement on their examination phobia (Reduction) than those who were not exposed to treatment (control group). This is evidenced by the students' reduction in manifestation of examination phobia. In other words, the students adopted more rational behaviour pattern after being exposed to the treatment using systematic desensitization.

The finding on the reduced mean scores at post-test is in line with the findings of Nwadinobi (2011) that investigated the impact of cognitive behaviour modification (Systematic desensitization) and video therapy on students' examination behaviour. The study utilized the true experimental pretest post-test control group design. The findings indicate that cognitive behaviour modification is a very effective counselling technique for treatment of students who have poor examination behaviour. The findings of the study also support the report of Onwuka (2008) who investigated the relative effectiveness of three counselling therapies (implosive therapy, systematic desensitization and assertiveness training) in reducing test phobia among polytechnic students. The result of Onwuka's study revealed that the three counselling therapies had effect both at post-test and follow-up on students. However, while systematic desensitization was the most effective therapy, assertiveness training was the less effective but the three were all effective when compared to the control.

The Analysis of Covariance (ANCOVA) as presented in Table 3 revealed that the level of significance was 0.00 and was less than 0.05 being the level of significance at which the hypotheses was tested. The null hypothesis I was therefore rejected. The overall result indicated that computer engineering students exposed to systematic desensitization had significant reduction in their examination phobia than those not exposed. That is, there is a significant difference between the pre-test and post-test mean scores of computer engineering students due to systematic desensitization effect on management of examination phobia. The influence of gender on students' manifestation of examination phobia, when exposed to systematic desensitization was explored in this study. A close observation of the computed post-test mean scores for male and female respondents showed that the females had lower mean post-test score than their male counterparts. This implies that there is gender difference in the manifestation of examination phobia.

This present study, contradicts the findings of Okereke (2014) who carried out a study on implementation of assertive training and systematic desensitization in reducing examination phobia and found out that gender is not a factor in manifestation of examination phobia. The result of the study is in line with Saha (2012) who opined that examination phobia is caused by different factors including gender.

In this study however, although gender does not have direct effect on examination phobia of students, gender influences on the students was consistent across levels. Perhaps, the result shows that all secondary school students need counselling using the treatment strategies employed in the study.

5. Conclusions and Recommendations

From the findings, it is being concluded that when students who have examination phobia were subjected to systematic desensitization treatment there was a reduction in their level of examination phobic manifestation. There is also significant difference in the manifestation of examination phobia of students exposed to treatment using systematic desensitization compared to the control group. The results of this study have some obvious educational and counselling implications.

The study provided an empirical evidence of the effectiveness of systematic desensitization in reducing examination phobia of students. The fact that students exposed to this treatment therapy improved on their behaviour implies that there was remarkable reduction in examination phobia manifested by students, the reduction of which they attested to both at pretest and posttest levels. What this implies is that at college levels, student should be provided with detailed information on behaviour modification techniques so as to improve on their healthy life development.

Consequently, this technique could now be used in Nigerian colleges of education with a high degree of confidence to enhance reduction in manifestation of examination phobia. If this is done, the problem of low academic performance which had been associated with examination phobia among secondary school students would have been solved. The following recommendations have been proffered based on the findings and implications of the study.

1. Training on behaviour modification techniques based on the principle of systematic desensitization strategy should be integrated into the already existing college of education curriculum for students.
2. There is need for counsellors to undergo some training on behaviour modification based on systematic desensitization through workshops, seminars and conferences which the government can assist in organizing.
3. Guidance counselors should recognize that gender is not a significant factor in the manifestation of examination phobia among students and therefore should not be biased in planning treatment programme for the students in secondary schools.

4. Curriculum planners, educational psychologists, and guidance counsellors should plan a programme of intervention based on the principles of systematic desensitization technique for students.

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