

Effects Of Systematic Desensitization On Test Anxiety Of Adult Learners In Enugu State Nigeria

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Abstract

This study investigated the effects of systematic desensitization on test anxiety of adult learners in Enugu State. The study adopted the pretest, posttest, non-randomized and non-equivalent control group quasi experimental design. The sample of the study comprised the 140 adult learners drawn from three adult learner centres in Agbani education zone through purposive sampling technique. The instrument for data collection was the Miller's Test Anxiety Scale (TAS). The instrument yielded an alpha coefficient of 0.74 using current population. Mean and standard deviation were used to answer the research questions while analysis of co-variance (ANCOVA) will be used to test the hypotheses. 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 test anxiety at the commencement of the treatment. The overall result indicates that adult learners exposed to treatment using systematic desensitization had significant improvement on their test anxiety (Reduction) than those who were not exposed to treatment (control group). This is evidenced by the adult learners' reduction in manifestation of test anxiety. In other words, the adult learners adopted more rational behaviour pattern after being exposed to the treatment (systematic desensitization). The overall result indicated that adult learners exposed to systematic desensitization had significant reduction in their test anxiety than those not exposed. Hence, there is a significant difference between the pre-test and post-test mean scores of adult learners due to systematic desensitization effect on test anxiety.

Keywords: Systematic Desensitization; Test Anxiety; Adult Learners

Introduction

The adults are the individuals, who are above 18 years of age. But, when understanding the concept of adult learners, it is not the age, which needs to be taken into consideration, but the social roles that define the person. There are number of meanings that define adult learners. Some of the definitions of adult learners put emphasis upon the age, whereas, others focus upon breaks in schooling or responsibilities and functions that adults are required to carry out in their lives (Myers, Conte, Rubenson, 2014). Bryson (2013) defined adult learners as an adult considered mature in status and experience that is in a formal or informal learning process. Larjanko (2016) defines adult learner as a person who is 25 years and above who is involved in forms of learning. In this study, adult learners therefore are those individuals who had not benefited from the regular formal educational programmes at the primary and post primary levels of education in functioning literacy and some post-literacy knowledge acquisition.

The adult learners are required to carry out number of responsibilities. In order to carry out their responsibilities to an appropriate manner, they are required to augment their knowledge, competencies and abilities. For this purpose, they need to acquire education. In other hand, adult learner belongs to various categories and backgrounds. They are engaged in various occupations which adults get enrolled in educational institutions to pursue their goals and objectives, they have an objective. To ascertain whether or not they have achieved this objective require assessment or test from teachers. Anticipating a test, feels like a critical threat for students, especially those facing school examination (Ganaprakasan and Selvangih, 2020). In other words, test brings fear or anxiety among students. The fear or anxiety of examination or test not only affects functional cognition, but also harms academic achievement. Although studies have shown that moderate level of anxiety move forward an individual to the desired goals, the extremes may end with a number of concerns (Donnelly, 2009; Kahan, 2008). For the past few years, several previous works have been concentrated in investigating test anxiety among students in tertiary education (Karjanto & Yong, 2015; Saravanan, Kingston & Gin, 2014; Vitasari, Wahab, Othman, Therawan & Sinnadurai, 2010). Due to the lack of number of studies involves adult learners, the present study intend to investigate the effects of systematic desensitization and group counselling on test anxiety of adult learners in Enugu State.

Test anxiety is a notable issue among students in various educational contexts. It is a universal factor negatively affecting students' academic achievement. The critical complex dimension associates individual cognitive and emotion distinction with behavioural response (Ganaprakasan & Selvaraja, 2020). In Enugu State, Nigeria, especially Agbani Education Zone the area of the study, the researcher observed during some visits to some adults centre in the state for supervision exercise that many adult learners have become indifferent to classroom test or examination. One often finds some of the adult learners in tension and fear symptoms, along with worry to dislike test and examination. Majority of them exhibit phobia or fear to the extent that some fall sick at the mention of test or examination in the class. Apart from phobia or fear, they experience some psychological symptoms like fever and sweating while taking test or examination. These adult learners because of test, find it hard to put themselves in order and to be efficient in decision making.

Another ugly experience recently encountered by many adult teachers in the study area is the uneasiness, apprehension, uncertainty or abnormal fear when mention of test or examination by their teacher. Because the anxiety level of these adult learners is high, they perceive test and examination as threatening. These adult learners withdrew or refuse to attend

class any time they are aware that there will be test. This usually leads to poor academic performance, and mental disturbance. This is a clear indication that adult learners are afraid of test. Test anxiety is becoming a cankerworm in Nigerian education system. Test anxiety is an overwhelming feeling of disturbance and distress among the students around the world (Rafiq, Ghazal & Forooqi, 2007). The authors further noted that test anxiety can be a devastating problem for many college and university students, because it impairs their performance and wellbeing in the long run. Test anxiety is defined as a sign of fear of poor performance and negative self-evaluation before, during and after the test (Herzer, Wendt & Hamm, 2014). This is to say that students who are afraid of test are likely to perform poorly and have negative self-evaluation about themselves. Test anxiety is a kind of anxiety to students learning process and achievement in educational institutions (Erzen, 2017).

Test anxiety in the context of this study therefore is an overwhelming feeling of disturbance and distress among the adult learners. According to Vitasari, Wahab, Othman, Herawan & Sinnadurai (2010), the prime symptom of anxiety begins with poor academic development and a minimal amount of interest, and gradually worsens with increasing instability.

Various detrimental factors associated with test anxiety may occur before, during and after any test or examination. The most prominent factors are poor academic performance and dropping out of school (Ganaprakasam & Selvaraja, 2020). Students tend to experience several abnormal emotional difficulties due to foreign threatened about test or examinations and may stop attending school. Tahmaselipour (2011) has shown that many students in tertiary education suffer from test anxiety even after spending time preparing themselves for a test. A much work on identifying the crucial factors towards test anxiety has been found. A study by Khosravi, Ostovar and Azami (2012) discovered that teachers' expectation, family environmental elements and the students' own personalities are factors related to test anxiety. According to the Interference Model Theory (BIrjandi and Alemi, 2010), test anxiety plays a very important role in detrimental decay. It has been suggested that test anxiety causes an individual to experience unrelated emotional and behavioural responses in the examination context by causing interruption with several irrelevant thoughts. An appropriate level of anxiety among students enables them to work towards their planned target. In an examination-oriented culture, test anxiety is a vital hindrance amongst students, leading to the development of false beliefs concerning their innate capabilities. According to Sarason (2018), test anxiety directly impacts individual self-esteem and promotes destructive cognitive estimation or judgment, deficient concentration and uncomfortable physiological responses.

Another factor that could affect adult learners test anxiety is gender. Nobelus (2004) stated that gender refers to masculine and feminine characteristics. Also, the World Health Organization (WHO, 2014) stated that gender refers to behaviours, roles, expectations and activities which the society or culture delineates as masculine or feminine. Also, Berk (2003) stated that gender is a social construction that has to do with behaving according to type. Therefore in this study, gender refers to behaviours and activities of adult learners, men and women regarding test anxiety reactions. Blanch (2016) carried out a study on socialized personality, scholastic aptitudes, test anxiety and academic achievement and found that girls scored higher on test anxiety. But Ossai (2017) conducted a study on whether test anxiety predicts examination behaviour and found no significance difference in the test anxiety

reactions of male and female students. On a study about test anxiety reactions and academic achievement of secondary school students in Ebonyi State, Agoha (2017) found that test anxiety reactions has significant effect on students' academic achievement but do not vary with gender. It was the interest of this study to determine whether the effects of systematic desensitization and group counselling on adult learners test anxiety would vary with gender or not.

In Agbani Education Zone, adult learners have continued to display unreasonable indifference to test anxiety, adult learners have become highly prone to illiteracy (Aulu, 2018). However, the researcher is not aware of any study carried out in an attempt to find solution to this situation in Agbani. It is against this background that the study intends to investigate the effects of systematic desensitization and group counselling on adult learners test anxiety.

It could be deduced that even if an adult learner is naturally intelligent, for the adult learner to achieve good academic results, the adult learner must shun test anxiety and to do so means that the adult learner must learn some techniques. Therefore, there is need to teach adult learners some techniques to avoid test anxiety and do better in test. In order to accomplish these, the need for counselling techniques becomes necessary. There are many counselling techniques which have been employed in behavioural changes of clients such as systematic desensitization (Essuman, Nwogu & Nwachukwu, 1990).

These counselling techniques have been found to be effective in handling maladaptive behaviour among students. For instance, Idowu (2016) reported that group counselling is effective in examination phobia. Galdding (2017) found out that group counselling has been effective in identifying and disputing irrational and maladaptive thoughts and behavior (which in this case should include test anxiety). Uba (2018) reported that group counselling was effective in reduction of bullying behaviour among students. Obieze (2018) also stated that group counselling was effective in reduction of drug abuse among students in Ebonyi State.

However, Marrs (2017) reported that systematic desensitization was effective for impulse control, and studying problems. Ilogho (2018) reported that systematic desensitization was effective in fostering students' social anxieties in Ota, Ogun State. Umeh (2016) reported that group counselling and systematic desensitization were effective in reduction of anger manifestation among secondary school students in Ebonyi State, Nigeria. Also, Ncheke (2011) noted that group counselling is effective in reducing social isolates among secondary school students in Enugu State, Nigeria. But the worry is whether systematic desensitization and group counselling could be capable of reducing test anxiety among adult learners and help them to be relaxed during test or examination.

Systematic desensitization is a technique of behaviour therapy called Wolpe's reciprocal inhibition or systematic desensitization (Okeke, 2002). The author noted that it is a technique for extinguishing anxiety reactions. This technique of behaviour therapy involves gradually introducing a patient to increasingly fear-arousing stimuli in such a way that his fear of them all is gradually extinguished (Keane, 2018). This implies that when adult learners are introduced to systematic desensitization, they will reduce their fear for test. Systematic desensitization is a technique derived from the classical conditioning theory which incorporates counter conditioning principles, such as meditation and breathing (Okeke, 2002). The process of systematic desensitization according to Okenyi (2015) occurs in three steps. The first step of systematic desensitization is the identification of an anxiety inducing stimulus hierarchy, the

second step is the learning of relaxation or copying techniques, and third step is to react towards and overcome situations in the established hierarchy. Systematic desensitization is an evidence-based therapy approach that combines relaxation techniques with gradual exposure to help learners to overcome challenges (Okenyi, 2015).

In this study, systematic desensitization refers to a counselling technique used in helping adult learners to extinguishing test anxiety reactions. Consequently, the study seeks to determine the effect of systematic desensitization on test anxiety of adult learners. In counselling, systematic desensitization has been found to be effective in correcting and managing dysfunctional thinking and behaviours such as anxiety, social phobia among others, of students in some countries including Nigeria. Whether systematic desensitization would be effective in reducing test anxiety among adult learners need to be empirically established. Therefore, the question which this study intends to address is: what are the effects of systematic desensitization on test anxiety of adult learners?

Purpose of the Study

The general purpose of this study was to investigate the effects of systematic desensitization on test anxiety of adult learners.

Specifically, the study sought to:

- (1) determine the effect of systematic desensitization on test anxiety of adult learners;
- (2) ascertain the interaction effect of treatment and gender on test anxiety of adult learners.

Research Questions

The following research questions guided the study:

- (1) What is the effect of systematic desensitization on test anxiety of adult learners?
- (2) What is the interaction effect of treatment and gender on test anxiety of adult learners?

Hypotheses

The following hypotheses formulated guided the study and was tested at 0.05 level of significance.

H₀₁: There is no significant difference in mean ratings of adult learners exposed to systematic desensitization and those not exposed to it on test anxiety.

H₀₂: There is no significant interaction effect of treatment and gender on test anxiety of adult learners.

Method

Design of the Study

The design of this study 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 this 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 subject must be randomly assigned to either control or experimental groups. The justification for the use of this design is because the results

of a true experimental design can be statistically analyzed and so there can be little argument about the results.

Area of the Study

The area of the study was Enugu State. Enugu State is one of the states in the South-East geographical zone of Nigeria with Enugu as its capital. It is surrounded in the East by Ebonyi State, in the West by Anambra State, in the North by Benue State and in the south by Abia State. Enugu State is made up of three senatorial districts and six education zones.

Sample and Sampling Techniques

The sample of the study comprised forty (40) adult learners that will be drawn from three (3) adult education centres in Agbani education zone of Enugu State. The three (3) adult education centres were drawn through purposive sampling technique and this enabled the researcher to have a geographical spread of the whole education zone and specific for adult learners. Out of the three adult education centres that was used for the study, two adult education centres were assigned to the treatment groups by simple random sampling technique through balloting system (i.e systematic desensitization group) while the remaining one was assigned to the control group through purposive sampling technique. The assignment of adult education centres to treatment and control groups was done purposively.

Instrument for Data Collection

The instrument for data collection for this study was a modified Miller's Test Anxiety Scale (TAS). The scale is a standardized instrument that provides a self-evaluation regarding test anxiety. The Yes/No format of the instrument was changed to a 4 point rating response of Always, Often, Sometimes and Never and assigned weight of 4, 3, 2 and 1 respectively by the researcher. This made the data collected with the TAS easy to analyze using mean and standard deviation while the items helped to identify and quantify the level of test anxiety in the adult learners. It has 15 items that covered both pre-examination and during examination attitudes that indicated test anxiety. The TAS was subjected to both test of stability and internal consistency. The researchers employed the test-retest procedure to assess the stability of the instrument. Using the Pearson Product Moment Correlation approach, the Test Anxiety Scale yielded a stability index of 0.93 and this is adjudged to be high enough for this study. The TAS was further tested for internal consistency using Cronbach Alpha. The instrument yielded an alpha coefficient of 0.74.

Experimental Procedures

Stage I - Pre-treatment Session

The researchers briefed three research assistants who served as facilitators for the three groups that were involved in the investigation. The research assistants are adult educators from the adult education centers. They were chosen because they have been providing vital information to adult learners on academic adjustment that will enhance their performance. This made the adult learners to participate out of interest. Each of the research assistants was briefed on how to handle either of the treatment groups that is systematic desensitization group, group

counselling group or the control group. They were provided with copies of detailed description of treatment packages that the researcher prepared as well as how to implement and evaluate. The control groups were equally kept busy with similar but different activities from the treatment groups.

Stage II - Treatment Session

The behaviour modification training programmes on systematic desensitization and group counselling which lasted for 6 weeks was used for the treatment. Treatment group one (1) received counselling using systematic desensitization and the programmes of activities was as follows:

1. Week 1 — Orientation
2. Week 2 — Instruction of how to use relaxation approach
3. Week 3 — Creating anxiety hierarchy
4. Week 4 — Pairing anxiety with anxiety hierarchy
5. Week 5 — Continuation of week 4
6. Week 6 — Evaluation and termination

The second group was on group counselling and the programmes of activities was as follows:

1. Week I — Orientation
2. Week 2 — Identification of forms of anxiety
3. Week 3 — Developing system of group counselling
4. Week 4 — Group counselling exercise
5. Week 5 — Continuation of week 4
6. Week 6 — Evaluation and termination

The treatment packages for the two groups were fully detailed in the appendix respectively. The third group was the control group and they were exposed to the conventional approach.

Stage III - Post-treatment Session

At the end of the experiment which lasted for six weeks, the post-test was administered to the subjects in the two groups. Data that was collected during the pre and post-test for the two groups was used to answer the research questions and test the hypotheses.

Data for this study was collected using the Test Anxiety Scale (TAS). At the onset of the experiment, the instrument was administered to the adult learners in both the treatment and control groups by the researcher with the help of three research assistants as the pretest. The TAS was collected from the adult learners at the end of the day and the scores from the pretest were used at the end of the experiment. At the end of the experiment which lasted for six weeks, the same instrument was administered to the adult learners in the two groups as post test. Both the pretest and posttest scores were used for data analysis.

Method of Data Analysis

Research questions were answered using mean and standard deviation while the hypotheses were tested using the Analysis of co-variance (ANCOVA) at an alpha level of 0.05. The choice

was made of ANCOVA because it is the most appropriate in the analysis of data from the non equivalent control group design.

Results

Research question One

What is the effect of systematic desensitization on test anxiety of adult learners?

Table 1: Mean and standard deviation of adult learners' scores on the effect of systematic desensitization on test anxiety.

Group	N	Pre-test		Post-test		Mean Gain
		Mean	SD	Mean	SD	
Experimental	14	65.53	12.156	29.61	11.834	35.92
Control	10	32.09	12.741	34.34	13.712	2.25

Result in Table 1 shows that the experimental group had a pre-test mean score of 65.53 with a standard deviation of 12.156 and a post-test mean score of 29.61 with a standard deviation of 11.834. For the control group, their pre-test mean score is 32.09 with a standard deviation of 12.741 and a post-test mean score of 34.34 with a standard deviation of 13.712. This result indicates that there was a decrease in the post-test mean score of the experimental group but an increase in the post-test mean score of the control group. This may be as a result of the treatment. Thus, test anxiety of adult learners exposed to systematic desensitization had significant reduction compared to those of the control.

Research question Two

What is the interaction effect of treatment and gender on test anxiety of adult learners?

Table 2: Mean and standard deviation of adult learners' scores on the effect of treatment and gender on test anxiety.

Group	Male			Female		
	N	Mean	SD	N	Mean	SD
Group counselling	6	13.096	5.574	10	19.644	8.361
Systematic desensitization	6	11.844	4.7336	8	17.766	7.1004

Result in Table 2 shows that the group counselling had mean score of 13.096 with a standard deviation of 5.574 from male adult learners and mean score of 19.644 with a standard deviation of 8.361 from female adult learners. For the systematic desensitization, mean score of 11.844 with a standard deviation of 4.7336 was obtained from male adult learners and mean score of 17.766 with a standard deviation of 7.1004 was also obtained from female adult learners. This result indicates that there was no interaction between treatment and gender on test anxiety of adult learners since both the post-test mean score of male and female adult learners are higher with treatment.

Table 3: Analysis of co-variance (ANCOVA) for testing interaction effect of treatment and gender on test anxiety of adult learners.

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Corrected model	141939.665(a)	6	35484.916	209.231	
Intercept	78860.902	1	78860.902	464.990	
Pretest	7421.549	1	7421.549	43.760	
Treatment	128611.484	1	128611.484	758.336	.000
Gender	54.635	1	54.635	.322	
Treatment*Gender	58.218	1	58.218	.343	.558
Error	48335.149	33	169.597		
Total	1090554.000	40			
Corrected Total	190274.814	39			

The ANCOVA results in Table 3 shows that the F-calculated value for method is 758.336 with significance of F at .000, which is less than .05. The researcher therefore rejected the null hypothesis at .05 level of significance and concluded that there is a significant difference in mean ratings of adult learners exposed to systematic desensitization and those not exposed to it on test anxiety in favour of the former.

The ANCOVA results in Table 3 indicates that the F-calculated value for method and gender is .343 with significance of F at .558, which is greater than .05. The researcher therefore retained the null hypothesis at .05 level of significance and concluded that there is no significant interaction effect of treatment and gender on test anxiety of adult learners.

Discussion

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 test anxiety at the commencement of the treatment. The overall result indicates that adult learners exposed to treatment using systematic desensitization had significant improvement on their test anxiety (Reduction) than those who were not exposed to treatment (control group). This is evidenced by the adult learners' reduction in manifestation of test anxiety. In other words, the adult learners adopted more rational behaviour pattern after being exposed to the treatment (systematic desensitization). The overall result indicated that adult learners exposed to systematic desensitization had significant reduction in their test anxiety than those not exposed. Hence, there is a significant difference between the pre-test and post-test mean scores of adult learners due to systematic desensitization effect on test anxiety. This finding confirmed the findings 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 the study showed that three counselling therapies had effect both at posttest and follow-up. However, while systematic desensitization was the most effective therapy, assertiveness training was the less effective. The three therapies

were all more effective when compared to the control. The findings of this study was also in conformity with the findings of Okereke (2014) who carried out a study on implementation of systematic desensitization in reducing examination phobia among university students of Imo State University. Data collected were analyzed using statistical mean and ANCOVA. Based on the analysis, it was discovered that assertive training and systematic desensitization techniques were effective in reducing examination phobia.

This study equally explored the interaction effect of treatment and gender on test anxiety of adult learners. The results of the analysis showed that male and female students of the experimental group had decrease in their post-test mean scores while male students of the control group had a small decrease in their post-test mean score but the female of the control had a small increase in the post- test score. This implies that there is no significant interaction effect of treatment and gender on test anxiety of adult learners. This finding was in agreement with the findings of Oparanozie (2016) who found out that there was no significant interaction effect of treatment and gender on examination phobia of students as a result of systematic desensitization, there was no significant interaction effect of treatment and gender on examination phobia of students as a result of self-monitoring. The finding of this study was also in congruence with the findings of Akeze (2012) who investigated the effects of anxiety and personality adjustment of secondary school adolescents in relation of age and gender. He found out that there was no significant interaction effect of age and gender in relation to Personality adjustment and anxiety of secondary school adolescents. This implies that the relative effect of treatment (group counselling and systematic desensitization) on test anxiety of adult learners is consistent across the two levels of gender suggesting that-both male and female adult learners benefited and the difference in their benefits was insignificant.

Conclusion

Based on the discussion of findings, it is concluded that test anxiety of adult learners exposed to systematic desensitization had significant reduction compared to those of the control. Also if adult learners who have test anxiety were subjected to systematic desensitization treatment, there is more likely to be a reduction in their level of test anxiety manifestation. There was no interaction between treatment and gender on test anxiety of adult learners since both the post-test mean scores of male and female adult learners are higher with treatment.

Recommendations

Based on the findings of this study and their educational implications, the following recommendations are made:

1. Teacher education institutions should train pre-service and in-service teachers on the step wise approach in applying group counselling and systematic desensitization.
2. There is need for guidance counsellors, teachers and researchers to undergo some training on behaviour modification based on group counselling and systematic desensitization through workshops, seminars and conferences which the government can assist in organizing.
3. Guidance counsellors, teachers, government, entire society and researchers should plan a programme of intervention based on the principles of group counselling and systematic desensitization techniques for adult learners.

4. Guidance counsellors, teachers, government, entire society and researchers should recognize that gender is not a significant factor in the manifestation of test anxiety among adult learners and therefore should not be biased in planning treatment programme for the adult learners.

Limitations of the Study

The generalizations made in this study are subject to the following limitations:

1. Only two treatments were tried out in this study and the researcher could have used more than two treatments.
2. Other moderator variables like location could have been explored for effect.
3. The use of only adult learners in Agbani education zone in this study might have affected the generalization of the findings in the state.

The above limitations, however, would not affect significantly the generalization made with respect to this study.

Suggestions for Further Studies

Based on the findings and limitations of the study, the following areas were suggested for further studies:

1. Other treatments should be tried in the reduction of test anxiety of adult learners.
2. A similar study should be conducted in other states of the country.
3. A study on effects of systematic desensitization and group counselling on test anxiety of college of education sandwich students should equally be carried out.
4. A study on comparative analysis of effects of systematic desensitization and group counselling on test anxiety of adult learners should be carried out.
5. A study on effects of systematic desensitization and group counselling on test anxiety of National Teachers Institute (NTI) students should be conducted.

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