



EFFECTS OF COGNITIVE RESTRUCTURING THERAPY AND SQ3R STRATEGY AMONG SECONDARY SCHOOL STUDENTS IN GOMBE STATE, NIGERIA

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Abstract

This study was carried out to determine the effects of cognitive restructuring therapy (CRT) and survey, question, read, recite, review (SQ3R) study strategy on academic procrastination among secondary school students in Gombe State, Nigeria. A pre-test post-test non-equivalent no control group design was adopted for the study. To guide the study, three research questions were answered, and three hypotheses were tested at 0.05 level of significant. Population of the study was 24,478 secondary school students in the 142 public coeducation schools in Gombe State, and the sample for the study was 134 students in the public co-education schools in Gombe State, drawn using the purposive sampling technique. There were two experimental groups. The experimental group 1 was exposed to cognitive restructuring therapy on academic procrastination, while the experimental group 2 was exposed to SQ3R study strategy on academic procrastination. The study made use of three research instruments – a 25-item academic procrastination scale (APS), and two experimental packages. The APS was validated by five experts. The test of stability of APS was ensured using test-retest method on twenty students at an interval of two weeks. The Pearson Product Moment Correlation was used to ensure the reliability of APS at 0.05 level of significant. APS yielded a reliability index of 0.72. Cronbach Alpha was also used to test the internal consistency of APS and the coefficients of internal consistency 0.84. All the experimental groups were exposed to pre-test and then after the administration of the various treatments, were exposed to post-test. The data obtained were analyzed using Mean and Standard Deviation for answering research questions and Analysis of Covariance for testing hypotheses at 0.05 level of significance. Major findings of the study revealed that CRT and SQ3R study strategy had significant effects on academic procrastination levels of secondary school students in Gombe State; and that gender was a factor of significant difference in academic procrastination in favour of male. It was concluded that academic procrastination is effectively managed using CRT and SQ3R study strategy among secondary school students. The study recommended among others that CRT and SQ3R study strategy should be used by school counsellors/psychologists, teachers and other Education stakeholders in managing academic procrastination among secondary school students.

Keywords: Academic procrastination, Cognitive restructuring therapy, SQ3R study strategy

Introduction

Daily, people are faced with lots of activities that demand their attention at almost the same time. Some of these activities are met immediately, while some are not due to procrastination. Procrastination can be described as an intentional delay that obstruct the beginning or completing a task for a reason(s) best known to the procrastinator.

Adimora, Akaneme and Nwokenna (2017) defined procrastination as a dispositional trait which has cognitive, behavioural and emotional components that make one postpone doing things, become anxious and apprehensive. Procrastination could also mean failing to perform an activity within the desired timeframe or deadline (Buana & Zulwidyaningtyas, 2024). It could also mean postponing a task until the last minute.

According to Kudi (2020), procrastination, in general, is of two types. The first is procrastination in everyday life such as delay in meeting up with appointments, the payment of bills, and taking important life decisions, while the second is that which reflects domain-specific context, such as academic procrastination.

Academic procrastination is the type of procrastination that is peculiar to students. Okoye and Onokpaunu (2020) described academic procrastination as the attitude of not doing assignment, or reading for examination until last minute. Academic procrastination particularly happens in situations where students are given academic tasks with deadlines to meet up with. Empirical findings show that academic procrastination often occur among students who do not believe they have the capabilities to study successfully for an examination (Yerdelen, McCaffrey & Klassen, 2016). To Yerdelen, et al, appraisal of one's own ability to be successful in examinations plays an important role in the causation of academic procrastination among students. Symptoms of academic procrastination may include delayed completion of academic task, improper completion of tasks, confusion, feeling of inadequacy, self-blame, low self-esteem, anxiety and depression. AbdiZarrin, Gracia, and Paixao (2020) argued that academic procrastination happens among students because of fear of failure. To Custer (2018), academic procrastination could lead to academic underachievement, embarrassment, barrier to academic prospects, undue stress, negative emotions, and decreased psychosocial and physical health, and low examination scores among students.

The preponderance of academic procrastination among students is worrisome considering its seemingly detrimental effect on students' academic life. For example, Saplavaska and Jerkunkova (2018) discovered that 46% - 95% of secondary school and tertiary institution students do procrastinate their academic tasks. Also, in their study on academic procrastination, Carolia, Yusuf and Yanuvianti (2012) found that 52.94% of the subjects have a moderate level of academic procrastination, 41.18% exhibit low level of academic procrastination, while the remaining 5.88% have a high level of academic procrastination. This statistic gives an idea to the menace of academic procrastination among students. Tibbett and Ferrari (2015) argued that students procrastinate mostly when they believe they still have ample time ahead to carry out their tasks. Tukur (2020) posited that it seems students who lack confidence in themselves are not motivated to carry out their academic tasks. This could be because they have irrational thoughts on academic tasks, and or lack mastery of the contents. Academic procrastination is an educational problem that seems to cut across gender.

For instance, Balkis and Duru (2017) found that gender played a significant role on academic procrastination of students. Gender is a physiological or sociological attribute of being male or female. Balkis and Duru (2017) defined gender as a social concept that is set to differentiate between the two sexes, male and female. As pointed out by Akintunde (2014) gender refers to the various social and cultural constructed features, values, behaviours, and parts which different societies ascribe to males

and females. Gender is one of the variables that engage the attention of researchers over the world to ascertain its influence on students' academic pursuit in the various aspects of the education system (Ogbonna, Nworgu & Oparah, 2017). Similarly, Charine (2015) found gender as a factor of difference in procrastination, as the scholar further argued that gender is considered in most interventions trying to solve behavioural problems. In the quest to manage academic procrastination which cuts across gender, researchers have employed different interventions including cognitive restructuring therapy. A study by Buana and Zulwidyaningtyas (2024) found cognitive restructuring techniques to be effective in reducing academic procrastination among students.

The identification, rebuttal, and modification of irrational thoughts of students are necessary if they must function to the fullest of their potentials. This can be done through the cognitive restructuring therapy. Cognitive restructuring therapy as defined by Cuncin (2018) is a technique that involves identifying, disputing, and replacing irrational thoughts. In like manner, Saputra (2017) describes cognitive restructuring therapy as a tool used by psychologists and therapists to assist in identifying thoughts, beliefs and behaviours that are irrational, rebut, and then transform the thoughts, beliefs and behaviours to become rational. The rationale for using cognitive restructuring therapy (CRT) in this study is because it is one of the few forms of psychotherapies that has been scientifically tested and proven to be effective in managing anxiety disorders (Ghamari, Rafeie & Kiani, 2015). In agreement with this, a study by Anyamene & Udeagha (2025) found cognitive restructuring therapy to be effective in mitigating behavioural problems among students. In this study, the efficacy of cognitive restructuring therapy in ameliorating procrastination among students through helping them to: Identify their expressed irrational thoughts that prevent them from excelling in their academic dispositions such as "I deliberately postpone my academic tasks to meet up with other demands" and "Last minute academic activities, is always my hobby"; rebut the thoughts, and convert the irrational thoughts become rational. As effective as CRT is, SQ3R study strategy also seems to have the propensity of being effective. The SQ3R study strategy is a study strategy named after its five steps, which include Survey, Question, Read, Recite, and Review. This technique can be learnt within short period of time and is so flexible that it can be applied to most, if not all fields of study. SQ3R study strategy helps students master any given information. In this study, participants will be exposed to the SQ3R study strategy to test its efficacy in managing academic procrastination among secondary school students in Gombe State. Recent studies that employed SQ3R study strategy on test anxiety and reading such as that of Nourmohammadi, Entesarfoumani, Hejazi and Morovati (2020), Hartati and Yuliawati (2018), and Bakhtiar, Salija and Abduh (2020), found the strategy to be very effective among students.

Naturally, students are expected to carry out their academic tasks promptly, however, the researcher observed symptoms of academic procrastination among students in Gombe State, such as: not showing up during regular classes until examination period, last hour preparation for assignment or copying other students' assignments to meet up with deadlines for submission, and giving excuses for non-submission of assignments. These behavioural problems can be a threat to the academic success of students. They could eventually drop out of school and constitute nuisance in the society. These students are supposed to be useful to themselves and the state. Sadly, academic procrastination poses a threat to the academic life of students in question because they seem not to think rationally about their academic tasks, and also lack content mastery, thus, not equipped enough to instil in them the confidence and motivation they need to carry out their academic tasks promptly. The researcher is therefore optimistic that cognitive restructuring therapy and SQ3R study strategy could be effective in managing academic procrastination among students, by guiding them to think aright, be positive and avoid unnecessary delay in their studies, so they can reach their maximum potentials in life.

Purpose of the Study

The main purpose of this study was to investigate the effects of cognitive restructuring therapy and the SQ3R study strategy on academic procrastination among secondary school students in Gombe State, while considering the moderating effect of gender.

Research Questions

1. What are the effects of cognitive restructuring therapy and SQ3R study strategy on mean academic procrastination ratings of secondary school students in Gombe State?
2. What are the mean academic procrastination ratings of male and female secondary school students in Gombe State?
3. What is the interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe State?

Hypotheses

Ho₁: There is no significant difference in the mean academic procrastination ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State.

Ho₂: There is no significant difference in the mean academic procrastination ratings of male and female secondary school students in Gombe State.

Ho₃: There is no significant interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe State.

Methodology

This study adopted the pre-test post-test non-equivalent quasi experimental design. This design was adopted because of its ability to establish cause–effect relationship due to interventions. The design is considered appropriate for the study because of the use of two independent variables in this study. The design also gives room to study interaction effect among variables. It also allows the use of non-equivalent groups, and controls the internal validity threats of the group initial difference as a result of nonrandomization and the researcher's selection bias of the subjects. The pre-test and posttest administration was used to neutralize the initial difference among the groups in terms of their levels of test anxiety. In this design, there was no control group, as the two experimental groups served as control for themselves. The design for the study is allegorically represented figure 1 below.

Groups	Pre-test	Treatment	Post-test
Experimental Group 1	O ₁	XCRT ON AP	O ₂
Experimental Group 2	O ₁	XSQ3R ON AP	O ₂
..... Non -equivalent groups			
KEY: O₁ = Pre-test.			
O₂ = Post -test.			
XCRT ON AP = Treatment with Cognitive Restructuring Therapy on Academic procrastination.			
XSQ3R ON AP = Treatment with SQ3R study strategy on Academic procrastination.			

Figure 1: Pre-test post-test non-equivalent quasi experimental design

The population of the study included twenty-four thousand four hundred and seventy-eight (24,478; male, 14,308 and female, 10,170) senior secondary school II (SS II) students from the one hundred and forty-two (142) public co-educational secondary schools in Gombe State. The choice of SS II students for this study arose from the assumption that at this stage the students would have been conscious and anxious about various forthcoming examinations such as the West African Senior Secondary Certificate Examination (WASSCE), Senior School Certificate Examination (SSCE), Unified Tertiary Matriculation examination (UTME), and Post Unified Tertiary Matriculation examination (Post UTME). These examinations, among others will eventually determine their future of either going into tertiary institutions or dropping out. Also, SS II level is a crucial period in the lives of the students for their career choices. The sample for this study was one hundred and thirty-four (134; male, 63 & female, 71) public co-educational secondary school II (SS II) students in the two (2) intact classes that was purposively sampled from two (2) education zones, Gombe North and Gombe Central respectively, out of the three education zones in Gombe State. The simple random sampling technique was used to assign the intact classes into the various experimental groups respectively.

Three instruments were used for the study – Academic procrastination scale (APS), Cognitive restructuring therapy package (CRTP) on academic procrastination, and SQ3R study strategy package (SQ3RP) on academic procrastination. The first instrument used was a 25-item Likert rating scale, titled “Academic Procrastination Scale” (APS), which was adapted from Abu (2012). The instrument was used for collection of respondents' demographic data, and determining their levels of agreement or disagreement with the statements on the instruments as regards academic procrastination. The APS was initially administered to the students as pre-test, and then later reshuffled and administered as post-test. The APS was structured on four-point scales, and were graded as: Strongly Agree (SA), 4 points; Agree (A), 3 points; Disagree (D), 2 points; and Strongly Disagree (SD), 1 point. The second instrument used for the experiment was cognitive restructuring therapy package (CRTP) on academic procrastination. The third instrument used for this study was SQ3R study strategy package (SQ3RP) on academic procrastination.

In order to ascertain the validity of these instruments, the researcher gave the instruments to five experts for their inputs: three experts from Educational Psychology, and two experts from Measurement and Evaluation, University of Nigeria, Nsukka, and Gombe State University respectively, for validation. The observations, corrections, and suggestions noted by the experts were affected before the instruments were administered for reliability test. The test of stability of APS was ensured using test-retest method on twenty (20) students in Gombe south education zone at an interval of two weeks. The Pearson Product Moment Correlation (PPMC) was used to ensure the internal consistency of the instruments at .05 level of significant. APS yielded a reliability index of .72. The Cronbach Alpha was used to compute the internal consistency of the instruments, and the coefficient of reliability of APS was .84.

Mean and standard deviation were used to answer the research questions raised, while analysis of covariance (ANCOVA) was used to test the null hypotheses formulated for the study at .05 level of significant.

Results

Research Question One: What is the effect of cognitive restructuring therapy and SQ3R study strategy on mean academic procrastination ratings of secondary school students in Gombe State?

Table 1: Mean and standard deviation of secondary school students on the effect of CRT and SQ3R on their academic procrastination

Treatment	N	Pre -test Mean	SD	Post -test Mean	SD	Mean Loss	Mean Loss Difference
CRT	65	67.86	7.84	48.11	4.74	19.75	10.03
SQ3R	69	67.85	8.86	58.14	7.77	9.72	

Results in Table 1 show that at pre-test, secondary school students exposed to CRT had mean academic procrastination ratings of 67.86 with standard deviation of 7.84, while those exposed to SQ3R had mean academic procrastination ratings of 67.85 with standard deviation of 8.86. Meanwhile, at post-test, secondary school students in Gombe state exposed to CRT had mean academic procrastination ratings of 48.11 with standard deviation of 4.74, while those exposed to SQ3R had mean academic procrastination ratings of 58.14 with standard deviation of 7.77.

The mean rating difference of 10.03 was recorded for the two treatment groups in favour of CRT. This gives an indication that CRT has a higher effect in reducing academic procrastination of secondary school students in Gombe state. The standard deviation of the two groups (CRT and SQ3R) at the post-test ranged from 4.74–7.77; indicating that the respondents were homogenous in their responses.

Research Question Two: What is the mean academic procrastination ratings of male and female secondary school students in Gombe State?

Table 2: Mean and standard deviation of male and female secondary school students on their academic procrastination.

Gender	N	Pre-test Mean	SD	Post-test Mean	SD	Mean Loss	Mean Loss Difference
Male	63	67.92	8.79	62.63	8.35	15.29	1.34
Female	71	67.80	8.01	53.85	8.05	13.95	

Results in Table 2 show that at the pre-test, male students had mean academic procrastination ratings of 67.92 with standard deviation of 8.79 while their female counterparts had mean academic procrastination ratings of 67.80 with standard deviation of 8.01. At post-test, male students had mean academic procrastination ratings of 52.63 with standard deviation of 8.35 while their female counterpart recorded mean academic procrastination ratings of 53.85 with standard deviation of 8.05. The results therefore, show that both male and female students recorded a decreased academic procrastination. However, male students had lower mean academic procrastination ratings than their female counterpart. This can be seen from a slight mean loss difference of 1.34 in favour of the male students. The standard deviations of the two groups (male and female), at the post-test ranged from 8.05–8.35; indicating that the respondents were homogenous in their responses.

Research Question Three: What is the interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe State?

Table 3: Mean and standard deviation of interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe state

Groups	Gender	N	Mean	SD
CRT	Male	30	47.97	4.60
	Female	35	48.23	4.92
SQ3R	Male	33	56.88	8.77
	Female	36	59.31	6.63

Results of the analysis in Table 3 revealed that male students exposed to CRT had more reduced mean academic procrastination ratings of 47.97 and standard deviation of 4.60 compared to their counterpart exposed to SQ3R who had mean academic procrastination ratings of 56.88 with standard deviation of 8.77. Meanwhile, female students exposed to CRT also had lower mean academic procrastination ratings of 48.23 and standard deviation of 4.92 while their female counterparts exposed to SQ3R had mean academic procrastination ratings of 59.31 with standard deviation of 6.63. The results do not suggest ordinal interaction effect between treatments and gender on mean academic procrastination ratings of secondary school students in Gombe state. This was because at all the levels of gender, the mean academic procrastination ratings were lower for students in exposed to CRT. Thus, there may be no interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students. The standard deviation of the two groups (CRT and SQ3R with respect to gender at the post-test ranged from 4.62–6.22; indicating that the respondents were homogenous in their responses.

H₀₁: There is no significant difference in the mean academic procrastination ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State.

Table 4: Analysis of covariance of significant difference in the mean academic procrastination ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3671.882 ^a	4	917.971	22.603	.000	.412
Intercept	3681.234	1	3681.234	90.644	.000	.413
Pretest Procrastination	197.390	1	197.390	4.860	.029	.036
Method	3337.688	1	3337.688	82.185	.000	.389
Gender	62.288	1	62.288	1.534	.218	.012
Method * Gender	27.693	1	27.693	.682	.410	.005
Error	5238.902	129	40.612			
Total	389249.000	134				
Corrected Total	394487.902	133				

Result of the analysis in Table 4 shows that treatment is a significant factor on academic procrastination ratings of secondary school students; $F(1,129) = 82.185$, $P = .000$, $\eta^2 = .389$. Hence, the null hypothesis of no significant difference was rejected since the exact probability value (.000) was less than level of significance set at 0.05. The researcher therefore, concludes that there is a significant difference in the mean academic procrastination ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State. Nevertheless, the Partial Eta Square (effect size) value of .389, shows that CRT had moderate effect on academic procrastination of secondary school students.

H₀₂: There is no significant difference in the mean academic procrastination ratings of male and female secondary school students in Gombe State.

Result of the analysis in Table 4 was also used to test hypothesis two. The Table shows that gender is a significant factor on academic procrastination of secondary school students; $F(1,129) = 1.534$, $P = .218$. Thus, the null hypothesis of no significant difference was rejected because of the mean loss difference of 1.34 in favour of the male, and the exact probability level of .218 was greater than level of significance set at 0.05. The researcher therefore, concludes that gender has significant influence on the mean academic procrastination ratings of secondary school students.

H₀₃: There is no significant interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe State.

The results of the analysis in Table 4 were also used to test hypothesis three. The Table shows that the exact probability value of .410 associated with treatments and gender was greater than 0.05 level of significance; $F(1,129) = .682$, $P = .410$. Thus, the null hypothesis of no significant interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe State was rejected. The researcher therefore, concludes that the interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe State was significant. The result of interaction effect was also interpreted using screen plot as shown in figure 1.

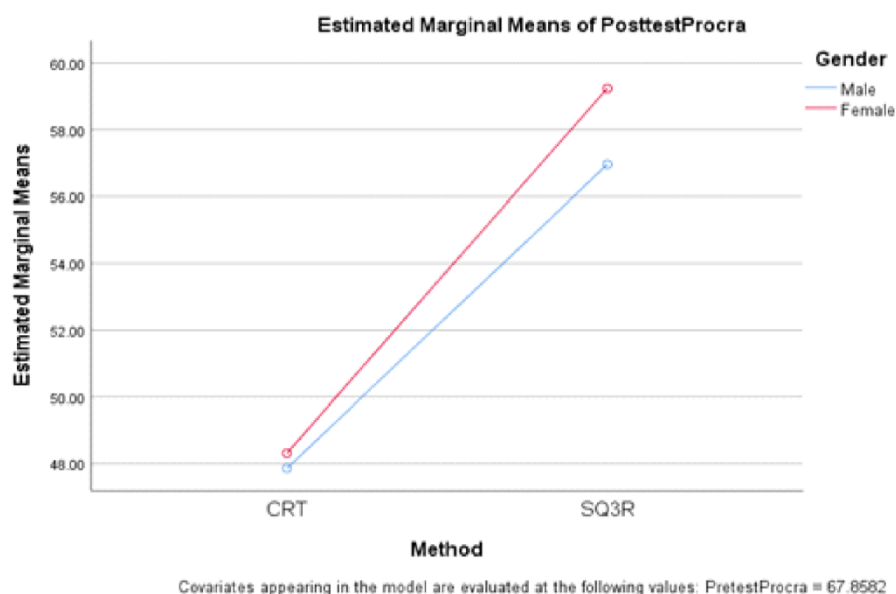


Figure 1: Graph of the interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students.

The screen plot in figure 1 shows that there is interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students. This is indicated by the separate lines for the male and female students' academic procrastination in the respective two treatment groups. That is to say that, the connecting cell mean in the diagram is parallel.

Discussion of Findings

The findings of this study also revealed that cognitive restructuring therapy and SQ3R study strategy had significant effects on academic procrastination level of secondary school students in Gombe State. However, there is a significant difference in the mean academic procrastination ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State.

This finding implies that cognitive restructuring therapy and SQ3R study strategy significantly affect academic procrastination level among the students but cognitive restructuring therapy affects students' academic procrastination more than the SQ3R study strategy. This finding also reaffirmed the postulation of the Cognitive Behavioural theory that it is the thoughts, feelings, beliefs and interpretations of situations that determine behaviour. Thus, this study helped students interpret the rationale for academic tasks positively. The theory also posited that some behaviours become conditioned through stimulus and response; if the response is desirable, the connection will be strengthened but if undesirable, it will be deterred. Through the employment of cognitive restructuring therapy and SQ3R study strategy, students were guided and conditioned to identify and rebut irrational thoughts on academic tasks, and motivated to carry out academic tasks as and when due, thereby deter academic procrastination. In agreement with this finding is the finding of Bakhtiar and Kasim (2020) who investigated cognitive restructuring application techniques to reduce student behaviour in academic procrastination and found that the application of cognitive restructuring technique had reduced significantly the behaviour of a student's academic procrastination in SMPN 8 Makassar. In like manner, Tukur (2020) investigated the effect of cognitive restructuring technique on academic procrastination among secondary school students in Zaria metropolis and found that cognitive restructuring technique was effective in reducing academic procrastination. Also, earlier finding by Jemittashan (2016) who carried out a study on effectiveness of cognitive behaviour therapy on level of procrastination among first year B.Sc.

Nursing students at selected Nursing colleges, Chennai and found that cognitive behaviour therapy performed by the investigator is proved to be effective in reducing the level of procrastination among I year B.Sc. Nursing students. The finding of Nourmohammadi, Entesarfoumani, Hejazi and Morovati (2020) corroborate this finding as the study investigated the effect of study skills training (SQ3R & SQ4R) on test anxiety among second-grade secondary school students of Kermanshah City, Iran, in the 2017/2018 academic year and found that study skill training (SQ3R & SQ4R) was effective in reducing test anxiety and academic procrastination among the students.

This study further found that there was significant difference in the mean academic procrastination ratings of male and female secondary school students in Gombe State. Both male and female students recorded a decreased academic procrastination. However, male students had lower mean academic procrastination ratings than their female counterpart. This finding implies that gender significantly influence the mean academic procrastination ratings of the respondents. Corroborating this finding is the finding of Kudi (2020) who examined gender, age and personality traits as predictors of procrastination among undergraduate students in Gombe State University and found that gender did predict procrastination among undergraduate students in Gombe State University. Thus, gender is a factor of difference as regards academic procrastination among students.

Findings also show that there was significant interaction effect of treatments and gender on mean academic procrastination ratings of secondary school students in Gombe State. This finding implies that gender significantly influences the effect of treatments on mean academic procrastination ratings of secondary school students in Gombe State. Thus, the mean academic procrastination ratings of secondary school students in Gombe State recorded was as a result of effects of the treatments they were exposed to, and a function of gender interacting with the measures used to affect academic procrastination among the students.

Conclusion

It was concluded that academic procrastination is effectively managed using cognitive restructuring therapy and SQ3R study strategy among secondary school students; even though cognitive restructuring therapy seems to be more effective than SQ3R study strategy; and that gender is a factor of significant difference in academic procrastination; also, there is significant interaction effect of treatments and gender in the in academic procrastination among secondary school students.

Recommendations

Based on the findings of this study, the following recommendations were made:

Cognitive restructuring therapy and SQ3R study strategy should be used by school counsellors/psychologists, teachers and other education stakeholders in managing academic procrastination among secondary school students.

Cognitive restructuring therapy and SQ3R study strategy should be used among secondary school students but the influence of gender should not be underrated because gender influences the effects the measures on academic procrastination among the students.

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