

Effect Of Supervised Peer-Led Group Counselling Programme On Academic Achievement Of Secondary School Students In Port-Harcourt, Nigeria

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I. Introduction

Background to the study

Recent trends in global circumstances have focused on one goal of educating every child on the globe. The growing problems of quality manpower shortages, international circumstances, and advancement in the sciences, professional and specialized fields have contributed to the increasing awareness of the importance of modifying academic achievement of underachieving students. In today's society, according to Howard and Solberg (2006), education is highly valued and a necessary prerequisite to becoming successful and experiencing at least a moderately high quality of life as an adult. It is important to note that academic achievements is very important to the adolescent population and as submitted by Marsh (1990) it is extremely important given the correlation between school achievement and positive outcomes over the life span.

Education at secondary school level is supposed to be the bedrock and the foundation towards higher knowledge in tertiary institutions (Asikhia, 2010). It is a vital instrument that can be used to accelerate economic, social and political technological, scientific and cultural development (N.P.E 2004). However, the reverse has been the situation as most secondary school graduates can barely read or write the language used as the medium of instruction (Boaduo, 1998; Boaduo, 2005). According to Abdullahi (1996) proficiency in English language has a generic effect on implication for further educational aspiration of the Nigerian child and the economic development in Nigeria. This negative scenario has been causing alarming concern among many stakeholders in Nigeria, as it indicates the de-generation of the socio-economic well being of the country.

Several researchers have documented that secondary school students in Nigeria experience academic concerns that manifested itself in the form of poor academic performance (Salami, 1992; Obameata, 1995; Fabunmi Brai-Abu and Adeniji 2007; Asikhia, 2010). The resultant problem posed by this, is poor academic performance in school examination like National Examination Council (N.E.C.O) and West African Examination Council (WAEC) (Abdullahi, 1996; Akanle, 2007). According to Adesemowo (2005), poor academic performance is mostly pronounced in the key core subjects (Mathematics and English Language) among secondary school students. The dismal performance as indicated in WAEC result of year 2008 shows that 23.5 percent of the candidates had at least five credits in five subjects including Mathematics and English Language. In 2009, 25.99 percent scored a credit pass in the five subjects. This recurrent trend is posing huge problems to parents, students and the society (Aremu, 2000; Akanle, 2007). It effects are equally alarming in terms of shortage of manpower at all spheres of the economy and politics in Nigeria (Aremu, 2000; Umoh, cited in Umoh, 2004).

Statement of the Problem

Many factors have been adduced to explain the falling standard in education and the low performance of students in academics. These include the increased demand for secondary education which has outstripped the growth of facilities in these schools (Ijaiya, 1997; Aremu & Sokan 2003; Aduwa-Ogiegbaen & Iyawu, 2005) put forward motivational orientation, self-esteem/ self efficacy, emotional concerns, study habits, teachers consultation and poor interpersonal relationships as causative factors of poor academic achievement. The socio-economic environment is another predictive factor that has been utilized in identifying underachieving students (Morakinyo, 2003). These indices include family income, education of the parents, family structure amongst others. Bakare (2004) categorized the factors of low academic performance into four principal elements which are: Student (personal causal factors), parents (Family causal factors) school (academic causal factors) and causations resident in the society, such as instability of educational sectors, leadership and job losses.

As the twenty first century unfolds, Nigeria continues to undergo substantial changes occasioned by the influence of globalization and changes in the social and economic variables (Emeagwali, 2000). These variables are definitely going to affect the educational sector one way or the other. This paradigm shift has created a need for Nigerian secondary school products to be adequately equipped. However, the reverse has been the case as posited by Dike (2005).

In her quest to fast-track overall national development through education, Nigeria shifted from 6-3-3-4 to 9-3-4 system of education (Federal Government of Nigeria 2006, December). The implementation of this education policy like the previous ones will definitely be faced with the reduction in the number of qualified teachers; increase in enrolment of students, socio-economic and technological concerns (Fabunmi, Brai-Abu & Adeniyi, 2007). It is not therefore surprising that secondary students in Nigeria are faced with many complex personal, interpersonal, educational and career issues.

Umoh (1998) posited that this global trend and the attendant concerns made it necessary for people to seek help from each other. Secondary school students in this context need a comprehensive intervention to succeed. The implication is to have comprehensive counselling programs that benefit the students. Today as never before schools must empower students to enhance their academic performance and become lifelong learners. Many studies have connected lower academic performance to high levels of student's disengagement from classroom activities (Ijaiya, 1997; Rivkin, Hanushek and Kan, 2000; Turner, 2002). The future of secondary school students is in dire need of opportunities to increase educational achievement, attainment and upliftment in social skills. With this development and the need to have a viable society with quality human resources, school counsellors need to assist students to these complex challenges through their work within the structure of comprehensive guidance and counselling programmes. This, according to Oniye (2003), will assist an individual to understand himself, his world and the people with whom he has to interact with.

From available literature, most of the previous studies was based on academic achievement related area e.g. (Marsh & Yeung, 1997a) Causal effects of academic self-concept on academic achievement: structural equation models of longitudinal data, (Tella, 2007) the impact of motivation on students' academic achievement and learning outcomes in mathematics among secondary school students in Nigeria, (Fabunmi, 2007) class factors as determinants of secondary school students' academic performance and so on. Considering the aforementioned problems on academic achievement related area and the gaps created by previous researchers in the area of study, the researchers were challenged to conduct a study on effects of supervised peer-led group counselling programme on academic achievement of secondary school students in Port-Harcourt, Nigeria.

In addition, underachiever senior secondary school students have been used for the study by the researchers because they are matured, more experienced and are under achievers than the junior secondary school students. In this study, comparisons were made on the basis of gender. To be specific, the following researcher questions were raised as pivots upon which the study revolved.

Research Questions

The following questions are raised in order to guide the conduct of the study:

1. Is there any significant difference in the English Language scores of SSS 2 students in the treatment and control groups at post-test?
2. Is there any significant difference in the Mathematics scores of SSS 2 students in the treatment and control groups?
3. Is there any significant treatment difference in the Mathematics scores of SSS 2 male and female students in the treatment and control groups at post-test?

Research Hypotheses

The following research null hypotheses derived from the research questions are formulated and was tested in the study:

1. There is no significant difference in the English Language scores of SSS 2 students in the treatment and control groups at post test.
2. There is no significant difference in the Mathematics scores of SSS 2 students in the treatment and control groups.
3. There is no significant difference in the Mathematics scores of SSS 2 male and female students in the treatment and control group at post-test.

This study was limited to underachiever senior secondary school students in Port-Harcourt, Nigeria.

II. Methodology

Research Design

This study adopted an experimental research method. The research method was chosen because according to Daramola (2006), Long, Convey and Chawalek (1985), Samtrok (1999), it investigates the possible cause and effect relationships between two or more variables involving two groups of samples; one experimental and the other control. Moreover, Daramola (2006) posited that experimental research requires randomization and essential comparison of two groups (treatment and control groups). Experimental research involves examination of at least one independent variable or one or more dependent variables while other relevant variables are controlled (Long et.al 1985). According to them, direct manipulation of at least one

independent variable is the main characteristic that differentiates experimental research from other methods. Similarly, Kerlinger cited in Long et.al (1985) states that experimental research address research questions less ambiguously than other methods of research.

In addition, Daramola (2006) stated that experimental research enables the experimenter to control or manipulate the independent variables; allows the researcher to have control over the elimination of extraneous influence which may affect the result of the experiment; and that the outcomes of the experimental research are precise and can be replicated.

In view of these stated characteristics of the experimental design research, a pre-test and post-test control group design with randomization was used to evaluate the effects of supervised peer-led group counselling on academic achievement of secondary school students in Port-Harcourt metropolis. The independent variables were the supervised peer-led counselling groups and control groups. The dependent variables include student's terminal scores for Mathematics, English Language. The pre-test scores of the first terminal academic / assessment were used as covariant and the post-test scores of second terminal assessment were used as dependent variables.

Sample and Sampling Technique

The participants in this study were drawn from the population of Senior Secondary School Students (SSS 2) from two schools in the Port-Harcourt metropolis. Thirty-two students (sixteen from each school) comprised the sample of this study. Twenty –four students representing 65 percent of those identified as underachieving in academics were randomly selected from the two schools (12 students in each school) and confirmed by parental rating of IMD underachiever's profile. These students have been consistently scoring below 50 percent in English Language and Mathematics as rated and confirmed by the teachers.

Eight high-achieving students nominated by the teachers and classmates constitute the peer-leaders (student counsellors). An eight step screening process was utilized in selecting student academic counsellors:

Scholastic ability, study orientation, academic history, peer acceptance, leadership experience and conversational effectiveness are variables that are evaluated during the selective process. Classmates of the students to be selected as peer-leaders were asked to rate the students on a 1-to-5 continuum concerning the question "who among these individuals is able to get others to do what he or she wants them to do. A rating of 5 indicated that the rates perceived the students as very influential; a rating of 1 indicated that the peer-leader was perceived as having minimal influential ability. Only those students who were high in the eight-categories were selected. This is in line with the submission of Vriend (1971) that intelligent or creativity behaviour is often apparent to teacher's judgment. In this context, the teacher's judgment is a primary criterion.

Instrumentations

The specific focus of this research was how a specially designed peer-led group counselling intervention will affect the academic achievement of the participating students. Thus, in order to evaluate the outcomes, four instruments were used:

1. The underachiever's profile: Institute for Motivational Development, Illinois (IMD).
2. Senior Secondary School (SSS) terminal academic achievement report (English Language and Mathematics).
3. Parents' evaluation of students in the treatment group questionnaires has three items. The rating categories are greatly improved, somewhat improved, same and worse.
4. Class teachers' evaluation of students in the demonstration group questionnaires was a six items format. The rating categories are greatly improved, somewhat improved, same and worse.

1. The underachiever's profile:

Institute for Motivational Development (IMD), Illinois.

The profile was developed by the Institute for Motivational Development which is a private practice group of professional educators, psychologists and licensed counselling staff members specializing in the treatment of underachieving adolescents and their families since 1971. The scale consists of twenty characteristics that describe specific underachiever's traits with a Yes or No descriptive scale. Numbers of Yes answer were used to determine whether a student is an underachiever or showing a sign of it.

The classifications are rated as follows:

- 1-3. probably not an underachiever
- 4-7. most likely an underachiever
- 8-20. definitely an underachiever

The IMD profile suggests that underachievers usually exhibit eight or more of the tendencies evaluated. This questionnaire was given to the parents of students identified by teachers as performing below average particularly in two core subjects (English Language and Mathematics). Completed questionnaire forms and the students' academic records were then used to ascertain the eligibility of the students that will be among those to be chosen for the counselling intervention group.

2. Senior Secondary School Terminal Report

Examination scores in two subjects (English Language and Mathematics) were computed for each student in the control and treatment group. The scores used for selection process and post assessment were obtained from the students cumulative records (first term, second term) each subject is rated 100 percent.

3. Parents' evaluation of students in the treatment group questionnaires has three items. The rating categories are greatly improved, somewhat improved, same and worse.
4. Class teachers' evaluation of students in the treatment group questionnaires was a six items format. The rating categories are greatly improved, somewhat improved, same and worse.

Apart from the instrument used for quantitative evaluation of this study, student's weekly logs and periodic evaluation of individual and group progress, counsellor's logs and progress report, teachers' reports of student behaviour were kept as a supplement to the objective evaluation of the project.

The programme was implemented in a mixed –gender format. In planning and implementation, the study considered the contemporary needs of secondary school students in Nigeria within the parameters of the school structure. The group counselling programme was planned and implemented based on the developmental maturity of secondary school students and as defined by a traditional eight-period day with each period lasting approximately 35 minutes. This structure does not allow one- hour groups session which seemed appropriate for adolescents.

Psychometric Properties of the Instrument

Validity

The validity of an instrument is the consistency with which a test measures what it purports to measure. According to Hassan (1998), validity is the extent to which an instrument measures what it is intended to measure. In establishing the validity of the instruments, five experts including the supervisor in the Department of Counsellor Education University of Ilorin Nigeria were consulted. Based on their observation and suggestions, the researchers went to effect all necessary correlations. Through this, the content validity of the instrument was confirmed and established, based on the judgment of these experts.

Reliability

The reliability of an instrument or a test is the degree to which a test consistently measure at different times. Hassan (1998) states that, reliability refers to the consistency with which the scores on a test are related to scores on the other test when given the second time under the same conditions. Daramola (2006) affirmed that reliability should come after an instrument has been validated and it is customary to subject the instrument to a pilot testing in order to ascertain its reliability. The test re-test method of reliability was employed by the researcher to test the reliability of the instrument within an interval of four weeks.

The Pearson Product Moment Correlation Coefficient method was used to compare the result of the two administrations. The result obtained was 0.73 for the IMD and this indicated a positive and high correlation between the responses obtained during the four weeks period of administration. In conclusion, the instrument can be considered accurate and stable for the study.

Procedure for data collection

The study adapted and integrated many of the procedures used by previous researchers in the field. The intervention programme consisted of three main phases:

- (1) Pre-treatment phase ;
- (2) Treatment phase and
- (3) Wrap-up group evaluation phase.

Pre-Treatment Phase

Results collated from the pre-testing exercise which involved the identification of underachieving students by the parents, teachers, counsellors and the researcher were utilized in randomly assigned students to the treatment and control group. Using systematic random sampling technique, parents of all participating students were informed of the programme and gave permission for their children to take part (treatment group).

This phase also involved the training of the peer-counsellors one-to-one basis using the manual prepared by the researcher. The training programme was built around the core conditions of understanding, regard and genuineness both in didactic, teaching and the experiential base provided the trainee.

The student counsellor (Peer leader) trainees were given considerable practice in the helping role.

Research assistance (schools guidance counsellors and English/ Mathematics teachers) were also briefed on how to monitor the peer-group counselling encounter. Also, approximately one week before the session, group schedules detailing group period, date, and the day of the week were distributed to each group member (treatment group). All the treatment groups were facilitated using established set of group procedures that were jointly developed by group-leaders. The four-peer leaders in the treatment groups completed the training programme successfully; each one did show a greater ability to provide help in a counselling relationship.

Treatment phase

In this phase, the treatment counselling groups in the two schools were divided into two study groups each. This is made up of one peer-leader and three student-counselees. The groups met in a small room, which decreased distractions and help foster group cohesiveness.

The first group meeting focused on goal setting. Subsequent meetings focused on time management, home work, study skills, test taking strategies and test-anxiety reduction and organization respectively. Each of the meetings had cognitive and behavioural components and students discussed their thoughts, attitudes and barriers to achievement around each topic. These activities provided information about educational planning, self evaluation and self improvement. Subsequently, after the first week the group participants decided the agenda topic for group discussion /study group. Reversing this pattern and having group participants establish the discussion topic, quickly changed the group dynamics. The group members became engaged actively in the group process and content rather than responding to authority that rested solely with the facilitators.

Control group participants were mainly taught Computer Technology by the computer teachers throughout the eight weeks duration.

The intervention was designed to include ten (10) weeks of group counselling and bi-monthly booster sessions. However, due to time constraints delays with school approval and other unforeseen logistic concerns with the school routines and evaluations treatment and control groups met a total of eight- weeks with four booster sessions supervised by the researchers, with a teacher and school counsellor serving as observers. Friday's clubs meeting period (1.00pm- 2.00pm) and long-break period (11:20am – 12:00pm) were utilized for both study group and booster sessions. Any change or shifts in schedule were communicated to the participating students by the facilitators. Students were not penalized in class for participating in the group intervention.

Wrap-up /Group evaluation phase

This was the phase where the group sessions were reviewed. The students were asked on their experiences in the intervention programme. The responses were heart warming and revealing. Almost all the students in the treatment groups were of the opinion that the exercise should not be discontinued. Also, there was a huge positive feedback from the teachers of participating students in treatment group. The responses and comments after the session and evaluation point to the desire and acceptability of this procedure by the teachers, parents and the participating students (treatment group). Parents' evaluation of students in the treatment group questionnaires has three items. The rating categories are greatly improved, somewhat improved, same and worse. Class teachers' evaluation of students in the treatment group questionnaires was a six items format. The rating categories are greatly improved, somewhat improved, same and worse. The responses were obtained from the evaluation questionnaires completed by the teachers and the parents. The class teacher's questionnaire has six items while that of the parents was a three-item format. The rating categories are greatly improved, somewhat improved; same and worse. Ninety-three percent (93%) of the total responses indicated substantial improvement while seven-percent (7%) observed minimal improvement.

Control of extraneous variables

The researcher endeavoured to control for the extraneous variables by taking the following steps:

1. Non-differential selection of participants. In an experimental design in which a control group is used, the effect of the treatment can sometimes be confounded because of the differential selection of participants for the treatment and control groups.
2. Participants were screened and purposively assigned to treatment and control groups.
3. In order to prevent contamination, the control groups were kept busy in a different room without subjecting them to experimental treatment.

4. To avoid any interaction or distraction or any mix up among groups, the two schools were purposively assigned to groups and different days were allocated to each group.
5. Instrumentation: The same instrument was used for both pre-test and post-test and for the two groups. This was to ensure that any learning or change of attitude towards academic achievement is observed between pre-test and post-test.
6. In order to avoid experimental mortality, the participants were motivated through light refreshments and gift of biros, pencils and rulers.
7. To avoid biases, the hypotheses that were generated from the study were non-directional.
8. The mean, Analysis of Covariance (ANCOVA) and Fisher L.S.D (Least Significant Difference) test and Duncan Multiple Range Test (DMRT) were used to analyze the data so as to remove the effect of any environmental sources of variation, which may have otherwise inflated the experimental error.

Method of Data Analysis

The methods used in analyzing the data were means and Analysis of Covariance (ANCOVA). The means were used to compare the pre and post-test English Language and Mathematics scores of SSS 2 students in the treatment and control groups based on gender. With this, the researchers were able to determine the effect of supervised peer-led group counselling programme in academic achievement of secondary school students.

Analysis of Covariance (ANCOVA) was used to test the means of the group and make inferential statements about main and interaction effects in the population of interest.

III. Results

Hypothesis One

There is no significant difference in the English Language scores of SSS 2 students in the treatment and control group.

Table 1: Pre-test and post-test mean scores in English Language of students in the treatment and control groups

Group	Pre-test \bar{x}	Standard Deviation (SD)	Post-test x	SD	Mean Gain score	No. of cases
Treatment	52.57	19.58	63.00	15.27	10.38	16
Control	51.69	20.80	52.00	20.31	0.94	16

Table 1 shows that the supervised peer-led group counselling had a significant effect on treated (treatment) group over the control group that were not treated. Treatment group had a mean gain score of 10.38 which is considerably higher than that of control group (0.94).

Table 2: Analysis of Covariance (ANCOVA) of effects of supervised peer-led group counselling on SSS 2 students' English Language scores.

Source of variance	Degrees of freedom (DF)	Sum of squares	Mean squares (MS)	Calculated F- value	Critical F-value
Model	2	9053.37	4529.69	80.60*	3.00
Error	29	1628.63	56.16		
Corrected Total	31	10682.000			

*Significant, $p < 0.05$.

Table 2 reveals that the calculated F-value (80.60) exceeds the critical F-value of 3.00 at 0.05 alpha level of significance with 2, 29 df. The null hypothesis is thereby rejected based on the above result; ($F = 80.60$, $df = 2/29$, $P < 0.05$). In view of the significant difference between the English Language scores of students in the treatment and control groups, a post-hoc test using Fisher L.S.D (Least Significant Difference) test was conducted. Calculated t - (5.42) exceeds critical t - (2.05) for 0.05 alpha level of significance with 2, 29 df. Therefore, the conclusion is that the two groups differ significantly. This confirms the result from the mean and ANCOVA.

Since there is a significant difference between the post-test performance of treatment and control group in English language with the use of post-hoc test using Fisher L.S.D (Least Significant Difference), the result confirmed the pre-test Fisher L.S.D (Least Significant Difference) results which shows that supervised peer-led group counselling is more effective in improving English Language scores of underachieving SS2 students, the Duncan Multiple Range Test (DMRT) was applied to determine whether the treatment or control group was responsible for the significant difference.

Table 3: Duncan Multiple Range Test (DMRT), showing the difference in the English Language scores of SSS 2 students in the treatment and control group.

Duncan's group	Mean	N	Group
A	65.50	16	1
B	52.00	16	2

In Table 3, Duncan's Multiple Range Test (DMRT) was used to determine the treatment and control group(s) mean(s) that led to the significant difference noted in the ANCOVA results of table 2. The DMRT results indicated that group 1 with a mean score of 65.50 differed significantly from group 2 (with a mean score of 52.00), hence, the significant difference noted in the ANCOVA results of Table 2 was due to the fact that groups 1 and 2 differed significantly from each other. Thus, hypothesis one was rejected.

These results show that supervised peer-led group counselling is effective in improving the English Language scores of underachieving SSS 2 students.

Hypothesis Two

There is no significant difference in the Mathematics scores of SSS 2 students in the treatment and control groups.

Table 4: Pre-test and post-test mean scores in Mathematics of SSS 2 students in the treatment and control groups.

Group	Pre-test X	Standard Deviation(SD)	Post-test \bar{X}	Standard Deviation SD	Mean Gain score	No of cases
Treatment	51.07	18.94	60.94	17.53	8.81	16
Control	49.5	19.95	51.56	22.31	2.06	16

Table 4 shows that the students mean gain scores in Mathematics for treatment group (8.81) was higher than for the students in the control group (2.06)

Table 5: Analysis of Covariance (ANCOVA) of effects of supervised peer-led group counselling on SSS 2 students' Mathematics scores.

Source of variance	Degree of freedom (DF)	Sum of squares	Mean square (MS)	Calculated F-value	Critical F-value
Model	2	11527.66	5763.83	134.11*	3.00
Error	29	1246.34	42.98		
Corrected Total	31	12774.0000			

*Significant, $p < 0.05$.

Table 5 reveals that the calculated F-value (134.11) exceeds the critical F-value of 3.00 at 0.05 alpha level of significance with 2, 29 df. The null hypothesis is therefore rejected based on the above results. ($F = 134.11$, $df\ 2/29$, $P < 0.05$). This shows that the supervised peer group counselling had a significant effect on treated (treatment) group over the control group that were not treated.

Since there is a significant difference between the Mathematics scores of students in the treatment and control groups, a post-hoc test using Fisher L.S.D (Least Significance Difference) test was conducted. Calculated t-value (4.74) exceeds critical t-value (2.05) at 0.05 alpha levels with 2,28df. This confirms the post-test mean values and ANCOVA results. These results show the effectiveness of the supervised peer-led group counselling in improving Mathematics scores of underachieving SSS 2 students.

Since there is a significant difference between the post-test performance of Mathematics scores between the treatment and control group in Mathematics with the use of post-hoc test using Fisher L.S.D (Least Significant Difference), the result confirmed the post test Fisher L.S.D (Least Significant Difference) results which shows that supervised peer-led group counselling is more effective in improving the Mathematics scores of SS 2 students treatment and control group at post-test. Duncan Multiple Range Test (DMRT) was applied to determine the group(s) of students (i.e. treatment and control group) that are significantly different.

Table 6: Duncan Multiple Range Test (DMRT) showing the difference in the Mathematics scores of SSS 2 students in the treatment and control group.

Duncan's group	Mean	N	Group
A	60.94	16	1
B	51.56	16	2

In table 6, the Duncan's Multiple Range Test (DMRT) was used to determine the treatment and control mean(s) that led to the significant difference noted in the ANCOVA results of table 5. The DMRT results indicated that group 1 with a mean score of 60.94 differed significantly from group 2 (with a mean score of

51.56) hence, the significant difference noted in the ANCOVA result of table 5 was due to the fact that groups 1 and 2 differed significantly from each other. Thus, hypothesis two was rejected.

Hypothesis Three: There is no significant difference in the Mathematics scores of SSS 2 male and female students in the treatment and control group at post-test.

Table 7: Pre-test and post –test mean scores in Mathematics of SSS 2 female and male students in the treatment and control groups.

Group	Gender	Pre-test X	Standard Deviation (SD)	Post-test X	Standard Deviation (SD)	Mean gain score	No of cases
Treatment	Female	49.38	19.91	61.63	17.74	12.25	8
	Male	52.75	16.46	60.25	18.51	8.34	8
Control	Female	47.63	18.04	49.88	21.52	2.25	8
	Male	51.38	20.35	54.5	23.66	4.00	8

Table 7 indicates that female students in the treatment group had a higher mean gain score (12.25) than the male students with mean gain score of 8.34. The control group shows a contrary result with male students having more mean gain score of 4.00 as against 2.25 for the female students. This also shows that the supervised peer-led group counselling is more effective in improving the Mathematics scores of female students than for the male students.

Table 8: Analysis of Covariance (ANCOVA) of effects of supervised peer-led group counselling on SSS 2 male and female students Mathematics scores

Source of variance	Degree of freedom (DF)	Sum of squares	Mean square (MS)	Calculated f-value	Critical f-value
Model	3	5766.63	1922.21	8.03*	2.60
Error	28	6699.24	239.26		
Corrected Total	31	12465.88			

*Significant, $p < 0.05$.

Table 8 reveals that the calculated F-value (8.03) exceeds the critical F-value of 2.60 to 0.05 alpha level of significance with 3, 28 df. The null hypothesis is therefore rejected based on the result ($F = 8.03$, $df 3/28$, $p < 0.05$). This means that there is a significant difference between the Mathematics scores of SSS 2 male and female students in the treatment and control group at post-test.

Since there is a significant difference between the post-test Mathematics scores of SSS 2 female and male students in the treatment and control groups, a post-hoc test using Fisher L.S.D (Least Significant Difference) t-test was conducted. The t-value (11.202) exceeds critical t- (2.05) at 0.05 alpha levels with 3, 28 df. Therefore, the conclusion is that there is a significant difference between the Mathematics scores of SSS 2 male and female students in the treatment and control groups. This confirms the post—test mean values and ANCOVA results which showed that supervised peer-led group counselling is more effective in improving the Mathematics scores of SSS 2 female students than that of SSS 2 male students.

Since there is a significant difference between the post-test performance of treatment and control groups in Mathematics with the use of post-hoc test using Fisher L.S.D (Least Significant Difference) the result confirmed the post-test Fisher L.S.D (Least Significant Difference) results which shows that supervised peer-led group counselling is more effective in improving the Mathematics scores of underachieving SSS2 female and male students. Duncan Multiple Range Test (DMRT) was applied to determine the gender that was responsible for the significant difference.

Table 9: Duncan Multiple Range Test (DMRT) showing the difference in the Mathematics score of SSS 2 male and female students in the treatment and control group

Duncan's group	Mean	N	Group	Gender
A	60.94	16	1	Female
B	52.19	16	2	Male

In Table 9, the Duncan's Multiple Range Test (DMRT) was used to determine gender group(s) mean(s) that led to the significant difference noted in the ANCOVA results of table 8. The DMRT results indicated that group 1 with a mean score of 60.94 differed significantly from group 2 (with a mean score of 52.19) hence, the significant difference noted in the ANCOVA results of Table 8 was due to the fact that groups 1 and 2 differed significantly from each other. Thus, hypothesis five was rejected.

IV. Discussion

All the three hypotheses generated were analyzed through the use of Fisher L.S. D (Least Significant Difference) test, to test mean, Analysis of Covariance (ANCOVA), and Duncan Multiple Range Test (DMRT). Discussion on each hypothesis are as follows:

Hypothesis 1 states that there is no significant difference in the English language scores of SSS 2 students in the treatment and control group. This hypothesis was tested using Analysis of Covariance (ANCOVA) statistical method of analysis. The result of the test shows that there is a significant difference between the English language scores of SSS 2 students in the treatment and control group. The hypothesis was rejected. The analysis revealed that supervised peer-led group counselling used in this study was effective in increasing the English language scores of SSS 2 students in the treatment groups. The effectiveness of the treatment strategy on treatment group was established when compared with the control group that was not exposed to the treatment. This corroborated the findings of Prout and Prout (1988); Campbell (2003); Brigman and Campbell 2003; Bruce et.al. (2009) which revealed a statistically significant gain in English Language achievement scores for students in the group-counselling intervention when compared to students who did not participate. However, it is in contrary with that of Kayler and Sherman (2009) which revealed no significant difference in the pre and post scores of students in the treatment and control group.

Hypothesis 2 states that there is no significant difference in the Mathematics scores of SSS 2 students in the treatment and control group. The hypothesis was tested using Analysis of Covariance Statistical method of analysis. The result of the test shows that there is a significant difference in the Mathematics scores of SSS 2 students in the treatment and control group at post-test. The hypothesis was rejected, indicating that the supervised peer-led group counselling used in the study was effective in increasing the Mathematics scores of SSS 2 students in the treatment groups. The effectiveness of the treatment strategy on the treatment group was established when compared with the control group that was not exposed to the treatment. This finding supports the previous research findings (Campbell, 2003; Bruce et. al., 2009) which revealed that students receiving the group counselling interventions were significantly better off in Reading /English Language post-test scores than those in control group.

Hypothesis 3 states that there is no significant difference in the Mathematics scores of SSS2 male and female students in the treatment and control group at post-test. This hypothesis was tested using mean Analysis of Covariance (ANCOVA) and Duncan Multiple Range Test (DMRT) statistical method of analysis. The result of the test shows that there is a significant difference in the Mathematics scores of SSS 2 female and male students in the treatment and control group. The hypothesis was rejected. The post-test analysis showed that supervised peer-led group counselling used in the study was effective in increasing the Mathematics scores of SSS 2 female and male students in the treatment group.

The effectiveness of the treatment strategy on the treatment group was established when compared with the control group that was not exposed to the treatment. This result also showed that SSS 2 female students in the treatment group had the highest mean gain score. This finding agree with that of Tella (2007) whose study reveals that gender difference were significant when impact of motivation on academic achievement was compared in male and female Mathematics scores. It however disagreed with the submissions of Dennis and Dennis (1976), Downey and Yuan (2005), Duckworth and Schectman (2002) that males are superior to females in quantitative areas particularly in numerical reasoning.

V. Recommendations

There is need to have a more active, more directive, and more supportive guidance for the underachieving students to improve their academic achievement through the concerted efforts of the students, teachers, parents, peer-group and counsellors.

References

- [1]. Abdullahi,O.E.(1996). Students' responsibility in poor academic performance in Kwara State Secondary Schools. *Ife Psychology –An International Journal*, 4 (1) 64-79 http://www.Abdullahi.com/publications/COMPARATIVE_STUDY-OF-KWARA_STATE-BY_DR.ABDULLAHI.
- [2]. Adesemowo, P.O. (2005). Premium on affective education: panacea for scholastic malfunctioning and aberration. 34th Inaugural Lecture, Olabisi Onabanjo University, Ago Iwoye: Olabisi Onabanjo University press.
- [3]. Aduwa-Ogiegbaen, S.E & Iyamu, E.O.S. (2005). Using information and communication technology in secondary schools in Nigeria: Problems and Prospects. *Educational Technology & Society*, 8, No.1 pg. 104-112.
- [4]. Akanle, O.B. (2007). Socio-economic factors influencing student's academic performance in Nigeria, Some explanation from a local survey. *Sociology and Social Work Community*. December 1.
- [5]. Aremu, O.A. & Sokan, B.O. (2003). A multi- causal evaluation of academic performance of Nigerian learners: Issues and implications for national development. Department of Guidance and Counselling, University of Ibadan, Ibadan.
- [6]. Aremu, A.O. (2000). Academic performance 5 factors inventory: Ibadan: Stirling-Horden Publishers.
- [7]. Asikhia, O.A. (2010). Students and teachers' perception on the causes of poor academic performance in Ogun State secondary schools (Nigeria): Implications for school counselling for national development. *European Journal of Social Sciences*, 13, No.2

- [8]. Brigman, G., & Campbell, C. (2003). Helping students improve academic achievement and school success behaviour. Professional School Counselling. December 7, 91-98.
- [9]. Bruce, Angelia M., Getch, Y. Q. Ziomek-Daigle, & Jolie, (2009). Professional School Counselling [www/http:The free library.Retrieved: 16/03/2012](http://www.http:The%20free%20library.Retrieved:16/03/2012).
- [10]. Burke, M.A. & Sass, T.R. (2008). Classroom peer effects and students achievement. Working papers No. 08 -5. <http://www.bos.frb.org/economic/wp/index.htm>Retrieved: 17/04/2012
- [11]. Campbell, C. (2003). Helping students improve academic achievement and school success behaviour. Professional School Counselling.
- [12]. Daramola, S.O. (2006). Research and Statistical Methods in Education (3rd ed) Ilorin: Bamitex Printing and publishing.
- [13]. Diaz, A. L. (2005). Personal, family and academic factors affecting low achievement in secondary school. <http://www.investigacion-psicopedagogica.org/revista/articulos/1/english/Art-14>Retrieved:20/12/2010.
- [14]. Dike, V. (2005). The State of Education in Nigeria and the Health of the Nation. Africa Economic Analysis. Retrieved: 20/04/2012 from www.afbis.com/analysis/education10204234737.htm.
- [15]. Downey, D.B. & Anastasia S.V.Y. (2005). "Sex differences in school performance during high school: Puzzling patterns and possible explanations: The Sociological Quarterly 46(2):299-321.
- [16]. Erikson, E. H. (1965). Childhood and society, New York: Penguin Eshleman, J.R. (1981) An introduction to Sociology. Massachusetts: Ally & Bacon.
- [17]. Fabunmi, M., Brai-Abu & Adeniji (2007). Class factors as determinants of secondary school student's academic performance in Oyo State, Nigeria. Journal of Social Science, 14(3): 243-247.
- [18]. Federal Republic of Nigeria (2004): National Policy on Education. (Revised Edition) Lagos Federal Ministry of Education.
- [19]. Federal Republic of Nigeria (2006, December). 40 Frequently asked questions on Universal Basic Education (UBE) Programme Abuja: Universal Basic Education Commission.
- [20]. Hassan, T. (1998). Understanding Research in Education. Lagos: Merrifield Publishing Company.
- [21]. Howard, K.A. S & Solberg, V.S. H. (2006). School-based social justice: The Achieving Success Identity Pathway program. Professional School Counselling 9, 278-287.
- [22]. Ijaiya, Y. (1997). Effects of overcrowded classrooms on teacher-students interactions. Ilorin Journal of Education, V.17
- [23]. Krouse, J. H. & Krouse, H.J. (1981). Toward a multimodal theory of academic underachievement. Educational Psychologist, Vol. 16, 3, pg. 151-164.
- [24]. Logsdon, A. (2010). Top eight (8) facts on underachievement- why students with LDs underachieve in school.
- [25]. [http://ad.doubleclick.net/adi/abt.parenting/parenting learning disabilities](http://ad.doubleclick.net/adi/abt.parenting/parenting%20learning%20disabilities). Retrieved: 01/04/2012.
- [26]. Long, T.J. Convey, J.J. & Chawalek, A.P. (1985). Completing Dissertations in the Behavioural Sciences and Education: San Francisco.
- [27]. Marsh, H. (1990). The causal order of academic self-concept and academic achievement. A multi-wave, longitudinal path analysis: Journal of Educational Psychology, 82, 646-656.
- [28]. Marsh, H.W. & Yeung, A.S. (1997). A causal effects of academic self-concept on academic achievement: Structural equation models of longitudinal data. Journal of Educational Psychology. 89. 41-54.
- [29]. Obameata, J.O. (1995). Education: An unproductive industry in Nigeria. Postgraduate School Interdisciplinary Research Discourse delivered at University of Ibadan, Ibadan.
- [30]. Oniye, O. (2003). Role of guidance and counselling in the training of well-adjusted teachers for Nigerian schools. Ilorin Journal of Education, 22, N.1.
- [31]. Rivkin, S.G, Hanushek, E.A, & Kain J.F. (2005). Teachers, schools and academic achievement Econometrica, 73, No. 2, 417-458.
- [32]. Salami, A. (1992). "Raising the standard of performance in public examination" paper presented at the WAEC symposium held at the University of Ibadan, Nigeria. 24th April, 1-3.
- [33]. Samtrock, J.W. (1999). Life-Span Development (7th ed) New York: McGraw Hill.
- [34]. Tella, A. (2007). The impact of motivation on students' academic achievement and learning outcomes in mathematics among secondary school students in Nigeria. Eurasia Journal of Mathematics, Science & Technology Education 3(2), 149-156.
- [35]. Turner, S. (2002). Empowering students to become self-regulated learners. Professional School Counselling April 1.
- [36]. Umoh, S.H. (2004). The Need for Guidance and Counselling in Nigeria Educational System. A.I Idowu (Ed) Guidance and Counselling in Education Ilorin: INDEMAC.
- [37]. Vriend T.J. (1971) High –performing inner-city adolescents assisting low performing peer in counselling groups. Paraprofessionals in counselling, guidance and personal services. David Zimpfer, (ed) APGA press Washington D.C. pg. 234-243.