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Effects of Instructional Materials on Secondary Schools Students' Academic Achievement in Social Studies in Anambra State, Nigeria

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ABSTRACT

The aim of this paper is to highlight the contribution of instructional materials to the academic achievement of secondary school students in Social Studies in Anambra State. The population for the study comprised of all Junior Secondary School Class II students from among which 180 were sampled. The instrument for the study is a 30 multiple-choice self- designed Social Studies Achievement Test (SSAT). The instrument was validated by specialists in Social Studies Test and Measurement and Educational Management. Test-re-test method and estimation of internal consistency was used to ascertain the reliability. The reliability co-efficients of 0.73 and 0.75 were obtained respectively. The study generated four hypotheses that were tested at the significance level of 0.05. ANOVA and ANCOVA statistical tools were used to analyse the data collected. The study found that there was a significant difference in the pre-test and post-test of students in the experimental group. The study also found that gender effect was not statistically significant in social studies. The study concluded that students who were taught with instructional materials performed better than those taught without. The study therefore recommended that teachers of Social Studies should employ the use of essential instructional materials for their teaching and also improvise where and when the materials are not available. It therefore becomes imperative to have concerted efforts among parents, school and the government to make available important and necessary instructional materials to teachers of Social Studies for enhanced teaching and consequents improved achievement of students in the subject.

Keywords: Instructional Materials, Students, Academic Achievement, Secondary School

INTRODUCTION

Social Studies is a study connected with all aspects of human beings to enable them live a fulfilled, comfortable and full of achievement life. It studies people in relation to the social, academic, economic, cultural, physical and psychological lives. It has to do with all round development of human beings to enable them become useful citizens in the society. Wesley in Kochhar (2012) saw Social Studies as those portions of the Social Sciences selected for instructional purposes applied to include anything pertinent to the immediate purpose of learning and adapted to the level of comprehension of the student. Abdu-Raheem (2011) observed that the objectives of Social Studies is yet to be achieved as a result of poor teaching and lack or inadequacy of instructional materials to motivate students. Ofuani (2014) also attested to inadequacy of instructional materials and resources in all the schools sampled in his study.

Instructional materials are essential and significant tools needed for teaching and learning of school subjects to promote teachers' efficiency and improve students' performance. They make learning more interesting, practical, realistic and appealing. They also enable both the teachers and students to participate actively and effectively in lesson sessions. They give room for acquisition of skills, knowledge and development of self-confidence and self-actualization. Ibeneme (2000) defined teaching aids as those materials used for practical and demonstration in the class situation by students and teachers. Ikerionwu

(2000) saw instructional materials as objects or devices that assist the teacher to present a lesson to the learners in a logical manner.

In his own perspective, Fadeyi (2005) saw instructional materials as visual and audio-visual aids, concrete or non-concrete, used by teachers to improve the quality of teaching and learning activities in Social Studies. Agina-Obu (2005) submitted that instructional materials of all kinds appeal to the sense organs during teaching and learning. Isola (2010) also described instructional materials as objects or devices that assist the teachers to present their lessons logically and sequentially to the learners. Oluwagbohunmi and Abdu-Raheem (2014) acknowledged that instructional materials are such used by teachers to aid explanations and make learning of subject matter understandable to students during teaching learning process.

In the same vein, Obanya (2004) asserted that several studies carried out in some areas in Nigeria indicated that the results of Senior School Certificate Examinations was completely bad in nearly all subjects offered by the students. He stressed further that only about 10% of candidates 'meaningfully passed' the examination. Abdu-Raheem (2011) asserted that non availability and inadequacy of instructional materials are major causes of ineffectiveness of the school system and poor performance of students in schools. Ahmed (2003) confirmed that in most secondary schools in Nigeria, teaching and learning take place under a most un-conducive environment without access to essential materials. Eniayewu (2005) posited that it is very important to use instructional aids for instructional delivery to make students acquire more knowledge and to promote academic standard.

In addition, Ajayi and Ayodele (2001) stressed the importance of availability of instructional materials to achieving effectiveness in educational delivery and supervision in the school system. Ogbondah (2008) alerted on the gross inadequacy and under utilization of instructional materials necessary to compensate for the inadequacies of sense organs and to reinforce the capacity of dominant organs. He noted that school teachers should try their possible best in the provision of locally made materials in substitution for the standard ones to promote their lessons. Enaigbe (2009) noted that basic essential equipment like computer; projector, television and video are not readily available in many schools.

In his own study, Olumorin, Yusuf, Ajidagba and Jekayinfa (2010) observed that instructional materials help teachers to teach conveniently and the learners to learn easily without any problem. They asserted that instructional materials have direct contact with all sense organs. Kochhar (2012) supported that instructional materials are very significant learning and teaching tools. He suggested the needs for teachers to find necessary materials for instruction to supplement what textbooks provide in order to broaden concepts and arouse students' interests in the subject. According to Abolade (2009), the advantages of instructional materials are that they are cheaper to produce, useful in teaching large number of students at a time, encourage learners to pay proper attention and enhance their interest. However, Akinleye (2010) attested that effective teaching and learning requires a teacher to teach the students with instructional materials and use practical activities to make learning more vivid, logical, realistic and pragmatic. Esu, Enufoha and Umoren (2004) agreed that instructional materials are indispensable to the effective teaching and learning activities. Ekpo (2004) also supported that teaching aids are always useful in supporting the sense organs. Despite the fact that instructional materials are essential tools that can make learning practical and knowledge acquisition easier, they are not readily available in Nigerian secondary schools leading to low level of performance of learners in government examinations (Abdu-Raheem 2014).

According to Josua in Abiodun-Oyebanji and Adu(2007), instructional materials are all things that are used to support, facilitate, influence or encourage acquisition of knowledge, competency and skills. Abdu-Raheem (2014) encouraged teachers to improvise teaching aids because they are in great measure enhance learners' full participation in the lesson, gives room for inquiry, problem-solving, discussion and clarification of issues and ideas among students and the teacher. Riveire (2006) noted that improvisation is a valuable teaching tool. Afolabi and Adeleke (2010) identified non-availability, inadequacy and non utilization of learning materials as a result of teacher's poor knowledge as factors responsible for the use of lecture method. They recommended that both students, teachers, parents, Parents/Teacher Association, government and philanthropists should be involved in improvising instructional materials for the teaching and learning in schools.

Statement of the Problem

One of the major problems facing education sector in Anambra State is the low level of the performance of secondary school students in both local and standardized examinations. It has become a great concern for researchers, educators and all education stake-holders over the years. It was observed that students usually fail in examinations owing to improper teaching methods and lack of essential teaching aids for instructional delivery. (Afolabi, 2009). This study therefore deemed it necessary to look specifically into the contributions of instructional materials to academic achievement of secondary school students in Social Studies.

Research Hypotheses

The following hypotheses were generated for the study:

1. The achievement mean scores of students will not be significantly different in the experimental and control groups
2. The achievement mean scores of male students will not be significantly different in the experimental and control groups.
3. The achievement mean scores of female students will not be significantly different in the experimental and control groups.
4. The achievement of students in Social Studies will not be significantly different based on gender.

RESEARCH Method

The study is a quasi-experimental pre-test, post-test, control group design. The pre-test was used to test the previous knowledge of the students used for the study and post-test to measure their level of achievement. One group was assigned to experimental while the other to control. The two groups responded to pre-test before the experiment took place. Various instructional materials such as Interactive Smart Board, Telestrator, Radio, Television sets, Computers and Projectors were used to teach students in the experimental group while the control group was taught with normal conventional method without any teaching aid. After the treatment lessons for the experimental group, the post-test was administered on the two groups to test their level of achievement. The population for the study was all Junior Secondary School students in Awka, Anambra State while the sample was 180 Junior Secondary School Class II students selected from three schools. Purposive sampling was used to select two single-sex schools (one boys only and the other girls only) while simple random sampling was used to select one co-educational school. 60 students were selected from each single-sex school through simple random sampling while stratified sampling was used to select 30 boys and 30 girls from the co-educational school. The grouping of the students into experimental and control groups was also done through simple random sampling technique. However 45boys and 45girls were allocated in each group.

The instrument for the study was a self-designed onetitled "Social Studies Achievement Test (SSAT). It was made up of 30 multiple-choice items based on transportation and communication systems in Anambra State. The instrument was validated by Social Studies Teacher, Measurement and Evaluation specialists. Test-re-test and estimation of internal consistency were used to determine the reliability of the instrument. The test-re-test of the instrument was done by giving it as a test to 30 students from 2 schools that were not part of the study. After six weeks, the same sets of students were given the same test. Pearson Product Moment Correlation Coefficient Analysis was used to determine the scores of the two sets. The correlation coefficient of 0.73 was obtained. The estimation of internal consistency was also determined by application of Crombach Alpha on the responses of 30 students from a school that was not part of the study. The reliability co-efficient of 0.75 was also obtained. The reliability is okay to measure the differences between experimental and control groups in the case of large sample. ANOVA and ANCOVA statistical tools were used for analyses of the data collected.

RESULTS AND DISCUSSION

Hypothesis 1: The achievement mean scores of students will not be significantly different in the experimental and control groups

Table 1. ANCOVA Showing the Achievement Mean Scores of Students by Treatment.

Source	SS	Df	Ms	F-cal	F-table
Corrected Model	7722.466	2	3861.233	314.235	3.04
Covariate (Pretest)	0.016	1	0.016	0.001	3.89
Group	7716.266	1	7716.266	627.965	3.89
Error	2174.928	177	12.288		
Corrected Total	9897.394	179			
Total	130695.000	180			

P < 0.05

Table 1 shows that F-cal (627.965) is greater than F-table (3.04) at 0.05 level of significance. This implies that there is significant difference between the achievement mean scores of students in the experimental and control groups. The null hypothesis is therefore rejected. The Multiple Classification Analysis showing the effect of treatment on adjusted mean scores is depicted in Table 2.

Table 2. Multiple Classification Analysis Showing Students' Adjusted Mean Scores by Treatment

Grand Mean = 25.91						
Variable + Category	N	Unadjusted Deviation	Eta	Adjusted for +Covariate	Independent	Beta
Experimental	90	6.55	0.13	6.54		0.03
Control	90	-6.55				
Multiple R	0.025					
Multiple R ²	0.001					

Table 2 shows that students in the experimental group that were taught with instructional materials had higher adjusted mean score of 32.45 (25.91 + 6.54) than those in the control group that have no access to instructional materials with an adjusted mean score of 19.37 (25.91 + (-6.54)). This implies that the use of instructional materials will greatly enhance students' academic achievement in Social Studies.

Hypothesis 2: The achievement mean scores of male students will not be significantly different in the experimental and control groups.

Table 3. ANCOVA Showing the Achievement Mean Scores of Male Students by Treatment

Source	SS	Df	Ms	F-cal	F-table
Corrected Model	4216.715	2	2108.345	259.943	3.04
Covariate (Pretest)	0.573	1	0.573	0.071	3.89
Group	4205.529	1	4205.529	518.503	3.89
Error	705.649	87	8.111		
Corrected Total	4922.400	89			
Total	66388.000	90			

P < 0.05

F-table which is 3.89 is less than F-calculated which is (518.503) at 0.005 significant level. The null hypothesis is therefore not accepted ($F = 518.503$, $P < 0.05$). This is an indication that male students that have access to instructional materials in the experimental group performed excellently better in Social Studies than other males that were not taught with instructional materials. The Multiple Classification Analysis of adjusted mean scores of male subjects in Social Studies by treatment is shown in Table 4.

Table 4. Multiple Classification Analysis of Male Students' Adjusted Mean Scores by Treatment

Grand Mean = 26.13						
Variable + Category	N	Unadjusted Deviation	Eta	Adjusted for +Covariate	Independent	Beta
Experimental	45	6.85	-0.25	6.83		-0.05
Control	90	-6.84		-6.83		
Multiple R	0.048					
Multiple R ²	0.002					

Table 4 reveals that with a grand mean score of 26.13, male students taught with instructional materials had an adjusted mean score of 32.96 ($26.13 + 6.83$) while those in the control group obtained an adjusted mean score of 19.30 ($26.13 + (-6.83)$). It implies that the use of instructional materials during classroom lesson will correspondingly enhance the students' academic achievement of male students in Social Studies.

Hypothesis 3: The achievement mean scores of female students will not be significantly different in the experimental and control groups.

Table 5. ANCOVA Summary of Female Students' Achievement Mean Scores by Treatment

Source	SS	Df	Ms	F-cal	F-table
Corrected Model	3523.515	2	1761.758	106.282	3.04
Covariate (Pretest)	1.638	1	1.638	0.099	3.89
Group	3480.599	1	3480.599	209.974	3.89
Error	1442.140	87	16.57		
Corrected Total	4965.656	89			
Total	64307.000	90			

$P < 0.05$

Table 5 shows that F-table (3.89) is less than F-cal (209.974) at 95% confidence level. Therefore, there is significant difference between the achievement mean scores of female students in the experimental and control groups. Multiple Classification Analysis of adjusted mean scores of female subjects by treatment is presented in Table 6.

Table 6. Multiple Classification Analysis of Female Students' Adjusted Mean Scores by Treatment

Grand Mean = 25.68						
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Variable + Category	N	Unadjusted Deviation	Eta	Adjusted for +Covariate	Independent Beta
Experimental	45	6.25	-0.46	6.19	-0.09
Control	45	-6.26		-6.20	
Multiple R	0.093				
Multiple R ²	0.009				

Table 6 shows that female students in the experimental group that were taught using instructional materials had an adjusted mean score of 31.87 (25.68 + 6.19) while the female students in control group that have no access to instructional materials had an adjusted mean score of 19.48 (25.68 + (-6.20). This shows that the use of instructional materials will automatically enhance the academic achievement of female students in Social Studies.

Hypothesis 4: The achievement of students in Social Studies will not be significantly different based on gender and treatment.

Table 7. 2 × 2 ANCOVA of Gender and Treatment on Students' Achievement in Social Studies

Source	SS	Df	Ms	F-cal	F-table
Corrected Model	7747.572	4	1963.893	157.667	2.42
Covariate (Pretest)	0.178	1	766.347	62.382	3.89
Gender	9.367	1	9.367	0.763	3.89
Group	7714.848	1	7714.848	628.005	3.89
Gender Group	15.757	1	15.757	1.283	3.89
Error	2149.822	175	12.285		
Corrected Total	9897.394	179			
Total	130659.000	180			

Table 7 shows that F-cal (1.283) is less than F-table which is (3.89) at 0.05 significant level. Therefore, there is no significant interaction effect of treatment and gender on students' achievement in Social Studies ($F = P > 0.05$). The null hypothesis is therefore accepted. However, gender has no statistical significant effect on the academic achievement of students in Social Studies. ($F = p > 0.05$). Again, the main effect of treatment on the achievement mean scores of students is significant at 0.05 level ($F = P < 0.05$).

Discussion

This study found that students in the experimental group performed better than students in the control group in their achievement mean scores. The study corroborates the findings of Esu, Enukeha and Umoren (2004), that teaching aids are indispensable to the effective teaching and learning activities and successful instructional delivery in schools. Hence, instructional materials are necessary to enable students acquire better knowledge and skills.

This study also confirmed that the male students in the experimental group have better statistically significant mean scores and greater achievement than the male students in the control groups. The male students taught with instructional materials performed excellently than those who were taught without them. The findings is consistent with the opinion of Atanda and Jaiyeoba (2011) who

submitted that availability and adequacy of instructional materials enhance effective learning and better performance of students .

The study discovered that there is statistical significant difference between the achievement mean scores of female students in the experimental and control groups. The study is in line with that of Onasanya and Omosewo (2011) who reported that female students that were taught with the use of instructional materials performed better than others taught with conventional method. These findings also indicated that there is no significant interaction effect of treatment and gender on students' achievement in Social Studies. The findings is contrary to Okoye (2009) which revealed interaction effects of gender on students' academic performance. However, the study is in agreement with the opinion of Oladejo, Olosunde, Ojebisi and Isola (2011) and Muodumogu and Yisa (2013) who found that gender has no significant effects on the academic achievement of students in Social Studies.

CONCLUSION

The study concluded that the importance of instructional materials in the development of learners' intellectual abilities and attainment of teaching/learning objectives cannot be over-emphasized. The students taught with instructional materials have excellent achievement scores compared with those taught without any material. It was also noted in the study that there is no significant interaction effect of treatment and gender on students' achievement in Social Studies.

RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. Teachers should always try their best to make use of available instructional materials where necessary to make their lessons more interesting.
2. Teachers of Social Studies are encouraged to search for necessary instructional materials that can appeal to the senses of learners, arouse their interest, encourage their participation, make learning more meaningful and promote academic standard.
3. Parents should be ready to cooperate with teachers in the provision and improvisation of instructional materials for better delivery in schools.
4. School principals should provide Social Studies teachers with enabling environment for the use of available instructional material to gives room for participatory students and make learning more meaningful.
5. School principals should also encourage improvisation of instructional materials by students, teachers, parents and the government to promote academic standard through training and retraining of teachers on the proper use of modern instructional materials.
6. Government should supply teaching aids and finance schools to improvise unavailable and inadequate instructional materials to make teaching and learning easier, practical, appealing and enjoyable.

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