EFFECT OF DEMONSTRATION AND LECTURE TEACHING METHODS ON ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS IN FINANCIAL ACCOUNTING IN ADAMAWA STATE, NIGERIA

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Abstract
The study was carried out to determine the effect of Demonstration and lecture teaching methods on academic performance of secondary school students in Financial Accounting in Adamawa State. The study adopted a quasi-experimental design, specifically, the pre-test, post-test non-equivalent control group. 725 students offering Financial Accounting in senior Secondary schools in Yola metropolis, Adamawa State formed the population of the study. From the population of the study, 105 students were selected as sample using purposive sampling technique. Three senior secondary schools were purposively selected and randomly assigned to experimental groups and control group. Government Day Secondary, Yola Town (experimental group) was taught using Socratic Method and Government Day Secondary School Doubelli (control group) was taught using conventional Lecture method. The data collection period lasted for four (4) weeks Using instructional package for Financial Accounting (IPFA) which comprised well planned lesson plans on the selected topics based on the two methods of teaching. The instrument for data collection was a 50-item ‘Financial Accounting Achievement Test’ (FAAT) validated by three experts from Kwara State University, Malete. A pilot test of the instrument was conducted at Government Day Secondary School Muhammad Nya, Jalingo, Taraba State on forty (40) senior secondary school (SS II) Students offering Financial Accounting in the school. Using Kuder Richardson 20 (K-R20) formulae, a reliability coefficient of 0.83 was obtained. Research questions were answered using mean and standard deviation while the hypothesis was tested using analysis of covariance (ANCOVA) at 0.05 level of significance. The results of the study revealed that Demonstration method had significant effect on students’ performance than lecture method. Among the recommendations made was that, efforts should be intensified by teachers to aggressively adopt Socratic Method in teaching Financial Accounting.

Introduction
The secondary school level of education is a fundamental stage in the life of the students because it gives them a firm foundation on which they can achieve their life goal and self-reliance or proceed to the higher institutions of learning for further studies. In Nigeria Secondary school education has six years duration given in two stages three years of junior secondary school and three years of senior secondary school. The curriculum designed for senior secondary school is comprehensive and broad based, aimed at broadening students’ knowledge and outlook. Subjects offered in the senior secondary schools are in three groups: core subjects, non vocational and vocational subjects. One of the vocational subjects is Financial Accounting.
Financial Accounting is the process of identifying, measuring, recording, and communicating organization’s economic activities to users for decision making (Dauderis & Annand, 2014). According to John (2009) the objective of studying Financial Accounting at the senior secondary school includes the enablement of students to appreciate the basic rules, functions and principles of Accounting. The primary objective of learning Accounting is its vocational use-preparation for a job employment within a wide range of business career, to achieve these objectives, Financial Accounting teachers employ various instructional methods in the classroom.

Teaching method comprises the principles and methods used for instruction to be implemented by teachers to achieve the desired learning by students. These strategies are determined partly based on subject matter to be taught and partly on the nature of the learner. For a particular teaching method to be appropriate and efficient it has to be in relation with the characteristic of the learner and the type of learning it is supposed to bring about. However, no single teaching method is appropriate in all situations, and for all students. Many teaching methods and approaches have been in use in the teaching of Financial Accounting such as lecture and discussion among others (Pilato & Ulrich, 2014). However, these methods do not seem to be yielding the expected results currently. There are opinions that activity stimulating and student-centred methods could improve students’ academic performance in different subjects better than teacher-centred methods. Umar, Abdullahi and Hassan (2015) advocate for use of activity stimulating and student-centred teaching methods such as demonstration methods in the teaching of accounting yet most teachers at the post basic education still use conventional (lecture) method which is teacher-centred.

Demonstration method involves showing, doing or telling the students the point of emphasis. It is mostly used as a technique within a method of teaching and at times as a method of teaching itself. The role of the teacher is to illustrate how to do something or illustrate a principle first by explaining the nature of the act verbally, followed by demonstrating the act in a systematic manner and later the students repeat the act. Here students are involved in doing things that will influence their behaviour patterns. Through demonstrations, students are exposed to physical materials that will illustrate some meaning to their cognitive framework. Direct experiences like this go a long way to enriching learning. Dorgu (2015) argued that demonstration is useful mostly in imparting psychomotor skills and lessons that require practical knowledge. The gains of using demonstration method in teaching lies in the fact that it bridges the gap between theory and practice, enables learners to become good observers and generate their interest; students see immediate progress as a result of a correct effort and it enables the teacher to teach manipulative and operational skills (Dorgu, 2015).

In teaching Financial Accounting a proper demonstration is involved to ensure students observe the teacher properly and subsequently apply the knowledge of demonstration and what they have seen and learnt to solve accounting problems. Omwoyo (2010) describes demonstration as a teaching method which combines telling, showing and doing for the benefit of the students. Practice is useful in Demonstration methods. If the teacher is showing the class how to solve an account problem, he would first explain the format to the students, put them through on the step by step procedure of applying it, tell them why it should be applied and then
guide them through the critical and fundamental aspects of the account. The students would therefore play their own parts by repeating the performances many times as they put the workings together in proper format using sequence and timing. Proper timing, according to Ubah (2015), should be given to students to practice the account either by themselves or with a partner where necessary.

Lecture method is a one way flow of communication from the teacher to the students. The method is a teacher-centered approach where most of the talking is carried out by the teacher while the students remain as passive listeners taking down notes (Alcorn, 2010).

Academic performance according to Morgan (2010) is an assessment strategy by which the evidence about students learning is gathered through students work on a performed task. It is an observable or measurable behavior of a person in a particular situation usually experimental situation. Therefore, Students’ performance is very important because, it appears to be the major criterion by which the effectiveness and success of any educational institution could be judged. However, Umar, Abdullahi and Hassan (2015) observed that the ineffective teaching methods used by Financial Accounting teachers in secondary schools have failed to produce students with needed skills for employment and admission into tertiary institutions. It is based on this background that the researchers undertook the study.

Statement of the Problem

The rate of failure in Financial Accounting in secondary schools in Adamawa state was clearly shown in the West African Examinations Council (WAEC) results from 2011 to 2015, where the number of students that passed with distinction and credit grade levels were on the decline from 22.38% in 2011 to 21.57% in 2012, it was 20.48% in 2013, it fell to 19.67% to 19.58% in 2014 and 2015 respectively, while those that had ordinary passes and failure were on the increase (WAEC office Adamawa state, 2016). The students’ performance was unsatisfactory and this has continued to be a major source of concern to schools, parents, teachers and public examination bodies.

Literature tends to show that, the low level of performance has was attributed primarily to poor teaching methods used in imparting knowledge to the students. For instance, Igwe and Ikatule (2011) attributed poor academic performance of students to deficiency in teaching methods used by teachers. Probably, the non-use of innovative methods that are problem solving oriented such as guided discovery, demonstration, problem solving, and Socratic method are not yet widely recognized and utilized as method of teaching Financial Accounting in the State. Some of the students complained of not understanding the subject, possibly because of the type of teaching methods used by the teachers. The use of the lecture method may seem to be a contributing factor to the poor performance of students and also at the work place when eventually such students get employed after graduation (John, 2009). If this study is ignored, academic performance of the students is the subject may persist. The problem of the study is therefore, what is the effect of demonstration and lecture teaching methods on academic performance of secondary school students in financial accounting in Adamawa State, Nigeria.

Research Questions
In other that the study will be effectively guided, the following research questions were raised:

1. What is the effect of Socratic Method on academic performance of secondary school students in Financial Accounting in Adamawa State?
2. What is the effect of demonstration method on academic performance of secondary school students in Financial Accounting in Adamawa State?

**Research Hypotheses**

The following null hypothesis was formulated and tested at 0.05 level of significance.

\[ H_0: \quad \text{There is no significant effect of treatment of Socratic Method on the academic performance of secondary school students taught Financial Accounting in Adamawa State.} \]

**Methods**

The design of the study is quasi experimental design. Specifically the non equivalent, non-randomized control group, pretest, post-test design was adopted. The quasi experimental design was used since the class of students were already organized into intact classes to provide for stability and avoid disruption of class lessons and class arrangement. In support of this design, Enemali (2010) stated that it is a suitable alternative to experimental design when randomization is not used or applied.

The population of the study comprised all 725 SSII students offering Financial Accounting in senior secondary schools in Yola metropolis, Adamawa state. Purposive sampling technic was used to select 105 SSII Financial Accounting students from two senior secondary schools in Yola metropolis, Adamawa State. The schools are government day secondary school, Yola Town (GDSSY) experimental group one and Government Day Secondary School Doubeli, Jimeta, Yola (GDSSDJ) control group. A survey of co-educational public secondary day schools was carried out to identify schools that have an intact Financial Accounting class in SSII and are equivalent in terms of provision of facilities and are all funded by Adamawa State Government. Only schools that have at least one graduate Financial Accounting teacher with relevant professional teaching qualifications was chosen. Chosen schools were randomly assigned to experimental and control groups while students in the sampled schools remained in their intact classes. In order to give the schools equal chance of being in any group, the researcher wrote the names of the three schools on each of the three pieces of paper which was folded and mixed thoroughly in a hat. These pieces of papers were shuffled after which it was picked for each group.

Two types of instruments were developed for data collection in this study. These are:

(i) **Instructional Package for Financial Accounting (IPFA)**

The instructional package comprised prepared lesson plans on selected topics from senior secondary school curriculum based on the two methods of teaching. No special teaching session was organized. Teaching was done in accordance with the selected schools’ timetable period allocated for Financial Accounting. The lesson plans were prepared on topic by topic matched with period by period basis. Lesson plans outlined the period, the topic and the behavioural objectives of each lesson.

(ii) **Financial Accounting Achievement Test (FAAT)**
The Financial Accounting achievement test (FAAT) comprised fifty multiple choice questions with four (4) options lettered A to D with only one correct answer, each correct answer attracts two marks which add up to a total of 100 marks. Sixty minutes were allocated for the FAAT. In order to ensure standard, all the test items were drawn from the past question papers of WAEC and NECO of 2006 to 2016. The pretest scores served as a basis for comparing student’s academic performance in Financial Accounting test before treatment.

The FAAT was adapted from the WAEC and NECO Financial accounting past questions from 2006-2016 hence, the instrument had been face validated. The drafted FAAT and IPFA having been reconstructed by the researchers. To ensure content validity the FAAT was also subjected to thorough scrutiny and proof reading by experts in business education and measurement and evaluation not below the rank of senior lecturer in Modibbo Adama University of Technology, Yola and Kwara State University, Malete for further necessary corrections and approval. Validators checked the appropriateness of the items and ensured that the achievement test items sample the content areas. Corrections and suggestions were incorporated in the final copy.

Furthermore, a pilot test of the instrument was conducted at Government Day Secondary School Muhammad Nya, Jalingo, Taraba State. The instrument was administered to forty (40) senior secondary school (SS II) Students offering Financial Accounting in the school. This was done in order to avoid ambiguity of the instrument items and to determine if students at SS11 level would be able to answer the questions. The sample had similar characteristics and background with the target sample for the study. The data collected were subjected to statistical test to determine the reliability coefficient.

The internal consistency reliability of FAAT was established using Kuder-Richardson formular (KR-20). The choice of K-R 20 was influenced by the fact that it is most suitable in multiple choice items with right or wrong answers (Enemali, 2010). This procedure is used for establishing the reliability of a test score obtained from a single administration of a single test form. In situations where test items are scored correctly or wrongly, the problem of how to split a test is resolved with the use of KR -20 and the reliability coefficient for this study was therefore calculated and it was found to be 0.83. This is in line with Enemali, who stated that reliability coefficient of 0.7 and above is adequate and the instrument for which it is calculated is reliable. Therefore this test instrument was termed reliable.

The data collection period lasted for four (4) weeks, four periods of double period of eighty (80) minutes each was used for each of the three groups making a total of twelve periods. For each group the first twenty minutes of the first period was used for introduction, familiarity, and creation of understanding between the researcher and the students. The following procedures were adopted in the administration of the instruments.

Before the treatment, the research subjects were given a pretest in the first week. The test was administered by the researcher to the sampled schools which lasted for sixty (60) minutes each. The scripts were marked by the researcher. The results of the pretest were used to determine the students’ initial knowledge of the
materials they have learned and determined the comparability of the two groups (experimental and control) with respect to their achievement in the pretest scores.

The main treatment for the study was the teaching of manufacturing, trading and profit and loss account to senior secondary (SS II) Financial Accounting students by the researcher and this was helped in controlling teacher variable which the use of research assistant would not. A total of three groups were used in collecting data for the study namely experimental group and control group, representing Socratic and lecture teaching methods respectively. The two groups were given treatment by the researcher for the period of four weeks, once a week for a double period of eighty minutes making a total of twelve visits in which the experiment was carried out and this was possible with the aid of a detailed lesson plan on the selected topics.

After the treatment, post test was administered to the subjects (both the control and experimental groups) in the fourth week. Sixty (60) minutes was allocated for the post FAAT. The scripts were marked by the researcher and the students’ scores were recorded.

The research questions were answered, using mean and standard deviation of the experimental and control groups scores. Analysis of covariance (ANCOVA) was used to test null hypothesis at 0.05 level of significance with the pre-test serving as covariates. ANCOVA was chosen because of its power to take care of the initial lack of equivalence in the groups since intact classes were used for the study. To answer the research questions, any mean score between 50 and above was adjudged as high performance, while any mean score below 50 was adjudged as low performance. For the research hypotheses if the computed p-value is greater than 0.05 level of significance the null hypothesis was accepted and concludes that, there is no significant effect between the variables compared. If the computed p-value is less than 0.05 level of significance, the null hypothesis was rejected and concludes that, there is significant effect between the variables compared.

Results

Analysis of Demographic Data

The demographic variables for the study were analyzed in table 1 below:

| Table 1: Percentages distribution of students according to the grouping |
|-----------------------------|-----------------|-----------------|
| Group                      | Frequency | Percentage (%) |
| Experimental group         | 41        | 50.6            |
| Control group              | 40        | 49.4            |
| Total                      | 81        | 100             |

Source: Field experiment, 2017

The data presented in table 1 revealed that there are 41 students representing 50.6% in experimental group (Demonstration method group), 40 students representing 49.4% in Control group (conventional Lecture method group). This indicated that there are more students in experimental group than the control group.

Analysis of Data to Answer the Research Questions

The data to answer the research questions of the study were analyzed and the results are presented in tables 2 to 5 as follows:
Research Question 1

What is the effect of treatment of demonstration method on academic performance of secondary school students in Financial Accounting in Adamawa State? To answer this question, scores of students obtained from financial accounting achievement test including both the pre-test and post-test were analysed using mean and standard deviation as shown in table 2 below.

Table 2: Mean of pre-test and post-test scores of treatment group two taught Financial Accounting using demonstration method

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>41</td>
<td>44.39</td>
<td>7.64</td>
</tr>
<tr>
<td>Post-Test</td>
<td>41</td>
<td>67.56</td>
<td>8.55</td>
</tr>
<tr>
<td>Mean &amp; Sd Difference</td>
<td>41</td>
<td>23.17</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Source: Field experiment, 2017

The data presented in table 2 showed that the treatment group two taught Financial Accounting using demonstration method had a mean score of 44.39 and standard deviation of 7.64 (mean = 44.39; SD = 7.64) in the pretest and mean score of 67.56 and standard deviation of 8.55 (mean = 67.56; SD = 8.55) in the posttest, giving a pre-test post-test mean gain in the treatment group two taught Financial Accounting with demonstration method to be 23.17. The low standard deviation difference (0.91) showed that the scores of students in both the pre-test and post-test did not differ in the way in which they are clustered around their respective mean scores. With this result, students’ performance in Financial Accounting has improved which indicated that demonstration method is effective in teaching Financial Accounting.

Research Question 2

What is the effect of treatment of lecture method on academic performance of secondary school students in Financial Accounting in Adamawa State? To answer this question, scores of students obtained from financial accounting achievement test including both the pre-test and post-test were analysed using mean and standard deviation as shown in table 3.

Table 3: Mean of pre-test and post-test scores of control group taught Financial Accounting using lecture method

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>40</td>
<td>42.80</td>
<td>9.49</td>
</tr>
<tr>
<td>Post-Test</td>
<td>40</td>
<td>50.30</td>
<td>8.36</td>
</tr>
<tr>
<td>Mean Difference</td>
<td>40</td>
<td>7.50</td>
<td>1.13</td>
</tr>
</tbody>
</table>

Source: Field experiment, 2017
The data presented in table 3 revealed that the control group taught Financial Accounting with traditional lecture method had a mean score of 42.80 and standard deviation of 9.49 (mean= 42.80; SD = 9.49) in the pre-test and a mean score of 50.30 and standard deviation of 8.36 (mean = 50.30; SD = 8.36) in the post-test, giving a pre-test post-test mean gain in the control group taught with traditional lecture method of 7.50. Also, the low standard deviation difference (1.13) showed that the scores of students in both the pre-test and post-test did not differ in the way in which they are clustered around their respective mean scores. This result indicated that traditional lecture method is fairly improved students’ academic performance in Financial Accounting.

Test of Hypotheses

The null hypotheses for the study were tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance as shown in tables 4 to 5.

$H_01$: There is no significant effect of treatment of demonstration method on the academic performance of secondary school students taught Financial Accounting in Adamawa State. The test of this Null Hypothesis can be seen as summarized in table 11 below.

Table 4: Summary of Analysis of Covariance (ANCOVA) for Test of Significance of main effect treatment of demonstration method on academic performance of students in Financial Accounting

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>6065.355*</td>
<td>4</td>
<td>1516.339</td>
<td>20.559</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>8986.707</td>
<td>1</td>
<td>8986.707</td>
<td>121.842</td>
<td>.000</td>
</tr>
<tr>
<td>Pretest</td>
<td>18.401</td>
<td>1</td>
<td>18.401</td>
<td>.249</td>
<td>.619</td>
</tr>
<tr>
<td>Treatment</td>
<td>5763.786</td>
<td>1</td>
<td>5763.786</td>
<td>78.146</td>
<td>.000</td>
</tr>
<tr>
<td>Gender</td>
<td>1.522</td>
<td>1</td>
<td>1.522</td>
<td>.021</td>
<td>.886</td>
</tr>
<tr>
<td>Treatment * Gender</td>
<td>19.089</td>
<td>1</td>
<td>19.089</td>
<td>.259</td>
<td>.612</td>
</tr>
<tr>
<td>Error</td>
<td>5605.534</td>
<td>76</td>
<td>73.757</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>293986.000</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>11670.889</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R Squared = .520 (Adjusted R Squared = .494)

Source: Field experimental, 2017

of demonstration method on students’ academic performance in Financial Accounting. The Table showed that there was a significant main effect of treatment of demonstration method on academic performance of secondary school students in Financial Accounting (F= 78.146; P = 0.000). Hence, the null hypothesis that stated that there is no significant effect of treatment of demonstration method on the academic performance of secondary school students taught Financial Accounting was therefore rejected. This implied that teaching with demonstration method has significant positive effect on the academic performance of secondary school students in Financial Accounting.
Table 5: Estimated marginal means of both the treatment and control groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>67.61</td>
<td>1.395</td>
</tr>
<tr>
<td>Control</td>
<td>50.22</td>
<td>1.386</td>
</tr>
</tbody>
</table>

Source: Field experiment, 2017

The data in Table 5 showed the estimated marginal means for the two groups, i.e. the adjusted mean after the covariance. The table revealed that the participants in experimental group performed better than their counterparts in control group because they had the highest adjusted post mean score (mean = 67.61) as against the adjusted posttest mean score of the control group (mean = 50.22). The implication here is that teaching with demonstration method is effective in improving the academic performance of secondary school students in Financial Accounting.

Discussion of Findings

The analysis of research question one revealed that teaching with demonstration method has significant positive effect on the academic performance of secondary school students in Financial Accounting as the post test result was higher than the pretest result giving a pre-test post-test mean gain in the treatment group two taught Financial Accounting with demonstration method to be 23.17. Furthermore the result of Null hypothesis one analysis found out that demonstration method is the most effective method of teaching Financial Accounting in secondary schools. The analysis in table 13 revealed that participants in experimental group two (Demonstration method) performed better than their counterparts in lecture method because they had the highest adjusted post mean score. The students score in the experimental group improved drastically as a result of the demonstration method used in teaching them. This corroborated the findings of Musa (2015) who stated that demonstration method was better than the conventional lecture method in improving students’ performance in Financial Accounting. This is also supported by the findings of Mohammed, Ladu, and Bala (2016) which reported that demonstration and lecture methods in learning concepts in economics among secondary school students were effective. When the two methods were compared, demonstration method was more effective than lecture method. This was supported by Omwoyo (2010) who stated that demonstration as a teaching method combines telling, showing and doing for the benefit of the students. The above description of demonstration is supported by the Chinese saying, 'when I do, I understand.'

Conclusion

Based on the findings of the study it was shown that demonstration method is the most effective method of teaching Financial Accounting in secondary schools than lecture method. The implication therefore is that, the lecture method that is predominantly used in teaching Financial Accounting is not as effective as the other methods. Therefore, if lecture method alone is relied upon instead of incorporating demonstration method in teaching Financial Accounting, improvement in students’ performance in external examinations would be difficult. This will also negatively
affect students at the work place when eventually such students get employed after graduation.

**Recommendations**

Based on the findings of the study, the following recommendations are made:

1. Financial Accounting teachers should be encouraged to use demonstration Method in Teaching in Senior Secondary Schools since it improves students’ academic performance than the conventional lecture method

2. Financial Accounting teachers should not rely on the use of traditional lecture method alone because it was found not as effective as demonstration method in improving students’ academic performance.

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