African Research Review
International Multi-Disciplinary Journal
Bahir Dar, Ethiopia
AFRREV Vol. 12 (4), Serial No 52, September, 2018: 87-94
ISSN 1994-9057 (Print) ISSN 2070-0083 (Online)
DOI: http://dx.doi.org/10.4314/afrrev.v12i4.8

# Influence of Gender on Accounting Students' Academic Achievement and Retention in Secondary Schools in Anambra State, Nigeria

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**Abstract**

There have been controversies on the influence of gender on academic performance of students in relation to the teaching method(s) used in the teaching and learning processes. Using discussion method of teaching, the researchers ascertained the effect of the method on male and female students' academic performance in the teaching of accounting. Two research questions guided the study and two null hypotheses were tested at 0.05 level of significance. Quasi experimental design was adopted for the study. The population of the study comprised 185 Senior Secondary (SS) II accounting students and the sample consisted of 58 accounting students purposively selected. Instrument for data collection was Accounting Achievement Test (AAT) validated by three experts. Test re-test was used to establish the reliability of the instrument and the reliability coefficient of 0.86 was obtained using Spearman Brown Prophecy formula. Data collected were analysed using mean scores for research questions and Analysis of Covariance (ANCOVA) for the null hypotheses. Findings of the study showed that both male and female students taught accounting using discussion method of teaching obtained higher post test scores. Also, there was no significant difference in the mean achievement scores of male and female students taught accounting using discussion method of teaching.

**Key Words** – Academic achievement, Discussion method of teaching, Gender, Secondary school

 

## Introduction

Discussion method of teaching is a teaching method that involves the interaction of the teacher and the learners. The interaction here could be in the form of verbal interaction or written. Discussion method of teaching has been opined by some scholars to have several advantages in the teaching and learning processes. According to Brookfield and Preskill (1999), discussion method of teaching is an indispensable aspect of democratic education and has several benefits such as helping students to explore diverse perspectives; increasing students' awareness of and tolerance for ambiguity or complexity; assisting students to recognize and investigate their assumptions; encouraging attentive and respectful listening; developing new appreciation for continuing differences and increasing intellectual agility of students. Others include: connecting students to a topic; showing respect for voices and experiences of students; learning the processes and habits of democratic discourse; affirming students as co-constructors (co-creators) of knowledge; developing capacity for clear communication of ideas and meaning; developing habits of collaborative learning; increasing the breadth of students and making them empathic; developing skills of synthesis and integration in students and finally, according to the authors, discussion leads to transformation. Discussion is important in the classroom because as the interaction goes on, it helps to clear the misunderstanding students have about the concept. As Bush (2009) opined, students bring to the instructional setting their abilities, motivational propensities, personal background, home background and community values and these can mar, make or supersede teachers' intervention. Interactions during discussion, not only shape students' talk, but they help to construct understanding (Gibbons, 2006). However, Larson (1999) observed sadly that in spite of the numerous benefits of the discussion method of teaching, it is not frequently used in the classrooms. Post basic teachers seem to prefer using their usual method which is mainly teacher centred in the classroom paying little or no attention to student-centred method(s).

Discussion method of teaching is one of the students-centred methods. It could take variety of forms such as small group, round table, panel discussion and debate (Adewuya, 2003). Discussion method could also be used within the community of learners in a classroom where the teacher acts as the facilitator. In small group discussion, students are divided into groups of a certain size. Each student is assigned a specific role and responsibility to carry out during the discussion after which they would report their key ideas to the larger group. Round table discussion involves small number of persons usually three to eight. It needs a moderator to introduce the members of the discussion group, present the problem to be discussed and keep the discussion moving (Jerolimek in Rahman, khalil, Jumani, Ajmal, Malik & Sharif, 2011). Panel discussion is similar to a round table discussion in many ways, but a little difference exists. In panel discussion, responsibilities of the moderator are the same as in round table discussion, but the procedure is more formal than that of the round table. It begins with a short statement by each Panelist. Panel discussion is more audience oriented than round tables and each panelist is considered to be more or less an expert (Vedanayagam, 1994).

Discussion method also takes place within the community of learners in a classroom where the facilitator and the students interact and exchange ideas, facts, opinions and expressions about a concept. The interaction guides the learners to discover facts for themselves. It pools ideas and experiences from learners. In a discussion class, students express their opinions about the concept under a guide (the teacher). The subject matter to be discussed is usually introduced at the beginning of a lesson and this helps to ascertain students' pre-conceived notion of the subject matter, then intermittently, discussion is used to ascertain the level of progress being attained by the students. In using discussion method, active participation of students is involved; students do not have to rely on rote learning. This could enhance creativity among students and could promote students' independence and probably help to

make the concept clearer. According to Akinleye (2010), information becomes knowledge when learners are actively involved in its processing. Discussion method of teaching could help learners to process information when giving appropriate guidance. Considering the teaching of accounting at the post basic level of education where many students seem to recognize the subject as a difficult subject probably because it involves calculation, it is important that student-centred method(s) which make(s) the student active should be used so as to get them involved in the teaching and learning processes. As stated in Ndinechi and Obidile (2013) that students centred-method should always be used in the teaching of accounting so as to enable the students participate in the teaching and learning processes as this could help to improve their performance. Accounting is one of the subjects being offered at the post basic education which helps to acquaint the students with the competencies necessary for business activities especially where money exchanges hand. It is therefore imperative that such an important subject should be taught with an effective teaching method so as to enhance in-depth knowledge and understanding of the its concepts among accounting students which could lead to improved performance.

Discussion method of teaching being a method rarely used by the post basic teachers in the teaching of accounting was chosen in this study to ascertain its effect on male and female students' academic performance in accounting. Although the effectiveness of discussion method is supported by cross-institutional research in which Guon (1998) and Omwirhiren (2015) indicated that both male and female students who were taught using discussion method of teaching, displayed higher rate of retention and academic achievement. Some studies indicated that discussion method of teaching did not significantly improve male and female academic performance (Oche, 2012). It therefore becomes pertinent to ascertain the effect of discussion method of teaching on male and female students' academic performance in the teaching of accounting.

**Research Questions**

The following research questions guided the study

1. What are the differences in the pre-test and post-test mean achievement scores of male and female students taught accounting using discussion method of teaching?
2. What are the differences in the mean retention scores of male and female students taught accounting using discussion method of teaching?

**Null Hypotheses**

The following null hypotheses were tested at 0.05 level of significance.

1. There is no significant difference in the mean achievement scores of male and female students taught accounting using discussion method of teaching.
2. There is no significant difference between the mean retention scores of male and female students taught accounting using discussion method of teaching.

**Method**

The study adopted a quasi-experimental design. This design was considered appropriate because it would not be possible to place subjects in groups by random assignment without disrupting the academic programme and the timetable of the schools involved in the study. The study utilized pretest, posttest and delayed posttest. The study was carried out in secondary schools in Anambra State in the South East Nigeria. The population of the study was 185 Senior Secondary (SS) II accounting Students. The sample of the study was 58 SS II accounting students from two secondary schools in the State

which was made up of 26 students for the experimental group and 32 students for the control group. The two schools were selected using purposive sampling technique. Simple random sampling was used to assign the two intact classes to experimental and control group respectively.

The instrument for data collection was Accounting Achievement Test (AAT) developed by the researchers using the West African Senior School Certificate Examination (WASSCE) syllabus. The instrument consisted of two sections. Section A sought background information of the students while section B contained 30 multiple choice test items with four options (A-D). The instrument covered three content areas in accounting namely: incomplete statement, partnership account and final accounts of a sole trader. The 30 multiple choice test items were used for both pre-test, post-test and delayed post-test. The instrument was validated by three experts. Selection of the items in the instrument was done using item analysis which was carried out on 50 items in order to determine whether the items were appropriate, too hard or too easy for the intended class. Using the item analysis, the difficulty and discrimination indices were computed. According to Aiken (1997) it is desirable to have most items in the 30 to 50 range of difficulty in order to obtain maximum spread of students' scores. Based on that, those items in the 30 to 50 range of difficulty were selected. The discrimination index according to Lindvall and Nitko (1985) is the degree to which an item discriminates between very high achievers and low achievers. A good discrimination item is the one in which student who scored well on the examination answered the correct alternative more frequently than the student who did not score well on the examination (Osterlind, 1989). Using the discrimination index, according to Cohen, Swerdlik and Smith (1992) an item is classified as 'good' if the index is above 0.30; 'fair' if it is between 0.10 and 0.30; and 'poor' if it is below 0.10. A negative discrimination index indicates a defective item. In this study, items with discrimination indices from 0.30 to 0.70 were selected. After computing the difficulty and discrimination indices, 30 test items were selected and used for the study. Reliability of the instrument was established by administering the instrument to SS II accounting students who were not part of the population. The test re-test method was used and the scores from the two test scores were correlated using Spearman Brown Prophecy formula and the coefficient of 0.86 was obtained.

**Experimental Procedure**

The researchers sought and obtained permission from the authorities concerned for the involvement of their schools and teachers in the study. The study lasted for eight weeks. The researchers briefed the regular classroom teacher of the experimental class on the techniques to be used and gave the teacher the lesson plan and the lesson notes that covered the eight weeks. The experimental group was taught using discussion teaching method while the control group was taught using conventional teaching method. Prior to the commencement of the experiment, pre-test was administered to all the students both in the experimental and control groups. This enabled the researchers to ascertain the initial abilities of the students prior to the experiment. At the end of six weeks, the post-test was administered to both groups. Two weeks after the administration of the post test, the delayed post-test was given to both groups to ascertain their retention level.

**Control of Extraneous Variables**

Extraneous variables in the study were controlled using the following measures:

**Hawthorne effect:** When external teacher is used in the experiment, the class becomes sensitized that they are being used for the study and as such they tend to exhibit unusual behaviour. To check this, their regular classroom teachers were used. Also, the experimental and control groups were randomly assigned to avoid being biased.

**Class interaction:** Classes used were in different schools in order to prevent class interaction which might be seen if two close schools were used.

**Initial group differences:** In order to take care of the differences which usually exist in academic environment such as varying levels of learning attainment, among others, ANCOVA was used for data analysis with respect to testing the null hypotheses.

**Method of Data Analysis**

Data collected were analyzed using mean scores and Analysis of Covariance (ANCOVA). Mean scores were used to answer research questions while ANCOVA was used to test the null hypotheses at 0.05 level of significance. In answering research questions, students' achievement was determined using mean scores. Difference between post-test mean score and pre-test mean score indicated achievement mean gain/mean loss. Also, difference between delayed post-test mean score and post-test mean score indicated retention mean gain/mean loss. In the test of null hypotheses using ANCOVA, if p-value was less than or equal to the level of significance (0.05), the null hypothesis was rejected, otherwise, it was not rejected (p-value $\leq$ 0.05). According to Dallal (2012) a researcher rejects the null hypothesis when the p-value turns out to be less than or equal to a significance level.

**Findings**

**Research Question 1:** What are the differences in the pre-test and post-test mean achievement scores of male and female students taught accounting using discussion method of teaching?

**Table 1: Mean Achievement Scores of Male and Female Students in the Experimental Group.**

| Gender | N | Pre-test $X_1$ | Post-test $X_2$ | Mean gain/loss $X_{G/L}$ |
|---|---|---|---|---|
| Males | 12 | 30.30 | 48.73 | 18.43 |
| Females | 14 | 28.72 | 49.78 | 21.06 |

Data in Table 1 show the pre-test mean scores of male and female students in the experimental group as 30.30 and 28.72 and their post-test mean scores as 48.73 and 49.78 with mean gain scores of 18.43 and 21.06 for male and female students respectively. This shows that achievement scores of male and female students taught accounting using discussion method of teaching were close in value, even though the mean gain of 21.06 for the female students is higher than 18.43 for their male counterparts. Both male and female students taught accounting using discussion method of teaching had higher post test scores.

**Research Questions 2:** What are the differences in the mean retention scores of male and female students taught accounting using discussion method of teaching?

**Table 2: Mean Retention Scores of Male and Female Students in the Experimental Group**

| Gender | N | Post-test $X_2$ | Delayed Post-test $X_3$ | Mean gain/loss $X_{G/L}$ |
|---|---|---|---|---|
| Males | 12 | 48.73 | 54.82 | 6.09 |
| Females | 14 | 49.78 | 56.76 | 6.98 |

Table 2 reveals the post-test mean scores of male and female students in the experimental group as 48.73 and 49.78 and their mean retention scores as 54.82 and 56.76 with mean gain scores of 6.09 and

6.98 for male and female students respectively. This shows that retention scores of male and female students taught accounting using discussion method of teaching were closely related in value. This shows that both male and female students taught accounting using discussion method of teaching had higher retention scores.

**$HO_1$**: There is no significant difference in the mean achievement scores of male and female students taught accounting using discussion method of teaching.

**Table 3: Summary of ANCOVA on Male and Female Achievement Scores in Experimental Group**

| Source | Type III Sum of Squares | Df | Mean Square | F | P-value | Decision |
|---|---|---|---|---|---|---|
| Corrected Model | 2925.849[a] | 2 | 1823.925 | 27.621 | .000 | |
| Intercept | 3503.843 | 1 | 3651.842 | 52.605 | .000 | |
| Posttest | 1822.449 | 1 | 1472.448 | 35.548 | .000 | |
| Gender | 982.384 | 1 | 982.544 | 1.467 | .072 | Not Sig. |
| Error | 8473.657 | 132 | 62.450 | | | |
| Total | 224372.000 | 135 | | | | |
| Corrected Total | 33261.484 | 134 | | | | |

Data in Table 3 show the obtained value of F (1,135) = 1.467 is not significant at 0.072 for the gender main effect (p>0.05). This shows that there was no significant difference in the mean achievement scores of male and female students taught accounting using discussion method of teaching. The null hypothesis was therefore not rejected.

**$HO_2$:** There is no significant difference between the mean retention scores of male and female students taught accounting using discussion method of teaching.

**Table 4: Summary of ANCOVA on Male and Female Retention Scores in Experimental Group**

| Source | Type III Sum of Squares | Df | Mean Square | F | P-value | Decision |
|---|---|---|---|---|---|---|
| Corrected Model | 15438.941[a] | 2 | 5237.972 | 234.432 | .000 | |
| Intercept | 935.643 | 1 | 921.434 | 37.345 | .000 | |
| DelPosttest | 16540.725 | 1 | 13450.723 | 421.742 | .000 | |
| Gender | .864 | 1 | .841 | .023 | .621 | Not Sig. |
| Error | 1257.454 | 132 | 22.033 | | | |
| Total | 243269.000 | 135 | | | | |
| Corrected Total | 12544.834 | 134 | | | | |

Data in Table 4 show the obtained value of F (1,135) = 0.023 is not significant at 0.621 for the gender main effect (p>0.05). This shows that there was no significant difference in the mean retention scores of male and female students taught accounting using discussion method of teaching. The null hypothesis was therefore not rejected.

**Discussion**

**Effects of discussion method of teaching on the academic achievement of male and female students in accounting**

From the study, it was found that male and female students taught accounting using discussion method of teaching had mean gains in their academic performance. Although female students had a mean gain that was slightly above that of their male counterparts. However, the difference in the mean gains was not statistically significant. It could be that the difference was a chance occurrence.

These results are in line with the findings of Omwirhiren (2015) which revealed that discussion method of teaching improved academic achievement of both male and female students in Chemistry. This finding disagrees with the findings of Oche (2012) which revealed that discussion method of teaching did not significantly improve male and female academic achievement in mathematics. This shows that discussion method could improve students' academic achievement in some subject rather than others.

**Effects of discussion method of teaching on the knowledge retention of male and female students in accounting**

Findings of the study revealed that, male and female students taught accounting using discussion method of teaching had higher mean retention scores. Although slight mean difference was recorded in favour of the females, but it was found to be statistically not significant. This implies that there was no significant difference in the mean retention scores of male and female students taught accounting using discussion teaching method. This is in line with the findings of Omwirhiren (2015) which revealed that gender was insignificant in the knowledge retention of students taught Chemistry using discussion. This revealed that gender could not influence students' knowledge retention in accounting when taught with discussion method of teaching.

**Conclusion**

It could therefore be concluded that discussion method of teaching has the potential to improve students' academic performance in accounting irrespective of their gender.

**Recommendations**

The following recommendations are made

1. Accounting teachers should be trained on the rubrics of discussion teaching method so that they could use it appropriately in the teaching of accounting to enhance male and female students' academic achievement in accounting.
2. Enough time should be given to accounting periods by the time table planners, so that accounting teachers could have more time to apply the discussion method of teaching in the teaching of accounting.
3. Accounting teachers should always involve students in the teaching and learning processes through discussion method of teaching.

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