

The Effects of Tutorial Class for Female Students on Their Academic Performance in Chemistry at Chiro Town Qilliso Primary School, Ethiopia

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ABSTRACT: *The purpose of this study was to assess the effectiveness of tutorial class on female students' grade 7th and 8th academic performance in chemistry at Qilliso primary school. The study employed the survey research design. Data were collected seventy female students as a sample from the total of 85 female students in grade 7th and 8th by using simple random sampling techniques and 10 teachers, 2 vice principal and 1 principal were selected by using purposive sampling techniques. The statistical package for social sciences (SPSS) version 20 software was used to analyze the quantitative data of the study. The results revealed that tutorial support has both academic and psychological effects on female students. Academically, tutorial class is effective in improving a student's academic performance. Psychologically, tutorial support is effective in improving their self-confidence, self-concept, decision-making ability, memory and feeling of happiness. Finally, the study suggested that tutorials are indispensable factors in the achievements of educational goals and objectives. Therefore, students, teachers and chiro educational office should give special attention to the implementation of effective tutorial class support for female students.*

KEYWORDS: Academic performance, effects, primary school female students, tutorial class,.

INTRODUCTION

Education in its general sense is a form of learning in which the knowledge, skills, values, beliefs and habits of a group of people are transferred from one generation to the next generation through discussion, teaching or research by (Yeung *et al.* 2013 cited in Sewagegn Mola Melaku, (2021). From the psychological point of view, education implies that change and can be regarded as a 'process' or 'product' (Crow, 2000). As a process, it embodies all those forms of activities that fit individuals for social living and that help to transmit activities, customs, laws, religious beliefs, languages and social intuitions from one generation to another. As a product, education includes all those changes that have taken place as a result of individuals participating in learning experiences (Crow, 2000).

Tutorial is interactive class taught by a tutor student at educational institution individually or in small groups. Tutorial is one of the oldest variables in educational theory long before possibly before Plato. Each tutorial activity is unique, because it involves the coming together of particular individuals in a particular setting with particular artifacts teaching science and engineering needs tutorial method of teaching Probert (2001) cited in Demeke Selato and Mulugeta Habte (2018).

Due to the student's difference, tutorial class should be given special attention for female and low achiever students to increase their academic performance (Coolidge & Segal, 2004). Similarly, tutorial support plays an active role in increasing the academic performance and performance of low achievers and female students. Students in all grade levels require tutorial support for the effectiveness of their teaching-learning system, especially for female students who have academic difficulties. Therefore, teachers are capable of meeting instructional needs of all students equally according to their individual differences, because students have unique intellectual capacities in the class to improve their academic performance Paul & Graham, 2002 cited in Sewagegn Mola Melaku (2021). Chemistry has been identified as a very important science subject as it is important in scientific and technological development of the nation. However, students consider chemistry as a very conceptual and difficult subject to learn. A subject could be regarded as abstract or difficult if it requires on the average higher reasoning to understand (Anchor E, *et al.*, 2011).

Statement of the Problem

In a tutorial class program cooperative learning enhances the knowledge transformation in chemistry from one student to another because there is sharing of idea. Academic of students is the most important indicator of quality education in the country. So, academic performance or academic performance is the extent to which students, teachers and institutions have achieved educational goals (Thomas *et al.*, 2007). In different countries and at different times, various studies have been carried out to identify the effect of tutors who significantly influence students' academic performance. The cognitive performance of African students is low compared to the world standards and evidence points out the decline in recent years. Accordingly, the restoration and clarification of standards of academic performance are key to improving the qualities of education and producing qualified students who are advantageous for their country's development at all levels (Heiner, 2012).

Generally, tutoring plays a valuable role in helping one to improve the learning environment and navigate a stricter and uncertain regulatory landscape. Female students attend the class room with some cultural and gender issue problems. Depending on their cultural background female students lag behind and show psychological fear to participate in the class discussion as well as to ask any question concerning chemistry problems. Test scores of female students decrease over time until when female students move up in the education arena (Demeke Selato and Mulugeta Habte, 2018)

In Ethiopia, there are different levels of primary educational, although most of the teachers and students have little awareness about the effectiveness and practice of tutorial delivery for female students. However, little emphasis seems to have been given to such issues that the problems are continuing and female students to such behaviours are left untreated. Therefore, the researcher

tries to assess the effectiveness of the tutorial class for female students' academic performance in Qilliso primary school West Hararghe zone, Oromia regional state Ethiopia.

Research Questions

This study primarily concern with assessment the effectiveness of the tutorial class for female students' academic performance in Qilliso primary school, chiro Town. To attain the objectives of the study, the following general and specific research questions have been formulated:

1. What are the academic effects of tutorial classes on female students in Qilliso primary school,
2. What is the interest of female students towards tutorial classes in Qilliso primary school,
3. What are the strategies to improve the tutorial given to female students in Qilliso primary school

Objectives of the Study

The following objectives were expected to be achieved in this research.

1. To identify the effectiveness of tutorial classes on female students' academic performance in Qilliso primary school
2. To identify the interest of female students towards tutorial classes in Qilliso primary school,
3. To improve the tutorial given to female students to get better academic performance in Qilliso primary school.

RESEARCH METHODOLOGY

Research Design

This study adopted descriptive survey design to establish the assessment the effectiveness of the tutorial class for female students' academic performance in Qilliso primary school, chiro Town. The rationale for using descriptive survey design is that it is used in preliminary and exploratory studies to allow the researcher to gather the information, summarize, present and interpret for the purpose of clarification. The choice of descriptive survey design is made on the fact that in this study, the researcher was interested in the state of affairs already prevalent in the field and no variable is to be manipulated.

General Description of Sampling Area

The study is conducted in Chiro Town from October, 2022 to June, 2022, West Hararghe zone, Oromia Regional State in Ethiopia. It is located 326 km from the capital city of Ethiopia, Addis Ababa. The city is Located in the Ahmara Mountain, it has a latitude and longitude of 9°05'N 40°52'E / 9.083°N40.867°E and an altitude of 1826 meters above sea level. It is the administrative center of the West Hararghe Zone. Based on the population projection value (2018) report, West Hararghe has a population of 1,951,706, an increase of 47.16% over the 1994 census, of whom 989,861 are men and 961,845 women; with an area of 15,065.86 square kilometers, the zone has

a population density of 124.23. The majority of the inhabitants were Muslim; with 49.88% of the population reporting they observed this belief, while 43.34% of the population practiced Ethiopian Orthodox Christianity and 5.33% of the population were Protestant (CSA, 2007). The topography of West Hararghe is characterized by steep slopes in the highlands and mid- highlands and large plains in the lowland areas. The Zone is characterized by crop-livestock mixed farming system where livestock in general and dairy production in particular contribute significantly to farmer livelihoods used as cash income generating purpose. Khat and Coffee is an important cash crop of this Zone. Over 50 square kilometers is planted with this crop of coffee and the climatic condition is conducive to livestock production.

Sample size and sampling techniques

In chiro Town there are eleven primary schools. Among those Qilliso primary school is purposely selected due to the researcher's familiarity with this school and the problem's relevant to it. In Qilliso primary there are 85 female students in grade 7th and 8th; and 32 teachers. Thus, the population for this quantitative study is the whole Qilliso primary school female students in chiro town.

The sample size was determined by using Taro Yamane's (1967) cited Assefa G. *et al.* (2017) formula as follows:

$$n = \frac{N}{1 + (Ne^2)}$$

Where, n = required sample size N = Population size e = sampling error (5%), with the confidence level of 95%. Using the above formula the sample size will be calculated.

$$n = \frac{N}{1+(Ne^2)} = \frac{85}{1+(85 \times 0.0025)} = \frac{85}{1.2125} = 70.10 \approx 70$$

(n) = 70 (sample from total female students of Qilliso primary school in chiro town).

From 32 teachers, 10 teachers are selected by a purposive sampling technique. Because to get adequate knowledge about the study. Therefore, to meet this objective, 70 students and 10 teachers were selected as sample participants of the study.

Research instruments

Three main techniques of data collection are used to collect both primary and secondary data on information literacy needs and potentials in primary school. They included documentary review, interview and questionnaire. Both quantitative and qualitative data were collected through questionnaire for students and teachers, interview and checklist for principals and vice principals and document for tutorial attendances. Using multiple method of data collection helps the researcher to combine the strength and amend some of the inadequacies of any one of the source of data (Cohen *et. al.*, 2006).

Data Collection Procedures

After verifying the validity and reliability of the instruments, some sort of orientation show to administer the research questionnaires was given to the researcher's assistants. The researcher was obtained permission to conduct research from Chiro College of teachers Education through Chiro Town educational Office. Upon obtaining consent, the study is undertaken in three phases: Phase one involves the researcher visiting participating schools in order to be introduced, familiarize, and seek respondents' permission to be involved in the study. In phase two, the researcher was administered the questionnaires to the students, principals and teachers. The researcher was assured the respondents of the confidentiality of the given information. The researcher equally interviews the school principals; observes one theory and one practical lesson in progress per school as well as the teaching and learning resources and facilities in the participating schools using the observation checklist. The third and final phase entailed the researcher interviewing the area field officers (CTEO) to obtain factors considered by the field officers to be contributing to poor performance of student in Chiro Town. The researcher also sought any intervention measures which the field officers have put in place to remedy the situation

Reliability of research instruments

According to Orodho (2004) reliability in research concerns the degree to which a particular measuring procedure gives similar results over a number of repeated trials. In order to test the reliability of the instruments the researcher used the pilot test method. Accordingly a pilot test is conducted in the muce Ahmad muce primary school of students in grade 7th and 8th that are not included in the actual samples used. The total participants are involved 10% of simple size. The reliability of the instrument is measured by using Cronbach alpha method. The results obtained will be used to calculate Cranach's Alpha using the formula;

$$\alpha = \frac{K((1-\sum s^2)}{K-1 s^2 test}$$
 Where α = Cronbach's Alpha, k = number of questions, $\sum s^2$ = sum of variances from each question, $s^2 test$ = total variance of overall scores on the entire test.

Based on the pilot, reliability coefficient (alpha) the average of the reliability result was found to be (0.79) and hence, reliable and hence, was reliable. That is the instrument was found to be reliable as statistical literature recommended a test result of 0.70-0.90 reliable (Muganda, O. & Mugenda, A., 2003). So the results that showed very good to measure the intended objective.

Methods of Data Analysis

Depending on the nature of the data gathered through questionnaires and interview as well as the variables to be treated. After collecting the data the following steps were followed in analyzing the data. Responses of the questionnaire were entered into SPSS version 20. Then, descriptive and inferential statistics values such as frequency, percentage, mean and standard deviation, were computed to see the relationship of the independent variables with the dependent variable.

Ethical Considerations

According to Muganda, O. & Mugenda, A., 2003), logistics in research refers to all those processes, activities or actions that a researcher must address or carry out to ensure successful completion of a research project. During the pre-field work, the researcher established a work plan,

constructed the research instruments, obtained a research permit, carried out sampling, pre-tested and corrected the instruments. Ethical issues were highly considered in this study. Prior to data collection permission was sought from the educational officials, principals, teachers and students. The aim of the study was clearly explained to participants before the interviews. The participants were also informed that their involvement in the study was voluntary and that they were free to withdraw at any time of the interviews if they feel uncomfortable. They were assured of anonymity in the research report.

RESULTS AND DISCUSSION

Background information of the respondents

Table 1. Background information of female students

Variable	Categories	F	%
Age	10-15 years old	54	77
	16-20 years old	16	23
	above 20 years old		

Source: Own survey, 2022

Table 1 shows that 54 (77%) were in the 10–15 age group and 16 (23%) were in the 16–20 age group. This age group of 16- 20 years are beyond the age range of primary school students. Because of some students is not livelihood with their parents. That means some students learn with other persons.

Figure 1 indicates that out of the total teachers educational level (respondents) 8 (80%) were degree holder and 2 (20%) were diploma holder; and 1 (10%) were in the 6–10 have work experience, 2 (20%) were in the 11–15 have work experiences, 4 (40%) were in the 16–20 have work experiences.

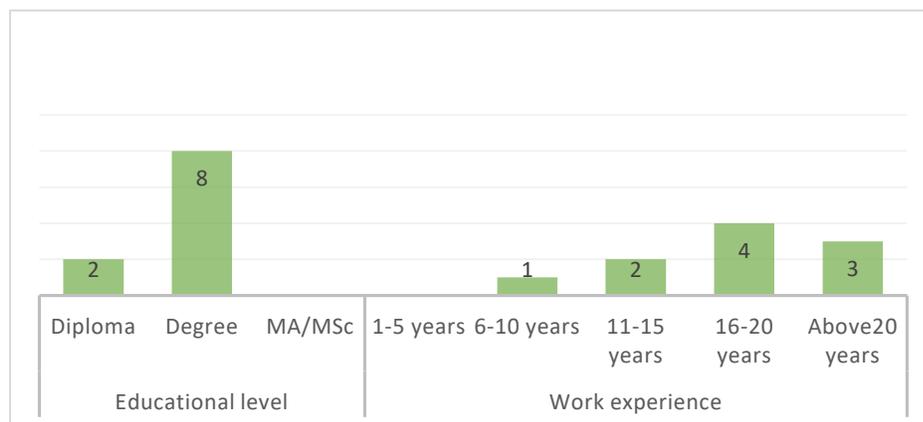


Figure 1 Source: Own survey, 2022

During the interview sessions, all of the school principals and vice - principals said that “Experienced teachers have a richer background of experience to draw from and can contribute

insight and ideas to the course of teaching and learning, are open to correction and are less dictatorial in classroom. Teachers' experience and student achievement was that students taught by more experienced teachers achieve at a higher level, because their teachers have mastered the content and acquired classroom management skills to deal with different types of classroom problems

Academic effects of tutorial class

Table 2. Respondents' response on academic achievement

S/N	Items	SA	A	N	D	SD	Mean	St.D
1	After I receive tutorial, my participation is better than before	38	23	10			4.41	0.71
2	I scored poor before taking tutorial education	35	21	2	12		4.14	1.08
3	I do not think that the tutorial support has contributed to my academic performance	4	16	2	23	25	2.30	1.3
4	Attending tutorial improve my point average	45	12	13			4.45	0.79
5	I think that, tutorial support has contributed to my improved performance	56	2	4	8		4.51	1.03

Source: Own survey, 20122

SA-strongly agree, A-Agree, N- Neutral- disagree, SD-strongly disagree

The purpose of the study was to assess the effectiveness of tutorial classes for female students on their academic performance in Qilliso primary school. Table 4 shows that majority of the respondents with a mean score (4.41) and standard deviation (0.71) after they received tutorial class their participation in class was better than before. In the same table 4 out of the total respondents with mean score 4.14 and standard deviation (1.08) before taking tutorial class they were scored poorly. So, the results revealed that most female students scored poorly before taking tutorial class. For instance, students attending tutorial improve their point average with mean score (4.45) and standard deviation (0.79). Therefore, the results revealed that attending tutorial class improved female students' point average. Previous findings have indicated tutorial support has both academic and psychological effects on female students and tutorial class is effective improving a student's point average and academic performance and class Participation (Sewagegn Mola Melaku, 2021).

During the interview sessions, the majority of the teacher's said that "*students after received tutorial class their participation in class was better than before and students attending tutorial improve their point average*"

Psychological effects of tutorial class

Table 3. Respondent's psychological effect of tutorial class

S/N	Items	SA	A	N	D	SD	Mean	St.D
1	After I receive tutorial class, my decision making skill was developed	32	31	7			4.36	0.66
2	When I evaluate my confidence since when I was started tutorial, my confidence changed or improved	23	12	9	26		3.46	1.29
3	After I receive the tutorial class, myself concept increases	34	23	10	3		3.45	1.29
4	After I receive tutorial class, I feel happy	21	34	5	7	3	3.98	0.98
5	After I receive tutorial, my memory was increased	23	35	4	8		3.98	0.98

Source: Own survey, 2022

SA-strongly agree, A-Agree, N- Neutral- disagree, SD-strongly disagree

The purpose of the study was to assess the psychological effect of tutorial class on female students in Qilliso primary school. Table 4 shows that majority of the respondents with a mean score (4.36) and standard deviation (0.66) after they received tutorial class their decision-making skill was developed. So, the results revealed that receiving tutorial class improves the decision-making skill of female students and they started tutorial classes their self-confidence was changed or improved with mean score 3.46 and standard deviation 1.29. This shows, the results revealed that receiving tutorial class had a positive psychological effect on female students' self-confidence development. Again, most female students were happy with mean score 3.98 and standard deviation 0.98. Therefore, the results revealed that most female students were happy after they received tutorial class. Similarly, the study by Sewagegn Mola Melaku, (2021) in Wachamo university pointed that Psychologically, tutorial support is effective in improving their self-confidence, self-concept, decision-making ability, remembering ability and feeling of happiness.

During the interview sessions, the majority of the teacher's said that "*students receiving tutorial class improve the decision-making skill and their self-confidence was changed or improved*"

Table 4. Respondents' interest towards tutorial class

S/N	Items	SA	A	N	D	SD	Mean	St.D
1	I receive tutorial voluntary	251	23	8	14		3.84	1.12
2	I am interested on my tutorial classes	12	35	14	9		3.7	0.90
3	I am punctual on my tutorial class	61	23	24	10	7	3.23	1.06

Source: Own survey, 2022

SA-strongly agree, A-Agree N- Neutral- disagree, SD-strongly disagree

The purpose of the study was to assess female students' interest towards tutorial class in Qilliso primary school. Table 4 shows that majority of the respondents with a mean score (3.84) and standard deviation (1.12) students received tutorial class voluntarily. So, the results revealed that majority of the female students received tutorial class voluntarily. In the same table 5 the majority of the respondents with a mean score (3.7) and standard deviation (0.90) female students were interested towards their tutorial classes. Therefore, the results revealed that female students were interested towards their tutorial classes. Regarding their punctuality on their tutorial classes the majority of respondents with mean score (3.23) and standard deviation (1.06) they were punctual on their tutorial. So, the results revealed that female students were punctual or being on time in their tutorial classes. Sewagegn Mola Melaku, (2021) motioned that female students have a positive interest towards their tutorial classes and are being punctual to receive tutorial classes voluntarily.

One of the objectives of the present study was to assess the strategies to improve tutorial given to female students in Qilliso primary school. To do this, thematic analysis was employed in the form of focus group discussion. Therefore, the results revealed that there are strategies to improve tutorial delivery for female students. These strategies are the abilities of students, connecting students with their peers, setting tutorial learning goals, preparing supporting materials, acting in a professional manner, motivating and encouraging females to improve their academic performance. Previous findings indicated that knowing the abilities of students it is crucial because students are not homogenous (Sewagegn Mola Melaku, (2021).Recent work on student engagement and belonging is critical to understand more about the profile of today's students (Thomas, 2017).

CONCLUSION

Female students' tutorial program is one of affirmative action strategies. The aim of this study was to the effects of tutorial class for female students on their academic performance in Qilliso primary school. Data were collected through questionnaires, observation and interview; Then the data were analyzed through mean and standard deviation; and using some descriptive statistics and qualitatively. Depending on the findings on the study, tutorial support has both academic and

psychological effects on female students. Academically, tutorial class is effective improving a student's point average and academic performance and class participation. There are so many strategies to improve tutorial delivery for female students. These strategies are the abilities of students, connecting students with their peers, setting tutorial learning goals, preparing supporting materials, motivating and encouraging females to improve their academic performance.

Recommendations

The result of this study showed that the tutorial class program has an impact on the academic achievement problems of female students in chemistry. Nowadays top solve their academic achievement problems in chemistry (education) the contemporary school renders a tutorial class program to support female students in education to balance the knowledge gap between female and male students due to different reasons.

Based on the findings of this study the following recommendations were suggested by the researcher

- The tutorial class program should be strengthen and sustainable for female students academic problem in the contemporary school because of its impact
- Female students should think for their future life through education by learning and pay attention to attend in the school tutorial program to improve their achievement in chemistry
- Teachers should be encouraged and fully committed to providing effective professional support for their female students in tutorial classes by working together with professional school for further academic improvement (achievement) of female students

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