
THE IMPACT OF CONTINUOUS ASSESSMENT ON THE MATHEMATICS ACHIEVEMENT IN THE CASE OF WOLAITA ZONE SODDO PREPARATORY SCHOOL

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ABSTRACT

The study was conducted in grade eleven students of Soddo preparatory school in Wolaita Zone. The general objective of this study was to investigate the impact of continuous assessment on the mathematics achievement of the students at preparatory school. The specific objective was to investigate the suitable evaluation system for enhancing students' achievement. Statements of the problem were testing systems; follow up of students' performance, and carelessness in marking system. The researcher has used the experimental research design especially pre-test and post-test comparison design. A purposive sampling method was used to select four sections out of forty four sections and two sections for experimental group and two sections for control group. The sample populations were 245 students and twelve mathematics teachers who participated in the study in the second semester of academic year selected by purposive sampling technique. The data collected through the student' assessment results pre-test and post-test (final-exam) to determine whether there were significant differences between experimental and control groups mathematics achievement. The ANOVA was used to analyze the data and it reveals that the two groups were no significant difference in mathematics achievement at beginning of the experiment. However, after the treatment, the analysis of data indicates that the experimental group outscored significantly that of control group on mathematics achievement of post-test. The teachers' attitude on continuous assessment is positive. Finally, the major findings of the study suggest that the continuously assessing method of teaching helped Soddo Preparatory school students significantly to improve the mathematics achievement. Based on the results, it is recommended that the continuously assessing method of teaching should be used in teaching and learning process.

Key words: - assessment, continuous assessment, education, mathematics achievement

INTRODUCTION**BACK GROUND OF THE STUDY**

Education is considered as a vehicle for national, social and economical development. Developmental goals may not be achieved unless appropriate educational policies are carefully planned. Education is an activity (process) which goes on a society and its aim and method depends up on the students of the society in which it takes place (NOE Research service, 1999). It changes from time to time as society changes.

In our country to improve the relevance of education, new curriculum was designed and put into implementation when the existing educational curriculum is changed or restricted, the teaching strategies, the teaching aids, class room conditions, etc should be increased or restricted.

Those activities enable the students to develop their skills. After one program has been put, the implementation is necessary to evaluate how much it is put into practice. Likewise mathematics has played a decisive role in building up our civilization. One of challenges of Ethiopian education in secondary schools is the awareness of school society in continuous assessment. So that it will be given attention to the progress of secondary school students. Current practice indicates that there is not comprehensive and systematic implementation of continuous assessment in all secondary schools of Ethiopia (Guide line for continuous assessment, NOE research service, 1999).

Nowadays, scholars believe that students can learn best and become effective if continuous assessment is effectively implemented in the teaching learning process. That is why advanced nations such as England, Spain, Australia, and others are applying continuous assessment partially or wholly in their education system Heaton, (1990).

Similarly, the Ethiopian Education and Training Policy (1994) states that, “Continuous assessment in academic practical subjects including aptitude tests will be conducted to ascertain in the formation of all rounded profile of students at all level.” Thus, the Ethiopian teachers’ education system, there have been continual changes in the curriculum and teachers’ profile since the 1994 education reform of the country. At present, the teacher education program is guided by the Teacher Development program document (TDP) which is guided by a new view of education that promotes continuous assessment ICDR, (1999). The document also states that in the teacher education, traditional way of assessing students like giving only final exams has to be replaced by continuous assessment that develops and inculcates higher order thinking skills at different levels of the education system, which is a paradigm shift.

Accordingly, few studies have been conducted on continuous assessment at colleges and high school levels. Birhanu: (2004) conducted a research on teachers’ assessment of student performance with an emphasis on continuous assessment at high school level. Besides, Dessalegn: (200) carried out an evaluative research on the adequacy of the syllabus of teachers training institutes in preparing trainees to implement continuous assessment in the first cycle primary school. Moreover, Selamneh: (2011) conducted a research on practice and challenges of continuous assessment for instructional improvement at college level. However, less attention has been given to the practices and challenges of continuous assessment in Oromia special Zone high school.

Mathematics is the language of science. To succeed in science, students must use mathematics. Thus high quality science depends on high quality mathematics. Mathematics curriculum should include the continued development of language and symbolism to communicate mathematical ideas. Ethiopian Education and training policy :(1994) also stated the main objective of educational system is to cultivate the individual capacity for problem-solving and adaptability to the environment by developing the necessary knowledge, ability and attitude.

LIVINGTON (2001) HAS NOTED THE FOLLOWING:

Employing continuous assessment enables the teacher to assess more of intended behavior of the student and to take note of factors such as their active participation, how articulate they are, their relationships with others and their motivation that have educational relevance.

So it is must to include continuous assessment in the plan properly and implement for the purpose of assessing students’ performance in order to shape the learning.

This research will briefly outline the impact of continuous assessment on preparatory school. Students in preparatory school are needed to be competent in mathematics in order to develop their intellectual capacity to make a student a good competent in mathematics, qualified the subject teachers are needed to follow students progress attentively.

The specific area of this particular research is Soddo preparatory school in Wolaita Zone. It is the only preparatory school and situated at the center of Soddo town.

STATEMENT OF THE PROBLEM

The students have been given two or three tests per a semester and the summative exam has been given at the end of the semester as to documented record of students’ result from 2006 E.C to 2008E.C, as the researcher has seen students recorded result from 2006-2008E.C approximately half of the whole students get poor

achievement every year and the majority's obstacle of promotion is their poor result in mathematics. As suggested by two experienced teachers, the major reasons for the students' poor achievement in mathematics are: testing systems follow up of students' performance, and carelessness in marking system.

Assessing students in the teaching learning process has a lot of benefits. It can expose learners to experience creative reflection through which the teacher probes their understanding to elicit answers for the questions he or she poses. Students do not learn much just by sitting in a class, listening to teachers, memorizing prepackaged items and spitting out answers. They need to be continuously assessed by their teachers while learning is on progress. Continuous assessment is a students' evaluation system that operates at a classroom level and is integrated with the instructional process. It is important to determine the relationship between what is intended and what is achieved Curzone, (1990).

OBJECTIVES OF THE STUDY

General objectives

The general objective of this study is to investigate the impact of continuous assessment on the mathematics achievement of the students at Soddo preparatory school.

Specific objectives

The specific objective of this research is:

- To investigate the suitable evaluation system for enhancing students' achievement.
- To see the impact of continuous assessment on mathematics achievement of the students.
- To explore teachers attitude towards continuous assessment on mathematics achievement of the students.

RESEARCH QUESTIONS

To know the impact of continuous assessment on the students' performance in mathematics, the following research questions are raised.

1. What method of assessment is suitable for enhancing the mathematics achievement of the students?
2. What is the impact of continuous assessment on mathematics achievement of the students?
3. What are the attitudes of teachers towards continuous assessment on mathematics achievement of the students?

SIGNIFICANCE OF THE STUDY

The finding of this research will help to:

- Know the impact of continuous assessment on students' achievement.
- Make awareness for teachers to implement variety of continuous assessment tools to improve the students' achievement.
- Develop students' skill toward the subject matter.
- Indicates that the teachers and the school managers to have a great role involving in increasing students performance in the subject matter.
- Make strength between teachers and students to work cooperatively.
- Monitor the quality of education.

DELIMITATION OF THE STUDY

As the study attempts to find out the impact of continuous assessment on mathematics achievement, the researcher employed to continuous assessment teaching method. Due to this, the scope of the study was limited on preparatory school and grade eleven, in Soddo, Wolaita Zone. From total forty four sections of grade 11 preparatory schools, only four sections were selected to be a research class.

LIMITATION OF THE STUDY

The drop out case of a few students during the practice of continuous assessment teaching method in administration of post-test, that forced the researcher to reject the pre-test results of those students in order to balance the effect, unwillingness of a few respondents to fill in the questionnaire and return back on time and educational background of the students. However, the researcher appoints the participants frequently and showing the commitment to complete this study successfully.

OPERATIONAL DEFINITIONS OF KEY TERMS

This section contains the definitions of some of the key words used in the context of the study.

1. **Assessment**-is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences, the process culminates when assessment results are used to improve subsequent on college campuses.
2. **Continuous Assessment**- refers to the follow up of all the day-today instructional activities for the sake of change students' behavior. It is the continuous measurement of the academic performance of student's progress.
3. **Education**-is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits.
4. **Mathematics**-is the study of the measurement, properties, and relationships of quantities and sets, using numbers and symbols. It is the study of numbers, equations, functions, and geometric shapes and their relationships.
5. **Mathematics achievement**-the measurement of mathematics achievement refers to students' mathematics tests scores.
6. **Performance**-is an act of staging or presenting a play, concert, or other form of entertainment. It is the action or process of carrying out or accomplishing an action, task, or function.
7. **Teaching**-is the act, practice, occupation, or profession of a teacher. It is something taught.

REVIEW OF THE RELATED LITERATURE

INTRODUCTION

This unit includes the related literatures which are related to this research title. Before coming to continuous assessment, let us search the definitions of the term "assessment".

WHAT IS ASSESSMENT?

Assessment refers to the process of collecting, interpreting and synthesizing information to aid decision making. For many people, classroom assessment means using paper and pencil tests to grade pupils. However, it is more than testing. It includes information gathering on pupils, instruction and classroom climate by teachers. The trends of using tests and final examinations at the end of the semester as mode of assessment does not by itself prove the learners' excellence in different aspect. In this respect, Mulu, (2005), suggested that a onetime final examinations or mid examination does not bring a complete or true picture of students performance including the higher order thinking skills that is to say, examinations cannot measure all that the student learns because their effectiveness is limited to assess the entire complex learning outcomes. To overcome this, it will be much more helpful if the assessment is employed on a continuous basis using different strategies.

Assessment is very vital helping the learners become effective. It is a collection of different strategies which are believed to make students become component in their learning. According to different scholars in the field of education, without assessment it is difficult to identify or pin point the students' achievements or their failure to achieve their learning. In light of this, Airasian, (1991), assessment is the process of

collecting, interpreting and synthesizing information to help teachers understand their students, plan and monitor instructions and establish a conducive classroom atmosphere. In the same view, Arends, R. (1997). Point out that assessment is the process of gathering and synthesizing information to make decisions about learners and instructions.

Assessment is not merely testing Osokoya, (1996), it is a process through which the quality of an individual's work or performance is judged Mwebaza, (2010). In relation to school setting, Greaney, (2001), defines assessment as any procedure or activity that is designed to collect information about the knowledge, attitude, or skills of the learner or group of learners. Thus, in the context of education, assessment can be defined as a predetermined process through which the quality of a student's performance in the three domains of educational objectives (cognitive, affective, and psychomotor) is judged. Assessment of students learning of curriculum contents in the area of knowledge, skills, and values is a major pre-occupation of many educational reforms. This because results from such assessment not only provide feedbacks regarding the educational progress of students but remain the authentic yardstick for gauging the effectiveness of the teacher, the quality of instruction, and in part the functionality of any curriculum reform.

When teachers think of instructional assessment, they most often think of paper and pencil test administered to students at the end of instruction. Good classroom assessment requires more than that. It requires teachers to continually gather information about their students' progress from a variety of sources to synthesize that information and then to make a judgment about how well or how much each student has learned. Assessment is the process by which the quality of individuals work or performance is judged. In schools, assessment of learning is usually carried out by teachers on the basis of impression gained as they observe their pupils at work or by various kinds of tests given periodically. It is a student's evaluation system that operates at the classroom level and is integrated with the instructional process (NOE Research Service, 1996). Assessment is an opinion or a judgment about something that has been thought very carefully.

WHAT IS CONTINUOUS ASSESSMENT?

Continuous assessment is an assessment system aimed at deriving a student final examination marks and based up on a number of previous assessments on selected syllabus objectives ICDR, (1999). Continuous assessment refers to the follow up of all the day-today instructional activities for the sake of change students' behavior. It is the continuous measurement of the academic performance of student's progress Farant, (1980).

Elington and Early, (1997) said that continuous assessment is carried out on an ongoing basis while students are actually working their way through a course. It is an integral part of the teaching learning progress. Continuous assessment is the periodic and systematic method of assessing and evaluating a person's attributes and performance. Likewise, Mkhonta (2003) explains that continuous assessment is an essential component of the instructional process that uses the "assessment feedback-correction" learning cycle that is missing from the time limited examinations. Information collected from continuous behavioral change of students will help teachers to better understand their strengths and weakness in addition to providing a comprehensive picture of each student over a period of time.

Continuous assessment will afford student to readily see his/her development pattern through the data. It will also help to strengthen the parent teacher relationship and collaboration. It is an ongoing process more than giving a test or exam frequently and recording the marks (Mathematics teachers Guide Grade 11, 2002).

FUNCTIONS OF CONTINUOUS ASSESSMENT

As the researcher gave students class works, home works, assignments, group works, oral questions and others weekly and monthly, these techniques:

- Make the students busy and they like to be busy.
- Make effective worker.
- Bring self reliance.
- Help students select a field of profession.
- Avoid boring and idleness.

In addition, continuous assessment provides more reliable information for the examination and builds up a picture of pupil's performance over a prolonged and representative period ICDR, (1999).

Continuous assessment places teacher at the center of all performance assessment activities. It encourages more teacher participation in the overall assessment or grading of his/her learners. As suggested by Plessis et al, (2003), teachers must be given opportunities to select and review assessments so that they become involved and knowledgeable in the process. Through this approach, teachers would be able to integrate assessment and assessment results into instructional practice. Teachers will be expected to incorporate assessment into the larger learning framework and possibly to provide evidence regarding how assessment information is used to inform and guide instruction for individual learners. According to Lewis, (1997), with continuous assessment teachers must embed the assessment in their instructions, score the assessments and discuss standards for good learners' work with colleagues, parents and learners.

Stiggns, (1998); Osterhof, (1999); Popham, (1999), as cited in Dereje, (2010) concluded that it helps the teachers in the classroom by the following points. These are to find out what students know and can do, to gain confidence in what we say our students know and can do and it help teachers to provide all children with opportunities to show what they know and to promote learning for understanding. Moreover, to improve teaching and determine what kind of remediation and enrichment activities to provide and to identify with students need assistance. As described by (NOE Research Service, 1996) some of the advantages of continuous assessment are:

- It serves as diagnostic tool where students are frequently shaped to the desired direction as a result of repeated constructive feedback.
- It helps teachers to assess their students in consistent and uniform manner.
- It improves the ways of interacting between teacher students and within students.
- It minimizes student's focus of studying for the test.
- It increases students' motivation and reduces the repetition rate.
- It increases students' creativity skills.
- It covers a wide range of curriculum topics and contents adequately.
- It gives the opportunity of assessing not only the cognitive domain but also the affective and psychomotor domains.
- It improves the teaching learning effectiveness.
- It enhances the validity of assessing students' performances.

CONTINUOUS ASSESSMENT AND STUDENTS PERFORMANCE

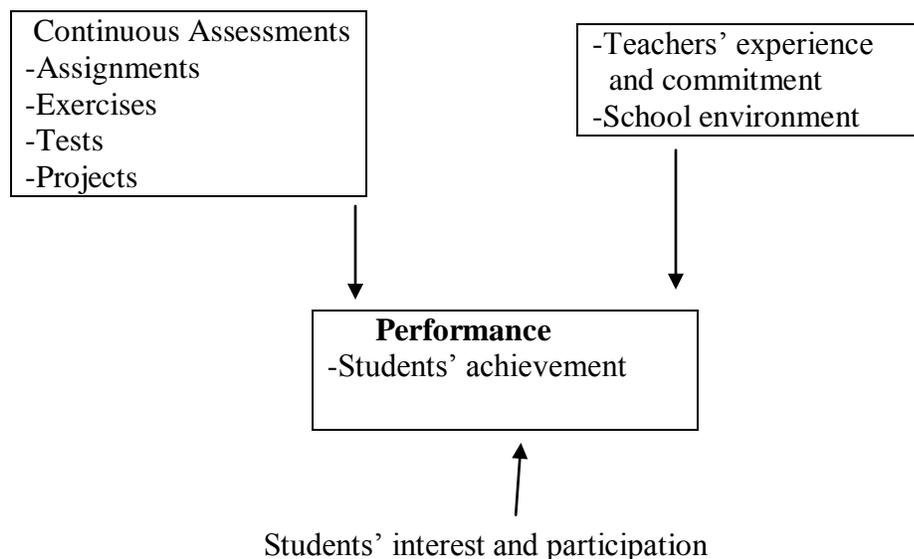
According to Omoifo (2006), what is termed "assessment in many schools today is summative, final, administrative, rigorous and content-driven rather than formative, diagnostic, private, suggestive, and goal oriented, as such can be regarded as grading." Summative assessment entails the focus on final examinations by teachers, parents and students. Surprisingly, formative assessment is geared towards the consolidation of students' performance in the final examinations rather than inculcating students with problem solving, critical thinking, and life skills.

American Association for the advancement of Science (1998) has categorized the purpose of assessment into internal and external purposes. The internal purposes for assessment include conveying to students expectation about what is important to learn, providing information to students and parents about students' progress, helping students to judge their own learning, guiding and improving instruction, classifying, and selecting students. The external purpose was to inform the education donors including parents, education departments and ministry about what happened in schools.

Performance is defined in terms of results Madaus (2000). In addition, Kellaghan and Greany (2003) noted that, "when continuous assessment has important consequences attached to performance, they are likely to impact directly on teaching and learning and so merit consideration as a mechanism for improving student achievement". Onuka (2006) also found out that in Nigeria there was a comprehensive implementation of continuous assessment and feedback for the improvement of the education system for the accomplishment of learning objectively according to students.

However, in secondary high schools of wolaita Zone, it cannot be over-emphasize that the measurement of the three education domains, using continuous assessment, makes it a good tool for improving learning objectives and outcomes. This therefore may account for the variance in performance among schools and students in particular Soddo preparatory school. Since there is a need to improve students' performance in our education system as a whole, the need exists to establish what continuous assessment strategies are being used by teachers in preparatory schools. The need also exists to investigate whether there is any relationship between continuous assessment strategies are being used in preparatory schools and students' performance.

THE RESEARCH CONCEPTUAL FRAMEWORK



METHODOLOGY OF THE RESEARCH

This chapter deals the study design, sources of the data, population of the study, sampling technique, instruments of data collection, method of data analysis, and procedure of the study. The chapter is organized in seven sections. Section one discusses the study design. Section two discusses about sources of the study data. Section three discusses population of the study. Section four discusses about sampling technique. Section five discusses the instruments of data collections, section six discusses the method of data analysis, and the last section discusses about procedure of the study.

STUDY DESIGN

The researcher has used the quantitative research approach to collect the information from the variety of assessment techniques about students' performance. For this study the researcher has chosen the quazei-experimental research design especially pre-test and post-test comparison design. This design has two groups, an experimental group and a control group. Based on this, the design using comparison group which enable to compare the treatment effect among the two groups was employed in this study. The pre-test was given to both groups by implementing non-continuous assessment method in the first semester. In the second semester the treatment (continuous assessment) was applied only to the experimental group, non-continuous assessment method was used for control group and the post-test (final-exam) was used for both groups to measure the impact of continuous assessment.

SOURCES OF THE STUDY DATA

The sources of this study data are the different types of continuous assessment result of experimental group students, summative type assessment result of control group students and the teachers' questionnaire responses.

POPULATION OF THE STUDY

The population of the study is the total number of grade eleven students 3050(three thousand fifty) in 44(forty four) sections at Soddo preparatory school. Four sections are selected and classified into experimental and control group to make the study manageable.

SAMPLING TECHNIQUE

The specific area of this particular research was Soddo preparatory school in Wolaita Zone. It is the only preparatory school and situated at the center of Soddo town. The researcher has selected grade eleven students by using purposive sampling techniques because the co-researcher Bizuneh Badebohas been teaching grade 11 students, specially teaching the selected two control and two experimental groups.

The participants of the study were twelve mathematics teachers and four sections of grade eleven students who were selected by purposive sampling technique from Soddo preparatory school. The main reason for this selection is the co-researcher has been teaching these sections and closely observed the teaching and learning process. The total number of participants at beginning was 260 students. From this 130 students were in experimental group and 130 students were in control group. However, only 245 participants completed the experiment (122 students in experimental and 123 students in control group). As a result, to balance the effect, the pre-test result of 8 students from the experimental group and 7 students from control group was rejected.

INSTRUMENTS OF DATA COLLECTION

In order to collect data the following instruments were used. These are tests, class work, home work, assignments, presentations, quizzes, group works; mid-exam, final examination and teachers' questionnaire were prepared by the researcher. A pre-test was administered to see how much the students were efficient enough to score mathematics achievement before an intervention and a post-test, on the other hand, was given to find out the effect of treatment (continuous assessment teaching method) by assessing the students in to the experimental and control groups. Questionnaire is the important data collecting tool. It was used as the data collecting instrument to get sufficient primary data. Only close-ended questions were developed for teachers. It helps to collect a great deal of information within the limit and short time. Collecting data from continuous assessment result of experimental group students, summative type assessment of control group students' result, pre-test and post-test (final-exam) result of both groups and questionnaires responses from the teachers.

VALIDITY AND RELIABILITY

In order to ascertain the validity of instruments, expert opinion was sought from the supervisor, teachers, and peers on face, content and format of the assessments and questionnaires. Consultations with the supervisors, other teachers, and peers helped to identify errors and offered the opportunity to modify and improve the instruments. Also ascertain the validity and reliability of the research instrument, a pilot study was done in two schools within the same district that did not participate in the actual study. Following the pilot study, more errors were identified in the instruments. Drawing on the expert opinions from the supervisors, head teachers, and peers, appropriate corrections were made on the instruments. Thereafter, all instruments were administered by the researcher and collected carefully.

METHOD OF DATA ANALYSIS

After completion of data collection, the researcher needed to run statistical package for social sciences (SPSS) version 20 statistical software. The data collected from students through pre-test and post-test were analyzed using a parametric statistical method one way ANOVA to compare the mean scores of the experimental and control groups to find out if there is a significant difference between the students mathematics achievement before and after the administration of the treatment. However, the two assumptions of variances: normality and homogeneity of variances were probed before reporting the results of the one way ANOVA. Normality test was used to assume that the populations from which the samples are taken are normally distributed in pre-test and post-test of both experimental and control groups' mathematics scores. Normal distribution of scores was measured by statistics of skewedness and kurtosis. The skewedness value was used to provide an indication of the symmetry of the distribution and Kurtosis, on the other hand, used to provide an information about the "peakedness or flatness" of the distribution (the statistics is assumed that the alpha level is >0.05 and the z value should be somewhere in the ranges of ± 2.58). Besides, the homogeneity of variances also used to test whether the variances in scores are the same for each of the two groups. The homogeneity of variances was checked by Levene's test for its significance (>0.05 pallant, 2005). Regarding to analysis of the teachers' questionnaire response, the 5 point attitude Likert scales (median and interquartile range method) was used to understand the attitude of teachers on continuous assessment to improve the students' achievement.

ETHICAL CONSIDERATIONS

Protecting participants from harm, ensuring confidentiality, and addressing the use of deception were three key ethical issues that needed to be addressed Fraenkel J.R, (2009). First, students were not harmed. In fact, even though the control and experimental groups experienced different feedback strategies from their teacher, the two groups experienced to have common understanding to score the mathematics achievement. This was kept confidential in between a researcher and a teacher. In addition to protect the students, great care was taken to keep subject, teacher, and school information confidential. Regarding participants information, the researcher kept all in a locked filing cabinet in the researcher home. To ensure confidentiality, the collected data were transferred to the statistical software program SPSS. The researcher accessed the data in SPSS via his laptop, which is password protected.

RESULTS AND DATA ANALYSIS

INTRODUCTION

The purpose of this study is to investigate the impact of continuous assessment on the mathematics achievement in the case of Wolaita Soddo preparatory school. The same questions were given to both experimental and control group in pre-test before beginning the experiment. The continuous assessment teaching method for the experimental group and non continuous assessment teaching method in the control group were provide during teaching mathematics on experiment. At the end of the experiment the same

questions had prepared to the experimental and control group in post-test. More specifically, this study was primarily conducted to address on the following research questions:

1. What method of assessment is suitable for enhancing the mathematics achievement of the students?
2. What is the impact of continuous assessment on mathematics achievement of the students?
3. What are the attitudes of teachers towards continuous assessment on mathematics achievement of the students?

RESULTS OF ANALYSIS

The experiment in this study consist the pre-test stage achievement of mathematics and the final stage of the mathematics achievement (post-test). The total number of participants at the beginning of the study was 260 students who were in the four sections of grade eleven. From this number 130 students in experimental and 130 students in control groups. However, 245 participants completed the experiment (122 students in experimental group and 123 students in control group). For the post-test forty questions were provided to each student and scored out of 100 during the experiment. The experiment included 245 students' mathematics achievement and the questionnaire responses of teachers in the analysis to answer the research hypotheses and to determine the impact of continuous assessment on the mathematics achievement.

THE IMPACT OF CONTINUOUS ASSESSMENT ON THE MATHEMATICS ACHIEVEMENT

This research study aimed to investigate the impact of continuous assessment on the mathematics achievement and the results summarized below in the table 1. it shows the mean score and standard deviation of the scores of the pre-test and post-test of experimental and control groups.

Table.1 Descriptive statistics for the pre-test and post-test of the Mathematics result of Experimental and Control Groups.

Group	N	Mean Pre-test	Mean Post-test	St. deviation Pre-test	St. deviation Post-test
Control	123	40.79	46.51	8.850	12.735
Experimental	122	42.66	57.30	8.958	10.304
Total					

As can be seen from the above table 1 in all the two groups, the mean score of the pre-test is lower than the mean score the post-test. To beginning with, in the control group, the mean score of the pre-test is 40.79 compared to the mean score of the post-test is 46.51. In the same way, the mean score of the experimental group is 42.66 in the pre-test has improved to 57.30 in the post-test.

The standard deviation tells how closely the values of a data set are clustered around the mean. From the above table, we can understand the standard deviations of two groups of pre-test are approximately the same. This shows that the values of a data set of both groups are spread over in the same range around their mean. The standard deviations of post-test of two groups are different. The control group standard deviation is greater than that of the experimental group. This showed that the values of a data set are spread over a relatively large range around the mean in control group. The standard deviation of post-test of experimental group is smaller than that of the control group. This indicated that the values of a data set are spread over a relatively small range around the mean in experimental group.

To see if the mean difference between the pre-test and post-test of mathematics achievement of each group is significant, one way ANOVA were run. However, the two assumptions of ANOVA, normality and homogeneity of variances were probed before reporting the results.

Table 2 Normality test for mathematics achievement on pre-test.

Group	N statistics	M Statistics	Skewedness		Kurtosis	
			Statistics	SE	Statistics	SE
Control	123	40.79	-0.063	0.218	0.579	0.433
Experimental	122	42.66	-0.479	0.219	0.075	0.435

Table 3 Test of homogeneity of variances on mathematics achievement of pre-test

Levene's statistics	df1	df2	Sig.
0.132	1	243	0.716

As indicated in the table 2, the ratios of the Skewedness (the measure of the symmetry of distribution) and Kurtosis (the peakedness or flatness of the distribution) over their respective standard errors are within the ranges ± 2.58 . That is to say, the students' pre-test scores were approximately normally distributed with the result of Skewedness of -0.063(SE=0.218) and Kurtosis of 0.579(SE=0.433) for control group, Skewedness of -0.479(SE=0.219) and Kurtosis of 0.075(SE=0.435) for experimental group.

Levene's statistics tests the assumption of homogeneity of variances. Levene's F value 0.132 is not significant ($P=0.716>0.05$). This shows that the variances in each group are homogeneous (Table 3).

Table 4.4 ANOVA for comparing the Control and Experimental groups mathematics achievement on the pre-test.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	215.401	1	215.401	2.717	0.101
Within Groups	19263.725	243	79.275		
Total	19479.127	244			

As it is indicated in the above table, the ANOVA shows 0.101. This mean scores of the two groups in the pre-test is not significant ($P=0.101>0.05$). This suggests that two groups were at the same level of mathematics achievement before the continuous assessment teaching method was applied to the experimental group. As the normality test was used to check the normal distribution of scores and homogeneity test to see whether the variances in scores were the same for each of the two groups on pre-test scores, it was also done on post-test scores of students' mathematics achievement.

Table 5 Normality tests for mathematics achievement on post-test.

Post-test	N Statistics	M statistics	Skewedness		Kurtosis	
			Statistics	SE	statistics	SE
Control	123	46.51	0.383	0.218	0.501	0.433
Experimental	122	57.30	-0.059	0.219	-0.566	0.435
Total	245					

Table 6 Test of homogeneity of variances on scores of mathematics achievement.

Levene statistics	df1	df2	Sig.
5.879	1	243	0.018

Before reporting the post-test result of one way ANOVA of mathematics achievement, the two assumptions of normality and homogeneity of variances should be probed. As displayed in table 5, the ratios of Skewedness and Kurtosis over their respective standard errors are within the ranges ± 2.58 . That is to say, the students' scores on the post-test of mathematics achievement show approximately normal distribution.

Accordingly, the Skewedness of control group and experimental group standard errors are 0.383 (SE=0.218) and -0.059 (SE=0.219) respectively. Kurtosis statistics, on the other hand, reveals that control group is 0.501 (SE=0.433) and experimental group is -0.059 (SE=0.435).

Levene's statistics tests the assumption of homogeneity of variances. Levene's F value of 5.679 is significant (P=0.018<0.05). This shows that, the variances in the groups are difference (Table 6).

Table 4.7 ANOVA for comparing the control and experimental groups of mathematics achievement in the post-test.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7121.459	1	7121.459	53.028	0.000
Within Groups	32634.109	243	134.297		
Total	39755.567	244			

The above table demonstrates the ANOVA test which was run to see if the difference between the two groups in the post-test of mathematics achievement was significant. As it was indicated, the difference between the mean scores of two groups in the post-test is significant (F=53.028, P<0.05, that is 0.000). Thus, we say that there is a significant difference between the mathematics achievements between the two groups. This indicates that because of provision of continuous assessment teaching method, Soddo preparatory school grade 11 students brought a significant improvement in their mathematics achievements.

THE PERCEPTION OF TEACHERS ABOUT CONTINUOUS ASSESSMENT

The data collected from the questionnaire using attitude scale are reported in the table 8 bellow. To make analysis simple form presentation the 5 point attitude Likert scale is condense into median (Mdn) and interquartile range (IQR).

Table 8 The analysis of perception of teachers about CA in the 5 point attitude Likert scale.

No	Item	Total No	Median (Mdn)	IQR
1	I believe that continuous assessment helps to enhance students' achievement.	12	5	0
2	I like to use continuous assessment to enhance students' achievement.	12	4	0
3	Continuous assessment has positive impact on mathematics achievement of students.	12	5	0
4	Continuous assessment makes the teacher well prepared.	12	5	1
5	Continuous assessment makes the teacher busy.	12	4	0
6	Number of students in class room influences assessing students in continuous assessment.	12	5	0
7	Continuous assessment bores the students.	12	2	3
8	Teachers' weekly workload influences to implement continuous assessment.	12	5	0
9	Continuous assessment is the good way of enhancing the students' achievement.	12	5	1
10	Continuous assessment encourages and motivates the students.	12	4.5	1
	Median average		4.45	

From the table given above, the result that shows perceptions of teacher's about continuous assessment could be discussed below one by one.

From item 1 that is belief of continuous assessment for the teachers the result was showed median=5 and IQR=0 this means the teachers responded strongly agreement about continuous assessment.

In item 2 teachers responded agreement, since the result implies median=4 and IQR=0. In the same way item 3, 6, and 8 have a result median=5 and IQR=0, the result was been strongly agree according to the 5 Likert scale. Therefore teachers have very good perception on these items. In the item 4 and 9 have median=5 and IQR=1 is relatively small. This result indicates the respondents are strongly agreed about continuous assessment according to the scale.

In the item 5, the median=4 showed the teachers responded agreement. In the item 7 (continuous assessment bores the students) median=2, which mean it disagree according to 5 Likert scale which as negative result, teachers did not agree with this idea. In the item 10, median=4.5 and IQR=1, which mean the respondents agreed about continuous assessment. However, teachers' perception of continuous assessment by descriptive statistics the average median value (4.45) showed that positive perception about continuous assessment in mathematics achievement. According to Puhl, (1997) he discussed similar ideas to this finding because positive perception of continuous assessment contributes largely to the full development of the learner potential if it is properly communicated. In line with this Ellington and Earl, (1997) pointed out that continuous assessment enables pupils to be asserted in a better situation closely related to the real practice. Teshome, (2001) stated teachers should accept continuous assessment as their own for its effective implementation.

According to Abiy.Y, (2013) he stated that similar ideas to this finding because teachers and students had a positive attitude towards continuous assessment and they assumed that they would practice it in the teaching learning process to promote students' intellectual, emotional and social interaction skills. All these imply that the teachers have a full understanding of the concept of continuous assessment and this partly contributes to practice improving the students' achievement in the school.

CONTINUOUS ASSESSMENT TECHNIQUES TO IMPROVE STUDENTS' ACHIEVEMENT

Table 9 The result of continuous assessment techniques used by teachers as reported by teachers.

No	Item	No	Scales					
			Always		Sometimes		don't use	
			No	%	No	%	No	%
1	Class work	12	6	50%	6	50%	0	0%
2	Home work	12	6	50%	6	50%	0	0%
3	Oral questions	12	8	66.7%	2	16.7%	2	16.7%
4	Group assignment	12	2	16.7%	10	83.3%	0	0%
5	Self assignment	12	3	25%	8	66.7%	1	8.3%
6	Presentation	12	0	0%	8	66.7%	4	33.3%
7	Quizzes	12	1	8.3%	10	83.35	1	8.3%
8	Tests	12	3	25%	9	75%	0	0%
9	Mid-exam	12	1	8.3%	8	66.7%	3	25%

From the above table teacher practice continuous assessment tools, response get from teachers could discussed as follow.

From item No 1 (class work) the median result were gotten 6 (50%) of teachers use class work always to assess the students learning and 6 (50%) of teachers use class work some times. Thus, this indicates that there is no similar way of using class work to assess students learning as a technique for continuous assessment. Concerning item No 2 (home work) teachers responded is always or same times that is 6 respondents out of 12, in percentage it is 50%. This showed that the teachers not used home work in similar way to assess students learning.

From the above table item No 3 (oral question) 12 teachers were asked to respond whether they use oral questions to practice continuous assessment to assess their students learning. 8 (66.7%) are responded always, 2 (16.7%) are responded some times, and 2 (16.7%) are responded don't use. The result shows that participants have insufficient of an awareness concerning the use of oral questions and 2 (16.7%) of participants has no awareness to use oral questions to assess students learning as a technique for continuous assessment.

In item No 4 (group assignment) from 12 participants, 2 (16.7%) were responded always, 10 (83.3%) were responded sometimes. This result showed that the teachers have a slight of an awareness using group assignment to assess students learning as a technique for continuous assessment. At it is shown in the above table of item No 5 (self assignment) was raised as questions for participants whether they used it as a technique of continuous assessment during teaching process or not. As a result 3 (25%) replied always, 8 (66.7%) are responded sometimes, and 1 (8.3%) replied don't use self assignment to assess the students learning in mathematics class. Thus, participants have lack awareness about implementation of self assignment technique in continuous assessment.

Concerning presentation which is listed on item No 6 to assess students learning as using technique of continuous assessment 12 teachers were asked to answer this question. Thus, 8 (66.7%) of teachers used presentation sometimes, but 4 (33.3%) of teacher not used presentation on continuous assessment. The result showed that, the teachers have no awareness concerning the use of presentation as a technique to assess students' learning.

Regarding quizzes, participants were asked in item No 7 of the above table, whether they used quizzes as a tool of continuous assessment to assess students learning or not. As a result 1 (8.3%) of teachers replied that used quizzes always, 10 (83.3%) of teachers replied that used quizzes sometimes, and 1 (8.3%) of teachers replied that don't used quizzes to evaluate their students learning in mathematics class. In item No 8 (tests) from 12 participants, 3 (25%) were responded always and 9 (75%) of teachers replied that used sometimes. Thus, the participants have different awareness about implementation of test in continuous assessment.

In item No 9 of table, participants were also asked how often mid-exam technique of continuous assessment is used in assessing students learning. Thus, mid-exam, 1 (8.3%) of teachers responded mid-exam is always used, 8 (66.7%) of teachers replied that it is sometimes used, and 3 (25%) of teachers responded that it don't used in assessing students activity. This result showed that, the participants have no awareness about implementation of mid-exam technique in continuous assessment.

In general, the result of the above table shows that the teachers were not used different assessment method and techniques of continuous assessment always. If this is so it will be a challenge to see progress on learners because what they have received by few tools will be limited for their development, besides the use of few continuous assessment tools for students progress will contribute less so the more we use effectively. However, this conception does not give a clear meaning of the term continuous assessment in its true aim and objectives. As Puhl, (1997), group discussion, quizzes and exams are only few devices of continuous assessment, in another aspect, other than these should be considered to speak to the right meaning of

continuous assessment. This idea is directly opposite to the practice of the school teachers. Most of the teachers' respondent felt that continuous assessment is simply administering series of paper exam to their students rather than using different type of continuous assessment techniques.

The practice however is highly criticized by educators. Pap worth, (2005) stated that teacher's reliance on testing denies many learners the opportunity to demonstrate their true potential. Regarding the use of limited continuous assessment tools, Nitko, (2005) stated opposite ideas to this finding because he stated that different tools help teachers to find out what students already know and can do, which part of the lesson are difficult to students are lagging behind and strength and weakness of students. In addition to Plessis et al,(2003), continuously assessment other than test of examination must include varied assessment tools such as presentation, project works, interviews, observations, oral questions, home works, and similar other kind the validity of our decision is greatly improved when we use a variety of assessment methods for gathering and interpreting student's information.

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APPENDIXES

Appendix A: The pre-test and post-test results of Mathematics on Experimental group.

Students' code	Pre-test	Post-test	Students' code	Pre-test	Post-test
1.	20	60	31.	23	73
2.	45	65	32.	23	60
3.	40	73	33.	33	68
4.	60	63	34.	40	73
5.	53	52	35.	53	55
6.	53	55	36.	25	53
7.	38	48	37.	53	63
8.	35	68	38.	43	33
9.	53	63	39.	35	65
10.	48	60	40.	33	70
11.	53	78	41.	33	68
12.	50	58	42.	53	60
13.	60	63	43.	35	60
14.	48	70	44.	30	65
15.	58	60	45.	48	70
16.	43	75	46.	38	68
17.	53	73	47.	30	48
18.	58	68	48.	38	73
19.	50	73	49.	33	68
20.	50	48	50.	53	68

21.	43	58	51.	48	60
22.	48	73	52.	35	53
23.	45	60	53.	33	58
24.	58	58	54	43	70
25.	53	65	55.	43	63
26.	58	60	56.	45	75
27.	45	55	57.	48	58
28.	48	70	58.	53	63
29.	48	45	59.	43	58
30.	35	63	60.	38	58

61.	25	55	92.	40	48
62.	50	43	93.	45	55
63.	45	53	94.	43	58
64.	45	55	95.	40	40
65.	35	58	96.	25	40
66.	40	45	97.	35	58
67.	30	50	98.	45	53
68.	35	55	99.	40	58
69.	40	63	100.	50	43
70.	50	58	101.	50	53
71.	45	45	102.	45	58
72.	30	53	103.	50	68
73.	40	58	104.	45	50
74.	35	55	105.	45	38
75.	40	55	106.	43	70
76.	20	50	107.	40	60
77.	45	50	108.	20	45
78.	50	58	109.	43	45
79.	45	43	110.	50	58
80.	25	40	111.	60	68
81.	50	38	112.	40	60
82.	50	40	113.	45	70
83.	50	43	114.	45	50
84.	43	48	115.	35	38
85.	45	45	116.	50	45
86.	38	45	117.	40	45
87.	45	43	118.	40	83
88.	50	63	119.	40	55
89.	45	50	120.	40	40
90.	35	60	121.	40	48
91.	40	55	122.	45	60

Appendix B: The pre-test and post-test results of Mathematics on Control group.

Students' cod	Pre-test	Post-test	Students' cod	Pre-test	Post-test
1.	43	25	31.	38	60
2.	40	63	32.	40	55
3.	50	55	33.	50	28
4.	38	53	34.	48	50
5.	38	25	35.	40	55
6.	40	50	36.	43	55
7.	38	70	37.	70	95
8.	53	55	38.	45	58
9.	48	53	39.	53	40
10.	40	48	40.	43	65
11.	50	58	41.	48	58
12.	35	25	42.	38	38
13.	40	30	43.	40	45
14.	45	48	44.	48	55

15.	40	55	45.	43	38
16.	43	35	46.	38	28
17.	40	53	47.	40	45
18.	33	53	48.	30	28
19.	40	55	49.	25	33
20.	25	45	50	30	60
21.	35	35	51.	38	48
22.	48	50	52.	33	35
23.	30	30	53.	35	55
24.	30	30	54.	40	50
25.	40	50	55.	33	40
26.	43	35	56.	33	70
27.	35	40	57.	43	35
28.	45	20	58.	50	63
29.	30	45	59.	23	55
30.	50	50	60.	30	38

Students' cod	Pre-test	Post-test	Students' cod	Pre-test	Post-test
61.	35	43	92.	45	28
62.	53	55	93.	43	35
63.	38	45	94.	48	45
64.	48	45	95.	45	40
65.	55	35	96.	48	63
66.	20	35	97.	25	60
67.	45	40	98.	38	45
68.	43	43	99.	43	48
69.	35	28	100.	48	55
70.	33	35	101.	55	68
71.	33	30	102.	50	65
72.	45	38	103.	45	55
73.	55	40	104.	48	68
74.	40	35	105.	43	65
75.	50	50	106.	45	60
76.	33	33	107.	35	38
77.	43	50	108.	43	48
78.	40	25	109.	45	63
79.	53	63	110.	43	43
80.	60	65	111.	38	50
81.	48	35	112.	25	45
82.	38	40	113.	43	45
83.	60	60	114.	43	40
84.	45	40	115.	23	43
85.	20	30	116.	23	50
86.	28	25	117.	20	48
87.	38	40	118.	43	38
88.	48	60	119.	40	30
89.	50	53	120.	40	63
90.	55	68	121.	38	48
91.	35	43	122.	33	45
			123.	38	40

Appendix C: The participants' response for attitudinal questions.

(5= strongly agree, 4= agree, 3=undecided, 2=disagree, 1= strongly disagree)

No	Statements	total	1	2	3	4	5
		No	No	No	No	No	No

1	I believe that continuous assessment helps to enhance students' achievement.	12	-	-	-	1	11
2	I like to use continuous assessment to enhance students' achievement.	12	-	-	-	10	2
3	Continuous assessment has positive impact on mathematics achievement of students.	12	-	-	-	2	10
4	Continuous assessment makes the teacher well prepared.	12	-	-	-	5	7
5	Continuous assessment makes the teacher busy.	12	1	1	-	8	2
6	Number of students in class room influences assessing students in continuous assessment.	12	-	-	-	1	11
7	Continuous assessment bores the students.	12	4	4	-	3	1
8	Teachers' weekly workload influences to implement continuous assessment.	12	-	-	-	2	10
9	Continuous assessment is the best way of enhancing the students' achievement.	12	-	-	-	4	8
10	Continuous assessment encourages and motivates the students.	12	-	-	-	6	6

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