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SCHOOL OF GRADUATE STUDIES

MATHEMATICS DEPARTMENT

**AN INVESTIGATION OF ASSESSMENT TECHNIQUES USED BY
MATHEMATICS TEACHERS**

BY:

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**A THESIS SUBMITTED TO DEPARTMENT OF MATHEMATICS,
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REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN
MATHEMATICS.**

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DEDICATION

I dedicated this thesis to my beloved brother Mengistu Masa and staff members. He laid the foundation from all of my early stage of childhood and bring me up to this point of academic success.

DECLARATION

I hereby declare that “an investigation of assessment techniques used by mathematics teachers in the case of three selected secondary schools in Offa Wereda and Gesuba Town administration, Wolaita Zone, Southern Ethiopia grade 10 in focus” is my original work, has not been presented for any degree in any other university and that all the sources of materials used or quoted in this thesis have been indicated and acknowledged by means of complete references.

Name: Tadewos Masa

Signature.....

Date.....

STATEMENTS OF AUTHOR

By my signature below, I declare and affirm that this thesis is a result of my own original work. I have followed all ethical principles of scholar ship in the preparation, data collection, data analysis and completion of the thesis. I affirm that I have cited and referenced all sources cited in this document. Every serious effort has been made to avoid plagiarism in the preparation of this thesis. This thesis is submitted in partial fulfillment of the requirement for a degree from the school of graduate studies at Wolkite University. This thesis may be referred on other works with special permission provided that accurate and complete acknowledgement of the source is made. Requests for permission for extended quotations from or reproduction of this thesis in whole or part may be granted the author of the thesis.

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BIOGRAPHICAL SKETCH

The author, Tadowos Masa was born on February, 1980 in Sake village in Damot Woide Wereda from his father Masa Doliso and his mother Halishe Bundure. When he reached school age, he attended his elementary school education at Aratu Sake, and secondary school education at Boditi secondary and preparatory at Boditi town of Wolaita Zone. He joined Jimma University in 2001 and graduated with Bachelor of Science degree in mathematics in June, 2003. He served as teacher in Gurage zone, Geta Wereda wedaka Secondary and preparatory school for four consecutive years and transfer to Wolaita zone gesuba wereda in 2012 E.C. He then joined the school of graduate studies at Wolkite University on July, 2011 to study his Master's program in mathematics.

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Table of Contents

APPROVAL SHEET	i
DEDICATION.....	i
DECLARATION	iii
STATEMENTS OF AUTHOR	iv
BIOGRAPHICAL SKETCH	v
ACKNOWLEDGEMENTS	vi
Table of Contents	vii
LIST OF TABLES.....	x
LIST OF ABBREVIATIONS AND ACRONOMS	xi
<i>ABSTRACT</i>	xii
CHAPTER 1	1
1. INTRODUCTION	1
1.1. Background of the study	1
1.2. Statement of the problem	1
1.3. Research question.....	3
1.4. Objectives of the study	5
1.4.1. General objective of the study	5
1.4.2. Specific objective of the study.....	5
1.5. Significance of the study.....	5
1.6. Scope of the study	5
1.7. Limitation of the study.....	6
1.8 Operational definition of key terms.....	6
1.9. Organization of the Study	7
CHAPTER 2.....	8
2. LITERATURE REVIEW.....	8
2.1. History of Assessment	8
2.2. Definition of assessment	9
2.3. Concept of assessment.....	11

2.4. Developing Assessment	12
2.5. Principles of assessment	12
2.6. Forms of assessment	12
2.6.1. Diagnostic assessment.....	12
2.6.2. Formative assessment or assessment for learning.....	13
2.6.3. Summative assessment or assessment to learning.....	14
2.6.4. Evaluative assessment.....	14
2.7. Assessment practices of mathematics teachers	14
2.8. Students and Formative Assessment	15
2.9. Continuous Assessment Strategies and Students Performance	16
2.10. Research Gap	17
2.11. Theoretical framework of the study.....	17
CHAPTER 3	19
3. RESEARCH DESIGN AND METHODOLOGY	19
3.1. Research Approach.....	19
3.2. Research Design.....	19
3.3. Data Sources	20
3.4. Population, Sample size determination and sampling techniques	20
3.4.1. Sampling size.....	21
3.4.2. Sample Distribution.....	21
3.5. Data gathering tools.....	22
3.5.1. Questionnaires.....	22
3.5.2. Teachers' questionnaires.....	23
3.5.3. Students' questionnaire.....	23
3.6. Interview	23
3.7. Data Collection Techniques	23
phase1.....	23
Phase2	23
Phase3:	24
3.8. Data analysis techniques	24
3.9. Ethical Consideration	24

3.10.About validity and reliability of the Instruments	24
CHAPTER 4	26
4. DATA ANALYSIS AND DISCUSSION	26
4.1. Analysis	26
4.1.1. Teachers and students background information.....	26
4.1.2. Teacher and student response to assessment techniques.....	28
4.2. Teachers’ and students' Responses to purposes	32
4.2.1. Teachers’ Responses to purposes /types of Assessment Techniques.....	33
4.2.2. Students responses on types/purposes of assessment techniques teachers’ use.....	34
4.3. The challenge facing mathematics Teachers in the Effective Implementation of Assessment Techniques.....	35
4.4. Analysis of Teachers' Interview	37
4.5.2. Purpose for classroom assessments.....	42
CHAPTER 5.....	44
5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	44
5.1. Summary of major findings	44
5.2. Conclusions.....	44
5.3. Recommendations	45
Reference.....	46
Appendices.....	51
Appendix A.....	51
Appendix B.....	56
Appendix C.....	58

LIST OF TABLES

Table 1: teachers background information (n=8).....26

Table 2: Students background information (n=122)27

Table 3: Order of Assessment Techniques Teachers use to Assess students (n=8).....28

Table 4: Assessment techniques teachers apply in their classrooms (n=8)29

Table 5: students’ response to assessment techniques used by mathematics teachers (n=122)
.....31

Table 6: Teachers’ Responses on Types/purposes of assessment (n=8)33

Table 7: Analysis of students' responses on types/purposes of assessments (n=122).....34

Table 8: Responses of mathematics teachers on the challenge facing the implementation of
Assessment techniques(n=8).....36

LIST OF ABBREVIATIONS AND ACRONOMS

AAHE	American Association for Higher Education
CDC	Curriculum Development Council
ICDR	Institute for Curriculum Development and Research
MOE	Minister of Education
NCTM	National Council of Teachers of Mathematics
NIE	National Institute of Education
NOE	National Organization for Examination
SE	South Ethiopia
WKU	Wolkite University

ABSTRACT

This study was conducted to investigate the assessment techniques used by mathematics teachers, grade 10 in focus. Specifically, to gain an understanding of extent to which teachers use different assessment methods and teaching processes. The investigation adopted descriptive survey which intended to produce statistical information about an issue under the study. The data were obtained from students and mathematics teachers of Wachiga esho, Gesuba and Mure secondary schools. For questionnaire survey, 122 students were selected by using simple random sampling method and 8 mathematics teachers were purposively chosen as representative samples. The study used a questionnaire and interview as main sources of data collection from both the students and mathematics teachers. The data were analyzed by using the methods of descriptive statistics and Linkert type. The study revealed that though teachers have understanding about the importance of classroom assessment, they are influenced by a number of challenges. As it was observed that lack of teachers' commitment, the lack of knowledge about to effectively use assessment techniques, the lack of timely training regarding assessment techniques, students' misbehavior and absenteeism, inadequacy of school resources, large number of students per classroom, and a time limit for provision of feedback. Conclusion of this study was different types of classroom assessment techniques are used to enhance students' progress. Such techniques home-take assessments, written teacher-made tests, review exercises and group assignments that can be made in a term and yearly basis. Therefore, it is recommended that, teachers require professional training in relation to how they can use various assessment methods, tools and techniques in order to plan and design future lesson.

Keywords: Mathematics, mathematics teachers, grade ten students, assessment, assessment techniques and Secondary schools.

CHAPTER 1

1. INTRODUCTION

This chapter addresses the introductory part of the research. It basically includes background of the study, statement of the problem, research questions, objective of the study, significance of the study, scope of the study, limitation of the study, operational definition of key terms and organization of the study.

1.1. Background of the study

Education is the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life. The act or process of imparting or acquiring particular knowledge or skills, as for a profession. Assessment is the practice of collecting evidence of student learning. It is a vital and integral part of classroom instruction, and serves several purposes and audiences. Recent years have seen increased research on classroom assessment as an essential aspect of effective teaching and learning (Bryant and Driscoll, 1998; McMillan, Myran and Workman, 2002; Stiggins, 2002). It's getting further and further apparent that assessment is an integral element of the training and knowledge process (Gipps, 1990; Black wiliam, 1998). The National Council of instructors of mathematics (NCTM) (2000) regard assessment as a tool for learning mathematics. By assessing continuously in different ways, we can be confident about what scholars know and what they can do. A number of different assessments will give you a more picture of the knowledge and skills acquired by the scholars. From among the assessments, you can use the following class exertion, group exchanges, assignment, exercise problems and quiz or test. First and for utmost, it gives feedback to scholars, instructors, seminaries and parents on the effectiveness of training and on scholars' strengths and sins in knowledge. Second, it provides information to seminaries, academe systems, government, tertiary institutions and employers to enable them to cover morals and to grease selection decisions. The most important part of assessment is promoting knowledge and monitoring scholars progress. inevitably, this indicate high- stakes uses of assessment since the results are generally employed to make critical opinions about individualities. Assessment is one of the professional capabilities which instructors need to be acquainted and through which the

problems of educational programs and reliable data about the status of an educational system can be attained. It's also defined as the process of gathering information from a variety of sources, using a variety of styles that swish address the evaluation, and is varied with testing, which is limited to administration and scoring of tests(Gronlund, 1981; Ogunniyi, 1984; Gage and berliner, 1998; ICDR, 1999; Eggen and Kauchak, 2001) Some validation shows that the quality assessment ways employed determines largely the quality of pupil knowledge(Brissended, 1996). This seems to be likely since assessment by it tone is considered as an integral part of the educational process. Not only this, it my also be true because assessment generally starts with knowledge and ends along with it. In ispite of this, at multitudinous points during the educational process, instructors need to make several decisions about how well their scholars are learning and how effective their instruction has been, where these assessment decisions, bear respectable, reliable and accurate data(Cone and Foster, 1991; Spiller, 2009). Generally, effective assessment practices involve four factors; videlicet, designing assessment, preparing scholars, administering scholars, and assaying the results(Eggen and Kauchak, 2001 Dunn, 2002; Frye et. al., 2006; Vaughan, 2001 Shavelson, 2007; Webber, 2009). What critical analysis of the below points makes clear is that only be concluding or developing instruments and styles that are simple to use, bear little spare time or trouble, and still give the necessary data for a specific knowledge outgrowth. In conclusion, given that no respectable disquisition has ever examined this particular issue in the Ethiopian terrain, there is a vital need to carry out disquisition in this area.

1.2. Statement of the problem

Traditional assessment system mainly focuses on testing which encourages superficial knowledge but did n't assess the wider skill of pupils. Hence, continuous assessment should be essential to measure learners' performance in holistic manner. In supporting this idea, Alause(2004) states that the educational progress of learners needs frequent assessment. The various aspects of learning exertion of learners should be assessed by various styles. To use all the ways and procedures of continuous assessment, teacher's need to have a profound knowledge of the operation as well as the theoretical generality analogous as types, forms, purposes and styles of assessment for the well being of pupils. continuous assessment is a typical classroom predicated Strategy which provides regular information about the training-knowledge process. Concerning this Ellington and Earl(1997) suggested that continuous assessment is rehearsed on a day to day base to judge the quality of the existent's work or performance. The education system of Ethiopia is examination acquainted and this has persisted since modern education officially commenced in 1908 up to date. All the training and knowledge is centered on passing examinations. instructors face challenges while they assess scholars' work in an educational setting where have not enough access to the type of assessment information that will enable them to carry out the assessment directly and fairly. These challenges are compounded indeed further by the fact that scholars' creation or selection to another position is predicated on scholars ' grades. That kind of assessment is private, informal, immediate, on- going and intuitive as it interacts with knowledge as it occurs(Kellaghen and Greany, 2003). In this researcher's motherland too, instructors and scholars are equally doing a lot to prepare for the final examinations, for case, instructors training mathematics in secondary seminaries are demanded to assess their scholars regularly using different assessment ways so that learners could study the subject content tutored to them during the final examinations. This is done so that scholars could perform largely in the final examinations. Beside this, utmost instructors tend to concentrate their assessment ways on what is easy to measure rather than on what is important. The findings revealed that both instructors and scholars have positive stations towards the significance of continuous assessment. But scholars had low awareness about continuous assessment, while both instructors and scholars faced large educational content, lack of clear guidelines to perform continuous assessment. likewise, utmost developing countries strives to meliorate the quality

of education, the performance of scholars in mathematics both at primary academe and secondary academe remains poor(Hiddleston, 1996; Ministry of Education(MOE), 1999). also, numerous literatures indicates that assessment of pupil knowledge has a variety of forms, videlicet, traditional assessment, continuous assessment and performance assessment(Gronlund.1981; Ogunniyi, 1984; Linn, 1999; Gage and Berliner, 1998; ICDR, 1999; Eggen and Kauchak, 2001 Stiggins, 2004). In view to this, the traditional tests(both formative and summative) have long been used to assess a large number of behavioral or learning issues related to knowledge, understanding and allowingskill that belong to the set of cognitive sphere in learning institution(Eggen and Kauchak, 2001). still, these traditional testing styles measure only limited issues of scholars learning and they have been of limited value for guiding pupil knowledge(Gage and Berliner, 1998). From this standpoint, frequent assessment that is linked to well- planned pretensions is believed to encourage learners to face themselves and keep up with their studies(Gronlund and Linn, 1999; Elton, 2002). Assessment is occasional and externally carried out(Hughesd'Aeth, Chimombo, Kaperemera and Thomo, 1996). Without understanding what exactly happens in the classroom, all instructors support programs and sweats can't adequately prepare instructors to meet the challenges they face in the classroom. There are multitudinous angles of education that need to be understood and addressed if instructors are to support scholars to learn meaningfully. For illustration, accumulating results in class tests carried out on a diurnal base, without giving scholars constructive feedback, may neither be effective formative assessment nor meaningful summative assessment. There is disquisition validation on the salutary goods of formative assessment when used for refining decision- making in training and generating feedback to meliorate knowledge. According to Kellaghan and Greany(2003), that kind of assessments private, informal, immediate, on- going, and intuitive as it interacts with knowledge as occurs. For case, instructors training secondary seminaries are demanded to assess their scholars regularly using different assessment strategies so that learners could study the subject content tutored to them during the final examinations. This is done so that scholars could perform largely in the final examinations. therefore, this study seeks to probe assessment ways used by mathematics teachers..

1.3. Research question

1. Which assessment techniques do mathematics teachers use most of time often to assess students learning progress in their classes
2. What criteria do mathematics teachers used most of time in selecting assessment techniques ?
3. What are the major barriers to mathematics teachers when conducting effective assessment in their classes?

1.4. Objectives of the study

1.4.1. General objective of the study

The main objective of this study is to investigate assessment techniques used by mathematics teachers.

1.4.2. Specific objective of the study

Specifically the study would address the following objectives:

- ✚ To find the criteria used by mathematics teachers in selecting assessment techniques.
- ✚ To identify the major barriers that mathematics teachers currently face in conducting effective assessment.
- ✚ To differentiate assessment technique that mathematics teachers used most of time to assess students learning progress.

1.5. Significance of the study

The findings of this study might contribute in the following ways: This research would act as a foundation for further research that would benefit. The research would provide relevant knowledge and information to the department about the performance of students in schools that result from the class room practice. Teachers would be informed of the assessment techniques that could be used to enhance students' researchers.

1.6. Scope of the study

Because of time constraints and budgets were the major challenges that can quietly restrict the research to a very limited scope; taking Offa wereda and Gesuba Town administration as a research area, only three government secondary schools from Wolaita Zone.

1.7. Limitation of the study

Only the sampled students and teacher responses were used to generalize the findings of the study because of limited time allocated to complete this study. But the variables (samples) would have sufficient and credible information that may have concrete responses that was helped the researcher to draw significant conclusions and recommendations. The study also limited itself to the selected number of respondents. For more conclusive findings, all the weredas and towns sample schools, all students taking mathematics, teachers, principals, parents and other education stakeholders should have been studied. However, this was not be possible due to financial resources and other logistic constraints. But the samples were found to be well-representative with good sample size. Therefore, this research was obtained the necessary information and data that shows the actual findings through scientific research.

1.8 Operational definition of key terms

Operational definition of terms refers to a detailed explanation of the technical terms and measurements used during data collection.

Assessment: is a process aimed at helping faculty and departments improve student learning through a feedback loop. the process is cyclic and iterative in setting objectives, gathering data, and using the data to make changes that will improve the attainment of the objectives.

Student learning outcomes: specific and coincide statements of what we want our students to learn. these should relate to the mission and goals articulated by the department and university. Learning outcomes are typically related to knowledge, skills, and dispositions that we expect of our graduates, and are often worded in a students will demonstrate/ be able to format.

Measures/Indicators : Tools that allow us to measure or demonstrate the extent to which student learning outcomes have been achieved. measures are often classified as ‘direct or indirect’ depending on whether they directly measure specific outcomes, or whether they measure some more aggregate or less specific evidence of students having learned.

Targets: Specific levels of achievement tied to each measure that would indicate a successful outcome. targets should have justifiable rationale, and should be identified in each assessment cycle with having been met, partially met, or not met, with the results being used to develop an action plan.

Action plan: The action plan is essential to successful assessment effort in using the results to ‘ ‘close the loop’’ by making changes aimed at improving.

1.9. Organization of the Study

This thesis was organized and presented in five chapters .The first chapter gives a general idea on the backgrounds, statement of the problem, research question, objective of the study, explains the significance of the study, describes the scope of the study and operational definitions of key terms. The second chapter is review of literature section develops background of the study by discussing the relevant literature from international and national perspectives. In the third chapter, research methods were explained briefly how the study was conducted. In fourth chapter data analysis and discussion was explained. In chapter five there was summery, conclusion and recommendation.

CHAPTER 2

2. LITERATURE REVIEW

The review of related literature mainly focuses on history of assessment, definition of assessment, concept of assessment, forms of assessment, principles of assessment and purpose of assessment.

2.1. History of Assessment

While no one has officially dated the birth of the “assessment movement” in higher education, it is probably safe to propose .The First National Conference on Assessment in Higher Education held in Columbia, SC in the fall of 1985. Co-sponsored by the National Institute of Education (NIE) and the American Association for Higher Education (AAHE), The origins of this conference vividly illustrate the conflicting political and intellectual traditions that have been with the field ever since. The proximate stimulus for the conference was a report called *involvement in Learning* (NIE,1984).Three main recommendations formed its centerpiece, strongly informed by research in the student learning tradition. In brief, they were that higher levels of student achievement could be promoted by establishing high expectations for students, by involving them in active learning environments, and by providing them with prompt and useful feedback. But the report also observed that colleges and universities as institutions could “learn” from feedback on their own performances and that appropriate research tools were now available for them to do so. This observation might have been overlooked were it not consistent with other voices. One set came from within the academy and focused on curriculum reform, especially in general education.

Symbolized by other prominent reports in 1984-85 like *Integrity in the College Curriculum* (AAC, 1985) and *To Reclaim a Legacy* (Bennett, 1984), their central argument was the need for coherent curricular experiences which could best be shaped by ongoing monitoring of student learning and development. From the outset in these discussions, the assessment of learning was presented as a form of “scholarship.” Faculties ought to be willing to engage in assessment as an integral part of their everyday work. A concomitant enlightened, but unexamined, assumption was that the tools of social science and educational measurement,

deployed appropriately, could be adapted by all disciplines to further this process of ongoing inquiry and improvement.

2.2. Definition of assessment

Assessment is a “systematic process of gathering information about what student knows, is able to do, and is learning to do” (Manitoba Education and Training, Reporting on student progress and Achievement 5). Assessment is an integral part of instrument that enhances, empowers, and celebrate student learning. The main purpose of schooling is student learning and development, and this should be informed and supported by appropriate assessment. Assessment is undertaken to provide information about student learning and student attitudes to learning and doing mathematics. This information allows teacher to make informed professional judgments about range of matters such as student progress and achievement, student learning and attitudes that require further attention and future teaching actions. Assessment also provides an opportunity for teachers to evaluate and reflection their work as teachers. Teachers should ask and satisfactorily answer the questions “Will this assessment give me information about student learning that adds significantly to what I already know? Does this assessment add significantly to my current confidence in my judgments about student learning? Webb and Briars (1990) argued that assessment must be an interaction between the teacher and students, with the teacher continually seeking to understand, what a student can do and how a student is able to do it. Assessment labeled as the outcome of the 20th century, has been defined variously in the literature. Among the many, Linn and Miller (2005) define assessment of student learning as a systematic process of collecting information about student progress towards the learning goals. Similarly, Dhindsa et al. (2007) characterize assessment as a key component of teaching and learning, “a systematic process of data gathering” about students’ progress (p. 1261). They maintain that students’ performance can be measured in various ways, including “traditional paper and pencil tests, extended responses (essays), performance of authentic task, teacher observation, and student self-report” (Linn & Miller, 2005, p. 26). In addition, the authors distinguish between two other terms aligned with assessment:

1) Test, “an instrument for measuring a sample of behavior” and

2) Measurement, “the process of obtaining a numerical description of the degree to which an individual possesses a particular characteristic” (Linn & Miller, 2005, p. 26). The NCTM (1995) believes that assessment has the potential to enhance mathematics learning and to promote student’s interest in mathematics. This is too general a statement considering the fact that in most schools assessment means testing and grading (Van de Wallen, 2001). The National Council of Teachers of mathematics (NCTM) (2000) regard assessment as a tool for learning mathematics. By assessing continuously in different ways, we can be confident about what students know and what they can do. First and foremost, it gives feedback to students, teachers, schools and parents on the effectiveness of teaching and on students’ strengths and weaknesses in learning. Second, it provides information to schools, school systems, government, tertiary institutions and employers to enable them to monitor standards and to facilitate selection decisions. The most important role of assessment is in promoting learning and monitoring students’ progress. Inevitably, these imply high-stakes uses of assessment since the results are typically employed to make critical decisions about individuals. Although various definitions are given about alternative assessment in the literature, Crawford and Kauchak (2001), Cooper (1999), Diaz-Rico and Weed (2006), Linn and Miller (2005) and Hancock (1994) maintain that alternative assessments: Assessments are generally developed directly from classroom instruction, group work, and related classroom activities and provide an alternative to traditional assessment. Can be considered valid and reliable in that they genuinely and consistently assess a student’s classroom performance. Facilitate the student’s participation in the evaluation process. Include measurements and evaluations relevant to both the teachers and the students. Emphasize real-world problems, tasks, or applications that are relevant to the student and his/her community.

Current literature on assessment and instruction view assessment as a longitudinal process that occurs during instruction and supports lifelong learning. Birenbaum (1996) makes a distinction between testing and assessment, in which testing measures achievements, mainly cognitive skills such as memorizing factual-information, and is considered separate from instruction. However, the new paradigm of assessment offers an alternative for testing culture which is “characterized by so called objective, such as standardized tests that focused on atomized bits of knowledge at the expense of more complex, higher-order knowledge and skills”, assessment an integrated part of instruction (Gulikers, Bastiaens, Kirshner 2006). Alth

ough interpretations of formative assessment vary widely, according to Wiliam and Thompson (2008), "formative assessment is used to provide information on the likely performance of students" and "to describe and feedback given to students... telling them which items they got correct" (p. 60). This oppose the way selected responses measure students' achievement, given students' scores instead of feedback.

2.3. Concept of assessment

Assessment for learning (AFL) is an approach, integrated into teaching and learning, which creates feedback for students and teachers in order to improve learning and guide their next steps. Assessment for learning focuses on both the teacher and student understanding. Three key things on AFL are: Where the learner is going. Sharing the aims of a lesson and success criteria helps learners to see what they are aiming for and what they need to do to achieve those aims, Where the learner is now. Techniques such as effective questioning will help teachers to gauge what individuals and groups have learnt during a lesson, generating evidence of learning that both teacher and students can make use of. How can the learner get there? Teachers use this evidence of learning to inform choices about what they will do next with a class or individual students. Learners can use this evidence to make decisions about their learning, such as how to spend their independent study time.

Assessment for learning is concerned with maximizing the feedback process (teacher to student and student to teacher) to optimize student learning. Feedback ranges from the informal (e.g. oral comments given immediately to learners as they think through problems), to more formal (e.g. written feedback given after an end-of-topic test). AFL also involves high-quality peer and self-assessment where learners or peers may be involved in making decisions about future learning needs (Wiliam, 2018). The term 'assessment for learning' became popular in the 1990s. At this time there was concern that learners were being over-assessed and that there was a disproportionate focus on end results (assessment of learning) rather than on assessment processes that could actively enable learners to make progress. Both assessment for learning and assessment of learning are valuable in education, but they have different purposes.

2.4. Developing Assessment

According to Webb's (2002) definition assessment is... knowledge about how to assess what students know and can do, interpret the results of these assessments, and apply these results to improve student learning and program effectiveness. Assessment plays a crucial role in motivating pupils to learn and improving learning and raising standards (Stiggins, 2008; Deni, 2009a; 2011b). Assessment is also a key professional competency, which requires teachers to use a range of assessment strategies and assessment information to make teaching more effective. When planning assessment, schools should consider the principles and purposes of assessment and to what extent the school assessment policy and practice reflects these.

2.5. Principles of assessment

A few principles that should be following while conducting assessment exercises are: Clearly defining the objective of the assessments, Identifying the criteria and sharing it with the assessment in a transparent manner, Feedback to the assessment on his/her performance, The nature of records made and data collected needs to be shared with the assessment If the data is to be used for purposes other than what defined before the assessment, the assessment need to be informed regarding the same.

2.6. Forms of assessment

Assessment can have different forms according to how we use the information it provides. Teachers need to use a range of assessment techniques that are fit for purpose. The four main forms of assessment are: Diagnostic, formative, summative and evaluative.

2.6.1. Diagnostic assessment

Diagnostic assessment normally takes place at the beginning of learning program. Teachers should use diagnostic assessment to identify pupils strengths and learning needs. They can also use it to identify the nature of pupils learning difficulties. Teachers can then use the information from diagnostic assessment to plan and develop interventions to address learning difficulties identified. They should share this information with the pupil to plan the next steps to improve their learning.

2.6.2. Formative assessment or assessment for learning

Formative assessment refers to a wide variety of methods that teachers use to conduct in-process evaluations of students' comprehension, learning needs, and academic progress during a lesson, unit or course. Formative assessments help teachers identify concepts that students are struggling to understand, skills they are having difficulty acquiring, or learning standards they have not yet achieved so that adjustments can be made to lessons, instructional technique and academic support. The general goal of formative assessment is to collect detailed information that can be used to improve instruction and student learning while it's happening. What makes assessment "formative" is not a design of a test, technique, or self-evaluation, but the way it is used; to inform in-process teaching and learning modifications.

The following are a few representative examples of formative assessments:

- ❖ Specific, detailed, and constructive feedback that teachers provide on students' work, such as journal entries, essays, worksheets, research papers, projects, ungraded quizzes, lab results, or work of art, design, and performance. The feedback may be used to revise or improve a work product.
- ❖ Self-assessments that ask students to think about their own learning process, to reflect on what they do well or struggle with, and to articulate what they have learned or still need to learn to meet course expectations or learning standards,
- ❖ Peer assessments that allow students to use one another as learning resources, e.g., workshopping and particularly if students follow a rubric or guidelines provided by a teacher. In addition to reasons addressed above, educators may also use formative assessment to:

Refocus students on the learning process and its intrinsic value, rather than on grades or extrinsic rewards, Encourage students to build on their strengths rather than fixate or dwell on their deficits, Help students become more aware of their learning needs, strengths, and interests so they can take greater responsibility over their own educational growth, Give students more detailed, precise and useful information, Raise or accelerate the educational achievements of all students, while also reducing learning gaps and achievements gap

2.6.3. Summative assessment or assessment to learning

Summative assessment is any method of evaluation performed at the end of a unit that allows a teacher to measure a student understanding, typically against standardized criteria. The purpose of summative assessment is to gauge students comprehension of the material presented at the end of a particular unit of work, and is often measured with a grade or percentage, depending on the subject.

2.6.4. Evaluative assessment

The main purpose of evaluative assessment is to ensure that there was appropriate accountability at all levels for the performance of our school system. Schools and teachers should use assessment information for curriculum planning and monitoring and accountability.

2.7. Assessment practices of mathematics teachers

Teachers practices in formative assessment were reviewed in the articles by Crooks(1988) and Black(1993b). Several common features emerged from this services. The overall picture was one of weak practice. Key weaknesses were: Classroom evaluation practices generally encourage superficial and rote learning. Concentrating on recall of isolated details usually items of knowledge which pupils soon forget.

Teachers do not generally review the assessment questions that they use and do not discuss them critically with peers, so there is little reflection on what is being assessed. There is a tendency to use a normative rather than a criteria approach, which emphasizes competition between pupils rather than personal improvement of each. The evidence is that with such practices the effect of feedback is to teach the weaker pupils that they lack ability, so that they are de-motivated and lose confidence in their own capacity to learn. More recent research has confirmed this general picture. Teachers appear to be unaware of the assessment work of colleagues and do not trust or use their assessment results (Cizek et al.,1995;Hall et al.,1997). Both in questioning and written work, teachers assessment focuses on low level aims ,mainly recall. There is little focus on such outcomes as speculation and critical reflection (Stiggins et al.,1989;), and students focus on getting through the tasks and resist attempts to engage in risky cognate activities. Although teachers can predict the performance of their pupils on external tests--albeit tests reflecting low- level aims--their own assessments do not tell them what they need to know about their students learning.

2.8. Students and Formative Assessment

The core of the activity of formative assessment lies in the sequence of two actions. The first is the perception by the learner of a gap between a desired goal and his or her present state (of knowledge, and/or understanding, and/or skill). The second is the action taken by the learner to close that gap in order to attain the desired goal (Ramaprasad, 1983; Sadler, 1989). For the first action, the primary responsibility for generating the information may lie with the student in self assessment, or with another person, notably the teacher, who discerns and interprets the gap and communicates a message about it to the student. Whatever the procedures by which the assessment message is generated, in relation to action taken by the learner it would be a mistake to regard the student as the passive recipient of a call to action.

There are complex links between the way in which the message is received, the way in which that perception motivates a selection amongst different courses of action, and the learning activity which may or may not follow. For the purposes of this review, the involvement of students in formative assessment will be considered by division into two broad topics, as follows: The first of these will focus on those factors which influence the reception of the message and the personal decisions about how to respond to it. The concern will be with the effects of beliefs about the goals of learning, about one's capacity to respond, about the risks involved responding in various ways, and about what learning work should be like: all of these affect the motivation to take action, the selection of a line of action and the nature of one's commitment to it. The second will focus on the different ways in which positive action may be taken and the regimes and working contexts in which that action may be carried out. The focus here will be on study methods, study skills, collaboration with peers, and on the possibilities of peer and self-assessment.

There is clearly strong interaction between the two areas. In particular, if self and peer assessment are promoted in a classroom, this affects the initial generation of the message about a gap as well as the way in which a learner may work to close it. However, the over-arching sets of beliefs to be considered within the first focus bear on the perception of and response to feedback messages, albeit in different ways, whether they are generated by the self or by others. In the studies reported within the first topic, both sources of feedback have been considered.

2.9. Continuous Assessment Strategies and Students Performance

According to Onuka(2006),what is termed “assessment in many schools today is summative, administrative, rigourous 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 to wards 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 in to internal and external purposes.

The internal purposes for assessment include conveying to students expectations about what is important to learn, providing information about 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 defined in terms of results (Madaus 2009:98). In addition, Kellaghn and greany(2003:16) 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 students achievements”. Onuka(2006:11) 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 objectives effectively according to students. This concurred with the finding of Onuka and Oludipe(2005) that there was a significant remediation for poor performance as a result of the application of the feedback mechanism resulting from formative evaluation of learners. Furthermore, Etienne(2007:2) contended that, the protest against final examinations by students in France in May 1968 was the perfect opportunity for students to point at the unfair and risky final assessment in their schools. They made it clear that such examinations merely represented the performance of the moment and not the efforts made throughout the year. Students insisted on the risk that even the best-prepared student could have a problem on the day of the examination and came out in favor of continuous assessment in order to reduce the risks though some difficulties are likely to occur during implementation of the recap exercises as well. Graume and Naidoo(2004) also noted that up to high school level,

the assessment of students is done through terminal, half yearly and annual examinations at the schools. Carnoy(1999) contends that, when continuous assessment tools are applied over a period of time, they give an indication whether improvement is taking place or not. Furthermore, Ogunnyi(1984) noted that continuous assessment is communal in that any decision made at any time about any student takes cognizance of the previous decision made about him. Continuous assessment also provides the student with maximum opportunities to learn and to demonstrate from time to time the knowledge, the skills and the attitudes that they have during the teaching-learning process.

2.10. Research Gap

Though there was various literatures which explains importance of assessment in education and the need for quality education and mean to be used to attain it.As well as the challenges that face assessment in terms of teaching and learning.The findings revealed that both teachers and students had positive attitudes to wards the importance of continuous assessment. But students had low awareness about continuous assessment and teachers are not always ready to implement it. There is no enough literature on the students and teachers' perceptions towards the continuous assessment, thus the researcher wants to assess the views of students and also to resolve the existing poor awareness of students and non readiness of teachers to implement it.

2.11. Theoretical framework of the study

Each National Assessment of Educational Progress (NAEP) assessment is based on an organizing framework. The framework is the blue print that guides the development of the assessment and the content to be assessed. The National Assessment Governing Board develops the frameworks for assessment in each subject. Frameworks define the subject-specific content and thinking skills needed by students to deal with the complex issues they encounter in and out of the classroom. The NAEP frameworks are devised through a development process that ensures they meet current educational requirements. Assessments must be flexible and mirror changes in educational objectives, curricula, and standards of student achievement. Therefore, the frameworks must be both forward-looking and responsive, balancing current teaching practices with research findings. The following pattern presents a simple way to

consider the link between the continuous assessment, full information about students and good learning out come.

Continuous assessment → full information about student → good learning out come.

2.12. Conclusion

The a forementioned review attempts to give a general overview of continuous assessment pr actices in response to one of the higher demands of practicing teachers as how to understand the working mechanisms of such a detrimental task to which they have to respond with utmo st degrees of accountabiliy

CHAPTER 3

3. RESEARCH DESIGN AND METHODS

The main objective of this study were to investigate major assessment techniques used by mathematics teachers in offa wereda and Gesuba Town administration; particularly in three selected government secondary schools in the study area. In this regard, the chapter introduce s and presents research approach, research design, data sources, population, sample size, sample size determination, sampling techniques, data gathering tools, data collection techniques, data analysis techniques and ethical consideration.

3.1. Research Approach

The descriptive survey design was appropriate to describe conditions that exist, opinions that are hold, processes that are going on, trends that are developed and also to assess the opinions of large sample size. Thus, in line with this statement and the purpose of the research , the present study was employed multi-method research (both quantitative and qualitative methods). The qualitative approach would be employed in this study is an inquiry process aimed at understanding the phenomena under the study and reporting of the detailed views of the respondents. While the quantitative approach that would be employed was survey method aimed at measuring variables in number in order to determine their strength with other variables being tested. The use of a combination of both qualitative and quantitative research methods results in strong validity to outcomes.

3.2. Research Design

The study adopts descriptive survey design. Borg and Gall (1989) note that descriptive survey research is intended to produce statistical information about an issue which is going to be studied. The use of this design was well supported by Best and Kahan (2003), as descriptive survey design is appropriate to describe conditions that exist, opinions that are hold, processes that are going on, trends that are developed and also to assess the opinions of large sample size.

3.3. Data Sources

The primary data were obtained from three secondary schools under Offa Wereda and Gesuba Town administration. Particularly, the source include grade ten students and grade ten mathematics teachers of Wachiga esho secondary, Gesuba secondary and mure secondary schools. Secondary data also were obtained from published and unpublished research sources, published books and internet.

3.4. Population, Sample size determination and sampling techniques

Many stage sampling techniques was employed in this study. This study was undertaken in three secondary schools; Wachiga esho, Gesuba and Mure secondary schools in Offa Wereda and Gesuba Town administration in Wolaita Zone with total population of 1000. Therefore, the current study were used both probability sampling (systematic sampling) relies on arranging the target population according to some ordering scheme and then selecting elements at regular intervals through that ordering lists and non-probability sampling(availability) which includes quota sampling and purposive sampling. The study area and schools was selected purposively. The reason is that the investigator is dwelling and working in the mentioned Wereda and, he believes that he can gather sufficient data from these school participants. The investigator has also been working there as a teacher for four years. The total population in these selected secondary schools constitutes 1008. From this, 1000 are students of grade ten and 8 are mathematics teachers. From among these: Wachiga esho Secondary school has about 320 grade ten students in 5 section, gesuba secondary school has about 400 grade ten students in 8 section and Mure secondary school has about 280 grade ten students in 5 section.

On the other hand, systematically student of respective schools was listed by order with their given classroom. Then after, systematic sampling with the formula n^{th} value was used to select respondents from each secondary school. The researcher was compute "n" by dividing the size of the target population by the desired sample size, where "n" is called sampling interval.

i.e. n^{th} value = $\frac{\text{target population}}{\text{required sample size}} = \frac{1000}{122} = 8$ is sampling interval type equation.

To compute the sampling interval in systematic sampling, the first unit/sample was selected from 1-8 numbers through using lottery method. Next, to select other samples, simply

skipping sample interval until getting required samples. For instance, to select respondents from Wachiga esho school, all respondents is listed by order with their alphabetical. Hence, the first 8th respondent was selected, then the second, third, fourth, etc.

3.4.1. Sampling size

The sample size was determined by using the formula driven by Kothari (2004); because it provides proportionately more information for a small population and it is calculated as follows:

$$n = \frac{z^2 pqN}{e^2(N-1)+z^2pq} \text{ where}$$

n= sample size.

N= total population which is 1000.

P=desired sample proportion/population reliability (i.e.0.1, 0.12, 0.15, 0.20)

e= standard error margin (0.05)

z= standard value of the desired confidence level (95%) i.e., 1.96

1=designates the probability of the event occurring; q=1-p

It was done using the following method or procedure. A study area had a total population of three selected secondary school has1000; standard error margin (0.05); standard value of the desired confidence level(95%) i.e., (z=1.96); the researcher wants to take 10% of the desired sample proportion/population reliability(i.e. p=0.1);and (q=1-p)=1-0.1=0.9

Hence, the sample size at 95% of confidence level is:

$$n = \frac{z^2 pqN}{e^2(N-1)+z^2pq} = \frac{(1.96)^2(0.1)(0.9)(1000)}{(0.05)^2(1000-1)+(1.96)^2(0.1)(0.9)} = 122$$

3.4.2. Sample Distribution

Sample is representative subset of the population from which generalization or inference was made about the population. Sample/respondents was selected using the proportion formula as follows:

Respondents from Wachiga esho secondary school = $\frac{320 \times 122}{1000} = 39$, respondents was selected.

Respondents from Gesuba secondary school = $\frac{400 \times 122}{1000} = 49$, respondents was selected.

Respondents from Mure secondary school = $\frac{280 \times 122}{1000} = 34$, respondents was selected.

Therefore, 122 students from three sample schools was the sample size of the study. Thereby, survey questionnaire was distributed to these 122 respondents.

With regard to teachers selections, all 8 mathematics teachers currently assigned to teach in grade ten was selected by availability sampling technique which is a type of non-probability sampling method was employed. This is why the researcher wants to use the teachers that are present during the time of data collection. These teachers 3 from Wachiga esho secondary school, 3 from Gesuba secondary school and 2 from Mure secondary school. Therefore the sample size was 39 from Wachiga esho Secondary school, 49 from Gesuba secondary school, and 34 from Mure secondary school. On this basis, it would include both male and female student respondents by systematic sampling; a total of 122 grade ten students would be given questionnaire. A grand total of 130 people was administered to questionnaire, which includes 122 students and 8 Mathematics teachers.

3.5. Data gathering tools

The main instruments that the researcher would used for the data gathering include questionnaire and interview. Both teachers and students types of questionnaires would be prepared and distributed.

3.5.1. Questionnaires

Questionnaire is one of the tools which highly recommended for information gathering. it allows taking measurement for and against a particular view point. Questionnaires are also considered as ideal for collecting data from teachers and students for which they could individually read, interpret and fill them. They allow information to be collected from larger to small number of respondents within a short time and ensure anonymity and also eliminate interviewer's bias (Orodho, 2009).

In an attempt to collect data, questionnaires are constructed as main sources of data gathering tool. Moreover, questionnaires are less expensive, offer greater anonymity of respondents and appropriate for collecting factual information (Gay 1992). As a result for this study, questionnaires would provide to mathematics teachers and grade ten students. These questionnaires would be in fact both close-ended and open-ended types. The items in the questionnaires reflected general information and the existing assessment techniques used by mathematics teachers.

3.5.2. Teachers' questionnaires

This instrument would be used to collect information from mathematics teachers. The questionnaire would have two sections. Section A would seek information about general background of the respondents. Section B would seek information of the existing assessment techniques. A five Likert scale options, ranging from strongly disagree to strongly agree was employed.

3.5.3. Students' questionnaire

This instrument would be used to gather information from students among the sample schools. The questionnaire would have two sections. Section I would be used to obtain general information of the respondents. Section II would be for assessing information about teachers' assessment techniques. A five likert scale options would be employed, ranging from strongly disagree to strongly agree.

3.6. Interview

This method would be used by the researcher with the assumption that the method enables to gather in-depth data that substantiate the data obtained from other methods. Therefore, five items for 6 teachers of mathematics that is a total of 6 interviewees' teachers would be taken and administered to interview.

3.7. Data Collection Techniques

Data collection for this research study would involve three phases. There are enumerated as follows: Phase1: preliminary visit to each school: The researcher will make preliminary visit to selected schools so as to inform the principals about the very intension of this research.

Phase2: pilot testing of the research instrument: The teacher and student survey questionnaires will be pilot tested with 3 mathematics teachers and 10 students from three selected secondary schools in Offa wereda in wolaita zone for both the content and construct validity. Based on the responses in the survey questionnaire, appropriate corrections would be made by the researcher in agreement with advisor. There after, the instruments would be considered appropriate for the research study.

Phase3: Distribution and administration of questionnaires: Teacher survey questionnaires would be distributed to mathematics teachers in the selected secondary schools. Also, the student survey questionnaires would be distributed to teachers at the sample schools.

To ensure a high return rate of the questionnaires. The researcher would personally supervised the distribution and the collection from teachers and students.

3.8. Data analysis techniques

In order to meet the desired purpose of investigation, data had to be analyzed. The purpose of analyzing data is to highlight information useful for decision making. The information obtained would tabulated and arranged in tables. Analysis and interpretation of response would also be given after each table. The obtained data would be analyzed in term of percentage. Data coding and noticed would be done as per objectives of the study and then would be entered in computer for analysis. Data analysis procedure would be involved both quantitative and qualitative procedures. The quantitative data would be analyzed using Descriptive statistics such as frequency and percentages. The qualitative data was presented thematically in line with the objective of the study. Qualitative data gathered through open-ended questionnaire and interviews would be analyzed by categorizing the data in to themes.

3.9. Ethical Consideration

When it comes to dealing with human participants, research projects should thoroughly follow ethical consideration. In this study, the researcher followed all the doctrine of ethical behavior. Voluntary participations informed permission, secrecy and confidentially would be considered the key informants. The study also pursued the code of conducts not to engage in ethical violation. Such as plagiarism and falsification of data and hence, all the data obtained from different sources would be appropriately acknowledged and paraphrased.

3.10.About validity and reliability of the Instruments

Following the design and preparation of the instruments the questionnaire and the interviews was submitted to the researcher colleagues for a comment. Its purpose was to check the appropriateness of the items in the instrument and to make the necessary correction based on the obtained feed backs.

The advisor of the researcher has also validated the questionnaire and shaped in a way to gather relevant information. On the other hand, the reliability of the questionnaires has also kept by using pilot study (The detail is presented in the pilot study topic of this study).

In general, the validity and reliability of the study has been kept by using as many methods as possible (triangulation), for both collection and analysis of data.

CHAPTER 4

4. DATA ANALYSIS AND DISCUSSION

4.1. Analysis

In order to met the desired purpose of investigation, data had to be analyzed. The purpose of analyzing data is to highlight information useful for decision making. In order to achieve the objectives of the study and seek answers to the research questions raised in the first chapter of this thesis, necessary data were gathered using two methods: questionnaire and interview and the findings of this study were presented based on the research questions.

4.1.1. Teachers and students background information

Table 1: teachers background information (n=8)

NO			COUNT	PERCENTAGE
1	Gender	Male	6	75%
		Female	2	25%
2	Highest qualification	Diploma	-	-
		Degree	7	87.5%
		M.sc.	1	12.5%
3	Time spent in school	0-5 years	1	12.5%
		6-10 years	2	25%
		11-16 years	5	62.5%
		16 above	-	-

Table 1, indicates that the largest percentage of respondent teachers 6(75%) were male teachers compared to 2(25%) who was female teacher.

Item 2 in table 1, shows that the teachers' highest qualification whether they held diploma, degree or masters' degree. From among the total 8 respondent teachers, 7(87.5%) were first degree holders while only 1 (12.5%) was masters holder. This is consistent with the policy of the country. With regard to their work experience, 1(12.5%) of them had 0-5 years' experience, 5(62.5%) of them had 11-16 years experience and the number of the teachers, 2(25%) spent 6-10 years. Therefore, there was enough experienced teachers in the study area.

Table 2: Students background information (n=122)

NO	ITEM	COUNT	PERCENTAGE	
1	Gender	Male	83	68%
		Female	39	32%

Table 2, shows that 83(68%) of the participant students were male whereas 39(32%) were female students.

4.1.2. Teacher and student response to assessment techniques

Table 2: Order of Assessment Techniques Teachers use to Assess students (n=8)

NO	ITEM	USUALLY		SOMETIMES		NEVER	
		F	%	F	%	F	%
1	Written Tests	5	62.5	2	25	1	12.5
2	Individual assignments	2	25	5	62.5	1	12.5
3	Taking attendance regularly	1	12.5	2	25	5	62.5
4	Projects	-	-	1	12.5	7	87.5
5	Group assignments	2	25	5	62.5	1	12.5
6	Oral question	-	-	2	25	6	75
7	Marking class activity	5	62.5	2	25	1	12.5
8	Marking home works	1	12.5	4	50	3	37.5

Table 3, above points out eight assessment techniques used by mathematics teachers in the selected schools. Respondent teachers were asked to put them in the most frequent order they assessed their students. As indicated in table 3. most of the mathematics teachers 62.25% use written tests and class activity as one of the most frequently used assessment techniques that enhance the students progression. This was followed by group assignment and individual assignment 25% as means of continuous assessment to enhance the students' progression. Furthermore, they pointed out that sometimes used individual assignments and group assignment 62.5%, and marking home works 50%.

Therefore, from this one can see most of the mathematics teachers make use of limited continuous assessment techniques rather than finding alternative methods to reach all the students. Supporting this, Brown, et al (1996) advised that if essays are used as the only form of assessment, students writing may improve, but other skills may remain undeveloped. In the same way, NOE (2004) explained that evaluation of students acquisition of knowledge and skills is an integral part of the teaching learning process and continuous assessment is an assessment approach that involves the use of a Variety of assessment instrument to assess various components.

Table 3 : Assessment techniques teachers apply in their classrooms (n=8)

Mathematics teacher's employ the assessment techniques in their classroom to follow up their learners' progress.

NO	ITEM	SA		A		U		D		SD		Mean
		F	%	F	%	F	%	F	%	F	%	
1	R1	3	37.5	5	62.5	-	-	-	-	-	-	4.4
2	R2	3	37.5	2	25	1	12.5	1	12.5	1	12.5	3.6
3	R3	2	25	3	37.5	1	12.5	1	12.5	1	12.5	3.5
4	R4	3	37.5	2	25	2	25	1	12.5	-	-	3.9
5	R5	4	50	2	25	-	-	-	-	2	25	3.8
6	R6	4	50	2	25	1	12.5	-	-	-	-	3.9
7	R7	2	25	3	37.5	1	12.5	2	25	-	-	3.6
8	R8	2	25	3	37.5	1	12.5	1	12.5	1	12.5	3.5

Key, SA= explosively Agree, A= Agree, U= Undecided, D= Differ, SD = explosively Differ (N.B, 5 = explosively agree, 4 =Agree, 3 = Undecided, 2 = Differ, 1 = explosively differ)

The data attained from the questionnaire using five- point continuum point scale for nonstop assessment are presented in table 4. also an attempt was made to see whether mathematics preceptors in the study areas have clear understanding about continues assessment or not. particulars R1 = I feel that employing nonstop assessment improves pupils' knowledge. R2= for me nonstop assessment is a pupil evaluation system that uses a variety of assessment ways, R3 = nonstop assessment enables me to look into the performance of the learners which I couldn't do it in tests, R4 = I believe nonstop assessment generally provides a more suitable assessment terrain for learners, R5 = I feel that scholars have sufficient time to prepare and carry out each element of the nonstop assessment program, R6 = nonstop assessment provides regular feedback on scholars learning, R7 = It's delicate to conclude preceptors have the demanded understanding about nonstop assessment, R8 = It's delicate to employ nonstop assessment in classes where there are large number of scholars. As can be seen from table 4, above 3(37.5) explosively agree and 5(62.5) agree, the responders believed that employing nonstop assessment in the class improves pupils' learning and the

score of mean indicate that above normal(mean = 4.4). All of the preceptors in the study area, 8(100) agreed and explosively agreed in combination that they employed class exertion as assessment ways as means of following up their scholars' learning progresses. In point 2, maturity of the responders, 3(37.5) explosively agreed on the idea that nonstop assessment is a system of assessment that uses a variety of assessment ways the mean value indicate that above normal(3.6). still, truly multitudinous responders(12.5) didn't accept this view and undecided about this idea. In addition to this, ultimate of the replier preceptors 5(62.5) reported that nonstop assessment enables them to look into the performance of scholars which they couldn't do it in tests only. still, the nonage of the responders 2(25) differed and explosively differed on this issue. In the same way, larger proportion of responders 5(62.5) supported that nonstop assessment provides a more suitable assessment terrain for learners and the value mean(3.9) scores handed that's below normal. multitudinous of these responders 1(12.5) showed disagreement. In line with this, Ellington(1997) suggested that nonstop assessment enables learners to be assessed in the better situation nearly associated with real practice. According to table 4. point 5 nearly half of the responders 6(50) directed out from their observation that learners don't have a sufficient time to relate each and every element of nonstop assessment while some of these responders 2(25) reported it in the hamper way. thus, it can be inferred from this that nonstop assessment demands further time of both the preceptors as well as the learner performance. nearly all of the responders 6(75) agreed and explosively agreed that nonstop assessment provides regular feedback on the scholars learning. On the distinction to it, 1(12.5) of the responders replied undecided to this fashion. In response to point 7 of table4, responders(37.5) admitted that there's difficulty to conclude that preceptors have demanded understanding about nonstop assessment. Despite this, multitudinous of these responders(12.5) held the contrary view. Still others(25) differ on this issue. This indicates that not all mathematics preceptors are alive of the nonstop assessment program, which in turn has impact on its practice. To avoid this ICDR(2004) contended that preceptors should be equipped with an respectable knowledge and capability about assessment strategies as a introductory demand for nonstop assessment. Finally, in item 8 of table 4.almost all the respondents agreed on the idea that it is difficult to employ continuous assessment in class where the number of students are large.

In general terms, the above responses of teachers regarding their continuous assessment indicate the positive attitude of teachers towards continuous assessment.

Table 4: students' response to assessment techniques used by mathematics teachers (n=122)

NO	ITEM	DIURNAL		EVERY 2 OR 3 DAYS		EVERY WEEK		DOUBLY IN A SEME STER		ONCE IN A SEMEST ER		Mean
		F	%	F	%	F	%	F	%	F	%	
1	U1	65	53.3	33	27	14	11.5	6	4.9	4	3.3	4.2
2	U2	-	-	16	13	43	35.2	30	24.6	33	27.4	2.3
3	U3	19	15.6	43	35.2	26	21.4	12	9.8	22	18	3.2
4	U4	7	5.7	30	24.6	40	32.8	43	35.2	2	1.6	3
5	U5	-	-	-	-	-	-	66	54.1	56	45.9	1.5
6	U6	13	10.7	7	5.7	12	9.8	48	49.3	42	34.4	2.2
7	U7	33	27.1	40	32.8	9	7.4	13	10.7	27	22.1	3.3
8	U8	34	27.9	30	24.6	12	9.8	25	20.5	21	17.2	3.3

N.B, 5 = diurnal, 4 = every two or three days, 3 = every week, 2 = doubly in semester, 1 = Once in semester) particulars U1 = How frequently your mathematics preceptors give you class work(exertion)? U2 = How frequently your mathematics preceptors give you schoolwork? U3 = How frequently your mathematics preceptors made observation on scholars work? U4 = How frequently your mathematics preceptors asks scholars oral questions, U5 = How frequently mathematics preceptors assess scholars' design work? U6 = How frequently your mathematics preceptors give classroom test/ quizzes? U7 = How frequently your mathematics preceptors checks you by asking and answering the question? U8 = How frequently your mathematics preceptors give you group assignment? As can be observed from point 1, of table 5, the maturity of 65(53.3) of the pupil repliers reported that the preceptors give class exertion daily as assessment ways as means of following up their scholars' learning progresses. In discrepancy, 6(4.9) out of 122 of the scholars actors reported that preceptors give class exertion doubly in a semester. This shows that preceptors use class exertion as assessment ways to enhance scholars' progression. Results in point 2 of the below table indicates that 16(13) scholars responded that the preceptors assign schoolwork every two or three days, 43(35.2) every weeks, 30(24.6) doubly in a semester and 33(27.4) formerly in a semester. Regarding item3 of the table 5, the maturity of 43(35.2) pupil repliers reported that observation was n't used duly. also, the calculated mean scores of the scholars(mean = 3.2) indicates that the repliers rated the point wrong. As depicted from the below, observation was n't taken as a system of assessment ways to check pupil performance. But observation as a fashion of assessment helps the schoolteacher to know individual pupil's performance. In the case of demonstration(design- work) in point 5, the maturity of the scholars 66(54.1) repliers said that they had no way been handed with similar type of assessment to enhance scholars' progression. Regarding point 6 of the below table 5, revealed that the maturity of 48(49.3) scholars replier reported preceptors gave two test for a course in a semester. also, the calculated mean scores of the scholars(mean = 2.2) indicates that the scholars are not getting sufficient test/ quizzes satisfactory. Two tests might not be considered as enforcing nonstop assessment. Generally, table 5, showed that the preceptors used a many type of tools in which class conditioning, assignment(home- take) asking and answering the question, furnishing review exercises and

giving group assignments are dominating the rest of the assessment ways preceptors used to enhance scholars' progression.

4.2. Teachers' and students' Responses to purposes

4.2.1. Teachers' Responses to purposes /types of Assessment Techniques

Table 5: Teachers' Responses on Types/purposes of assessment (n=8)

NO	ITEMS	1 st		2 nd		3 rd		4 th		5 th	
		CHOICE	CHOICE	CHOICE	CHOICE	CHOICE	CHOICE	CHOICE	CHOICE	CHOICE	CHOICE
		F	%	F	%	F	%	F	%	F	%
1	W1	3	37.5	2	25	2	25	1	12.5	-	-
2	W2	4	50	2	25	1	12.5	-	-	1	12.5
3	W3	1	12.5	2	25	4	50	1	12.5	-	-
4	W4	1	12.5	1	12.5	3	37.5	2	25	1	12.5
5	W5	1	12.5	1	12.5	2	25	1	12.5	3	37.5
6	W6	1	12.5	3	37.5	-	-	1	12.5	3	37.5
7	W7	3	37.5	1	12.5	1	12.5	2	25	1	12.5
8	W8	3	37.5	2	25	1	12.5	-	-	2	25
9	W9	1	12.5	1	12.5	1	12.5	3	37.5	2	25
10	W10	3	37.5	1	12.5	1	12.5	2	25	-	-

Items: W1= to decide students promotion to the next grade, W2= to identify low and high achievers, W3=to take remedial action, W4= to re-teach what students missed, W5= to motivate students, W6= to improving students learning, W7= to improving instructional materials, W8= to develops participants' learning, W9= to identify students' learning difficulty, W10= to identify students' strengths and weaknesses learning difficulty.

The purpose of assessments in the schools

As to the purpose of assessment results in the schools, table 6 depicted that nearly half of the teachers (50%) reported that they use assessment results primarily to identify low and high achievers and (37.5%) of the respondents to decide pupils' promotion to the next grade.

The data analysis from item 1 to 10 above show that mathematics teachers in the study area are found to be using a range of assessment techniques that are fit for purpose. The results show that the teachers often use formative, diagnostic, summative and evaluative assessments in combination.

4.2.2. Students responses on types/purposes of assessment techniques teachers' use

Table 6: Analysis of students' responses on types/purposes of assessments (n=122)

NO	ITEM	1 st CHOICE		2 nd CHOICE		3 rd CHOICE		4 th CHOICE		5 th CHOICE	
		F	%	F	%	F	%	F	%	F	%
1	S1	38	31.1	36	29.5	19	25.6	22	18	7	5.7
2	S2	17	13.9	20	16.4	39	32	36	29.5	10	8.2
3	S3	33	27	42	33.6	17	13.9	20	16.4	11	9
4	S4	35	28.7	42	34.4	18	14.8	17	13.9	10	8.2
5	S5	33	27	33	27	23	18.9	23	18.9	10	8.2
6	S6	21	17.2	26	21.3	5	4.1	36	29.5	34	27.9
7	S7	25	20.5	17	13.9	6	4.9	36	29.5	38	31.1
8	S8	20	16.4	21	17.2	6	4.9	35	28.7	40	32.8
9	S9	34	27.9	36	29.5	7	5.7	22	18	23	18.9
10	S10	40	32.8	31	25.4	8	6.6	20	16.4	23	18.9

Items: S1=to identify my strengths and weakness, S2= to identify my learning needs, S3= to plan and develop intervention to address the learning difficulties identified, S4= to identify my learning difficulties, S5= to identify my ability to understand, S6= to identify my progress and gaps in learning, S7= to set learning goals and success criteria, S8= to provide quality feedback to what I performed in the class, S9= to help me identifying my underachievement, S10= to help me identifying my underachievement as soon as emerges

Table 7 presents 10 items which asks students for which purpose their mathematics teachers assess them in the classroom. As one can see from the above table 7, item 1, 38 (31.1%) of the students responded that teachers assessed their students primarily to identify their strengths and weaknesses and only 7(5.7%) of them selected 5th choice to assess their

students for this purpose. In response to item 10 of table 7, which is about identifying my students' learning needs, 39(32%) student respondents said that their teachers used 3rd choice to assess them to identify their learning needs. As it was illustrated in the table 7, item 3, 75(60.5%) respondents out of 122 responded that teachers assessed 1st and 2nd choice in order to plan and develop intervention to address students' learning difficulties; whereas 11(9%) of the respondents teachers choose the 5th for this purpose of assessment. According to table 7 item4, regarding checking how much students understood the units completed in half term, 42(34.4%) respondents selected the 2nd choice. In response to item 5, it was seen in table that more than half of the student respondent, 66(54%) in combination agreed that students use the results to emphasize competition between students rather than personal improvement.

In response to item 6, 36(29.5%) respondents agreed that their mathematics teachers use 4th choice to identify their students' progress and gaps in learning. According to item7 in table 7, 74(60.6%) of respondents decided that 4th and 5th choice of assessments are selected in order to set learning goals and criteria for the future. The data analysis in table 7 for item 9 indicates that out of 122 respondents 36(29.5%) replied the results secondarily to the assessment type that help teachers identifying their students' underachievement.

The data analysis for item 1 to 10 above shows that mathematics teachers in the study area are found to be using a range of assessment techniques that fit for purpose of identifying student's strengths and weaknesses, to check student's learning needs, to provide student's feedback, to create sense of competitions between among students, to check their understanding about the content and to make decision about students learning progress.

4.3. The challenge facing mathematics Teachers in the Effective Implementation of Assessment Techniques

In the following tables data collected from questionnaire for teachers on the factors that affect the implementation of assessment during teaching and learning mathematics is presented.

Table 7: Responses of mathematics teachers on the challenge facing the implementation of Assessment techniques(n=8)

NO	ITEM	STRONGLY RELEVANT		RELEVANT		UNDECIDED		IRRELEVANT		STRONGLY IRRELEVANT		Mean
		F	%	F	%	F	%	F	%	F	%	
1	B1	5	62.5	1	12.5	-	-	1	12.5	1	12.5	4
2	B2	2	25	4	50	-	-	1	12.5	1	12.5	3.6
3	B3	1	12.5	2	25	-	-	4	50	1	12.5	2.8
4	B4	5	62.5	1	12.5	1	12.5	1	12.5	-	-	4.3
5	B5	2	25	3	37.5	1	12.5	2	25	-	-	3.6
6	B6	3	37.5	1	12.5	1	12.5	2	25	1	12.5	3.4
7	B7	2	25	3	37.5	1	12.5	1	12.5	1	12.5	3.5
8	B8	1	12.5	3	37.5	1	12.5	2	25	1	12.5	3.1

Workman, 2002; Stiggins, 2002). It's getting further and further apparent that assessment is an integral element of the training and knowledge process(Gipps, 1990; Black wiliam, 1998). The National Council of instructors of mathematics(NCTM)(2000) regard assessment as a tool for learning mathematics. By assessing continuously in different ways, we can be confident about what scholars know and what they can do. A number of different assessments will give you a more picture of the knowledge and chops acquired by the scholars. From among the assessments, you can use the following class exertion, group exchanges, assignment, exercise problems and quiz or test. First and for utmost, it gives feedback to scholars, instructors, seminaries and parents on the effectiveness of training and on scholars' strengths and sins in knowledge. Second, it provides information to seminaries, academe systems, government, tertiary institutions and employers to enable them to cover morals and to grease selection discussions. The most important part of assessment is promoting knowledge and monitoring scholars progress. inevitably, this indicate high- stakes uses of assessment since the results are generally employed to make critical opinions about individualities. Assessment is one of the professional capabilities which instructors need to be acquainted and through which the problems of educational programs and reliable data about the status of an educational system can be attained. It's also defined as the process of gathering information from a variety of sources, using a variety of styles that swish address the evaluation, and is varied with testing, which is limited to administration and scoring of tests(Gronlund, 1981; Ogunniyi, 1984; Gage and berliner, 1998; ICDR, 1999; Eggen and Kauchak, 2001) Some validation shows that the quality assessment ways employed determines largely the quality of pupil knowledge(Brissended, 1996). This seems to be likely since assessment by it tone is considered as an integral part of the educational process. Not only this, it my also be true because assessment generally starts with knowledge and ends along with it. In ispite of this, at multitudinous points during the educational process, instructors need to make several decissions about how well their scholars are learning and how effective their instruction has been, where these assessment discussions, bear respectable, reliable and accurate data(Cone and Foster, 1991; Spiller, 2009). Generally, effective assessment practices involve four factors; videlicet, designing assessment, preparing scholars, administering scholars, and assaying the results(Eggen and Kauchak, 2001 Dunn, 2002; Frye et. al., 2006; Vaughan, 2001 Shavelson, 2007; Webber,

2009). What critical analysis of the below points makes clear is that only by concluding or developing instruments and styles that are simple to use, bear little spare time or trouble, and still give the necessary data for a specific knowledge outgrowth. In conclusion, given that no respectable disquisition has ever examined this particular issue in the Ethiopian terrain, there is a vital need to carry out disquisition in this area

4.4. Analysis of Teachers' Interview

The analysis of data gathered through interview has also shown consistent results with findings of both teachers and students questionnaires. As mentioned in chapter three, an interview was held with six teachers using a semi-structured interview schedule. The nature of the interview was face to face and with each respondent. In order to address these themes, the five leading questions presented below were raised with some relevant probe.

-Do you think that classroom assessments are essential for you and your students' progress? Why?

-What do you think are effective assessment techniques you consistently use to assess your students' classroom progress? When do you apply them?

-For what purposes do you assess your students in mathematics classroom?

-What challenges do you face while implementing of effective assessment in teaching and learning mathematics?

-What do you think should be done for effective implementation of assessment techniques in teaching and learning mathematics? In this section, the interviewees' responses to the above major questions and to respective probes are described, and where possible, an attempt is made to link the findings from the interview, with the results obtained through teachers and students questionnaire.

Question 1: Do you think that classroom assessments are essential for you and your students' progress? Why? The interview data proved that teachers have adequate understandings about usefulness of classroom assessment. The interview participants expressed the techniques or methods of classroom assessment that they usually employ in their respective mathematics classes. One of the teachers for example stated his methods as follows:

Teacher 1: It helps me to know whether the students have understood or they have not understood what they have been taught. Teacher2: Because it helps me to know my weakness

and strong teaching areas as well as students' classroom ability. Teacher3: Assessment helps me to know if students have understood my lesson or topic. Teacher4: Because it helps me to know which student is below average or above average? It gives a picture of individual pupils' ability.

Teacher5&Teacher6: The teacher knows his or her weakness and how to improve students' progress.

The interview participants were convinced that the major purpose of student's assessment and evaluation are to improve student learning and guide students, teachers, and others with a Legitimate need to improve student to acquire the knowledge, skills and attitudes as stated in the programs of study. Students need information about their strengths and areas of need in order to focus their efforts, seek help when needed, maintain faith in their ability to learn, and make decisions about subject/course selection or what to do after secondary school completion.

Question 2: What do you think are effective assessment techniques you consistently use to assess your students' classroom progress? When do you apply them? The purpose of the second interview question was to elicit information about effective assessment techniques they consistently use to assess their students' classroom progress and they apply them. All of the interviewees considered that they employed the following techniques to assess their students accordingly, Teacher 1: Assignment was the primary assessment technique I have ever used. The second most frequent technique was written test. Because assignment was the first technique, which leads or prepares my students for the written term tests.

Teacher2: I give assignment in groups; I checked class work/ home work. I provide periodically written tests, and in addition, I take their attendance. What I am usually using assessments include, assessments in pairs or in small groups, oral questions and answers, home-take tasks, taking attendance and marking those attendances. Teacher3: I give assignments in groups. I check class work/home work. I provide periodically written tests, and in addition, I take their attendance. Teacher4: I commonly assessed my students through class activity, I took attendance in my period to mark for those who regularly attended the mathematics session. I sometimes assessed them by giving project works. Teacher5: What I am usually using assessments include, assessments in pairs or in small groups, oral questions and answers, home-take tasks, taking attendance and marking those attendances.

Teacher6: I give assignment in groups; I check class work/home work. I provide periodically written tests, and in addition, I take attendance. Most of the interviewed teachers explained assessments best suited to guide improvements in student learning. These included the quizzes, written tests, home-take assignments, pair/or small group works that teachers administer on regular basis in their classrooms. Teachers trust the results from these assessments because of their direct relation to the classroom instructional goals, plus results are immediate and easy to analyze at the individual student level.

Question3: For what purposes do you assess your students in mathematics classroom? The third question asked by the teachers was: For what purposes do you assess your students in mathematics classroom? Most of the participants expressed for what purposes or which assessment they employed to assess their students' classroom progress as follows:

Teacher1: I perform classroom assessment to my students to create sense of competitions between/among students.

Teacher2: I provide various assessments to my students to evaluate their progresses, to check their understanding about the content. Teacher3: I assess my students for the purpose of identifying students' strengths and weaknesses, to check students' learning needs, and to provide feedback.

Teacher4: One of the purposes is to identify students' learning difficult and learning progress. Another purpose is to find out gaps in teaching. Teacher5: The purpose of my assessment is to understand students' achievements. Teacher6: To make decision about students learning progress. All of the six interviewees reported their beliefs. But the most recurring assessment was formative type, which refers to the provision of feedback to improve learning and teaching based on formal or informal assessment of student performance. The second most frequent assessment was Summative assessment, which usually takes place after pupils have completed a unit of work, or at the end of each term and/or year. In the category, teachers also assessed their students for the purpose of identifying their academic strength and weaknesses. This was meant for diagnostic purpose by which teachers can't use the information to plan and develop intervention to address the learning difficulties identified.

Question4: What challenges do you face while implementing of effective assessment in teaching and learning mathematics? Towards the fourth interview question, participants were required to sort out major barriers or challenges that they faced when implementing effective

assessment techniques. Their responses have been listed below: Teacher1: Poor classroom management practices by teachers. Teacher2: Large class size, short time allotment, students' misbehavior. Teacher3: Large class size, teachers lack awareness and commitment about effective assessment, broad course content. Teacher4: Lack of commitment by teachers to implement effective assessment.

Lack of resources, number of students, lack of interest by part of students to learn mathematics. Teacher5: Lack of resources, number of students, lack of interest by part of students to learn mathematics. Teacher6: Students' absenteeism, absence of clear guidelines how to implement effective classroom assessment. Shortage/inconvenience of equipment such as tables, desks.

According to Pophan(2008) and Stiggins(1992), classroom assessment is seen as a vital ingredient for effective teaching and learning. Furthermore, it is essential since it gives students guidance on their performance and contributes to improving the learning process. However, the implementation of effective classroom assessment as the interview data indicate is influenced by number of factors. The major challenges seem to be, first of all teachers' commitment to carry out effective classroom assessment which is followed by, a lack of interest in student part for being assessed, large class size, shortage of resources/school facilities, short/no time allotment for assessment, broad course content, student absenteeism and students' misbehavior. Question5: What do you think should be done for effective implementation of assessment techniques in teaching and learning mathematics? Furthermore, the interviewees were asked to suggest for effective implementation of assessment techniques in mathematics, that is the fifth interview question. Concerning this last question, all interviewees forwarded their own suggestion about what effective classroom assessment should be. In more condensed manner, respondents recommended that: Minimizing class size, allocating enough time, correcting students' ethics, affording sufficient materials, training to teachers about how to implement effective classroom assessment, adjusting students' behavior, setting clear assessment guidance are worth mentioning.

4.5. Discussion

4.5.1. Assessment techniques teachers implemented in their classrooms

The data analysis of both teachers' and students' questionnaire and teachers' interview show that teachers use different assessment techniques to enhance their students' progress in mathematics in the study area. They use such techniques as, home-take assignments, written

teacher-made tests, review exercises, oral questionings. Using a range of assessment strategies, teachers can understand and identify the purpose why they are assessing their learners. Such assessment techniques are generally developed directly from classroom instruction, group work, and related classroom activities and provide an alternative to traditional assessment. By practicing these, teachers place meaningful assessment at the center of instruction, they give students insights into their own thinking and growth, and students gain new perspectives on their potential to learn mathematics.

Besides this, one of the interviewed teachers said the following assessment techniques he uses: "I give assignment in groups; I checked class work/home-work, I provide periodically written tests, and in addition, I take their attendance." Another teacher reported his assessment techniques as follows: "What I am usually using assessments include assignments in pairs or in small groups, oral questions and answers, home-take tasks, taking attendance and marking those attendances. Moreover, the voices of some teachers are transcribed as "assignment was the primary assessment techniques I have ever used and the second most frequent techniques was written test since assignment was the first which led or prepared my students for the written term tests." Still another interviewee from reported that I commonly assessed my students through class activity, took attendance in my period to mark for those who regularly attended the mathematics session.

Based on the data analysis of both teacher and student questionnaire and teacher-interview, it is possible to deduce that mathematics teachers in all of three selected schools use different assessment techniques to measure their students' achievement. Such techniques included written assignments, written teacher-made tests, review exercises, and oral questionings.

4.5.2. Purpose for classroom assessments

The basic reason why teachers conduct classroom assessment is to collect evidence about the performance of learners. In other words, the major purpose of student assessment and evaluation are to improve student learning and guide students, their parents/guardians, teachers, and others with a legitimate need to help students to acquire the Knowledge, skills, and attitudes. Taking this into account, the data analyses of teacher and student survey questionnaire, as well as analysis of teacher face to face interview show that mathematics teachers of the selected secondary schools used classroom assessment techniques for the purposes of identifying students achievement and/or underachievement, sorting out students

learning difficulties and their strength and weakness so that to plan for intervention, provision of quality feedback, and foresting learning goals. The findings are aligned with scholar's assertion in literature review. For example William (2008), assert that assessment in general accounts for supporting learning (formative), certifying the achievement or potential of individuals (summative), and evaluating the quality of educational institutions or programs (evaluative). In addition, there is rising consensus among educators that assessment should be used for diagnosing students' achievement, measure their performance, and sort students.

4.5.3. Factors affecting classroom assessment in mathematics lesson

Interview participants explained some of the challenges that teachers face when assessing students. They reported large class size, teachers lack weakness and commitment, broad course content, short time allotment, students' misbehavior, students' absenteeism, absence of clear guidelines how to implement effective classroom assessment, lack of interest by part of students' to learn mathematics, shortage/inconvenience of equipment such as tables, desks, poor classroom management practices by teachers, poor organization of mathematics club. These challenges are similar to that reported by Webb (2005). Webb's highlighted factors include school organization, tradition and routine, the length of the class periods, learners enrollment in the classroom and the system's expectations for grade-level content as contributing to teachers' classroom practice, short duration class periods, for example those that are less than forty minutes, often curtail sustained learner engagement, classroom discussion and opportunities for reflection, a large learner enrolment in a class can pose a challenge for offering constructive feedback to open-ended questions and learners' projects. Assessment is used to determine whether the learning required for the achievement of the learning outcomes is taking place and whether any difficulties are being encountered. However, effective assessment can be achieved when teachers use a range of methods that, if they reflect consistent results, promise the most accurate assessment possible of student learning. So the assessment methods teachers develop should be clearly related to the purposes of the assessment, match the intended learning outcomes, and be compatible with the instructional approaches used.

CHAPTER 5

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the summary of the findings, conclusions, and some possible recommendations of the study. The purpose of this study was to investigate and describes the assessment techniques used by mathematics teachers in three selected secondary schools.

5.1. Summary of major findings

The major findings of the study were epitomized as follows;

The findings indicate that classroom assessments are essential to ameliorate pupil literacy and companion scholars, preceptors, and others with a licit need to help scholars to acquire the knowledge, chops and stations as stated in the programs of study. It's apparent that mathematics preceptors in the study area use different types of classroom assessment ways to enhance their scholars' progress. Grounded on the chance analysis, 62.5(n=5) of mathematics preceptors use test as the most constantly used assessment system. A considerable proportion of repliers 62.5(n =5) and 62.5(n =5) occasionally used individual and group assignments as nonstop assessment ways independently. This result reveals that utmost of the mathematics preceptors make use of veritably limited assessment styles. The major findings of this study were As far as the use of variety of nonstop assessment is concerned most preceptors use the same system throughout the time. The extent of rehearsing nonstop assessment was veritably low in mathematics classes. A considerable number of mathematics preceptors have clear understanding about nonstop assessment in the named high seminaries was not completely rehearsed. The common assessment trend was giving written tests and examinations. Large class size, lack of sufficient educational accoutrements , lack of acceptable training and incitement, preceptors' lack of commitment to effectively use assessment ways, scholars' malfeasance and absenteeism, shy of academy coffers, time limit for provision of feedback, deficit of mathematics clubs were some of the factors that hamper the proper perpetration of nonstop assessment. Reducing the class size, allocating enough time, correcting scholars' ethics, training preceptors how to apply classroom assessment, fulfilling mathematics club, furnishing sufficient accoutrements , giving on the job training and incitement were the results suggested by mathematics preceptors.

5.2. Conclusions

The practice of nonstop assessment requires mortal and material coffers, without fulfilling these essential rudiments, rehearsing it are delicate. thus, grounded on the findings the following conclusions are drawn. The study revealed that large proportion of mathematics preceptors in the study area have clear perception and understanding about nonstop assessment. All preceptors have understandings about the significance of enforcing classroom assessment. Different types of classroom assessment ways were used to enhance scholars' progress. From the findings, it can be concluded that the maturity of preceptors use analogous assessment ways. The trend of using test and examination as a bare mode of assessment was emphasized. This implies mathematics preceptors have not used the different styles of nonstop assessment to assess the overall performance. The study set up out that the use of assessment as a tool for learning mathematics is limited. Assessment needs to be part of a day-to-day tutoring and literacy. The findings also indicate that utmost preceptors use assessment results for grading rather than relating literacy problems and help scholars by conforming their instruction. Assessment results for the purpose of feedback(for both preceptors and scholars) are the neglected part of assessment in the sample secondary academy against the argument by numerous scholars that assessment should give information to preceptors for their own tone- evaluation and evaluation of their students.

5.3. Recommendations

The assessment styles preceptors develop should be easily related to the purposes of the assessment, match the intended literacy issues, and be compatible with the educational approaches used, so that they serve the opinions to be made about the scholars' literacy.

- preceptors bear professional training in relation to how they can use colorful assessment styles, tools and ways in order to plan and design unborn assignment.
- Though the preceptors showed positive perception toward the nonstop assessment, their involvement in applying them is low.
- It's judicious that the mathematics department organizes forums , shops, panel conversations witness participating in rehearsing the assessment ways.
- scholars should be counseled for their misbehaving with respect to their classroom assessment.

- School directors should fulfill necessary coffers and mathematics club so that mathematics subject be paid due attention for assessment.
- The government and other concerned bodies should make maximum trouble to reduce the number of scholars per class to manageable number, which is optimal.
- prices and incitement medium should be given for those who exercise nonstop assessment so as to motivate other mathematics preceptors.

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APPENDICES
APPENDIX A
WOLKITE UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF MATHEMATICS

Questionnaire for Mathematics Teachers

Dear teacher,

The main objective of this study is to evaluate the effectiveness of assessment techniques used by teachers in mathematics classrooms. Please kindly respond to the questions and statements as frankly and truthfully as you can. Your cooperation and contribution towards this research will be very much appreciated. All information given will strictly be kept confidential. (Do not write your name).

Section A

Background Information:

1. Your sex? I. male II. Female
2. Your highest qualification? I. Diploma II. Degree III. Msc in mathematics
3. How long have you been a teacher in Secondary School? I.0-5 year's
II .6-10 year's III.11-16 years IV. above 16 year's

Section B

Assessment Techniques Teachers use in Mathematics classroom

4. Which one of the following assessment techniques do you think are most effective in your classroom? (Put them in the order of their effectiveness by enumerating in the boxes)

- I) Written Tests II) Assignments III) Taking attendance regularly IV) Projects
V) Group Assignments VI) Oral tests VII) Marking home works VIII) marking class works

viii) Others (if any).....

Put a tick (✓) in the appropriate box under option numbers.

1. What assessment techniques do mathematics teachers use most often to assess student's learning progress in their classes?

No	Mathematics teachers employ the following assessment techniques in their classroom to follow up their learners' progress	1 st choice	2 nd choice	3 rd choice	4 th choice	5 th choice
1	Mathematics club					
2	Period oral tests					
3	Written tests					
4	Assessment (home-take)					
5	Project work					
6	Checklist observation					
7	Review exercise					
8	Asking and answering					

2. For which purpose of assessment do mathematics teachers use the assessment techniques?

No	Purpose for the assessment techniques used by mathematics teachers in the classroom.	Daily	Every 2 or 3 days	Every week	Twice in semester	Once in a semester
	I use assessment techniques to achieve one/all of the following purpose					
1	Identify any students' strengths and weaknesses					
2	Identify my students' learning needs					
3	Identify my students' learning difficulties					
4	Plan and develop intervention to address the learning difficulties identified					
5	Check how much my student understood the unit completed a half term					
6	Emphasizes competition between pupils rather than personal improvement					
7	Identify my students' progress and gaps in learning.					
8	Set learning goals and success criteria.					
9	Provide quality feedback to my students.					
10	Help to identify my students' under achievement.					

3. What are the major barriers (challenges) to mathematics teachers in implementing effective assessment in their classes?

No	Challenges in implementing effective assessment techniques in their classes.	Strongly Relevant	Relevant	Undecided	Irrelevant	Strongly Irrelevant
1	Large class size challenges teachers' assessment implementation					
2	Lack of commitment by teachers to perform assessment					
3	Tight schedule and rigid assessment format the school provides					
4	Broad course content to cover within allotted academic year.					
5	Students' absenteeism .					
6	Absence of good practice to bench mark assessment in the classroom settings.					
7	Absence of clear guidelines for assessment.					
8	Lack of infrastructure like chairs, chalkboards, stationary materials.					

APPENDIX B
WOLKITE UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF MATHEMATICS

Questionnaire for Grade 10 Students

Dear student,

The purpose of this study is to evaluate the effectiveness of assessment techniques used by teachers in mathematics classrooms.

Please kindly respond to the questions and statements as frankly and truthfully as you can.

Your cooperation and contribution towards this research will be very much appreciated. All information given will strictly be kept confidential. (Do not write your name)

Section A

Background Information

1. Your sex? I. male II. Female
2. Name of Your school I. Wachiga esho secondary II. Gesuba secondary
III. Mure secondary

Section B

Put a tick (✓) in the appropriate box under option numbers.

5=daily, 4=every 2 or 3 days, 3=every week, 2=twice in a semester, 1=once in a semester

No	Assessment techniques used by your teacher in mathematics classroom to assess your learning progress	5	4	3	2	1
1	My teacher gives me period oral tests					
2	My teacher provides to me written tests					
3	My teacher gives me assignment (take-home)					
4	My teacher assess me through project work					
5	My teacher makes checklists observation for my progress					
6	My teacher check me by asking and answering					
7	My teacher marks when I participate in class work					
	My teacher uses assessment techniques to achieve the following purposes					
8	Identify my strengths and weaknesses					
9	Identify my learning needs					
10	Doesn't identify my learning needs					
11	Identify my learning difficulties					
12	Plan and develop intervention to address the learning difficulties identified					
13	Check how much I understood the units completed in a half term					
14	Identify my progress and gaps in learning					
15	Set learning goals and success criteria					
16	Provides quality feedback to what I performed in the class					
17	Help me identify my under achievement as soon as it emerges					

APPENDIX C
WOLKITE UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF MATHEMATICS
TEACHER'S INTERVIEW GUIDE

Good morning or Good afternoon teacher.....

My name is Tadewos Masa. I came from Wolkite University (WKU), collage of Natural and computational science, Department of Mathematics to evaluate the effectiveness of assessment used by you in your mathematics classroom.

So, I kindly request you to stay with me a few minutes and give your responses to my interview questions. I really appreciate your best and passionate cooperation in advance.

1. Do you think that classroom assessments are essential for you and your students' progress? Why?
2. What do you think are effective assessment techniques you consistently use to assess your students' classroom progress?
3. For what purposes do you assessment your students in mathematics classroom?
4. What challenges do you face while implementing for effective assessment in teaching and learning mathematics?
5. What should be done for implementation of effective assessment techniques in teaching and learning mathematics?

THANK YOU !

