

ADDIS ABABA UNIVERSITY

COLLEGE OF EDUCATION AND LANGUAGE STUDIES

SCHOOL OF PSYCHOLOGY

FORMATIVE ASSESSMENT IN PRIMARY SCHOOLS OF SHEGER CITY: TEACHERS' UNDERSTANDING, PRACTICES, AND SOCIO-DEMOGRAPHIC CORRELATES

A DOCTORAL DISSERTATION IN EDUCATIONAL ASSESSMENT AND EVALUATION

BY

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SUBMITTED TO SCHOOL OF PSYCHOLOGY, COLLEGE OF EDUCATION AND LANGUAGE STUDIES

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A Doctoral Dissertation in Educational Assessment and Evaluation

Approval of the Board of Examiners

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Statement of Declaration

I, the undersigned, hereby declare that this dissertation is entirely produced by me and that it has not been presented for any other degree from any other university. All sources of materials used have been duly acknowledged.

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Date of Signature: _____

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Abstract

The study investigated teachers' understanding and practice of formative assessment (FA) in primary schools of Sheger City, Ethiopia. It also examined personal and contextual factors associated with the practice of formative assessment. Using an explanatory sequential mixed-methods design, the study employed quantitative questionnaires with qualitative supplementary interviews of principals, classroom observations of teachers, and student focus group discussions. The study involved 369 teachers in the survey, 21 teachers for classroom observation, and 24 students in FGD.The study participants were selected from sub-cities in Sheger City to reflect a diverse range of qualifications and experience. The findings showed that teachers' understanding of formative assessment was mostly at a basic level, with notable gaps in crucial formative assessment strategies, such as the use of diverse assessment techniques and the effective provision of feedback. Most teachers indicated that they were practicing formative assessment at basic or below basic levels; however, classroom observations and interviews conducted with school principals generally showed a poor practice of formative assessment, particularly in feedback usage and application of peer and self-assessment strategies. The factors that primarily influenced teachers' practice of formative assessment are teachers' understanding of formative assessment and internal school support. Additional challenges to the implementation of formative assessment were large class sizes, a lack of refresher training opportunities, a shortage of resources needed for formative assessment implementation, and assigning teachers to teach subjects not related to their field of speciality. *The study implied that increasing formative assessment literacy among teachers through in-service training, continued support from school leadership, and improving overall working conditions (workload, class size, and limitation in resources) will ultimately lead to effective implementation of formative assessment, which has the potential to increase student learning outcomes.*

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List of Abbreviations and Acronyms

ARG – Assessment Reform Group

ANOVA – Analysis of Variance

COFA – Classroom Observation of Formative Assessment

CVR – Content Validity Ratio

DV – Dependent variable

EFL – English as a Foreign Language

EPPI – Evidence for Policy and Practice Information

ESRU – Elicit-student- response-Recognise-Use

FA – Formative Assessment

FAP – Formative Assessment Practices

FGD – Focus Group Discussions

IV – Independent Variable

LI – Learning Intentions

LO – Learning objectives

MANOVA – Multivariate Analysis of Variance

MoE – Ministry of Education

OPST – Observed Primary School Teacher

QUAN/qual –Quantitative followed by qualitative

SP – School Principal

TFAS – Teachers' Formative Assessment Literacy Scale

TFAPS – Teachers' Formative Assessment Practice Scale

SC – Success Criteria

US – United States

USA-United Sates of America

Chapter 1

Introduction

This chapter provides an introduction to the study by discussing the background, describing the statement of the problem along with the basic research questions, and presenting the significance, delimitation and organization of the study.

1.1. Background of the Study

In recent decades, formative assessment has received increasing attention among countries undertaking reforms in the global education arena as an effective strategy to improve student learning and as a component of competence-based education (Wiliam, 2011). Assessment literature categorizes assessment into two types: summative and formative. Summative assessment of pupils, or assessment of learning, attempts to summarize learning that has taken place to record, mark, or certify achievements (Evidence for Policy and Practice Information - EPPI, 2002). On the other hand, student formative assessment, or assessment for learning, tries to determine the characteristics of learning as it is taking place to deepen and promote later learning (ARG, 2002).

Formative assessment fits well with countries' emphasis on the use of assessment data to shape improvements in teaching and learning and is consistent with a focus on creating learner-centered, structured, personalized, social, and inclusive learning environments (Santiago et al., 2012a). In this context, formative assessment in several countries has become an integral element of the curriculum, and it is understood as an element that can actually enhance, not simply measure, the achievement of the curriculum (Stiggins, 2007). While attention to results and data is a positive feature of education systems, an overemphasis on these may have a negative impact and undermine the formative role of student assessment. Some countries (e.g., Mexico and

Slovak Republic) seem to give greater prominence to the accountability function (i.e., summative assessment), while others (e.g., Denmark, Iceland, and Norway) seem to place more emphasis on the development function of assessment (i.e., formative assessment; OECD, 2013).

Formative assessment is an important aspect of teaching and learning, especially in primary schools, to enhance student participation and learning outcomes. There are many reasons to frequently apply formative assessment, one of which is to obtain feedback for both students and teachers so that they can improve their teaching strategies and learning outcomes (Parmigiani et al., 2024).

Research widely acknowledges the impact of formative assessment on students' learning (Black &Wiliam, 1998; Brookhart, 2011; Harlen, 2002; Irons, 2008; Stiggins, 2002). For instance, Black and Wiliam (1998) reported typical effect sizes ranging from 0.4 to 0.7 in favor of students who were placed with teachers utilizing formative assessment strategies. In Ethiopia, a quasi-experimental study conducted by Fisseha and Michael (2016) in selected Ethiopian higher education settings revealed that a group of students taught using selected formative assessment strategies (the experimental group) scored significantly higher on the formative assessment questionnaire and on achievement tests administered at the post-test phase than those in the comparison group, indicating that formative assessment, if properly applied, can improve students' learning. In line with this, Irons (2008) suggested that the quickest way to change students' learning and achievement is to change the assessment system and employ it as an integral part of the instructional process.

In the African context, several countries have shown commitment to implementing formative assessment through their national curriculum changes and shift

from examination-driven learning to student-centered, competence-based approaches (UNESCO, 2015; World Bank, 2018). Although many African countries are committed to implementing policies regarding formative assessment, research indicates that implementation across the continent is inconsistent (Andrade, 2010; Benett, 2011).

Several studies conducted across East African Countries have demonstrated that many barriers prevent the effective implementation of formative assessment strategies throughout the region. Although teachers in Kenya and Tanzania recognize the benefits of using formative assessments, they continue to use summative assessments to assess student progress (Komba & Nkumbi, 2018; Oduor, 2018). These challenges are often attributed to contextual limitations, such as large classes, low levels of assessment literacy, time pressure, and insufficient access to professional development opportunities (Heritage, 2010; Komba & Nkumbi, 2018). Similarly, Nabahoand et al. (2013) and Oduor (2018) found that the implementation of formative assessment in Uganda appears to be mainly a way of recording grades rather than a source of continuous feedback on teaching and learning processes. The findings of this study indicate that although formative assessment is widely advocated at the regional policy level, there are still many systemic and pedagogical barriers to implementing formative assessment in the classroom.

In Ethiopia, recent educational reforms have focused substantially on formative assessment as a technique for improving educational quality. The newly formulated Ethiopian General Education Curriculum Framework stipulates that classroom assessment should be continuous and serve to improve learning and teaching (Ethiopian MoE, 2020). The framework emphasizes that assessment is an integral part of teaching and learning, with the main goal of improving both student learning and teacher

effectiveness through collecting, evaluating, sharing, and interpreting data that show students' growth and accomplishments and modifying instruction as necessary (Ethiopian MoE, 2020). This clearly indicates that the implementation of formative assessment (assessments done on an ongoing basis) rather than just intermittent ones is imperative (MoE, 2020). Teachers are required to monitor their pupils' progress during class. According to the framework, it is vital to recognize the distinguishing difference between ongoing testing and continuous assessment.

In addition, the framework emphasizes that assessments at the primary education level should strongly emphasize helping students develop their core competencies in language, math, morality, aesthetics, physical development, and environmental science. Assessment at this level should be ongoing and concentrate on assessment for learning, which aims to improve learners' learning and teachers' effectiveness. The framework stresses the need for providing timely, specific, and clear feedback as part of formative assessment so that students can make decisions about their further learning.

According to the framework, assessments in the classroom should take the form of oral, written, or practical assignments that involve a range of techniques, such as class work, homework, assignments, portfolios, checklists, quizzes, tests, and examinations. Therefore, the framework clearly indicates that formative assessment must be embedded in primary school instructional processes to be conducted and used by learners, teachers, and other stakeholders.

Moreover, the Ethiopian Ministry of Education has made several reforms, including the attention given to formative assessment in the Education Development Roadmap to improve the quality of education (MoE, 2018). The roadmap states that

teachers are required to conduct formative assessments to provide timely feedback to students and improve their learning. Moreover, it states that teachers should be trained on formative assessment topics, such as effective feedback techniques and assessment design, to enhance their ability to implement these assessments. Furthermore, it states that standards for formative assessments should be developed.

An effective implementation of these policy directions mainly relies on teachers, because they are the major performers who translate curriculum and assessment policies into actual classroom practice. Successful formative assessment requires teachers to have a strong knowledge base on its aims, principles, and procedures, and to apply them consistently in the teaching-learning process. Research has identified key formative assessment strategies that contribute to enhanced learning outcomes in higher education. These include clarifying learning intentions and success criteria, eliciting evidence of student learning through questioning and classroom interactions, providing formative feedback that moves learning forward, and activating students as learning resources for themselves and their peers through peer assessment (Black & Wiliam, 2009; Wiliam, 2011). Together, these practices create a generally accepted framework for successful formative assessment and provide a helpful system for assessing formative-assessment procedures.

Teachers' understanding of formative assessment is important because it determines how they perceive and use assessment principles and strategies in their teaching. Since formative assessment is a pedagogical process, teachers need to gather information on student learning, analyze that information, and use it to alter the teaching-learning process. Teachers frequently confuse formative assessment with continuous testing, grading, or certification, according to research conducted in a

variety of situations (Harlen & Crick, 2002; OECD, 2013). Such a misconception could undermine the intended value of formative assessment to student learning, as well as its efficacy. Therefore, assessing teachers' knowledge of formative assessment is important for identifying whether classroom practices correspond with contemporary assessment concepts and policy expectations.

Examining teachers' formative assessment implementation is equally vital because knowledge alone does not necessarily lead to effective implementation. Teachers may possess knowledge of formative assessment but may experience practical obstacles that impede classroom application. Previous research has found several personal and contextual factors that influence formative assessment practice, including assessment literacy and teaching experience, professional development opportunities, attitudes toward assessment, workload, class size, school leadership support, and the availability of instructional resources (Heritage, 2010; Zi Yan & Pastore, 2022). Consequently, understanding both teachers' use and the influencers associated with such practices is crucial for identifying areas that require support and intervention.

Demographic parameters such as gender, teaching experience, educational status, and professional training have also been explored as potential correlates of understanding and practice of formative assessment. Examining these variables might therefore lead to a better understanding of variations in formative assessment implementation among teachers and guide targeted professional-development programs.

Despite the high policy emphasis on formative assessment in Ethiopia, empirical evidence addressing teachers' understanding and classroom application of formative assessment is scarce. Existing research has mostly focused on practices and has offered little emphasis on teachers' comprehension of formative assessment and the variables

related to its implementation. Furthermore, few studies have examined these concerns in primary schools, where formative assessment plays a vital role in facilitating basic learning and competency development.

Given the importance of formative assessment in Ethiopia's educational reform goals and the crucial role of teachers in implementing assessment policies, there is a need to investigate teachers' understanding and classroom practices of formative assessment and the factors associated with them. Therefore, this study was designed to examine primary school teachers' knowledge levels, practices, and demographic correlates of formative assessment in Sheger City, Oromia Regional State, Ethiopia.

1.2. Statement of the Problem

In the most recent education and training policy of the country, the need to use learning assessment and examination system as one of the key actions to be taken in developing competent human power has been underscored (Ethoian MoE, 2023). This national policy document also highlights that programs that would improve the country's assessment system and thereby improve education quality be developed and implemented (MoE, 202).

Similarly, the Ethiopian teachers' professional standards outline teachers' assessment competence as one of the important pillars of the professional practice domain. It emphasizes that Ethiopian teachers have to be competent in assessing learning, providing feedback, and reporting on student learning (MoE, 2012). In addition, the general education curriculum framework prepared by the Ethiopian Ministry of Education stresses that teachers would implement formative assessment strategies in order to improve the instructional process and ultimately enhance students' learning (MoE, 2020).

These policy documents demonstrate the growing national emphasis on formative assessment as a means of improving educational quality.

Inspite of this policy emphasis, there is limited empirical evidence on primary school teachers' formative assessment understanding and practices, particularly in Ethiopian primary schools. Previous research on assessment has mostly focused on summative evaluation, ongoing assessment of, not for, students' learning, marking, and grading, while integration of assessment into regular instruction to enhance learning has been under-studied comparatively (Hailay & Abate, 2022).

Most existing studies on formative assessment in Ethiopia have concentrated more on formative assessment practices rather than examining their understanding of the strategies and principles of formative assessment. For instance, studies by Askalemariam (2015), Dereje et al. (2022), Hailay and Abate (2022), Sintayehu (2016), and Yidenek (2018) focused on investigating teachers' classroom practices of formative assessment with limited attention given to teachers' knowledge and understanding bases of the phenomenon. With respect to teachers' understanding of formative assessment, research shows that teachers who possess a solid understanding of assessment principles and procedures are more inclined to employ formative assessment regularly (Hattie & Timperly, 2007; Heritage, 2010).

Furthermore, the assessment guidelines that are distributed to schools failed to give an effective orientation to continuous assessment and formative assessment, nor did they demonstrate models or best practices that show how they can be incorporated into regular instruction (e.g., Oromia Regional Educational Bureau school exam administration guidelines, 2021).

Another gap in earlier FA studies is their methodological and analytical scope. Most studies have employed descriptive survey designs and generally reported challenges affecting formative assessment practices without examining the relative contribution of different factors. Although some studies have identified factors such as large class size, inadequate resources, limited instructional time, insufficient professional development opportunities, lack of school support, and inadequate teacher knowledge, they did not determine the extent to which these factors explain variations in formative assessment practice. Consequently, there is limited evidence regarding the key predictors of teachers' formative assessment practices in Ethiopia.

In addition, studying teachers' understanding of formative assessment in Sheger City is important for several reasons. First, Ethiopia's current education reforms require teachers to implement formative assessment as an integral component of teaching and learning. However, the successful implementation of these policy prospects is subject to teachers' understanding of formative assessment principles and practices. Second, studies have consistently shown that teachers' understanding of formative assessment purposes and strategies is a key determinant of its effective implementation, while misconceptions about it often hinder classroom applications. Third, despite the increasing emphasis on formative assessment in national policy documents, limited empirical evidence exists regarding teachers' understanding of formative assessment in Sheger City primary schools. Hence, investigating teachers' level of understanding of FA is indispensable to know the extent to which policy expectations are known at the classroom level and to identify areas for teachers' professional development and institutional support.

In addition, most existing studies on formative assessment in Ethiopia have predominantly focused on secondary and higher education institutions. The few studies conducted at the primary school level are limited in number and scope. For instance, Sintayehu (2016) investigated formative assessment practices using a mere quantitative survey method involving a relatively small sample (seventy-two teachers) and relied on a single source of data without triangulation. As a result, evidence regarding primary school teachers' understanding and implementation of formative assessment remains insufficient.

The basis for investigating differences by sex is that male and female teachers may have experienced different expectations from the practices. Therefore, examining sex-based differences helps determine whether formative assessment understanding and practice are equitably distributed among teachers and whether professional support needs vary across groups of teachers.

The subjects taught by the teachers were considered a basis for comparing FA understanding and practice because the nature of instruction and assessment practices may vary across disciplines. Different school subjects may require different instructional activities, assessment techniques, and feedback practices, which may affect teachers' understanding and classroom practices of formative assessment. Therefore, comparing teachers based on their subjects can show whether teachers teaching different subjects encounter unique challenges and need further support for effective formative assessment use.

The rationale for including sub-city as a comparison variable was that educational practices are exercised within local contexts that may differ in terms of resources, professional development opportunities, leadership support, supervision, and

culture. Although educational institutions function under the same educational policies, differences in contextual factors across sub-cities may impact FA understanding and practices. Investigating these variations can provide evidence for context-specific interventions.

Furthermore, the need for the present study was simulated by observations from school practicum experiences, which suggested that teachers were predominantly using summative assessment, in which they continuously prepared and administered paper-pencil tests, in the name of continuous assessment. In addition, rather than encouraging teachers to use continuous assessment data to modify their lessons and enhance student learning, school administrators required teachers to gather fragments of marks at the end of chapters for summative uses. Such practices indicate the possibility of misconceptions regarding formative assessment and underscore the importance of investigating how teachers understand and implement formative assessment in primary school classrooms.

Given these gaps, there is a need for a comprehensive investigation of primary school teachers' understanding and practices of formative assessment and the factors influencing its implementation. Accordingly, this study examined teachers' understanding and classroom practices of formative assessment in primary schools of Sheger City. Using a mixed-methods approach and regression analysis, the study sought to provide a more comprehensive understanding of formative assessment implementation and identify factors that significantly influence teachers' formative assessment practices.

Studying primary school classroom practices is particularly pertinent as they are the foundation phases of schooling where children begin to further develop and enhance

their cognitive and affective capacities for learning new knowledge and skills, thereby establishing a base for future development (DeLuca et al., 2013).

1.3. Basic Research Questions

1. What is the level of understanding of formative assessment among primary school teachers in Sheger City?
2. What formative assessment strategies do primary school teachers in Sheger City employ, and to what extent do they employ these strategies?
3. How do teachers' understanding and practices of formative assessment vary across teachers' gender, involvement in formative assessment trainings, sub-city, and the school subjects they teach?
4. Do teachers' instrumental attitude towards FA, teaching experience, FA understanding, school support, class size, time constraints, and assessment policy significantly predict teachers' formative assessment practices?

1.4. Significance of the Study

The findings of the study have many implications for primary school teachers, school leaders, students, policy makers, and researchers. The study has several practical and some theoretical significance.

1.4.1. Practical Significance

First and foremost, the study can provide useful information to educational experts and officials on the teachers' level of understanding and use of formative assessment in Sheger City. In so doing, it highlights where teachers require more assistance for successful implementation of formative assessments through a continuous professional development. Consequently, it lays the foundation for enhancing their

abilities of incorporating formative assessment techniques into their everyday practice. Accordingly, school principals may use the findings of this study to support professional development programs that emphasize formative assessment, encourage collaboration and action research among teachers, and have ongoing conversations with teachers about the use of formative assessment.

The findings of the study can also inform teacher education institutions and other stakeholders about future professional development programs for primary school teachers on formative assessment. The findings may also provide policymakers with information on how to support primary school teachers in their use of formative assessment to improve student learning outcomes. Moreover, the findings of the present study can give key insight to planners and system developers on how they should design policies and strategies for successful implementation of formative assessment in primary schools. Professional development policies and programs focused on formative assessment can be successful if the program designers and other relevant parties are aware of the good and bad practices already being implemented by teachers. For successful practice of FA in educational institutions, policymakers and teacher training institutes can examine the value of pre-service and in-service assessment trainings with the aid of this study's findings.

1.4.2. Theoretical Significance

The present study may also contribute to the larger literature by contributing to further understandings of FA across various contexts. For instance, it gives evidence on the less investigated aspect, teachers' understanding of formative assessment, provides broader and deeper information through a mixed-methods investigation, and also reveals analyitic factors that predominantly affect formative assessment practices. In

addition, the study tests and refines the formative assessment literacy tools' factor structures in the Ethiopian context. Moreover, the research can serve as a stepping stone for further research in that area.

1.5. Delimitation of the Study

This study aimed to collect data primarily from selected primary school teachers, principals and students in Sheger City. Thus, all non-primary school education levels and non-governmental schools were beyond the focus of this study. Furthermore, macro-level factors such as national policies that could affect teachers' formative assessment practices, factors related to students such as students' motivation and engagement, and parental socio-economic conditions were not addressed in the present study due to time and other resource constraints.

1.6. Operational Definition of Terms

In this study,

- **Formative Assessment practice**: refers to levels of teachers' use of formative assessment strategies and principles.
- **Personal Factors**: in this study include teachers' individual traits and characteristics, which vary from person to person that can shape their implementations of formative assessment. E.g., attitude, understanding, and experience.
- **Contextual Factors**: in this study include factors that are external to the individual teacher, but that have immediate influence upon formative assessment practices – especially factors related to the school itself or its surrounding community. E.g., leaders' support, school policy on assessment, and working condition.

- **FA understanding**: refers to teachers' knowledge of key ideas and strategies in formative assessment.
- **Instrumental attitude towards FA**: refers to teachers' opinions regarding the importance of formative assessment in the teaching and learning process.
- **Feedback**: It is a comment or piece of information that learners receive from a teacher on the process or product of a learning task.
- **Success criteria:** It refers to the assessment criteria or standards that the learners need to realize after each assessment task.

1.7. Organization of the Dissertation

This dissertation is organized into six major chapters. The first chapter presents the study's background, statement of the problem, basic research questions, and significance of the study. In the second chapter, a review of related literature grouped under selected relevant topics and subtopics based on the variables in the study and the research questions is presented. Chapter three presents the study methods, which detail the study design, sampling issues, study tools' piloting, validation procedures, major qualities of the instruments, and methods of data analysis. In the fourth chapter, the details of the quantitative and qualitative data analysis results are presented. The chapter presents answers to the research questions one after the other, using data from the quantitative and qualitative strands. The fifth chapter presents the study's discussion by comparing its major findings with those of earlier empirical studies. Finally, the last chapter presents the summary, conclusion, and recommendations of the study.

Chapter 2

Review of Related Literature

In this chapter, a review of literature relevant to formative assessment and basic research questions of the study is provided. Accordingly, discussion of the theoretical perspective underpinning the study, descriptions of the key strategies in FA, global and local empirical evidences on teachers' understanding and practices of FA, and factors affecting formative assessment practices are presented.

2.1. Theoretical Foundations of Assessment

2.1.1. The Paradigm Shift: From Summative Assessment to Formative Assessment

In the context of educational assessemnt, Scriven (1967) was the first to establish the distinction between the summative and formative roles of assessment (Black & Wiliam 2003; Wiliam & Thompson 2008). According to Scriven, formative assessment results are intended to support improvement, whereas summative assessment yields data to evaluate the overall worth of an educational program. A similar distinction was proposed by Bloom (1969), but in the context of classroom teaching (Black & Wiliam 2003; Wiliam & Thompson 2008). The goal of formative assessment, according to Bloom (1969, p.48), is "... to provide feedback at each stage in the teaching-learning process." Summative assessments are used to value students'learning at the end. Much effort has been made over the years to further develop Bloom's distinction, particularly in Australia (e.g., Sadler 1989) and the UK (via the Assessment Reform Group).

The most influential developments in assessment theory have been made by Black and Wiliam (1998) and the Assessment Reform Group (ARG) in the UK (2002). The landmark articles by Black and Wiliam (1998a, 1998b) demonstrate that formative assessment is one of the most effective strategies for promoting student learning.

Following the research findings of Black and Wiliam, the works of ARG make a great contribution in developing the theory and practice of formative assessment. In 2002, ARG formulated “Assessment for Learning," describing it as “the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go, and how best to get there" (ARG 2002). This is essential for promoting learner involvement in assessment and responsibility in learning.

The paradigm shift from summative assessment to formative assessment is to ensure that assessment serves its basic purpose in the educational system. Summative assessment refers to formal tests carried out after a certain learning period or at the end of a course, the results of which are used mainly for comparison, selection or accountability purposes (Black & Wiliam, 2003). Earl (2003) defines summative assessment as the process of collecting and interpreting evidence for the purpose of summarizing learning at a given point in time, to make judgements about the quality of student learning on the basis of established criteria, and to assign a value to represent that quality.

It is summative in nature because it is intended to measure learning outcomes and report those outcomes to students, parents, administrators and other stakeholders. It is accompanied by a value or letter grades, and compares students’ achievement with standards. It occurs at the end of learning unit and is teacher-centred. Summative assessment does not give immediate feedback to teachers and students for adequate remediation. These shortcomings necessitate a shift in assessment from summative assessment to formative assessment.

Formative assessment is a shift in assessment that all the assessors must embrace for improvement in the performance of students in the school system. FA refers to assessment activities that are embedded in the normal teaching and learning process with the purpose of providing feedback for both teachers and students to plan the next step of teaching and learning (Black & Wiliam, 2003). It is formative in nature and occurs at all stages of the learning process.

FA is also defined by Earl (2003) as an on-going process of gathering and interpreting evidence about student learning for the purpose of determining where students are in their learning, where they need to go , and how best to get there. It occurs when teachers use inferences about students' progress to inform their teaching.

Formative assessment occurs at all stages of the learning process. It provides immediate feedback to both teachers and students which emphasizes strengths, identifies challenges, and points to next steps. It encourages all students to take responsibility for and become active in their own learning for better performance and improvement in academics (OECD, 2013).

The feedback loop gives a signal to teachers to check on students' level of understanding and change their instruction to keep them on track if need be. FA is based on a range of information sources such as portfolios, works in progress, and teacher observation. No grades or scores are given in FA; record-keeping is mainly anecdotal and descriptive.

Formative assessment is fundamentally concerned with change. It aims to be a vehicle of change by allowing learners to realize the difference between their current performance and the target performance (Fulcher et al., 2014). FA is aimed to address students' informational needs to enhance both motivation and achievement by getting students in their own learning from the start (Stiggins et al., 2007). Through FA,

teachers find out what students have successfully mastered, what they have partly mastered and what they have not mastered so that follow-on activities can advance better learning.

The FA task is to provide feedback to both teachers and students regarding the learner's progress towards achieving the learning objectives and goals. This feedback should be used by teachers to revise and develop further instruction. Adequate feedback and remediation are the backbone of FA. It's also aimed at helping students gain awareness about their weaknesses and work on them for better performance.

2.1.2. Theoretical Framework of the study

Formative assessment practices and the use of their results involve various agents, including teachers, learners, and peers. Thus, this study was underpinned by social constructivism, self-regulated learning (SRL) theory, Kozma's model of contextual influences, and differentiated instruction (DI), each showing direct links to atleast some of the key variables: formative assessment understanding (FAU)—teachers' conceptual grasp of FA principles (measured via Likert-scale survey items), formative assessment practice (FAP)—their observable classroom enactment, and factors associated with FAP (personal and contextual factors that can influence the implementation of FA).

a. Social Constructivism and Its Implication for Assessment

Social constructivism, which defines learning as an interactional process among the learner, the teacher, and peers (Vygotsky, 1978), underpins this study.A key concept in the theory is the Zone of Proximal Development (ZPD), which refers to the difference between what students can do on their own and what they can do when supported by more knowledgeable persons. Teachers support students' growth

in their ZPD, scaffolding, questioning, feedback and collaborative activities to facilitate higher levels of learning.

Formative assessment is consistent with social constructivist principles. Formative assessment is an interactive process of gathering and using evidence of learning to help students learn, rather than just a way to measure learning outcomes. Vygotsky's theory of social interaction is the foundation for important formative assessment techniques such as class discussion, feedback, peer assessment, self-assessment, and collaborative learning (Black & Wiliam, 2009). These processes allow teachers to determine the current levels of student understanding and provide the support needed to foster learning.

Although a quantitative-dominant explanatory sequential mixed methods design was used in this study, social constructivism is still relevant because it offers a theoretical explanation of how formative assessment practices work in classroom settings. The quantitative phase evaluated the teachers' understanding and practices of formative assessment, whereas the qualitative phase explored the teachers' understanding, application, and experience of formative assessment in their schools.

Therefore, social constructivism played a major role in explaining the social and contextual processes that triggered the quantitative results. Thus, the theory offers a lens through which formative assessment can be understood as a collaborative, context-dependent practice.

Moreover, social constructivism supports the idea that effective formative assessment requires constructive feedback, ongoing teacher-student

interaction, and active student participation. Thus, the theory serves as a useful lens for analyzing teachers' understanding of formative assessment, their use of formative assessment strategies in the classroom, and the contextual factors that support or hinder those practices..

b. **Kozma's Model of Contextual Influences**

Besides, to investigate both contextual and personal factors that pose challenges to formative assessment practices, a portion of Kozma's three-level model is employed. Kozma (2003) proposes three levels of influences on teachers' understanding and adoption of novel classroom instructional practices. In the model, he identified three distinct but interacting levels of contextual factors: micro, meso, and macro, which are believed to explicitly affect teachers' classroom practices.

The immediate classroom context is included in the micro-level factors. A range of factors from the classroom may fall into this category. This could involve the teacher's assessment literacy, the number of pupils, and the students' past success in the subject matter, are among other distinctive characteristics of both the teacher and the students. Furthermore, access to in-class technologies and resources, such as boards and other materials that could aid in assessment, could be considered at the classroom level (Kozma, 2003).

The meso-level is made up of elements that directly affect the classroom yet are not located within it. These elements are usually classified as school-level factors. Meso-level elements that are strongly related to the school include, for instance, the school's environment supporting assessment procedures, policies, and assistance from the leadership regarding assessments, and resources for assessments across the entire

school. On the other hand, the meso-level encompasses more conceptual scope than the school alone since it can take into account elements that impact the classroom but are not physically present in it. Parents' demands and community expectations are examples of meso-level influences that are not school-specific (Kozma, 2003).

The macro level is made up of distal factors that could not directly affect the classroom but could indirectly affect the meso-level and the classroom as a result. Education policy at the federal, regional state and local levels may be included at the macro-level, depending upon the framework of educational governance. This may also include policies from the school's affiliated social institutions in the case of private and non-governmental schools (e.g., community or religious organizations funding the school) (Kozma, 2003).

Therefore, because the present study mainly focused on examining the nature and extent of influences of various factors on the teachers' FA practices, it was preferred to be underpinned by Kozma's theoretical framework of influencers of teachers' classroom practice.

c. **Self-Regulated and Differentiated Learning Theories**

Furthermore, self-regulated learning theory, reinforced by Zimmerman (2016), focuses on the value of students taking responsibility for their own learning through purposefulness and self-regulation (Zimmerman, 2016). In line with these principles, formative assessment tends to promote self-assessment and management of one's own learning successfully. Finally, differentiated instruction, which focuses on adjusting teaching in accordance with learners' unique needs, correlates with formative assessment, which informs teachers about learners' needs, emphasizing a more effective differentiation of instruction (Nayman and Altun, 2022).

These theoretical frameworks collectively give wide-ranging information of the purpose that FA serves in increasing effective teaching and learning practices and intended outcomes.

2.2. Concepts of Formative Assessment: Definitions, Characteristics and Variations across School Levels and Disciplines

2.2.1. Definitions of Formative Assessment

Carla et al. (2019) define formative assessment as a practice, undertaken by teachers and/or their students, which elicits evidence of student achievement and can be used to make decisions about future teaching or learning plans. Information from these assessment activities can be utilized to adjust the teaching and learning processes, aiming to improve teaching and students' learning outcomes. Formative assessment can take place at any point during the teaching and learning process. The two main procedures of formative assessment that are often mentioned are that data regarding student learning are solicited; and are used by teachers, peers, or learners themselves (Cagasan et al., 2020).

The Assessment Reform Group (ARG) in the U.K. specified that formative assessment (FA) should be recognized as a crucial professional skill for teachers. They emphasized that teachers need to possess the knowledge and skills to plan assessments, observe learning, analyse evidence of progress, provide feedback, and support learners in self-assessment (ARG, 2002).

Making a balanced use of summative and formative assessment functions is a problem shared by many countries' education systems. There are pressures for summative scores and erroneous mixing up of formative and summative purposes in education policy documents that result in confusion, and in some cases, in hindering

sound assessment practice, especially in the development of formative assessment (Newton 2007).

2.2.2. Characteristics of Formative Assessment

Formative assessment possesses notable characteristics of being integrated with instruction and continuous application. These two distinguishing characteristics of formative assessment are presented as follows.

2.2.2.1. Integration with instruction. One of the most distinguishing characteristics of formative assessment is its integration within the instructional process. Behavioral learning theories have historically viewed assessment and instruction as separate activities, prioritizing only paper-and-pencil examinations and placing assessment after classroom instruction (Shepard, 2000). Summative assessments, also known as high-stakes exams, are typically isolated from actual classroom instruction, and they are not aligned with daily instruction, making them less likely to be sensitive to enhancing student learning (Shepard 2000).

However, to understand students' whole picture and enhance learning, assessment is now seen as an essential component of everyday instruction (Adair-Hauck et al., 2006; Shepard, 2000) and an integration of several assessment techniques (Crisp, 2012). Learning is improved more by assessment systems incorporated with instruction than by high-stakes summative exams or assessments of learning (Boud & Falchikov, 2006). Similarly, Cowie (2012) asserts that there is a high connection between curriculum, instruction, assessment, and achievement and that these relationships are equally powerful.

Research shows the importance of combining assessment with instruction and learning to raise learning standards (Bass & Glaser, 2004; Boud, 2009). More explicitly,

constructive alignment between assessment and daily instruction is essential for obtaining accurate learning outcomes (Harris et al., 2013; King, 2006); assessing higher-order thinking (Higgins, Hartley, & Skelton, 2002); and reinforcing consistent expectations for instruction and learning (Bass & Glaser, 2004). According to Crisp (2012), it also pushes students to take an active role in their own and their peers' assessments, establish learning objectives, come up with creative ways to solve problems and tackle real-world challenges, use feedback to close any learning gaps, and take part in activities that will benefit them in the future.

Since formative assessment is an essential component of the daily teaching and learning process, its effectiveness is therefore dependent upon how well it aligns with instruction and learning activities (Irons, 2008; Suurtamm, Koch & Arden, 2010). To improve learning in the classroom, assessments and daily instruction must be clearly and consistently aligned.

2.2.2.2. Continuity. Another feature of FA is its continuous application. Formative assessment is an ongoing process that is used to determine the next stage of learning by collecting evidence regarding students' progress minute by minute (Bell & Cowie, 2002; King, 2006; Sebba, 2006; Stiggins & DuFour, 2009). According to Henriques, Colburn, and Ritz (2006), formative assessment is also a continuous process that aims to enhance students' learning rather than only testing and grading. Assessments that consistently use a range of techniques will provide insightful data on students' learning (Irons, 2008). When assessment is regular, cyclical, dynamic, sensitive to individual differences, and happens continuously throughout teaching, it can be a significant tool for improving learning (King, 2006). Likewise, Black & Wiliam (1998) demonstrated the potent and advantageous outcomes of continual assessment in conjunction with pertinent student feedback (Irons, 2008). Besides, when assessment is carried out

continuously, it allows teachers to use a range of assessment techniques to evaluate students' performance in a more comprehensive way (Ottevanger, Akker, & Feiter, 2007) and to regularly guide students in need (Shepard, 2000).

Participating in this continuous metacognitive process allows students to monitor and scaffold their learning, make adjustments, and form a mental habit of continuously examining and questioning their knowledge (Shepard, 2000). Continuous assessment generally allows students to have more control over their performance. Because, adding continuous assessment in addition to the final exam is crucial to improving learning, the majority of Sub-Saharan African nations have implemented it as a new method of assessment to enhance students' learning (Ottevanger, Akker, & Feiter, 2007). However, assessment was not utilized as a source of information to support student learning improvements but rather as a means of evaluating and ranking schools and students in the majority of Sub-Saharan African nations (Ottevanger, Akker, & Feiter, 2007).

Formative assessment is not, however, the continual use of summative exams or paper-and-pencil tests (Bell & Cowie, 2002). Students may score highly on these recurrent summative exams, but their understanding isn't deep enough to be applied in practical settings. For continuous assessment to be considered formative, it must either demonstrate students' present progress or indicate the next steps in the learning process, or it must offer proof to help teachers and students close any learning gaps (Stiggins & DuFour, 2009).

In general, teachers should work with students to advance learning by providing continual, frequent, and varied assessment techniques as well as relevant feedback. As a

result, teachers are better able to spot gaps in their students' existing knowledge, beliefs, and ways of thinking over time.

2.2.3. *Formative Assessment Variations across Year Levels and Disciplines*

Formative assessment practice varies significantly from one context to another, which depicts the differences in developmental and pedagogical needs of each situation. The variations in formative assessment methods among different year levels and discipliens are presented below.

2.2.3.1. Formative Assessment Variation across Year Levels. In the early years of education, formative assessments typically emphasise basic literacy and numeracy skills. Assessment methods often involve observational techniques, including checklists, portfolios, and informal follow-up to assess children's comprehension and developmental growth. Play-based assessment is a notable approach at this stage. Teachers observe the learning process of students through interactions while playing. With this assessment, teachers are able to assess the developmental milestones, social interaction, and foundational communication skills (Winstone & Carless, 2020).

Middle Education: By the time of students' transition to middle school, the formative assessment is getting structured and diversified. The students get to meet various subjects, and teachers use different formative assessment techniques, like quizzes, peer assessment, and project-based assessment, to assess the students` understanding and consequent learning needs (Hattie, 2019).

Secondary Education: At this level, assessments shift towards evaluating higher-order thinking skills and the application of knowledge. Here, it is about beginning the process of analysing more than just knowledge. These assessments may consist of essay drafts, presentations, and peer reviews, by focusing on clear rubrics and

standards that would guide the assessments. Different disciplines may adopt their unique formative assessment strategies; for instance, in the science labs, they may use the lab reports and experimental work, and in the language arts, they may use reading reflections and personal or creative writing assignments (Wiliam, 2018).

2.2.3.2. Formative Assessment Differences across Disciplines. STEM Disciplines - In the areas of science, technology, engineering and mathematics (STEM), formative assessments typically involve hands-on task assessments. These could be practical exercises, laboratory activities, and engaging projects that are not only aimed at assessing knowledge but at evaluating the application of scientific methodologies (Black and Wiliam, 2020). Math assessments put an emphasis on problem-solving processes, aiming at diagnosing misunderstandings, rather than just evaluating the final answers.

Humanities: In the classroom of humanities, formative assessment strategies are primarily in the form of discussion, debate, and reflective writing. The aim of these activities is to measure how well students understand the complicated concepts and how well they can articulate their thoughts critically (Winstone & Carless, 2020). Other examples of formative assessment in this discipline include submitting drafts and peer review. The use of feedback is crucial, particularly when it comes to guiding students in their revisions and helping them improves their analytical writing skills (Nicol & Macfarlane-Dick, 2020).

Arts and Physical Education: In the arts and physical education classes, assessments are performance-based and include self-assessments and peer assessments. The purpose of these assessments is to encourage reflection and improvement of skills (Black and Wiliam, 2020). The feedback in these areas focuses on the creativity and

efforts of the student, and it is more about growth and development than traditional assessment methods.

In sum, formative assessment practices vary greatly across year levels and disciplines, encapsulating unique developmental and pedagogical contexts. From basic skills in early education to more sophisticated analytical tasks in secondary education, educators must adapt their methods to meet the needs of their students.

2.3. Models, Processes and Strategies of Formative Assessment

2.3.1. ***Formal and Informal Approaches to Formative Assessment***

Formative assessment practices can be categorized as either formal or informal (Cowie & Bell, 2012; Ruiz-Primo, 2007). Formal formative assessment involves a cycle of initiation, response, evaluation, and feedback, where data are gathered on what the pupils can do, be analysed, and action plans are prepared for the subsequent lesson (Cagasan et al., 2020; Ruiz-Primo, 2007). Informal formative assessment, on the other hand, emphasizes conversational interactions between the teacher and students, and involves an 'Elicit-Student response-Recognize-Use' (ESRU) cycle (Ruiz-Primo, 2007). In the Formative Assessment Toolkit (New York State Education Department, 2013), it is described that the ESRU cycle serves as a teaching and learning framework with a focus on active student engagement and on-going assessment of comprehension.

The ESRU cycle commences by eliciting student responses using various methods such as questioning or discussions, which aim to activate prior knowledge and establish connections to an upcoming content. This allows learners to actively participate, fostering critical thinking, self-expression, and meaningful dialogue. During the Recognize stage, teachers closely monitor and evaluate student responses, aiming to identify patterns, misconceptions, and knowledge gaps. Instruction is then adjusted to

cater to diverse learning needs, with instructional decisions informed by these observations (New York State Education Department, 2013). The ESRU cycle is designed to be continuous, allowing teachers to create a dynamic and responsive learning environment that supports student growth and achievement.The informal approach allows for on-the-spot adjustments to lessons, which is important for teachers to identify challenges to students' learning and modify the lesson accordingly.

2.3. 2. Formative Assessment Models

A Formative assessment conceptualization framework suggested by Wiliam and Thompson (2007) and the convergent-versus-divergent model of formative assessment outlined by Pryor & Torrance (1996) are briefly presented below.

2.3.1.1. A Framework for Conceptualization of Formative Assessment.

In order to build a comprehensive framework for formative assessment, Wiliam and Thompson (2007) proposed that three processes, along with five key formative assessment strategies, are central. The framework developed by Paul Black and Dylan Wiliam and later elaborated by Dylan Wiliam and Marnie Thompson (2007) as depicted in Table 1 describes formative assessment as a process including three key agents—learners, teachers, and peers, who work together to answer three central questions: Where is the learner going? Where is the learner right now? How can the learner get there? The framework underscores that formative assessment is not a single activity but a continuous process of gathering, interpreting, and using evidence to improve learning. The process involves clarification of learning intentions and success criteria, eliciting evidence of learning, providing formative feedback, activating students as instructional resources for their own learning and for their peers. These strategic processes are highlighted below and further treated in preceding sections.

The first strategy focuses on helping learners understand what they are expected to learn and what successful performance looks like. Teachers communicate learning objectives and assessment criteria in clear and understandable ways. When learners know the intended learning outcomes and standards of quality, they can better monitor their progress and direct their efforts toward achieving the desired goals. This strategy addresses the question, "Where is the learner going?"

The second strategy is about teachers designing classroom activities, discussions, questioning techniques, and assessment tasks that reveal students' current understanding, misconceptions, strengths, and learning needs. The evidence generated through these activities enables teachers to determine where learners are in relation to the intended learning goals. This strategy addresses the question, **"**Where is the learner right now?"

Third, once evidence of learning has been collected, teachers provide feedback that helps students improve their performance. Effective formative feedback focuses on how learners can close the gap between their current level of understanding and the intended learning goals rather than merely judging performance. Feedback should be timely, specific, and actionable so that learners know what steps to take next. This strategy addresses the question, **"**How can the learner get there?"

The framework recognizes peers as important contributors to learning. Through peer assessment, collaborative learning, group discussions, and peer feedback, students support each other's learning in a way that feels more natural than just teacher-led help. Learners help uncover strengths, misunderstandings, and possible improvements in their classmates. These kinds of moments create room for shared learning and allow students to see the learning process from different angles. In other words, this approach

considers peers as active agents, not just passive observers, helping learners achieve their learning goals.

The final strategy focuses on learner agency and self-regulation. Students are encouraged to take responsibility for their own progress and learning. They are engaged in setting goals and recognize where attention needs to be given and take responsibility for reaching their intended goals. This make them active participants in their own learning rather than passive recipients. Overall this strategy promotes independent and self-regulated learning.

This framework provides a broad conceptualization of formative assessment because it outlines the essential practices that allow assessment to support learning. This shows that good formative assessment is about teachers clearly sharing learning goals, collecting evidence of learning, and giving constructive feedback. Simultaneously, it also involves students in peer and self-assessment, so students are not left out of the loop. Therefore, the framework can be used as a helpful starting point for studying teachers' understanding and how they carry out formative assessment practices, and it helps show the extent to which classroom assessment activities increase learner participation and improvement.

Table 1

A framework for Conceptualisation of Formative Assessment

Agents	Where the learner is going	Where the learner is right now	How to get there
Teachers	1. Clarifying learning intentions and criteria for success	2. Engineering effective classroom discussions and other learning tasks that can elicit evidence of students' understanding	3. Providing feedback that moves learners forward
Peer(of learners)	Understanding and sharing learning intentions and criteria for success	4. Activating students as instructional resources for one another	
Learner	Understanding learning intentions and criteria for success	5. Activating students as the owners of their own learning	

Source: Formative Assessment Framework (William & Thompson, 2007)

2.3.1.2. Convergent and Divergent Formative Assessment. Researchers developed and characterized two conceptually independent ideal approaches to formative assessment, namely convergent and divergent model (Pryor & Torrance, 1996). In convergent assessment, the most crucial factor is to find out if the student knows a predetermined thing (Pllana, 2011). This form of assessment is characterized by detailed planning, the use of tick lists and can-do statements, and an analysis of the student and curriculum from the point of view of the curriculum.

Pllana (2011) notes that convergent formative assessment is carried out routinely using closed or pseudo-open questions and tasks. Pllana further stated that this is assessment of the student by the teacher with the purpose to teach or assess the next predefined thing in a linear or at least a pre-planned progression. This method stresses measurement against goals (Huang, 2011).

Divergent formative assessment, on the other hand, emphasizes the learner's understanding rather than the assessor's plan. The important consideration is to find out what the student knows and more importantly understands. This kind of approach is characterized by less detailed planning, open forms of questioning and recording and an analysis of the student learning from the student's point of view.

Divergent assessment requires the teacher to have good subject knowledge and inter-personal skills to stimulate metacognitive processes (thinking about thinking) in the student (Pllana, 2011).

Divergent formative assessment adopts the social constructivist view of education with an intention to teach within the zone of proximal development (Johnsen, 2020). In this case, formative assessment is carried out jointly by the teacher and student. The divergent model fits well with learning and assessment as a collaborative enterprise where students are taught to think for themselves and to get a similar concept of quality to that held by their teacher (Sadler, 1989) as this integrates assessment with learning.

The present study primarily aligns with the divergent formative assessment because it considers the teacher, student and peers as interactive agents responsible for effective formative assessment practices. The student is more involved in assessment activities, understanding and sharing learning objectives and success criteria, understanding their achievements and what they need to do to improve their learning through discussion with the teacher.

2.4. Key Strategies of Formative Assessment

Formative assessment includes the following key strategies: making learning objectives and success criteria clear; asking students for evidence of their learning;

providing useful feedback; having students assess themselves; and having students assess one another.

2.4.1 Clarifying Learning Objectives and Success Criteria

Assessment procedures require direct alignment with student learning objectives. This implies designing fit-for-purpose student assessments that focus on the competencies promoted in student learning objectives, ensuring the overall assessment procedures capture the whole range of student learning objectives, and developing teaching standards that are aligned with student learning objectives. Moreover, all school agents (teachers, students, and peers) must have a clear understanding of education goals. This requires goals to be clearly articulated and the development of clear learning expectations and criteria to assess achievement of learning objectives. A prerequisite is to ensure that student learning objectives are grounded in evidence of how students learn and progress within and across different subject domains and represent realistic goals for attainment. Further, it is essential to check the impact of formative assessment against student learning objectives on the quality of teaching and learning. Particular attention should be paid to identifying unintended effects, as assessment activities have considerable potential to shape the behaviour of school agents. For instance, undesired effects such as teaching to the test and curriculum narrowing have been identified as consequences of high-stakes assessments (OECD, 2013).

The initial stage in the entire assessment of the learning process is the clarification of the learning goals for the students (Moss & Brookhart, 2019). Helping pupils build their own learning skills is the aim of formative assessemnt. Thus, learning objectives and success criteria must be made clear to students in order for them to acquire the necessary learning outcomes (Shepard, 2000). Only when students grasp the

learning objectives, assume accountability, and assess their own progress in relation to those objectives can they hope to meet the learning objectives (Black & Wiliam, 1998). Moreover, students who have a clear understanding of learning targets and the criteria by which their work will be assessed are better able to take responsibility for their own learning and they are more likely to be challenge seekers than challenge avoiders (Moss & Brookhart, 2019).

Clarity in assessment procedures, processes, and criteria is important to enhance individual and institutional achievement (Torrance, 2007). Therefore, to implement assessment for learning productively and thereby determine what teachers teach and students learn, learning targets and success criteria should be clear (Stiggins, 2005). Moreover, clarity in learning intentions and success criteria enables learners to assess their own progress during a lesson (Brown, 2004). Students' motivation to learn is positively impacted by sharing learning objectives and success criteria (Moss & Brookhart, 2019).

According to research (e.g., Wiliam, 2011), students who often discuss learning objectives and success criteria are better able to take responsibility for their learning, are more motivated, more involved in their learning, and are more focused for longer periods of time. Additionally, a student who knows learning objectives and success criteria is better equipped to set goals, learn a range of strategies, grow in metacognition, and manage and assess his/her learning process (Torrance, 2007). Because learning targets and success criteria provide the benchmark against which evidence is elicited, performance is compared, and feedback is generated to close the gap between current learning and desired outcomes, they should therefore be planned in

advance to reduce workload, shared with learners using appropriate language, and fully understood and used by students (Brown, 2004).

For these reasons, scholars provided some helpful strategies that teachers can use to help students understand learning objectives and success criteria and take greater ownership of their own learning. These include giving clear instructions to students on assessment criteria and objectives; having class discussions and reflections on criteria and standards; showing a sample of exemplary work; and providing additional explanations (Moss & Brookhart, 2019).

As a matter of fact, the majority of teachers felt and did believe that simply writing learning objectives and success criteria on the board or explaining them to students would be sufficient to help them understand and attain the intended results (Moss & Brookhart, 2019). Teachers should thus use appropriate assessment tasks to convey learning objectives and standards to students and actively involve them in the assessment process.

In general, clearly communicating the learning intentions and success criteria to students is of paramount importance (Ramollo & Kanjee, 2023; Wiliam, 2011). With the use of this strategy, students are informed about what to expect during the session (Popham, 2008). Learning intentions are defined as what students should know, comprehend, and do during the teaching and learning activity (Fisher et al., 2016). On the other hand, success criteria are the tools or steps that help students track their advancement toward achieving the desired learning outcomes (Fisher et al., 2016; Popham, 2008). Therefore, sharing learning objectives and success criteria with the students is a pedagogical strategy that enhances participation and learning (Brookhart, 2012). According to research (e.g., Black & Wiliam, 1998; Hattie & Timperley, 2007),

students perform significantly better in class when they actually understand what is expected of them, including the standards that will be used to evaluate them and what constitutes to high-quality work. It has thus become essential to investigate teachers' level of understanding and practice of the ''clarification of learning objectives and success criteria'' as one of the key strategies in effective FA.

2.4.2. Eliciting Evidence of Students' Learning

The main goal of formative assessment is to elicit evidence of student learning so that decision-makers can utilize it to choose the kind of instruction to follow (Wiliam, 2011). Research has shown the significance of effective evidence-eliciting of students' learning through questioning and dialogue in the classroom for enhancing students' comprehension, assessing students' prior knowledge, and obtaining evidence regarding their level of understanding (Irons, 2008; Moss & Brookhart, 2019). Besides, assessment conversation helps in communicating learning objectives, encouraging students to think critically about the material, and creating an environment of open discussion in the classroom (Irons, 2008). Well-crafted questions can stimulate critical thinking in students and give teachers information to modify the way they teach (Wiliam, 2008). Well-crafted questions build teacher listening skills, stimulate student participation in the acquisition of new skills, and promote classroom discussions (Moss & Brookhart, 2019).

In order to maintain student engagement and assess the understanding of the entire class rather than simply a subset of it, teachers must employ effective questioning strategies (Wiliam, 2008). Research identifies useful methods for conducting fruitful questions, which include promoting inquiry among students, organizing questions, crafting better questions, providing adequate time for thought, and responding to responses in an efficient manner (Black & Wiliam, 2004; Moss & Brookhart, 2019).

Teachers must therefore employ the most effective techniques to extract evidence of student achievement.

To fairly involve all students in the teaching and learning process, teachers are supposed to use questioning strategies as well as classroom dialogues (Ramollo & Kanjee, 2023). In line with this, teachers could employ a variety of techniques, some of which are wait time, think-pair-share, no hands policy except when asking questions, traffic lights, entry and exit tickets, thumbs up or down, and mini boards (Harris et al., 2013; Ingram & Elliott, 2016; Wiliam, 2011; Wylie & Lyon, 2015) in eliciting evidence of student learning. Wait time, also known as thinking time, is necessary to get every student actively involved in responding to higher-order questions (Black & Wiliam, 2004). It also enables students to place more emphasis on their effort than their aptitude for success or failure (Black & Wiliam, 2004). According to Black and Wiliam (2003), waiting time during asking enhances the explanation of responses, students' confidence in their capacity to respond meaningfully, and the proportion of students who know the answer.

Furthermore, rather than just having the teacher tell the students what they did right and wrong, the questioning method should incorporate discussion between the teacher and the student. In addition, it's critical to foster a supportive environment in the classroom, provide value, and explore both correct and incorrect answers to assist students in thinking through and responding to the topic (Johnson et al., 2019). Thus, to give all students the chance to analyze and share their thoughts, the dialogue between students and a teacher should be thoughtful, reflective, and focused to evoke and explore understanding (Black & Wiliam, 2004).

Put simply, the only point of asking questions is to raise issues about which a teacher needs information or about which the students need to think. This makes the students more active participants and makes them realize that learning may depend less on their capacity to spot the right answer and more on their readiness to express and discuss their own understanding. It also helps the teachers shift in their roles, from presenters of content to leaders of the exploration and development of ideas in which all students are involved.

It is with this significance of ‘‘eliciting evidence of students learning’’ that the present study intended to examine teachers’ understanding and practices of it as a key strategy in FA.

2.4.3. Formative Feedback

Formative feedback is any information, process, or activity that affords or accelerates students learning based on comments relating to either formative assessment or summative assessment (Irons, 2008). Feedback can provide information from teachers, peers, literature, and the individuals themselves to learners (Gamlemm & Smith, 2013). Studies have shown that constructive feedback improves learning (Irons, 2008; Moss & Brookhart, 2019). Feedback is crucial in letting teachers know what adjustments they need to make to foster more successful learning. To modify the lessons and take other steps that will help students learn more effectively, teachers and students alike must provide formative feedback. More specifically, good feedback should provoke thought, provide insights into work, enable learners to reflect on themselves, and enable them to become self-reliant learners (Hodgson & Pyle, 2010; Moss & Brookhart, 2019; Orsmond & Merry, 2011; Sadler, 2010).

Additionally, Nicol and Macfarlane-Dick (2006) outlined seven literature-based principles of effective feedback practice that could support students in developing self-

regulation. Effective feedback practices provide opportunities to bridge the gap between current and desired performance; help teachers develop reflection and self-assessment in the classroom; give students high-quality information about their learning; encourage teacher and peer dialogue about learning; foster positive motivational beliefs and self-esteem; and help teachers shape their instruction.

In light of this, feedback needs to be linked to the learning objectives and success criteria, provided promptly, pinpointed as instances of success, indicated as areas for improvement, given time to be made, accessible to students in a meaningful way, and integrated into the formative assessment procedure (Moss & Brookhart, 2019; Weaver, 2006). When students receive timely, continuous, tailored feedback on their work that is integrated into the learning process, their comprehension deepens and their learning increases (Black & Wiliam, 2004; Irons, 2008). Feedback should "close the gap" in students' comprehension, be of adequate quality, be timely, and foster a discussion-friendly environment in the classroom (Irons, 2008). Students should also be able to understand and value the feedback. Furthermore, dialogue-based feedback improves students' comprehension more than straightforward transmission (Nicol & Macfarlane-Dick, 2006).

Specifically, effective feedback requires interaction between teachers and students (Bell & Cowie, 2002). To improve students' learning, teachers must establish a supportive discourse community in the classroom. Feedback is still commonly seen as a transmission of basic facts based on stimulus-response learning theories, despite the recent challenges to this view from a number of prominent researchers (Bell & Cowie, 2002; Nicol & Macfarlane-Dick, 2006). As a result, there were no longer any gains in learning, and as class sizes and the number of students grew, teachers' workloads grew

annually (Nicol & Macfarlane-Dick, 2006). But in a constructivist framework, feedback is seen as a conversation between teachers and students rather than as just receiving feedback from them (Bell & Cowie, 2002; Sadler, 2010).

Good feedback is highly explicit, shows what happened, is understandable to the performance, and is provided or presented in terms of predetermined goals and standards (Teaching Development Unit (TDU) - Newzealand, 2009). Stated differently, feedback needs to furnish details regarding the performer's performance in relation to their endeavors and suggestions for enhancing their performance (Shepard, 2000; Havnes et al., 2012). The premise of the Assessment Reform Group states that in order for students to organize their next steps in their learning, they need direction and knowledge. Consequently, teachers have to identify the student's strengths and offer guidance on enhancing them; communicate clearly and constructively about any shortcomings and potential solutions; and offer chances for students to refine their work (ARG, 2002).

To express their praise or dissatisfaction with a student's performance, teachers can say something like, "Your handwriting is very nice" (Shepard, 2000). However, according to Harten (2003), such evaluative feedback might incite resentment (Weaver, 2006), hinder students' ability to learn, and negatively impact their self-esteem (TDU, 2009). Similarly, student learning is not significantly impacted by teacher feedback that emphasizes praise, rewards, criticism, or punishment (TDU, 2009; Yeh, 2010). Furthermore, broad remarks that are devoid of direction, emphasize the negative, and have nothing to do with the assessment criteria are ineffective in enhancing learning (Bruno & Santos, 2010). In contrast, feedback can have a major impact on students' learning if it contains information about a task, is descriptive, constructive, offers advice on how to complete it more successfully, and students are willing to put in effort

(Gamlem & Smith, 2013). It can also have a significant impact if it is directly related to the learning objectives (Swaffield, 2011; Havnes et al., 2012). Feedback should therefore be specific, relevant to the student's work, and contextualized (Nicol & Macfarlane-Dick, 2006).

Students should be able to enhance their performance in the future with the help of feedback and assessment activities (Havnes et al., 2012; Moss & Brookhart, 2019). According to Black and Wiliam (2004), "the priority in giving feedback is to challenge students to tease out their assumptions and to help them be critical about the quality of arguments." In addition to filling in gaps and promoting communication between peers and teachers, providing effective feedback also helps students develop intrinsic motivation and self-esteem, inspire confidence and hope, and reinforce their capacity for self-regulated learning (Swaffield, 2011; Nicola & Macfarlane-Dick, 2006; Irons, 2008; Heritage, 2010).

Effective feedback also increases students' motivation and autonomy, supports the development of their self-monitoring and metacognitive skills, promotes deep learning (Higgins, Hartley, & Skelton, 2002), builds resilience and persistence, and gives them specific strategies for the next steps in their education (Moss & Brookhart, 2019). The effectiveness of formative assessment is contingent upon the student's interpretation and handling of feedback (Higgins, Hartley, & Skelton, 2002; Poulos & Mahony, 2008).

Studies have also demonstrated that grades and marks have little to no value in enhancing students' learning (Heritage, 2010). According to Heritage (2010),-effective feedback is descriptive, criterion-referenced, constructive (not judging), incremental, positive, clear, specific, and supportive in tone, and it concentrates on the work and the

process. When teachers implement these strategies in the classroom, students see mistakes as chances to learn and don't hesitate to ask for assistance when they need it (Moss & Brookhart, 2019). Nevertheless, a lot of teachers thought that providing grades, marks, and thorough corrections constituted useful feedback (Moss & Brookhart 2019). The personalized learning agenda usually becomes an unfulfilled goal in the absence of efficient assessment for learning strategies, which entails providing learners with high-quality feedback integrated into normal instruction.

In general, feedback is described as information that is useful in closing the gap between actual and desired levels of performance (Hattie & Timperely, 2007). Research studies have shown that while feedback in the form of comments can enhance student learning, giving numerical scores or grades has a negative impact because students tend to disregard comments when they also receive grades (Lipnevich & Smith, 2009). Indeed, the provision of comments to students helps the students, their parents and school principals to focus on the learning issues rather than on trying to interpret a score or grade (Black & Wiliam, 2004). A numerical score or a grade does not tell students how to improve their work, as an opportunity to enhance their learning is lost. Thus, the effort that many teachers devote to grading homework may need to be redirected. Moreover, when providing feedback to students (oral and written), what matters most is the quality and substance of the comments rather than the quantity (Black & Wiliam, 2004; Hattie & Timperley, 2007; Shute, 2008).

Research studies conducted by Black and Wiliam (2004), Hattie and Timperley (2007), Lipnevich and Smith (2009), and Shute (2008) highlight key considerations for powerful feedback. These key considerations encompass well-timed comments that permit students to reflect on their immediate overall performance and the use of descriptive feedback instead of numerical rankings or grades (Shute, 2008; Lipnevich &

Smith, 2009). Additionally, it is important to plan opportunities for students to respond to feedback as part of the learning process (Black & Wiliam, 2004).

Therefore, how teachers understand the role of feedback and practice it in their classrooms was emphasized as a key strategy and major component of FA in the present study.

2.4.4. Peer and Self-Assessment

To help learners become more independent and to determine their own learning needs and future steps in their learning, it is critical that they develop peer and self-assessment skills (Hodgson & Pyle, 2010). Additionally, studies have shown that teachers can save instructional time and minimize burden by using peer and self-assessment (Liu & Carless, 2006; Irons, 2008), particularly when resources are limited (Liu & Carless, 2006). More importantly, students can greatly benefit from using their own and their peers' assessments to fill in the gaps in their knowledge and gain valuable experience in formative activities (Bell & Cowie, 2002). As a result, students practice these skills as part of their educational endeavors (Black & Wiliam, 2004).

Student participation in assessing peers' or other students' work is known as peer assessment. Topping (2009) defines peer assessment as a process where learners evaluate and determine the level, value, or quality of the work or performance of their peers who have the same status. The assessors and those being assessed can form pairs or groups, and the peer assessment process can be either one-way or reciprocal. Teachers may use peer assessment to target cognitive or metacognitive development, save time, or achieve other specific objectives (Topping, 2009). Topping highlights that the focus of peer assessment, whether it is face-to-face or through other means, can be

on assessing written tasks, oral presentations, and other skill demonstrations, among others.

According to research, learners benefit from the feedback provided in the process of peer assessment (Double, McGrane, & Hopfenbeck, 2020; Wiliam, 2011). However, low implementation rates and low quality of self- and peer-assessment strategies are consistently reported (O'Leary et al., 2013; Wylie & Lyon, 2015). One possible explanation for these findings, as explained by those studies, is the complexity of these assessment strategies. Peer assessment, when carefully organized, has the potential to improve social issues and foster the development of valuable skills such as social and communication skills, negotiation and diplomacy, and teamwork (Topping, 2009). Peer assessment is frequently used in conjunction with self-assessment (Black & Wiliam, 2004), and other authors state that it is necessary for self-assessment to take place (Liu & Carless, 2006).

Peer assessment helps students better comprehend their own learning by providing and receiving comments, which benefits both parties (Heritage, 2010). According to research, students benefit from peer assessment because they are more likely to accept criticism of their work from peers than from teachers (Nicol & Macfarlane-Dick, 2006). Peer assessment also helps students develop detachment of judgment, problem-solving skills, and motivation to stick with a task. Peer assessment also plays a key role in promoting teacher-student discussion, which is essential for learning that is effective (Irons, 2008). Students must collaborate in groups, be held accountable in some manner, and receive training in collaboration skills in order for peer assessment to be beneficial (Black & Wiliam, 2004).

Spiller (2012) defined student self-assessment as the involvement of students in identifying standards and/or criteria to apply to their work and making judgments about

the extent to which they have met these criteria and standards. According to Andrade and Du (2007, cited in Spiller, 2012), self-assessment is an aspect of formative assessment during which students reflect on and evaluate the quality of their work and their learning, judge the degree to which they reflect explicitly stated goals or criteria, identify strengths and weaknesses in their work, and revise accordingly (2007, p.160). Student self-assessment, according to Spiller (2012), is when students determine what standards and/or criteria to apply to their work and then evaluate how well they have satisfied those standards and criteria. Liu and Carless (2006) describe self-assessment as student participation in identifying standards and/or criteria to apply to their work and making judgments about the extent to which they have met these criteria and standards.Through the process of self-assessment, students typically determine the strengths and weaknesses in their work, assess the quality of their work and learning based on explicit criteria, generate feedback, and use that feedback to improve their work (Andrade & Du, 2007; Spiller, 2012).

Developing students' ability to assess their own learning is the idea of being a lifelong learner (Boud & Falchikov, 2006); the development of self-regulation abilities and reflection on learning progress (Nicol & Macfarlane-Dick, 2006; Moss & Brookhart, 2019); independent learning, the development of metacognitive skills (Heritage, 2010), and the advancement of social skills can all be achieved through improving self-assessment in the learning process.Therefore, in order to lay the groundwork for lifelong learning, classroom assessments should empower students to take ownership of their education and foster a sense of self-efficacy as learners. Numerous studies have demonstrated that students' learning accelerates and may even double when they actively monitor and control their own learning (Black & Wiliam, 1998; Irons, 2008; Nicol & Macfarlane-Dick, 2006).

Effective self-and-peer assessment practice requires close supervision and coaching from teachers (Kirby & Downs, 2007). It can only be beneficial if learning objectives, success criteria, and assessment tools are made clear to students (Liu & Carless, 2006). Students should also be given time to practice and improve their skills in these areas; they shouldn't be required to assign grades for their own and/or peers' work. Moreover, students should receive training and guidance in self- and peer-assessment techniques (Black & Wiliam, 2004).Finally, timely and descriptive feedback on their self-and-peer assessment should be provided in a timely manner (Nicol & Macfarlane-Dick, 2006).

Therefore, addressing the status of self and peer assessment and insisting on their use could have particular importance in low-income nations, including Ethiopia, where class sizes are commonly large.

2.5. Teachers' Understanding of FA

If teachers have a thorough awareness and appreciation of the aforementioned strategies (clarifying learning intents and success criteria, questioning and classroom discussion, feedback, peer assessment and self-assessment), principles, and procedures involved in FA, they are said to have a strong understanding of it (Vinsgle, 2014). Formative assessment understandin**g** is defined as a body of knowledge that a teacher can use to design and implement appropriate, context-based assessments to promote learning and improve teaching (Pastore, 2022). This refers to the conceptual dimension of formative assessment, including its purpose and methods.

In their pioneering study, Black and Wiliam (1998) reported that many teachers had a limited knowledge or understanding of formative assessment. They identified a widespread misconception among teachers that formative assessment was mostly about

grading and evaluation rather than a process focused on obtaining input to guide instruction. Similarly, in a study on primary and secondary school teachers, Harlen and Crick (2002) found that differentiation between formative or summative assessments generally seemed difficult to the majority of teachers. In the same vein, Ruiz-Primo and Furtak (2007) examined how teachers' conceptions of formative assessment interact with instruction. They concluded that teachers' knowledge of formative assessment was too often unclear in how they could use it for modifying their practices.

In practice, all teachers categorized below the 'Proficient level' (a score of below 75%) demonstrate low levels of formative assessment understanding (Kanjee and Mthembu, 2015) and are most probably unable or are unlikely to use assessment information to support learning and teaching in their classrooms.

According to Brown (2004), teachers' understanding of teaching, learning, assessment, and the curriculum has an impact on all their pedagogical actions and methods. Kanjee and Mthembu (2015) have also suggested that modifying teachers' perception of assessment could lead to changes in their teaching practices, including assessment. Teachers' lack of knowledge regarding the principles, strategies, and theoretical underpinnings of formative assessment (FA) and its relationship to classroom instruction is one of the barriers to the implementation of FA in classroom practices (Black &Wiliam, 2012, cited in Vlachou, 2018). Govender (2020) also noted in their study that teachers less frequently use formative assessment as a result of their poor understanding of formative assessment strategies.

As indicated in Table 2 below, nine studies have directly addressed teachers' literacy of formative assessment. Of these nine studies, all but two revealed a lack or very low and below-basic level of teachers' understanding of FA, its purposes, and

strategies (Askalemariam, 2015; Charanjit Kaur Swaran Singh et al., 2022; Hailay and Abate, 2022; Hem Chand Dayal, 2021; Kanjee and Mthembu, 2015; Maria A. Vlachou, 2018; Govender, 2020).

The two exceptions to the findings are a survey study by Martin et al. (2022) conducted in the US on 52 primary school mathematics teachers, which reported that teachers had an umderstanding that FA should be embedded in instruction, and a qualitative study conducted in Sweden by Johanson & Nadjafi (2022), which reported teachers' sufficient understanding of FA.

2.6. Teachers' Formative Assessment Practices

Formative assessment practice refers to the practical dimension or use of formative assessment strategies to monitor, judge, and manage the teaching and learning process, assuring its soundness and quality to promote learning and teaching (Dayal, 2021; Acar-Erdol & Yıldızlı, 2018). Cagasan et al. (2020) define it as the process through which teachers design, and use formative assessments in the classroom to promote student learning. In order to gather evidence of student learning and use it to tailor instruction to the needs of specific students or the class as a whole, teachers need to use a variety of assessment techniques, such as questioning, observation, self-assessment, and peer assessment (Black &Wiliam, 2009). Giving students a timely, targeted, and useful feedback which enables them to recognize their strengths and limitations, and modify their learning is another aspect of teachers' formative assessment practices (Wiliam, 2011).

All teachers classed below the 'Proficient level' (a score below 65%) indicate poor levels of formative assessment practice (Kanjee and Mthembu, 2015) and are most definitely incapable or are unlikely to use assessment information to support learning and teaching in their classrooms. In the proficiency standard levels set by Kanjee and

Mthembu (2015), below-basic and basic levels were classified as limited and partial competency, respectively.

Research shows mixed pictures of reliance on traditional summative methods, less frequent use of FA strategies, and better use of FA with respect to teachers' formative assessment practice.

Several studies carried out in this area show that teachers were found to rely only on traditional or summative assessment aspects (Chroinín & Cosgrave, 2013; Govender, 2020; Hailay & Abate, 2022; Hem Chand Dayal, 2021; Johanson and Nadjafi, 2022; Maria A. Vlachou, 2018; Sintayehu, 2016; Van den Heuvel-Panhuizen et al., 2021; Wong, 2014). There are still some studies that revealed some teachers' use of some of the FA strategies (such as peer assessment, self-assessment, and formative feedback) just sometimes (Acar-Erdol & Hülya, 2018; Anil Kanjee, 2020; Askalemariam, 2015; Charanjit Kaur KaurSwaran Singh et al., 2022; Carla C. Johnson, 2019; Charlotta Vingsle, 2014; Jambo, Wudu, and Mekuria, 2020; Martin et al., 2022; Regula Grob et al., 2019).

On the other hand, only a few studies (one in the USA by Leigh M. Tolley, n.d., and another one in China by Xiaoying Wang, 2017) found that teachers apply FA well. Table 2 indicates systematically reviewed sources on teachers' formative assessment understanding and practice.

Table 2

Overview of Studies that Address Teachers' Formative Assessment Understanding and Practices

No.	Authors and years of publication	Context			Research Approach	Sample size	Data collection method	Construct	Highlight of finding/conclusion
		Country	**Education level**	**Subject**					
1	Chroinín& Cosgrave, 2013	Ireland	Primary	Physical Education	Qualitative	5 teachers	Focus group interview	P	Teachers started to use FA strategies only after some professional support was given
2	Wong, 2014	Hong Kong	Secondary	Music	Quantitative	97 teachers	Questionnaire	P	Perceived difficulty of implementation of FA
3	Maria A. Vlachou, 2018	Greek	Secondary school	Science	Qualitative	5 teachers	Lesson observations, semi-structured interview	PU	Teachers had Knowledge related to summative aspects, focused on practice for summative purposes
4	Martin et al, 2022	US	Primary education	Math.	Quantitative	62 teachers	Survey questionnaire	UP	Teachers believe that FA should be embedded in instruction; despite variation in practice
5	Hem Chand Dayal, 2021	South Af.	Secondary school	Math	Qualitative (case study)	2 teachers	Observation and interview	UP	No understanding of FA; struggle to implement FA using the criteria suggested
6	Govender, 2020	South Af	Primary school	Math	Qualitative (case study)	2 teachers	Observation, interviews and field notes	UP	Lack clear understanding of FA purposes; those with some k/ge fail in practice
7	RegulaGrob et al, 2019	Switzerland	Primary and secondary	Science	Qualitative	20 teachers	Observation, interviews and document review	P	In PE, teachers attempt to use the FA strategies; in SE more SA aspects are focused
8	Carla C. Johnson et al, 2019	US	Primary and secondary	Different subjects	Quantitative	1097	Observation for master teachers, and survey questionnaire	P	rarely used individualized feedback, self-assessment, peer-assessment, and assessing progress during lessons
9	Anil Kanjee, 2020	South Af.	Primary school	Math	Qualitative	96 teachers	Observation and document review	P	Very small % use apart of the FA strategies
10	CharanjitKaurSwaran Singh et al, 2022	Malaysia	Secondary school	English	Qualitative	11 teachers	Interview, observation and document analysis	UP	All but one teacher could tell the FA strategies; majority focus on traditional methods
11	Leigh M Tolley (n.d.)	USA	Secondary school	Arts	Mixed	7 teachers	Semi- structured interview and checklist	P	More experienced and those engaging in professional development programs had better

									FA practices
12	Xiaoying Wang, 2017	China	University	EFL	Qualitative/case study	1 teacher	document analysis, observation , interviews,	P	Found unrecognized FA practices
13	Tuba Acar-Erdol and HülyaYıldızlı, 2018	Turkey	Primary and secondary	Different subjects	Mixed	288 teachers	Survey and observation	P	Peer and self-assessment, and explanatory feedback were the least used
14	Van den Heuvel-Panhuizen, et al, 2021	Iran	Primary	Math	Qual	7 teachers	Observation, interview	P	Struggle with the how to use of FA
15	Johanson and Nadjafi, 2022	Seweden	Upper Secondary	English	Qual	3 teachers	Semi- structured interview	P	Sufficient understanding, but a discrepancy b/n understanding & practice
16	Kanjee and Mthembu, 2015	South Af.	Lower primary	D/t subjects	Mixed	38 teachers	Questionnaires, observations and interviews	U	Very poor(below basic) understanding of FA
17	CharlottaVingsle, 2014	Sweden	PRIMARY	Maths	Case study	1 teacher(F)	Observation, interview	P	FA practices were found to be very difficult, especially for the minute-by minute purposes.
18	Askalemariam, 2015	Ethiopia	Secondary schools	Science	Mixed	161 teachers	Questionnaire, interview, and observation	P	Lack of knowledge and skills as one reason for problem of FA practice; and Practice was very low.
19	Sintayehu, 2016	Ethiopia	Primary school	D/t subjects	Quantitative	72 teachers	Questionnaire	P	More use of paper-pencil testing, focusing on the cognitive domain.
20	Jambo, Wudu&Mekuria, 2020	Ethiopia	Secondary school	D/t subjects	Quantitative	176 teachers, 258 students, 8 principals and 4 supervisors	Questionnaires, interviews, observations, and document analysis	P	Infrequent use of some FA strategies, with considerable variations
21	Hailay and Abate. 2022	Ethiopia	Primary and secondary sc.	Amh.	Mixed	196 teachers	Questionnaire & Interview	UP	Some awareness; contrary to data from close-ended, observation which revealed that teachers rely on SA

U= understanding, P= practice

2.7. Factors Affecting Formative Assessment Practices

The shortcomings of teachers' FA practice have been shown by research evidence (Black & Wiliam, 2004; Ottevanger & Kvale, 2007). These studies have identified several flaws in teachers' FA practices including a focus on tests, which promotes memorization and superficial learning; an excessive emphasis on grades and marks rather than the caliber of students' learning; a focus on student ranking; a concentration on judgmental feedback, which diminishes the self-esteem of under-achievers while providing helpful guidance for improvement; demotivate students by emphasizing peer competition over personal growth; providing feedback that serves social and administrative goals instead of assisting students in learning more efficiently; working with a limited understanding of students' learning needs; and placing more importance on grades than on using them as a tool for future learning.

The primary factors influencing formative assessment practices that have been extensively studied in the literature fall mostly into two groups: contextual and personal factors (Zi Yan et al., 2021). This study tried to develop a comprehensive model of how personal and contextual factors simultaneously influence teachers' FA practice. In line with this, the two categories of factors are presented below.

2.7.1 Personal Factors

Important personal characteristics that could influence the FA application in the classroom are the teachers' instrumental attitude (Black & Wiliam, 1998), knowledge and abilities that they hold and professional development opportunities (Ozan & Kincal, 2018; Woods, 2005), and their work experience (Black &Wiliam, 1998), as teaching is an activity that allows teachers to put their ideas about learning and teaching into practice.

2.7.1.1. Instrumental attitude. The frequency of formative assessment implementation increased as teachers realized how beneficial it was for monitoring students'

learning progress, guiding instructional modifications, and encouraging effective classroom activities (Black & Wiliam, 2009; Brink & Bartz, 2017; Clark, 2012; Heritage, 2013; Popham, 2008). Teachers' formative assessment practices may be limited to a surface level if they have a negative attitude toward the value of formative assessment. Some researchers argued that professional learning programs do not only equip teachers with necessary skills but also enhance their positive instrumental attitude, which, in turn, facilitates their implementation of formative assessment (Black & Harrison, 2004; Hattie & Timperley, 2007).

2.7.1.2. Education and training. Research now indicates that teachers are the most important persons, more than any other element in education, in providing high-quality education (Moss & Brookhart, 2019; Yung, 2006). One of the most important components of making sure that teachers' classroom practices, including proper implementation of assessment techniques develop in a meaningful and long-lasting way is professional learning (Moss & Brookhart, 2019). For this reason, the Assessment Reform Group (UK) attests that one of the key tenets of implementing assessment for learning successfully is the professional development of teachers (ARG, 2002). Studies emphasizing the roles of education and training indicated that teachers who participate in appropriate professional development can successfully implement assessment for learning (Mansell & James, 2009); actively involve students in the assessment process (Chappuis & Stiggins, 2002); accept responsibility for their classroom experiences; and refuse to place the blame for change on others.

Therefore, to successfully implement formative assessment in primary education, teachers need to get training in the following areas: a) developing lesson plans with strategic questions, b) integrating formative assessment into daily instruction, c) articulating learning objectives clearly, d) gathering evidence using a range of assessment techniques (such as questioning, listening, and observation), e) giving students feedback that is concise, precise,

task-specific, and delivered on time, f) encouraging students to assess both themselves and their peers, and g) demonstrating to the students where they are in relation to the goal and the steps they need to take to get there (Baird, 2011; Moss & Brookhart, 2019).

Thus, through peer conversations, best practice observations, and action research, authorities and school principals should provide teachers with opportunities to enhance their professional knowledge and skills in formative assessment (Baird, 2011; Moss & Brookhart, 2019). In addition, they ought to motivate teachers to participate in conferences and workshops and provide pre-service and in-service teachers with professional development courses that emphasize formative assessment (ARG, 2002; Brookhart, 2017; MoE, 2005; Stiggins, 2002).

2**.7.1.3. Understanding of Formative Assessment**. The degree to which teachers were able to use formative assessment was determined by their understanding of assessment techniques, subject matter, and instructional strategies (Popham, 2009). Obviously, teachers may implement formative assessment differently in similar circumstances and with comparable support due to variations in their degrees of teaching proficiency and their capacity to use formative assessment methods. Yet again, training or professional development can enhance teachers' understandig with formative assessment by offering detailed instructions and hands-on practice (Black & Harrison, 2004; Brookhart, 2017; Wiliam, 2011).

2.7.1.4. Teaching experience. Studies conducted on the effect that teachers' experiences could have on FA showed inconsistent findings. For instance, Black and William (2009), Brookhart (2017), and Herritage (2013) revealed that teaching experience has a notable effect on FA practices, with outcomes of improved feedback provision and better skills of eliciting and using evidence of students' learning, contrary to Xu and Brown's (2017)

study, which reported the absence of a relationship between years of teaching and FA practice.

2.7.2. Contextual Factors

Contextual factors, in addition to personal ones, affect how teachers apply formative assessment (Yan et al., 2021). Teachers conduct classroom practices, including formative assessment, in a complex context. In order for teachers to properly carry out their essential role in implementing formative assessment, it is imperative that they get psychological and practical support. Internal school support and overall working conditions are two of the key immediate contextual elements associated with FA practices.

2.7.2.1. Internal school support. Effective implementation of FA requires sufficient internal school support. Teachers are likely to be enthusiastic about conducting formative assessments with assistance from the institution, such as ongoing coaching, mentoring, and collaborative opportunities (Heritage, 2010). For instance, the school principals in Brink and Bartz's (2017) study prioritized formative assessment and gave it the full support it needed, along with ongoing professional development, efficient technical assistance, and other resources needed for curriculum changes, and hence contributed to the teachers' positive views and effective practices of FA. Internal support in schools consists of policies and materials that help teachers use formative assessments (Yan et al., 2021).

School principals are the prominent figures in schools who successfully oversee the process of teaching and learning. Therefore, the effectiveness of principals and department heads determines how well educational changes are implemented in schools. Thus, school principal support is necessary for implementing changes, such as modifying assessments, in

the teaching and learning process (Black & Wiliam, 2004; Ottevanger, Akker, & Feiter, 2007).

Numerous studies have provided various approaches that school administrators and principals can use to assist teachers in successfully implementing formative assessment (Black & Wiliam, 2004; Hill, 2011; Moss & Brookhart, 2019; Ottevanger, Akker, & Feiter, 2007; Swaffield, 2011). These strategies include conducting both formal and informal discussions, employing thoughtfully selected starter statements that foster collaborative inquiry, steering clear of supervisory and judgmental viewpoints, emphasizing the professional learning needs of teachers and offering chances for ongoing professional in-service training, fostering collaborative work among teachers, fostering mutual observation and the exchange of ideas and experiences both within and between schools, providing teachers with the chance to test and assess novel concepts, providing model materials, and allocating time for regular meetings.

2.7.2.2. Working conditions. The conditions, under which formative assessment is carried out, such as time constraints, curriculum pressures, workload, and resources, can influence its effective utilization (Ahmedi, 2019; Lee et al., 2012; Moss et al., 2013; cited in Yan et al., 2021). For instance, teachers' ability to collect student responses and/or provide prompt feedback in the classroom is constrained by class time. Formative assessment may be viewed by some teachers as taking up important class time that could be spent teaching students on curriculum topics (Hailay & Abate, 2022; Hattie & Timperley, 2007). Additionally, a high student-teacher ratio and inadequate teaching and learning resources (such as computers, internet access, books, offices, printers, and other supplies) provide practical barriers for teachers when it comes to implementing formative assessment (Nye et al., 2004).

Similarly, Yan et al. (2022) found that teachers in smaller classrooms are more likely to perform formative assessment because of the increased opportunity for better interaction.

Concerning the subjects the teachers teach, Zhang and Burry-Stock (2003) reported that teachers of academic subjects (such as mathematics, language, and science) participated in specific formative assessment activities more frequently than teachers of non-academic subjects (such as the arts, music, and physical education). Likewise, Yan et al. (2022) found that, compared to teachers of science, social studies, and English, math teachers employed traditional evaluation methods (such as examinations) less frequently. They speculated that the emphasis on problem-solving in mathematics encourages mathematics teachers to understand students' learning processes.

2.7.2.3. School policy on classroom assessment. Formative assessment implementation can also be positively facilitated by appropriate school policies (OECD, 2013). Wiliam and Thompson (2007) found that teachers can better implement formative assessment when school-based policies prioritize it. Formative assessment prioritizing school policies makes teachers focus on students' learning progress and support their true mastery of the material rather than covering the entire curriculum (Gulikers et al., 2004; Wiliam & Thompson, 2007). In contrast, when schools give more attention to high-stakes testing, the FA may be underestimated (Black & Wiliam, 1998; Ruiz-Primo & Furtak, 2006). The factors that exacerbate the tension surrounding the use of formative versus summative assessment include local or national certification and accountability requirements (Black & Wiliam, 2004); heightened focus on summative assessment over formative assessment by professional organizations and government agencies (Black & Wiliam, 2004; Wiliam et al., 2004); a policy context that encouraged rushed curriculum coverage and teaching to the test (Swaffield, 2011); and dominant theories of the past continue to operate as the default

framework affecting and driving current practices and perspectives (Shepard, 2000), which was a combination of behaviorist learning theories, hereditarian theories of intelligence, and scientific measurement theories (Shepard, 2000).

King (2006) summarized the negative effects of a mere use of summative assessments, which included students focusing their learning on what they believe they will be tested on, conventional teacher-centered methods becoming dominant, teachers spending a lot of time helping students pass and receive good exam results, assessment relying on paper and pencil items rather than using a wider range of assessment tasks, learning concentrating on discrete facts and skills that are easy to test, teaching primarily focusing on the test content, and test topics dominating the curriculum and the learning experiences of the students (King, 2006).

While both summative (assessment of learning) and formative (assessment for learning) are important and serve distinct functions in formal education, keeping the correct balance between the two goals in actual classroom settings is not always simple (Shepard, 2000). In the specific case of Ethiopia, the end-of-year national exams seem to have a major influence on its educational system's formative assessment practice.

2.8. The Ethiopian Context: A synthesis of Existing Research

While there have been some studies conducted on teachers' assessment practices in Ethiopia, see Table 2 above (Askalemariam, 2015; Dereje et al., 2022; Fisseha & Michael, 2016; Gemechu & Tafesse, 2020; Hailay & Abate, 2022; Janbo et al., 2020; Sintayehu, 2016; Yidenek, 2018), only one study undertaken by Sintayehu (2016) in Chagni was conducted at the primary education level. Almost all of the identified studies addressed teachers' formative assessment practices at the tertiary and secondary education levels. For instance, two studies (Fisseha & Michael, 2016; Guadu & Boersma, 2018) focused on teachers' formative

assessment practices in higher education institutions. And most studies (Askalemariam, 2015; Dereje et al., 2022; Janbo et al., 2020; Yidenek, 2018) were carried out on classroom assessment practices in the secondary schools of the country.

Yidenek (2018) explored seven grade 9 EFL teachers' integrated approach to classroom assessment practices and found that the teachers used no formative but only summative assessment methods. Dereje et al. (2022), in their study on secondary school EFL teachers' classroom assessment conceptions and practices, reported that teachers who participated in the study used summative assessment tools, although they believed in the positive roles formative assessment could play.

With their mixed-methods study on the practices of FA in selected secondary schools, Janbo et al. (2020) found out that teachers sometimes communicate learning objectives and provide formative feedback. The authors further reported that the teachers considerably varied in their formative assessment practices.

Moreover, a study report on secondary school science teachers' practice of assessment for learning (Askalemariam, 2015) revealed similar findings with a very poor practice of formative assessment. The author also reported that the teachers did not use a variety of formative assessment strategies due to a lack of science resources, a large class size, a shortage of time, inadequate school support, a lack of appropriate professional development activities, a lack of instructional materials, students' and teachers' negative perceptions towards formative assessment, a lack of knowledge and skills about formative assessment, and the large content of subjects.

With respect to factors associated with teachers' formative assessment understanding and practices, only a few of these studies (e.g., Askalemariam, 2015; Hailay & Abate, 2022) have reported simply what some teachers have identified as challenges to formative

assessment practices. These issues include lack of resources, large class sizes, insufficient instructional time, insufficient school support, lack of suitable professional development activities, students' and teachers' negative perceptions of formative assessment, and teachers' lack of knowledge about formative assessment.

2.9. Conceptual Framework of the Study

The literature reviewed points out that many of the teachers lack proper understanding of formative assessment (FA) or that their understanding is below the level expected.

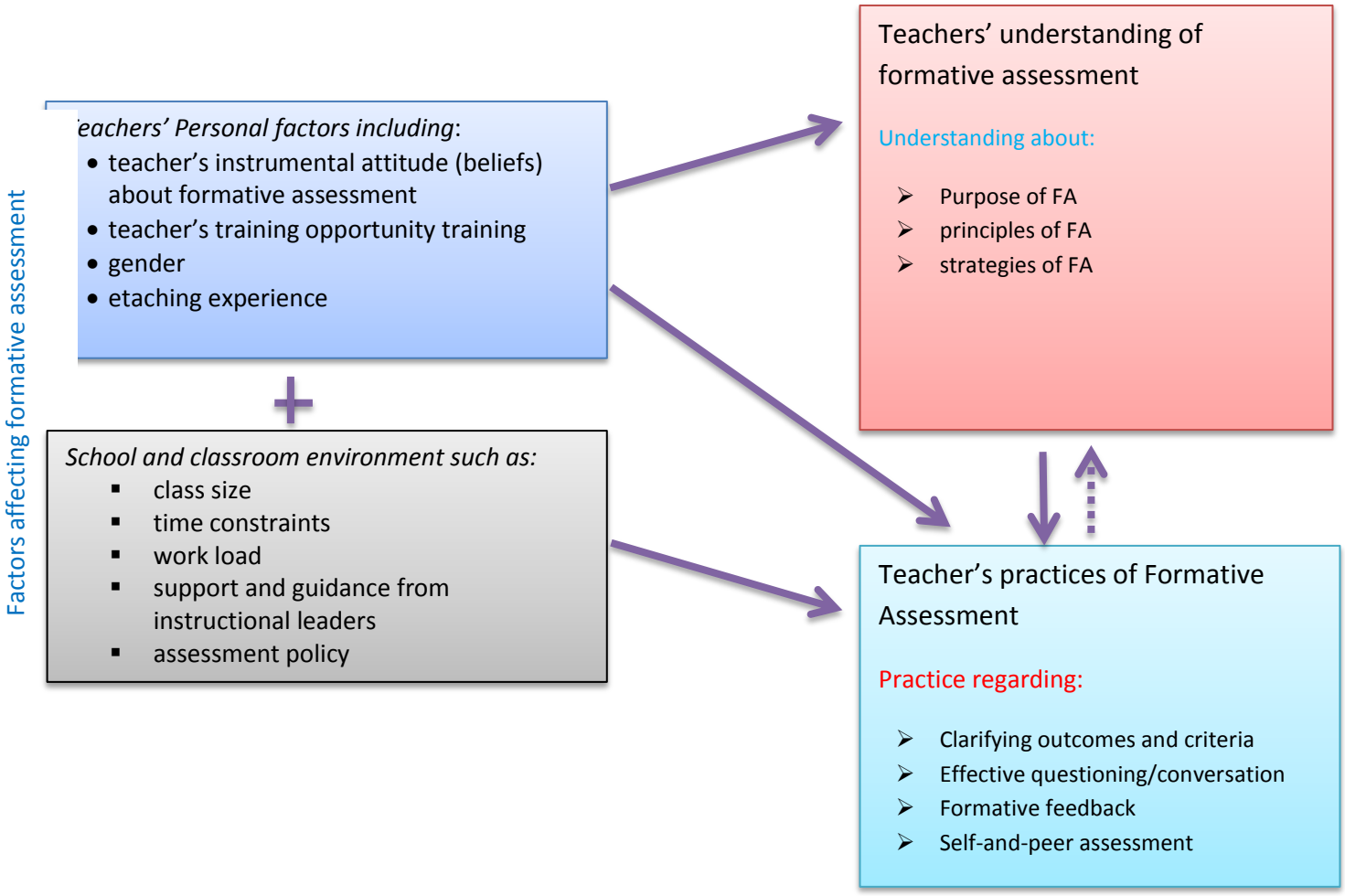
With respect to FA practices, they tend to focus more on traditional methods of assessment that only evaluate learning at the end of a unit or course with the purpose of grading, and they only sometimes use some of the strategies associated with formative assessment.

A couple of studies in Ethiopia looked into how teachers put formative assessment into practice in their classrooms. But they didn't really study whether the teachers properly understood formative assessment in the first place. From the scanty research available, it seems like those teachers aren't good at actually using formative assessment.

While researchers have identified factors that can influence how teachers use FA, they have not explained how these factors compare in terms of their impact on teachers' ability to use formative assessment effectively, which makes it difficult to prioritize efforts to minimize the hindering factors. The purpose here is to look at how good primary school teachers are at both knowing and using formative assessment. It was also intended to see how well groups of teachers (i.e., based on their socio-demographic factors) understood and implemented formative assessment. How things like attitudes, teaching experience, and education and training affect teachers' FA was also checked. Besides, it examined if conditions like time constraints, large class sizes, school leaders’ support, and policies about teaching and

assessment affect FA practices. The goal is to figure out factors to be targeted and improved to enhance FA utilization.

Accordingly, the variables of this study are conceptualized and arranged as follows:



The variables involved in the study were: formative assessment, teachers' *understanding* as well as classroom *practices* of formative assessment, and *personal or contextual factors* that could influence formative assessment practices. Thus, FA understanding and/or practice could be considered the dependent variable (DV), whereas personal and contextual factors are the IVs in this particular study.

Some of the factors that could potentially affect formative assessment implementation, including teachers' training opportunity, their instrumental attitude towards

the value of formative assessment, class size, time constraints, weekly workload, adequacy of internal support and guidance, and assessment policy, were dummy coded. Accordingly, participation in pre-service and post-service training opportunities and exhibiting a favorable instrumental attitude towards FA were dummy coded as 1 for a positive response and 0 otherwise. Similarly, classes with more than 50 students were considered problematic and hence coded as zero, while those with fewer than 50 students were coded as 1 (based on the current class size standard set by the Ethiopian Ministry of Education). Issues of time constraints, workload, sufficiency of internal school support, and whether schools favor traditional summative assessment over formative assessment were also dummy coded with 0 representing the less favorable condition and 1 the favored one.

2.10. Summary and Identification of the Research Gap

From the literature review, it may be inferred that formative assessment (FA) is regarded as one of the most important teaching-learning processes that have the ability to enrich and promote student learning through effective feedback, self-assessment, and peer assessment, all of which are based on constructivist learning theories. The use of FA has been defined by making learning objectives clear, getting evidence of learning, giving descriptive feedback, and students participating in their assessment. These strategies have been widely promoted, although empirical studies indicate that many teachers, especially in Ethiopia and similar situations, exhibit inadequate understanding and inconsistent FA practices. The primary focus of previous research has been educational levels of secondary and tertiary, not primary. Additionally, there is a lack of consensus when it comes to the factors affecting FA practices, which are of a personal nature (teacher's attributes, training, and experience) and contextual (class size, school leadership support, policies, and resources). The literature that has been reviewed indicates that one of the major areas of research is the lack of prioritization

of these factors and of their comparative impact on effective FA implementation, particularly at the primary school level.

In conclusion, this research specifically addresses a significant gap in Ethiopian educational research by comprehensively examining the understanding of formative assessment and the related practices of primary school teachers within the socio-educational context of Sheger City. Unlike earlier studies that mainly concentrated on the higher level of education, this study addresses primary education, where foundational learning takes place.

Chapter 3

Methods

This third chapter deals with the study's research design, site description, target population, sampling methods, data collection instruments, data collection methods , data analysis methods, and ethical considerations.

3.1.Research Design

A mixed-methods research approach was adopted in this study to answer the basic research questions. The primary motivation for employing a mixed-methods research approach in this study was to investigate the various facets of formative assessment concepts and practices in greater detail, as well as to supplement the findings from quantitative data with qualitative data. This method makes the topic easier to understand and enables us to address research questions that are challenging to address with just quantitative or qualitative techniques alone.

Of the different designs in the mixed-methods approach, the explanatory sequential design (QUAN $\longrightarrow$ qual) was employed. The quantitative data offered breadth and generalizability, while the qualitative data provided depth and context-specific insights into teachers' understanding and practice of formative assessment and its correlates.

Explanatory sequential design is a type of research design that sequentially gathers and analyses both quantitative and qualitative data (Creswell, 2012). Accordingly, quantitative data were gathered (through teacher survey) and analysed first. Then, in-depth information was gathered through key informant interviews, observations, and FGD in order to further understand teachers' understanding and practices of FA. Following objective-based theme breakdowns, the two data strands were combined to display the findings in a way that is understandable and insightful.

The worldview or paradigm guiding this mixed research, thus, was pragmatism. This study aimed to identify practical solutions based on existing problems in the knowledge base and practices of the studied phenomenon (i.e., formative assessment), using a mixed research approach.

3.2.Study Site and Participants

Sheger City is a city that the Oromia Regional State organized in January 2023 by combining the former Sebeta, Burayu, Lege-tafo Lege-dadi, Sululta, and Gelan towns. It covers 160,000 hectares of land, with a reported population size of over 3,000,000. The administrative office of this new city is in Addis Ababa's Saris area. It has 12 sub-cities and 36 districts (woredas). However, despite the presence of these districts, no education offices have been set up at the woreda level yet. This means, there is no administrative office responsible for overseeing education at the district level in this city administration currently. The education offices are established at sub-city levels.

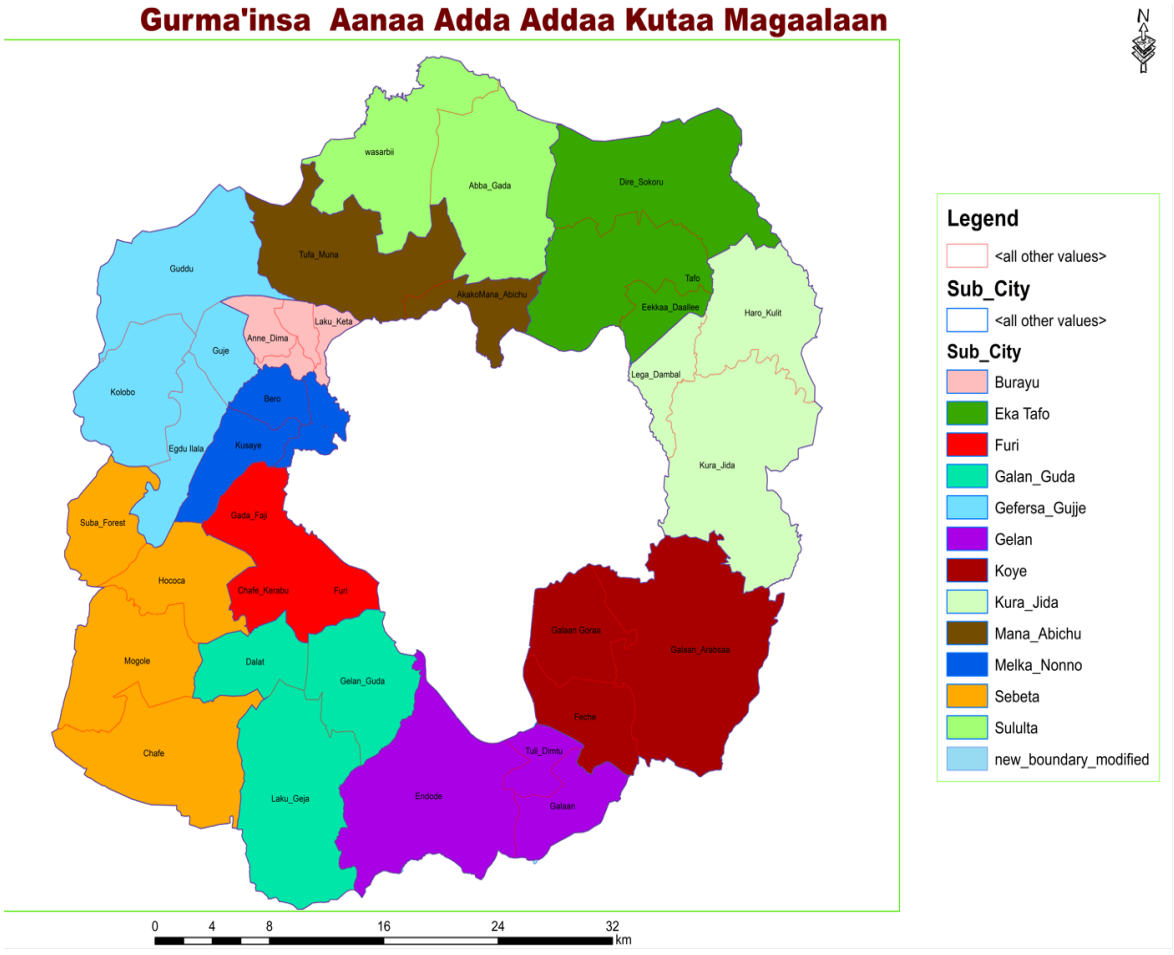
The target population of this study was primary school teachers in the government owned schools. Sheger City was selected for this study, as it is believed to embrace more experienced and qualified teachers coming from all directions and outlets to the city in search of a better life and education opportunities. The city surrounds and is attached in all directions to the country's capital city, Addis Ababa, and hence could be considered an educational and economic centre. The city, therefore, is believed to embrace teachers with diversified cultural backgrounds, educational qualifications, and better work experience to depict more representative assessment literacy and practices. Besides, Sheger is a recently established city with multiple primary schools and increasing residents, making it an understudied location.

Furthermore, earlier studies in the former towns, such as Sebeta, that were later on included in the formation of the Sheger City, reveal that factors that influence teacher development need further investigations (Fekede & Tynjälä, 2015; Merga, 2021).

According to the 2024/25 educational abstract of the Oromia Regional State Bureau of Education, the city (Sheger) has a total of 374, 492 students (M = 183,263, F = 191,229) from pre-primary to secondary levels in public and non-public schools. The same source also reveals that there are 10,813 teachers with varied qualifications and work experiences serving in government, private and non-government organizations owned schools.

Figure 1

Sheger City Structural map by Sub-cities and Districts



Source: Sheger City Administration

3.3.Samples and Sampling Techniques

There are 136 government-owned primary schools in Sheger city (5 in Burayu, 6 in Furi, 14 in Gefersa Guje, 11 in Gelan, 14 in Gelan Guda, 18 in Koye Feche, 16 in Kura Jida, 11 in Lege-tafo Lege-dadi, 5 in Melka Nonno, 9 in Mana Abichu, 16 in Sebeta, and 11 in Sulultaa sub-cities). The total number of teachers in the schools (in the governemet-owned primary schools) is 3000.

Thus, using the simple sample size calculation formula of of Yamane (1967) of $n = \frac{N}{1+N(e2)}$, the sample size for the quantitative component of the study was determined to be 388 (calculated size, i.e., 353 plus 10%) teachers. Following the determination of sample size, participants were selected using stratified random sampling, i.e., the lottery method with proportional allocation based on the population size in each sub-city.

In the process of sample selection, first, three sub-cities out of a total of twelve were randomly selected using a lottery method, which resulted in selecting Koye Feche, Furi, and Sebeta sub-cities. Considering the relatively balanced distribution of teachers in terms of qualifications, gender, experience, and other factors across the sub-cities, as well as the availability of more teachers than planned in any three of the sub-cities, the researcher decided to select these three sub-cities for the study.

Subsequently, the first five schools in each sub-city with the highest number of teachers were selected instead of visiting many schools with fewer teachers. Hence, a criterion-based purposive sampling technique was applied to choose the schools with the maximum number of teachers. The idea was to make the best use of the limited resources by focusing on the bigger schools that could serve more students. Finally, around 40% of the teachers from the sampled schools were selected using simple random sampling to ensure the selection of a

representative sample from each school. Accordingly, 369 teachers (M = 186, F = 176, and 7 with no gender information) from the primary schools of Furi, Koye Feche, and Sebeta sub-cities of Sheger City completed and returned the questionnaire (with over 98% response rate).

In general, teachers from 15 primary schools (five schools from each sub-city) participated in the study. The public primary schools were Jemo No1, Karabu, Abdi Biya, Gurse Kore, and Korke from Furi; Koye No 1, Tullu Dimtu No 1, Tullu Dimtu No 2, Koye No 2, and Kersa primary schools were from Koye Feche; and Mulugeta Gadle, Dima Guranda, Sebeta Special School for the Blind, Atebela Chefe, and Bole primary schools were from Sebeta sub-cities.

The details of the selection process are shown in Table 3 and Fig.2 below.

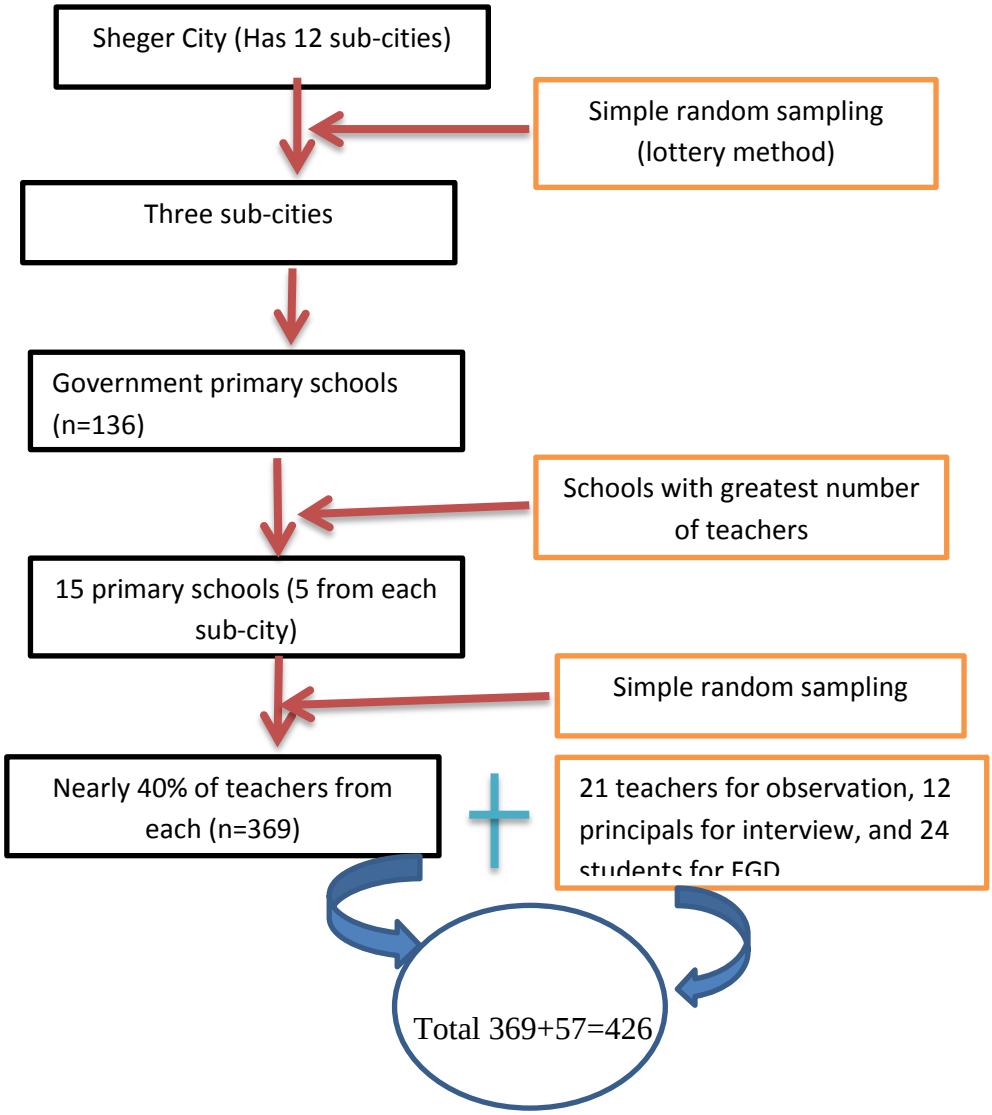
Table 3

Distribution of Samples for the Quantitative Data Collection

City	Sub-city	Population (government owned primary schools)		Sample			
		#Schools	#Teachers	# of schools selected	Schools selected	teachers in selected schools	# of Teachers
	Burayu	5	155	-	-		-
	Furi	6	224	5	Jemo # 1	125	51
Sheger					Karabu	44	18
					Abdi Biya	22	9
					Gurse Kore	16	7
					Korke	11	5
	Total			5	5	218	90
	Gefersa Guje	14	297	-	-		-
	Gelan	11	281	-	-		-
	Gelan Guda	14	214	-	-		-
	Koye Feche	18	678	5	Koye # 1	135	55
					Tulu Dimtu # 1	123	49
					Tulu Dimtu # 2	110	42
					Koye N. 2	103	42
					Kersa	59	24
	Total					530	212
	Kura Jida	16	203	-	-		-
	L/Tafo L/Dadi	11	194	-	-		-
	Melka Nonno	5	99	-	-		-
	Mana Abichu	9	91	-	-		-
	Sebeta	16	347	5	M/Gadle	61	25
					Dima Guranda	37	15
					Seb. School for the Blind	28	12
					Atebela Chefe	19	8
					Bole	17	7
	Total					162	67
	Sululta	11	217	-	-		-
G/Total	12	136	3000	15	15	910	369

Figure 2

Sampling Procedure of the Survey Participants



For the observation data, 21 (twenty-one) teachers who teach in some of the selected schools were observed to get first-hand information about their formative assessment practices. These 21 teachers were selected from 10 primary schoos, with a minimum of one and maximum of three teachers in each school. It involved an accidental selection of teachers of varios subjects who had classes to teach at the time of school visit. In this study, observing 21 teachers serves several purposes. Firstly, it provides insights into diverse teaching styles, experience levels, and subject areas, embracing diverse levels of FA understanding and

practice. Secondly, this size keeps a balance between collecting sufficient data and managing logistical constraints.

Moreover, twelve school principals (four from the five schools in each sub-city) participated as key informants for more detailed information on the status of teachers' understanding and practices of formative assessment (FA), and challenges to its implementation. They were selected using a simple random (lottery method) sampling technique.

Additionally, three groups of students (12M, 12F) were purposefully selected from three different sampled schools (one FGD from each school) to participate in FGDs. The students were selected based on their maturity and ability to express their ideas and views on their classroom practices to participate in FGDs. Thus, more active and mature students were selected from grades 6 to 8. Accordingly, three groups of participants, each consisting of eight members, participated in the FGDs. The FGDs helped obtain additional complementary information from students regarding formative assessment practices in their classes.

Summary of the overall study participants is presented in Table 4.

Table 4

Aggregated Samples Distribution of the Study

Group	**Sub-city**	**Sex**	**T**
Observed teachers	Furi	5Male, 3F	8
	Koye Feche	4Male, 4F	8
	Sebeta	1Male, 3F	5
$Total_1$			21
Principals (key informants)	Furi	2M,2F	4
	Koye Feche	3M, 1F	4
	Sebeta	2M,2 F	4
$Total_2$			12
Students for FGD	Furi	4M, 4F	8
	Koye Feche	4M, 4F	8
	Sebeta	4M,4F	8
$Total_3$			24
Surevyed teachers			369
G/Total			**426**

3.4.Socio-demographic Profiles of Respondents

The socio-demographic variables summarized in Table 13 clearly show that the participants of the current study were almost evenly distributed across the levels of most of the socio-demographic characteristics, indicating sufficient and fair representation. In the present study, the sociodemographic factors considered (as presented in Chapter Three),were gender teaching experience, in-service training opportunity, pre-service training opportunity, educational qualification, subject taught, and sub-city (as mentioned in Chapter Three).

As indicated in the table, the great majority of teachers (98.4%) have at least the minimum qualification standard set for primary education teachers, 79.4% took a course on assessment and evaluation during pre-service training, and 78.6% have teaching experience of six or more years. Over half (50.4%) of the teachers had more than 10 years of teaching experience, with 28.2% having 6-10 years of teaching experience, indicating a mature, experienced teacher sample. Similarly, first–degree holders peak at 50.4%, with college diplomas at 42%. Those with advanced and below-diploma qualifications are few, at 5.7% and 1.6%, respectively. The Table also shows that Math teachers are the most common (14.1%), followed by English (13.6%) and Afaan Oromoo (12.2%), while practical subjects ike Technical Drawing subject teachers are rare among the study participants. Although most teachers (79.4%) took a course on assessment and evaluation during their pre-service training, most teachers (66.1%) lacked recent training, potentially limiting formative assessment adoption.

Table 13

Socio-demographic Characteristics of the Study Respondents

Variable	N	%
Sex		
Male	186	50.4
Female	176	47.7
Missing	7	1.9
Sub-city		
Furi	90	24.4
Koye Feche	212	57.5
Sebeta	67	18.2
Subject principally taught		
English	50	13.6
Afan Oromo	45	12.2
Amharic	30	8.1
Mathematics	52	14.1
Environmental Science	29	7.9
Integrated Science	22	6.0
General Science	31	8.4
Health and Physical Education	19	5.1
Art	13	3.5
IT	14	3.8
Geda Education	16	4.3
Ethics	19	5.1
Social Science	20	5.4
Technical and Career Dev.t	3	.8
Civics Education	6	1.6
Total	369	100
Teaching Experience		
Less than 2 years	38	10.3
2 to 5 years	41	11.1
6 to 10 years	104	28.2
More than 10 years	186	50.4
Highest Education Attained		
Less than College Diploma	6	1.6
Diploma	155	42
First Degree	186	50.4
Above First Degree	21	5.7
In-service Training on Formative Assessment in the Last Three Years		
No	244	66.1
Yes	123	33.3
Missing	2	.5
Pre-service Training on Assessment and Evaluation		
No	75	20.3
Yes	293	79.4
Missing	1	.3

3.5.Instruments of Data Collection

Data were collected through teacher surveys, classroom observations, interviews with key informants (i.e., school leaders), and FGD with selected students. Thus, the instruments of data collection included a self-administered questionnaire, a key informant interview guide, a classroom observation checklist and a FGD guide were the instruments used in this study.

3.5.1. Self-administered Questionnaire

A self-administered questionnaire that included items related to teachers' socio-demographic characteristics, formative assessment understanding and formative assessment practice, and formative assessment practice-related factors was used to collect the survey data. The development of the items was based on a survey of literature (for the demographic and socioeconomic characteristics) and an adaptation of scales to assess teachers' FA understanding and practices: teachers' formative assessment literacy scale (TFALS) and teachers' formative assessment practice scale (TFAPS).

3.5.1.1. Teachers' Formative Assessment Literacy Scale (TFALS). Teachers' understanding of formative assessment was assessed by adapting (specifying and restating) the first 7 items of the Teachers' Formative Assessment Literacy Scale (TFALS) (Yan & Pastore, 2022), which overall consisted of three components: conceptual (7 items), practical (8 items), and socio-emotional (7 items). Besides specifying and restating each of the seven items measuring understanding of FA, the response levels or categories were also reduced from six to five to avoid overlap of some response options when translated to local languages.

The overall scale (TFALS) had a normative group of 585 primary and secondary school teachers in Hong Kong (339 teachers from 9 primary schools and 246 teachers from 5 secondary schools who participated in the process of the tool's development and validation) (Yan & Pastore, 2022).The Cronbach's alpha for the conceptual dimension of the scale, as reported by the authors, was .88, indicating good internal consistency.

The subsequent 8 items of the TFALS, which deal with practical aspects of teachers' formative assessment, along with nine items of the teachers' formative assessment practice scale (TFAPS), developed by Yan and Pastore in 2022, were used to collect data regarding the teachers' FA practices. The internal consistency reliability score for the practical sub-scale of the TFALS was reported to be 0.88 (Yan & Pastore, 2022a).

For all items, a five-point Likert-type response scale was used: 1 for strongly disagree, 2 for disagree, 3 for slightly agree, 4 for agree, and 5 for strongly agree for the FAU, and *never-frequently used* options were used for the FAP.

To avoid possible response biases, three of the items of the formative assessment understanding were reversely worded. These three items were reverse-scored: 1 for strongly agree, 2 for agree, 3 for slightly agree, 4 for disagree, and 5 for strongly disagree.

3.5.1.2. Teachers' Formative Assessment Practice Scale (TFAPS). The normative group for the tool's development included two data sources: teachers in primary and secondary schools in Hong Kong and Italy. Accordingly, 449 teachers, 263 (58.6%) of whom were primary school teachers, participated from Hong Kong. In Italy, data were collected from 309 teachers, of whom 134 (43.4%) were from primary schools and the remaining were from secondary schools (Yan and Pastore, 2022). TFAPS reportedly had two factors called teacher-directed formative assessment (TdFA) and student-directed formative assessment (SdFA) (Yan & Pastore, 2022). In this study, five of the six TdFA items and all four of the SdFA items were used. The authors reported satisfactory internal consistency measures with Cronbach's alpha scores of.75 and.70 for the TdFA and SdFA factors, respectively (Yan & Pstore, 2022). Response options ranging from never (1) to very frequently (5), on a rating scale, were used for all the items.

These two scales were adapted, validated, translated, and used to collect the survey data. The tools were checked for content validity using content validity index (CVI) based on ratings by assessment experts for clarity and relevance of the items to the subject matter being studied, translated into the local language, and pilot-tested for additional psychometric properties, including internal consistency reliability, exploratory factor analysis, and also examining the fit between the empirical data collected and the factor structure reported for the tools (model-data fit) by using confirmatory factor analysis (particularly indices of chi-square, normed, comparative fit, and root mean square error of approximation).

To check the content validity of the survey instrument, the content validity ratio and content validity index scores were employed. According to Mishra and Panda (2007), the content validity ratio (CVR) is an item statistic that can be used to exclude particular items from the initial item pool and to calculate the content validity Index (CVI), which is the average of the CVR values of the items that were retained. Lawshe (1975) suggests that an instrument is said to have higher content validity if the value of the CVI is atleast 0.62 for a size of experts (i.e., number of subject matter experts=10*).* Generally, 10 experts panel were requested to rate the items on a three-category scale (1= not necessary, 2= useful, but not essential, and 3= essential), where '*essential*' items are the ones that best represent the goal (Johnston & Wilkinson, 2009). The selected panel included experts from the National Assessemnt and Examinations Service and instructors of the course assessment and evaluation selected from universities and colleges of teacher education. Lawshe (1975) introduced the formula for computing the content validity ratio (CVR) as:

$$CVR = \frac{ne - N/2}{N/2}$$

Where: ne= number of panellists indicating 'essential' and N= total number of panellists.

The translation of the instruments from the source language (English) to Afan Oromo was done by two translators (an English language teacher from Sebeta College of Teacher Education and the researcher himself). Back translation was also conducted by another college instructor, who often taught measurement and evaluation courses to teacher candidates. The original and the back translated scales were found to convey the same meaning despite some differences in words used.

Regarding the scoring and interpretations of the teachers' understanding and practice levels of FA on the survey, the score categories and their definitions suggested and used by Kanjee and Mthembu (2015) as shown in Tables 5 and 6 below was applied.

Table 5

Formative Assessment Understanding: Performance levels, score categories and implications

Performance level	Formative Assessment	
	% Score	Implications for understanding
Below basic	0 – 34	Teacher fails to understand FA strategies in the class, is unable to identify gaps in learning
Basic	35 – 74	Teacher demonstrates partial understanding; can identify learning needs, but is unable or unlikely to address these needs
Proficient	75 – 89	Teacher demonstrates sufficient understanding; is able to use assessment information to identify and address learners' specific needs
Advanced	90 -100	Teacher demonstrates comprehensive understanding; is able to use assessment information to address learners' specific learning needs and to improve their own teaching practice

Source: Kanjee and Mthembu, 2015

Table 6

Formative Assessment Practices: Performance levels, score categories and implications

Performance level	Formative Assessment	
	% Score	Implications for practice
Below basic	0 – 34	Teacher is unable to apply FA strategies in the class or use FA to identify learning gaps
Basic	35 – 64	Teacher is able to apply some FA strategies and to identify gaps in learning, but unable or unlikely to address these gaps
Proficient	65 – 79	Teacher is able to effectively apply all FA strategies and use FA to identify and address learning gaps
Advanced	80 -100	Teacher is able to effectively apply and use FA to improve learning and teaching practices

Source: Kanjee and Mthembu, 2015

3.5.2. Pilot Testing Procedures

A pilot study was conducted to test the practicality of the data collection instruments, detect and improve defects in the instruments, and compute the reliability of the questionnaire scales. Schools that were not included in the main study were selected for the pilot study.

For the pilot test, first a simple random selection of three sub-cities out of a total of twelve was done, yielding the selection of Gefersa Guje, Gelan Guda, and Sebeta sub-cities. Lottery method was used for this selection.There were 858 teachers in these three sub-cities. Thus, using the sample size determination formula of Yamane (1967), that is, $n = \frac{N}{1+N(e2)}$, the pilot study sample size was determined to be 272. Following the determination of sample size, participants were selected using stratified random sampling, i.e., lottery method with proportional allocation based on the population size in each sub-city.

Finally, 223 teachers (M = 107, F = 113, and 3 with no gender information) from the primary schools of Gelan Guda, Gefersa Guje, and Sebeta sub-cities of Sheger City completed and returned the questionnaire (with nearly 82% response rate). None of the primary schools selected for the pilot study were involved in the main study.

In general, teachers from nine primary schools (three schools from each sub-city participated in the study. The public primary schools were Kolobo, Chorisa, and Ethio-Yugoslav from Gefersa Guje; Alemgena, Daleti, and Melka Sebeta from Gelan Guda; and Roge-Game, Haro Jila, and Kaleab from Sebeta sub-cities. The details of the pilot study sample selection process for the survey are shown in Table 7 below.

Table 7

Samples Selected for the Pilot Study

City	Sub-city	Population (government owned primary schools)		Sample		
		#Schools	#Teachers	# of schools selected	Schools selected	# of Teachers selected
Sheger	Gefersa Guje	14	297	3	Kolobo-	44
					Choisa	26
					Ethio-Yugoslav	25
					Total	95
	Gelan Guda	14	214	3	Alemgena-	30
					Daleti	20
					Melka Sebeta	10
					Total	60
	Sebeta	16	347	3	Roge-Game	38
					Haro Jila	10
					Kaleab	20
					Total	68
G/Total		44	858	9	9	223

3.5.2.1. Validation of instruments of data collection. Content Validity. First, the content validity ratio (CVR) for each item was calculated using Lawshe's formula by counting the number of responses from ten relevant experts that indicated "essential" for each item. Lawshe (1975) states that for an item to be considered acceptable, the CVR must be at least 0.62 at a statistical significance level of 0.05 for a panel of ten experts. Based on this decision rule, all items, except a pair of repeated ones one of which was removed, were kept in the instrument since none had a CVR of less than 0.65. The range of observed CVR values was 0.80 to 1. Besides, the content validity index (CVI) was also calculated for the overall scale with a value of 0.92, suggesting the self-report questionnaire's very high content validity in

terms of its relevance. Nevertheless, one of the two repeated items was removed from the TFAPS based on the written remarks provided by the experts. Their comments also helped make language revisions for a few items.

Reliability

Reliability was evaluated with respect to scales that assessed FA understanding, the overall FA practice, teacher-directed formative assessment (TdFA), and student-directed formative assessment (SdFA) componenets of the TFAPS using Cronbach's alpha coefficient. Results of the Cronbach's alpha indicate a high level of internal consistency for both the practice and understanding scores, at 0.887 and 0.773, respectively. The alpha values for the TdFA and the SdFA sub-scales were 0.826, indicating strong internal consistency among the items measuring the respective constructs.

Exploratory and Confirmatory Factor Analysis

Factor analysis (confirmatory and exploratory factor analysis) was conducted to examine the model-data fit and structures of the survey instrument. Accordingly, CFA was conducted to examine the model fit for the TdFA and SdFA factors of the TFAPS scale.The items for the practical component of TFALS were used without being factor-analysed because they were reported by the author as a unidimensional factor. In addition, EFA was conducted to see the factor structure for seven items adapted from the TFALS to measure teachers' FA understanding.

Exploratory Factor Analysis (EFA) for the understanding items

To investigate the underlying structure of the seven items in the formative assessment understanding part of the Teachers Formative Assessment Literacy Scale (TFALS), an exploratory factor analysis was executed on a sample of 223 teachers from Sheger primary schools. Principal axis factor analysis with varimax rotation was used in the analysis. The

Kaiser-Meyer-Olkin (KMO) measure indicated adequate sampling suitability (.847) and Bartlett's test of sphericity was significant ($p < .001$), indicating sufficient correlation between the variables to proceed with the factor analysis.

Using the Kaiser-Guttman retention criterion of eigenvalues greater than 1.0, a two-factor solution was determined as optimal, explaining 67.86% of the total variance (see Table 10). Factor 1, which the researcher labeled "knowledge of the purpose of formative assessment'' (eigenvalue = 3.34), accounted for 47.70% of the variance, comprising four items. Factor 2, which was termed "knowledge about students' engagement in formative assessment" (Eigenvalue = 1.41), explained 20.16% of the variance, encompassing three items. The Cronbach's alpha value for factor 1 was.892, indicating strong internal consistency reliability, while it was.604 for factor 2, which indicated nearly acceptable internal consistency. The slightly lower Cronbach's alpha value for factor 2 ($\alpha = 0.604$) may be related to the small number of items in the subscale (three items), since shorter scales tend to give lower reliability estimates (Tavakol & Dennick, 2011).

Table 8

Summary of Items and Factor Loadings from Principal Axis Factor Analysis with Varimax Rotation (N=223)

Scale origin	Original Subscale Item Name	Factor Loading		Communality
		1	2	
TFALS	FA activities should elicit info about students' learning	.867	-.201	.79
TFALS	FA results are useful for teachers to cater for students' needs	.836	-.288	.78
TFALS	FA activities need to be aligned with learning goals	.835	-.175	.73
TFALS	Rationale for FA is to improve students' learning	.831	-.215	.74
TFALS	FA elicits evidence of learning when teachers use a variety of assessment methods (R)	.270	.722	.59
TFALS	FA is a responsibility of both teachers and learners (R)	.487	.649	.66
TFALS	Learning needs are identified through formative assessment(R)	.441	.517	.46
	Eigenvalues	3.34	1.41	
	% of variance	47.70	20.16	
	Coefficient Alpha	.892	.604	

Note. Reverse-scored items are denoted with (R).

CFA for the TdFA and SdFA Subscales of the TFAPS

The indicator variables that made up the Teacher-directed Formative Assessment (TdFA) sub-scale of the Teacher Formative Assessment Practice Scale (TFAPS) were examined. This scale was developed to assess formative assessment practices of teachers. The hypothesized model was assessed by AMOS version 20.0 maximum likelihood factor analysis. The model was evaluated by four fit measures: (a) the chi square (b) the normed fit index (NFI) (c) the comparative fit index (CFI), and (d) the root mean square error of approximation (RMSEA).

For the TdFA sub-scale (see Table 9), all four fit measures supported the proposed model. The chi-square value was 4.094 (df = 5, N = 223), with p = .536, indicating an acceptable match between the model and observed data. The comparative fit index (CFI) and the normed

fit index (NFI) yielded values of 1.000 and .991, respectively, suggesting an excellent fit. Additionally, the root mean square error of approximation (RMSEA) was.000, indicating an excellent fit (Loehlin, 2004).

In contrast, the results did not support the SdFA sub-scale model. The chi square had a value of 21.301 (2, N = 223), p =.000, indicating a non-fit between the proposed model and the observed information. Both the CFI and NFI yielded values of.944 and.939, respectively, indicating a slightly poor fit of the model. Moreover, a poor match was suggested by the RMSEA of 0.208. The model structures for the TdFA and the SdFA sub-scales are indicated in figure 3.

Table 9

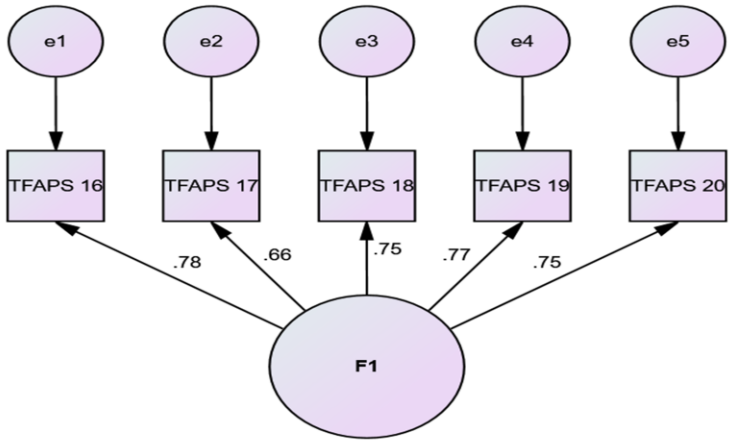
Results of Confirmatory Factor Analysis for the Relationships in the Two Types of Formative Assessment Practice Scale (FAPS)

Model	X^2	df	NFI	CFI	RMSEA
Teacher-directed formative assessment practice	4.094	5	.991	1.000	.000
Student-directed formative assessment practice	21.301	2	.939	.944	.208

Note. NFI=normed fit index, CFI=comparative fit index, RMSEA= root mean square error of approximation

Figure 3
Model of TdFa and SdFA

TdFA



SdFA

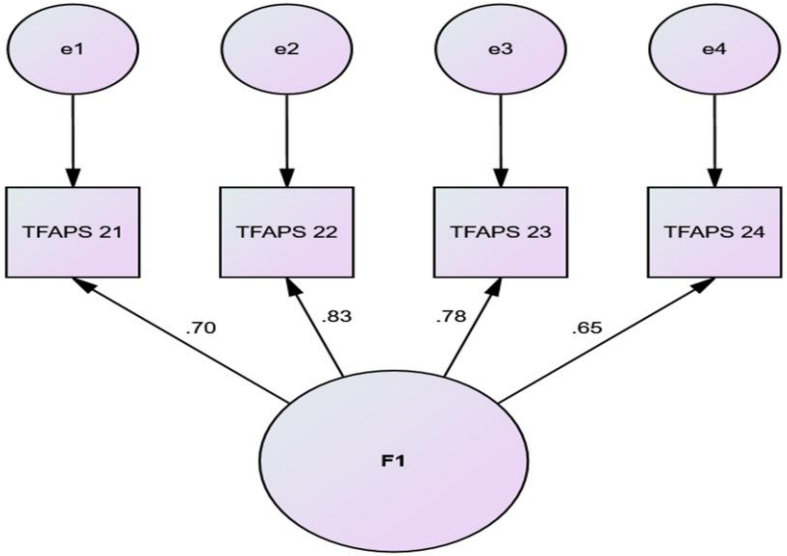
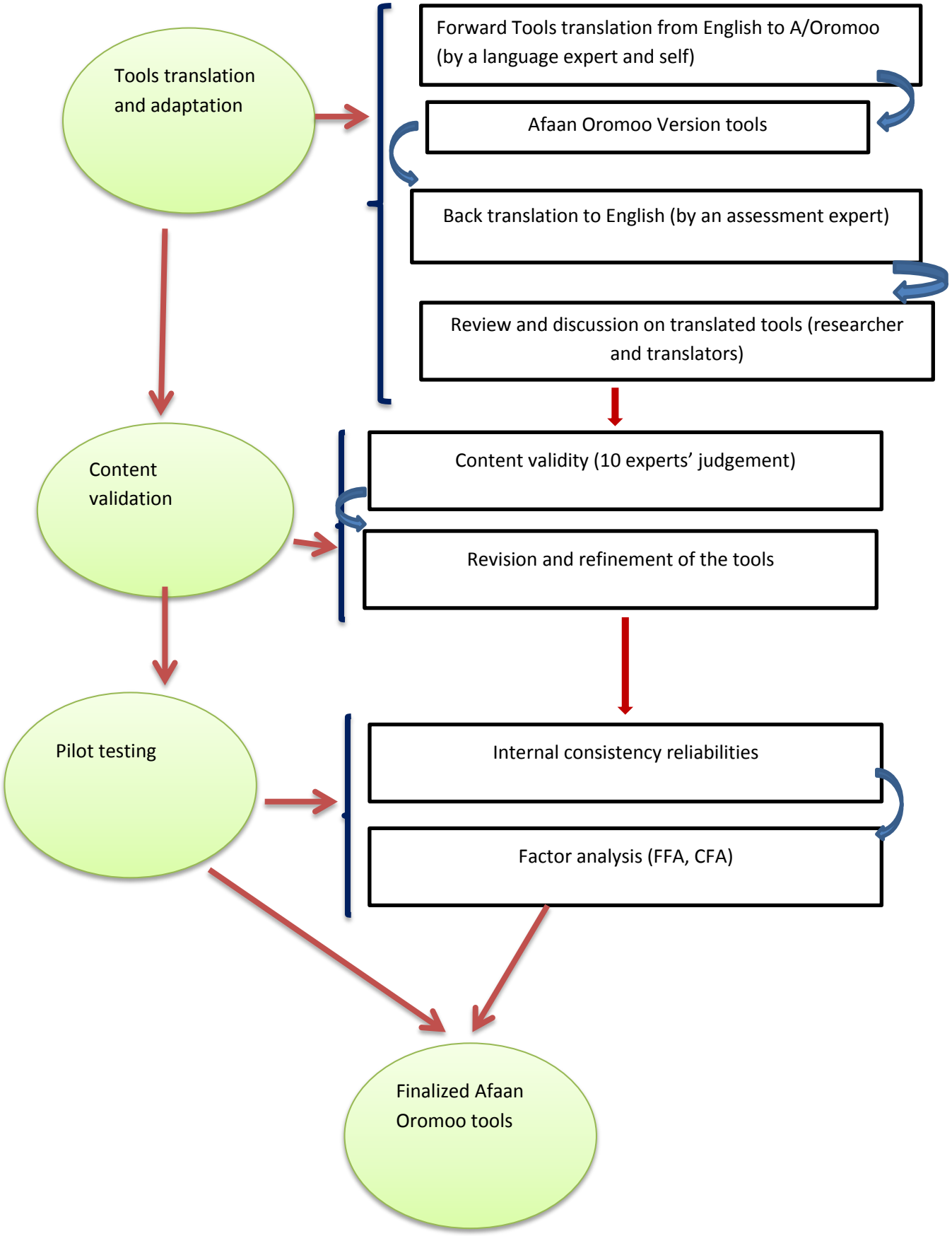


Figure 4

Procedures of tools adaptation and pilot testing



3.5.3. Observation Checklist

A classroom observation checklist developed by Cagasan et al. (2020) was contextualized and used to collect data on participants' actual practices and experiences of formative assessment. This tool had been developed and used to assess formative assessment practices of teachers in Philippines. It was thought to help in obtaining an in-depth understanding of teachers' classroom formative assessment practice. It focuses on exploring how teachers elicit information and use the elicited information to inform and improve student learning (Cagasan et.al, 2020). The Elicit (E) and Use (U) components of FA were the main focuses in developing the observation tool, the Classroom Observation of Formative Assessment (COFA). The elicit (E) component pertains to competencies in eliciting evidence of student learning to determine what students know and can do, while the use (U) component involves using evidence of student learning to move toward the learning goal (Cagasan et al., 2020).

Seven statements of indicative behaviour make up the COFA, each of which focuses on a different component of eliciting or using formative assessment. Each indicative behaviour has a set of practices related to it. During a class, observers are expected to note the existence of a certain sort of formative assessment behaviour by using a symbol. Observers indicate whether the indicative behaviours are present during class using COFA, and they just note whether or not they had seen each behaviour during the class. They can, however, record supporting details for their evaluations or examples of practices in the tool's last column.

To check the reliability of the tool and its ability to capture the range of formative assessment practices, a field trial was conducted where in twenty eight teachers were observed while teaching by two observers each, to explore inter-rater reliability. The result indicated an inter-rater agreement of 90%. Cagasan et al., (2020) claim that the tool can be

used at large scale without the need for video recording; and it can provide a reliable measure of formative assessment practice.

In relation to scoring, a formative assessment practice is marked as present or "1" if observer(s) noted it and ''0'' if not observed.

3.5.4. A Semi-structured Interview Guide

Twelve primary school principals participated in face-to-face, semi-structured interviews to answer the study questions. For this, an interview guide that addressed the research questions was developed and used. The interview guide specifically addressed if the teachers practiced the formative assessment practices in their classrooms and the challenges encountered in this case.

3.5.5. FGD Guide

A focus group discussion guide was developed based on the systematically and extensively reviewed literature and was used to collect data from groups of students. The guide with eight generic items was created with reference to the basic research questions. The items in the FGD particularly focused on exploring students' views on the status of teachers' practices of formative assessment.

3.6.Implications of the pilot study and validation process results to the main study

The scales (tools) assessing FA understanding, FA practice, TdFA, and SdFA checked by Cronbach's alpha indicate high internal consistency. Furthermore, an exploratory factor analysis conducted to examine the underlying structure of items on the FA understanding scale recognized two factors: knowledge of the purpose of assessment and knowledge about students' engagement in FA. Moreover, a confirmatory factor analysis was conducted for the TdFA and SdFA sub-scales, in which the TdFA showed support for the proposed model while the SdFA showed slight discrepancies. In aggregate, the whole scale can be considered to have two factors applicable in the present study context.

Major lessons learned from the pilot study and content validations to the main study include refining the tools of data collection (language editing, modification of some of the items, and omission of one item due to repeated ideas in another item). The panel of experts' ratings indicate the relevance and clarity of the tools to measure the constructs being examined

Overall, in the pilot study, the research method, the research design, the sample size, the sample selection criteria, and the data collection instrument appear to be working well, and the pilot study was an opportunity to learn about and develop skills for analyzing, interpreting, and writing the results of multivariate analysis such as factor analysis, and regression analysis.

3.7.Procedures of Data Collection

Once the important steps of translation and back translation, validation of relevance of contents, and clarity check of each of the statements of the quantitatve data collection tools were passed through, they were pilot-tested. Following this, the researcher handed out the questionnaire one-on-one to each participant. Moreover, the researcher observed the classroom formative assessment practices while the chosen teachers were teaching. The entire forty minutes of class were devoted to the observation in each school. Therefore, nearly 14 hours were devoted to class observation. With respect to the interview with scool principals, a minimum of one and a maximum of one hour and 25 minutes were spent on the interview. The interviews were individual-based interviews and were held in the principals' offices. Notes were taken during the interview sessions. Likewise, the student FGDs took place for nearly one hour under the shade of a tree and in the library. Equal number of male and female students participated in every FGD.

3.8.Methods of Data Analysis

The quantitative and qualitative results were integrated in a meaningful manner after carrying out data analysis based on themes to answer the basic research questions formulated in the study.

In analysing the quantitative data part, the following statistical techniques were employed:

- Descriptive statistics including frequency, percentage, mean and standard deviation were used to describe the background characteristics of participants and the level of the teachers' understanding and practicing of formative assessment, as raised in the first two research questions;
- Independent samples t-test and multivariate analysis of variance (t-test as and MANOVA) were used to examine the mean scores differences on FA understanding and practices across sub groups of the study participants [i.e., to see if there are significant differences on both FA understanding and practices (RQ_3) scores across the participants' gender, involvement in FA trainings, and school subjects the teachers teach, sub-city]; and
- Regression analysis was applied to analyse relationships that could exist among a set of major factors (including teachers' attitudes towards FA, their teaching experience, education and training, understanding of FA, support from school leaders, class size, time constraints, and assessment policy) on one hand and FA practices (the DV) on the other hand so as to answer RQ_4. In line with this, to detect and consider the effect of common method bias that could arise from the use of the same survey instrument to measure both the independent and the dependent variables, Harman's single factor test was used.

The qualitative data, on the other hand, were analyzed using a thematic analysis approach to explore descriptive insights that complement findings from the quantitative data. In line

with this, the interview, FGD and observation data were read and re-read to identify and label significant statements, structure and group the statements into certain categories or themes, cluster themes into broader categories, and finally assemble the detailed descriptions of the issues in the themes into clusters based on the research questions. Hence, the qualitative data analysis followed a deductive qualitative data analysis approach.

3.9.Ethical Considerations

Institutions’ and individual participants' consent was requested and obtained before collecting data. Similarly, permission was obtained from the school principal and homeroom teachers regarding the students' FGD participation, in addition to a careful clarification of the purpose of the FGD for the students. The participants were informed that they stay anonymous, that all information is handled with the utmost confidentiality, and that they can refuse to participate or withdraw after the research has started. Additionally, the researcher was transparent about his identity and background. On top of these, participants were given a thorough explanation of the research's objectives and methods at the outset.

Chapter Four

Results

This chapter focuses on the analysis of the data collected through questionnaires, classroom observations, interviews, and focus group discussions. First, the results of the data screening process and tests of statistical assumptions are outlined. Then, the analyses of the quantitative and qualitative data related to the basic research questions of the study are presented.

4.1. Data Screening and Tests of Statistical Assumptions

All the data were screened for outliers, missing values, and tested for potential violations of statistical assumptions before moving on to the data analysis.

Outliers and Missing Values Analysis

Univariate outlier detection was made through the frequency distribution analysis for each variable. In the screening process performed, no univariate outlier was identified in the data entered into the SPSS programme. However, the screening identified one variable with missing values of 6.5% for imputation. The variable was “sharing assessment criteria with students”. The imputation technique used for the missing value analysis was the mean substitution (taking the assumption that the sample mean is the best estimate of the population mean). This technique was selected for missing value analysis because the missing values were few in number. Table 10 shows that 24 (6.5%) of the missing values related to sharing assessment criteria with students were replaced with values derived from the SPSS missing value analysis. The calculated (substituted) mean was 3.10.

Table 10

Results of Missing Value Analysis for Variables with High Missing observations

	N	Mean	Std. Deviation	Missing	
				Count	Percent
Share assessemt criteria with students	345	3.10	.96	24	6.5

a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

Normality of the Dependent Variables

The formative assessment practice and formative assessment understanding variables (the scale variables) had skewness values, obtained from the Kolmogorov-Smirnov, of .077 and .051, respectively, indicating approximately normal distribution because the values fall within the acceptable range of +1 and -1. The Shapiro-Wilk test result also confirmed the same assertion, as the values were .948 and .959 for formative assessment understanding and formative assessment practice, respectively, as can be seen in Table 11. Although the normality test result indicates a slight deviation from normality, particularly for the formative assessment understanding total, it is still acceptable as per the central limit theorem because the sample size is >200.

Table 11

Results of the Normality Tests for the Dependent Variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
FA Practice	.077	270	.004	.959	270	<.001
FA Understanding	.051	270	<.001	.948	270	.093

a. Lilliefors Significance Correction

Homogeneity of Variance

As can be seen in Table 12, the non-significant tests of homogeneity of variance for FA understanding and FA practice show P-values of.503 and.612, respectively, indicating that the variances of the dependent variables are equal across the levels of the independent variables.

Table 12

Results of Homogeneity of Variance Tests of the Dependent Variables (FA Understanding and FA Practice)

	Levene Statistic	df1	df2	Sig.
Teachers' Understanding	.688	2	336	.503
Teachers' Practice	.492	2	287	.612

4.2.Teachers' Understanding and Practices of Formative Assessment

4.2.1. Teachers' Understanding of Formative Assessment

A teacher's understanding of formative assessment (FA) is very important because it directly impacts student learning by allowing real-time adjustments to instruction, identifying gaps, promoting student autonomy, and fostering a growth mindset. Poor knowledge can lead to unsatisfactory outcomes for all learners.

The results of the levels of teachers' understanding of formative assessment are presented in Table 14. The teachers were distributed across different FA understanding levels. Even though there are few teachers self-reporting their formative assessment understanding level as below basic (1.08%), majority of them (44.72 %) reported having only basic, 41.46% proficient, and 11.11% reported advanced levels of formative assessment understanding.

Table 14

Teachers' Self-Report Result on Their Formative Assessment Understanding

Level of understanding of FA	% score	N of teachers	% of teachers
Below Basic	0-34	4	1.08
Basic	35-74	165	44.72
Proficient	75-89	153	41.46
Advanced	90-100	47	11.11

Source: Kanjee and Mthembu, 2015

The item-by-item analysis of teachers' formative assessment understanding as depicted in Table 15 generally revealed that teachers have sufficient understanding of the strategies used in formative assessment. The formative assessment techniques that teachers reported to have a relatively lower understanding of are that formative assessment elicits evidence of student learning when teachers use a variety of assessment methods (M=2.87, SD=1.32). On the other hand, teachers reported having a greater understanding of the values of aligning formative assessment activities with learning goals.The average teachers' understanding score of formative assessment is about 76.2% of the maximum possible Likert scale score, with consciously entered reverse-scored items. i.e., the maximum Likert scale score is 5), which shows they have a bit more than a basic level of knowledge (Kanje & Mthembu, 2015), as the average score in Table 15 was M=3.81, SD=1.07.

Table 15

Mean and Standard Deviations of Teachers' Response to Formative Assessment Understanding Items

Items	N	Min	Max	Mean	SD
Formative assessment elicits evidence of learning when teachers use a variet of assessment methods	368	1	5	2.87	1.32
Learning needs are identified through formative assessment	364	1	5	3.29	1.35
Formative assessment is a responsibility of both teachers and learners	356	1	5	3.45	1.39
The rationale for FA is to improve students' learning	366	1	5	4.22	0.87
Formative assessment results are useful for teachers to cater for students' needs	365	1	5	4.25	0.89
Formative assessemnt activities should elicit information about students' learning	365	1	5	4.27	0.86
Formative assessment activities need to be aligned with learning goals	369	1	5	4.35	0.82
Average				3.81	1.07

4.2.1.1. Results of Understanding of Formative Assessment by Sex and Participation in Trainings. Independent samples t-tests were conducted to compare the means of formative assessment understanding scores between males and females, between those who received pre-service training on educational assessment and evaluation and those who did not, and between teachers who received in-service training on educational assessment and those who did not take such an assessment during the last three years.

As shown in Table 16, there was a statistically significant difference between males (M = 26.96, SD = 4.57) and females (M = 25.82, SD = 4.93) in their FA understanding scores, and the difference was statistically significant (t (360) = 2.02, p =.023), with male teachers having significantly higher FA understanding scores than their female counterparts.

Similarly, formative assessment understanding scores were significantly higher for teachers who received pre-service training in educational assessment (M = 26.87, SD = 4.77) than for those who did not (M = 24.48, SD = 4.36), t (366) = 4.47, p < .001). However, teachers who reported to have received some form of in-service training on educational

assessment and evaluation did not differ significantly in their understanding of formative assessment (p =.682) from those who did not receive such a training.

Table 16

Results of Independent Samples T-Tests Comparing Formative Assessment Understanding By Sex, Participation in In-Service Training, and Pre-Service Training

Independent variable and levels		M	SD	T	df	P	Cohen's d
Sex	Male	26.96	4.57	2.29	360	.023	.241
	Female	25.82	4.93				
In-service training on assessment (for last three years)	Received	26.54	5.05	-.41	365	.682	-.045
	Not received	26.33	4.65				
Pre-service training on assessment and evaluation	Took	26.87	4.77	3.95	366	<.001	.512
	Did not take	24.48	4.36				

4.2.2. Teachers' Practices of Formative Assessment

Teachers' effective practice of formative assessment transforms teaching into a responsive, student-centred process, enhancing outcomes for all learners. In Table 17, the results of the teachers' self-report on formative assessment practice level are presented. According to the majority of teachers (69.38%), their formative assessment practices were at basic or below basic levels. On the other hand, very few teachers (4.61%) perceived that they practiced formative assessment at an advanced level, while the remaining (26.02%) self-reported to possess a proficient level of formative assessment practice.

Table 17

Teachers' Self-report Result on Their Formative Assessment Practice

Level of practice of FA	% score	N of teachers	% of teachers
Below Basic	0-34	7	1.90
Basic	35-64	249	67.48
Proficient	65-79	96	26.02
Advanced	80-100	17	4.61

Source: Kanjee and Mthembu, 2015

An in-depth item-by-item analysis of teachers' level of practice of formative assessment as described in Table 18 further showed that training students to act on feedback obtained from assessments was a formative assessment technique that was less practiced by teachers (M=2.15, SD=0.99). The teachers also practiced the formative assessment techniques of asking students to evaluate peers' work and asking students to provide feedback to help peers improve, at relatively lower levels, with mean scores of 2.69 (53.8%) and 2.71 (54.2%), respectively. The corresponding standard deviations were 0.95 and 0.94, respectively.

The most frequently practiced formative assessment technique, as perceived by the respondents, was sharing learning intentions with students before students start working in the classroom (M=3.47, SD=0.80). This was about introducing the topic and subtopics at the beginning of the daily lessons. The average level of formative assessment practice, converted to percentage, is 61.4%, indicating a basic level of practice (Kanje & Mthembu, 2015), as the average score depicted in Table 18 was M=3.07, SD=0.87.

Table 18

Mean and Standard deviations of teachers' response to formative assessment practice items

Items	N	Min	Max	Mean	SD
Training students to act on assessment feedback information	367	1	4	2.15	0.99
Asking students to evaluate peers' work	360	1	5	2.69	0.95
Asking students to provide feedback to help peers improve	367	1	5	2.71	0.94
Teaching students to engage in peer feedback	369	1	5	2.86	0.88
Clarifying assessment purposes	363	1	5	2.86	1.04
Use of a variety of assessment methods	368	1	5	3.06	0.85
Sharing assessment criteria with students	345	1	5	3.13	0.96
Clarifying what is valued for each assessment task	368	1	5	3.13	0.92
Asking students to identify strengths and weaknesses in their own work	367	1	5	3.14	0.85
Asking students to identify strategies that will improve their own work	369	1	5	3.15	0.78
Engaging students in using feedback information in subsequent tasks	365	1	5	3.18	0.81
Pointing out students' strength and weaknesses in my feedback	363	1	5	3.25	0.85
Helping students develop self-assessment skills	356	1	5	3.27	0.84
Using assessment results to show students what they need to do to improve learning	360	1	5	3.35	0.78
Ensuring homework can check students' learning progress	365	1	5	3.41	0.75
Providing suggestions for students to improve their performance	356	1	5	3.42	0.76
Sharing learning intention to students before student start working in classroom	359	1	5	3.47	0.80
Average				3.07	0.87

Contrary to the averagely moderate self-response quantitative results, findings from key informant interviews and classroom observations indicated poor implementation of FA. To this end, most of the school principals (SP2, 3, 4, 7, and 9-12) replied that not all teachers are using FA. For example, SP2 said, "In grades 5 and above, teachers use only written tests, due to large class size."

The most commonly applied FA techniques by some teachers as identified by the key informants were quizzes (SP4, 7, 9, 10, and 12); oral questions (SP3, 5, 11, and 12); observation and group discussion (SP2, 3, and 5); and homework and classwork (SP8-10). This implies that very little of FA is being practiced in the schools. The methods/techniques more frequently employed were limited in their variety, i.e., they were limited to oral

questioning and quizzes with no formative feedback, peer assessment, self-assessment, and use of the elicited data.

The findings of teachers' formative assessment practice data obtained from classroom observations and key informant interviews when disaggregated into its key strategic components of clarification and sharing of learning intentions and success criteria with students, elicitation and usage of evidence of student learning, application of descriptive feedback, and use of self-and-peer assessment are presented as follows.

Clarification and sharing of learning intentions and success criteria

Providing clarity and focus for students is paramount. Research consistently highlights the impact of clearly defined goals on student achievement and engagement. Learning intentions (the what of learning) and success criteria (the how to measure success) have become essential tools in effective teaching. Contrary to the findings from the teachers' self-report quantitative data, classroom observations revealed that none of the observed teachers clarified and shared learning intentions and success criteria with the learners. They simply wrote the lesson's topic on the blackboard and continued to explain it after asking a few students to remind what was learned during the previous classes. Surprisingly, some of them did not even have a daily lesson plan with them. For instance, OPST1 (Observed primary school teacher), OPST6, OPST11, OPST15, and OPST20 were teaching without any written lesson plan. Besides, teachers with very low teaching competency, particularly in the medium of instruction, were noted during the classroom observation. For instance, OPST1, who taught "safuu"—moral education—to grade 1 students, could not correctly spell the basic Afan Oromo scripts. In OPS14 and OPS18, the teachers struggled to use the English and Amharic languages in their classes, respectively. In the former class, the teacher could not use English to teach the general science subject to grade 8 students. The latter failed to correctly spell the Amharic letters to teach the language to grade 5 students.

The key informant interviews conducted with school principals also revealed similar findings. All school principals, except SP10, remarked that there are limitations in clarifying and sharing the learning intentions and success criteria with students. For example, SP1, 2, 5, 6, and 8 said that there are no clarifications of learning intentions and success criteria for the students. Worse, SP6 explained, "There is no teacher who clarifies learning intentions to students. Some textbooks themselves were developed without learning outcomes/competencies stated in them." SP1 also expressed that the teachers write down some objectives in their lesson plans yet do not clarify them to the students. On the other hand, school principals 3, 4, 7, 9, and 11-12 reflected that only a few teachers in their schools clarify and share the learning intentions and success criteria with the learners. For example, SP7 said that only experienced teachers clarify learning competency to students. This implies that the students are not clear about the learning competency expected of them. Where this is not clear to students, it is obvious that the students fail to self- or peer-assess.

Eliciting and using evidence of student learning

In most of the classrooms observed, except in OPST1, there were attempts to ask oral questions, one of the techniques used in eliciting evidence of students' learning. But only a few and more active learners were given chances to respond to the teachers' questions. There was no practice of eliciting evidence from the whole class in all classes observed. This implies that the teachers seem to ask some questions to some active students just to allow students' participation and not to gather evidence of their learning. There were teachers (for instance, OPST1, OPST6, OPST10, OPST12, and OPST16) who simply used lecture methods. Only a few teachers (OPST2, OPST3, OPST5, and OPST8) were observed using elicited learning evidence to give some corrections or inviting other students to give corrections, with most of the teachers making no adjustments to the learning and teaching

process following the elicited evidence. Therefore, the techniques used to elicit evidence of students' learning were limited to only asking oral questions, and they engaged a few actively learning students, without a substantial use of the elicited evidence for making adjustments to the teaching and learning or for other decisions.

Providing Formative Feedback

Feedback plays an important role in the students' learning process. Its purpose is to improve the student's performance and allow learning to take place. The investigator noticed that there was no feedback given to the students in the majority of the classes observed (OPST4, OPST5, OPST6, OPST7, OPST8, OPST10, OPST11, OPST12, OPST13, OPST14, OPST15, OPST16, OPST17, OPST18, and OPST21). In only a few classes, a kind of evaluative feedback was given to students without descriptions that help students learn from their errors (OPST1, OPST2, OPST3, OPST9, OPST19, and OPST20). For instance, in OPST2, a grade 2 Afan Oromo teacher tells the correct pronunciation to a student who was reading aloud from the book, but she did not tell where the student made a mistake and how to correct it. The learner reads "gaala" for "galaa." The former represents an animal called a 'camel,' while the latter means a ration that a passenger holds. Adequate formative feedback use was observed being given to students in OPST8, where the teacher used varied active instructional and assessment methods and tools, including mini boards, flash cards, and lines drawn on the floor for teaching literacy and numeracy in a play-based teaching, with descriptive feedback of what and how to improve. Her classroom was full of written and picture aids. This class was named Accelerated Learning for Africa (ALFA). The teacher receives professional development training from a civic society organization called Geneva Global Ethiopia. Hence, the relatively better practice observed in the ALfA class may be due

to the more practical teacher training given to facilitators of the ALfA classes by Geneva Global, Ethiopia.

Likewise, a salient majority of the school principals said that teachers gave a judgmental type of feedback, meaning telling the correct answers following tests, classwork, or assessments (SP1, 3, 4, 5, 7, 8, 9, 10, 11, and 12). According to the responses of these school principals, there is no descriptive feedback on which part of their work and how students can make improvements. It was only SP6 who replied that there was some descriptive feedback given by teachers he observed during their instructional supervision.

Using Peer and self-assessment

When using assessment as learning in the classroom, peer and self-assessment are effective approaches to enhance students' learning. Making students assess their own and peers' work has the benefit of critically analyzing their own efforts and becoming more independent. The investigator noticed that students' self-assessment was missing in all twenty-one observed classes, including the relatively better-performing OPST7 and OPST8. Incomplete kinds of peer assessment were applied in some classes (for instance, OPST5, OPST7, OPST8, and OPST17) in the form of inviting the students' peers to judge if answers were correct. The teachers who failed to clarify and share learning intentions and success criteria with students also failed to use self- and peer assessment strategies, because these strategies depend on the success criteria identified for the lessons.

Similarly, most of the school principals replied that there is no use of the self- or peer-assessment strategy in their respective schools (SP1, 2,3,4,5, 7, and 12). Confirming the absence of self- and peer-assessment strategies in the school he leads, SP4, for instance, stated that students just ask questions of one another when the teacher is absent from the school. Furthermore, SP12 highlighted the absence of self and peer assessment, remarking

that some teachers sometimes ask students to correct each other's answers based on the correct answers given by teachers. Contrary to this, SP8-11 responded that there were some teachers who seldom used one or both of the self- and peer-assessment techniques. For instance, SP8 & 9 said some teachers in their schools use self and peer assessments. SP10 highlighted that some of their teachers use peer assessment, while SP11 replied, "There are some teachers who apply students' self-assessment, especially during the language and mathematics classes. Peer assessment is very rare." One can infer that the majority of teachers do not seem to understand the benefit that self- and peer assessment strategies have in enhancing students' critical thinking and autonomy and employ them.

Overall, the observations included absence or incompleteness of lesson plans and unclear learning objectives, poor elicitation and use of evidence of learning of students, judgmental (rather than descriptive) feedback that is limited in guiding students for improvement, and minimal or no self- and peer assessment in most classes.

4.2.2.1. Formative Assessment Practice by Sex and Participation in Training.

Independent samples t-tests were conducted to compare the means of formative assessment practice scores between males and females, between teachers who received in-service training on educational assessment during the last three years and those who did not, and between those who received pre-service training on educational assessment and evaluation and those who did not.

As shown in Table 19, formative assessment practices did not significantly vary across teachers' sex (p=.096), receiving or not receiving in-service training (p=.44), or receiving or not receiving pre-service training (p=.089).

Table 19

Results of Independent Samples t-tests Comparing Formative Assessment Practice By Sex, Obtaining In-Service Training, and Pre-Service Training

Independent variable and levels		M	SD	t	df	P
Sex	Male	50.67	10.10	-1.67		.096
	Female	52.34	8.84		360	
In-service training on assessment	Received	51.85	8.83	-.77	365	.44
	Not received	51.03	10.04		221	
Pre-service training on assessment	Received	51.76	10.45	1.71		.089
	Not received	49.60	9.39		366	

4.2.3. Formative assessment Understanding and Practice across Subject Taught and Sub-city

First, in the frequency analysis of the variables in the study, the presence of disproportionate numbers of teachers based on the subjects they teach was observed. Specifically, English, Mathematics, Afan Oromo, and Amharic teaching teachers represented 48% of the total (369 teachers), with the remaining 11 school subjects collectively accounting for only 52%. Therefore, a new *school subject taught* variable that contained only English, Mathematics, Afan Oromo, and Amharic groups was created through the recoding transformation procedure for the MANOVA test.

Based on this, a one-way between-subjects multivariate analysis of variance (MANOVA) was conducted on two dependent variables: understanding of formative assessment and practice of formative assessment. The independent variable was subject taught (English, mathematics, Afan Oromo, and Amharic). Box's M showed that the covariances of the dependent variables are equal across groups (p=.088), indicating that the assumption of equality of covariances is met. Using Wilk’s lambda (Table 20), the dependent variate was significantly affected by the subjects teachers teaching: Wilk’s lambda = 0.90, F (6, 344) =

3.03, p = .007, partial eta sq. = .05. Corresponding univariate ANOVAs indicated in the same table revealed a significant difference in formative assessment practice (F = 3.616, p = .041) among teachers teaching different school subjects. But the difference in formative assessment understanding across teachers teaching different subjects was not significant (F = 2.44, p = .066).

Tukey's post-hoc tests (Table 21) and the mean and standard deviations indicated in Table 20 further revealed that mathematics teachers had significantly higher formative assessment practice (M = 55.21, SD = 9.39) compared to those teaching English (M = 49.60, SD = 10.41), with a p-value of .014.

Table 20

Mean Scores and Standard deviations; multivariate and univariate analyses of variance of FA understanding and FA practice; and multivariate test results of the composite FA measure as a function of school subjects taught

Subject taught	FA Understanding (M)	FA Understanding (SD)	FA Practice (M)	FA Practice (SD)	Effect Values	Multivariate F	Hypothesis df	Error df	Sig.	Partial Eta Squared
English	26.40	4.57	49.60	10.41						
Math	27.23	4.87	55.21	9.39						
Afan Oromo	24.69	5.92	53.13	7.82						
Amharic	26.90	3.32	50.70	8.42						
				Subject taught	0.10 (Pillai's)	3.04	6	346	.007	.05
					0.90 (Wilks')	3.03	6	344	.007	.05
					0.11 (Hotelling)	3.01	6	342	.007	.05
				Multivariate	0.06 (Roy's) 3.025	3.63	3	173	.014	.06
				Univariate FA Understanding	2.440, p=.066					
				Univariate FA Practice	3.616,p=.014					

Table 21

Post-hoc test results of MANOVA across levels of subject taught

Dependent Variable	(I) Subject taught	(J) Subject taught	Mean Difference (I-J)	Std. Error	Sig.
Formative assessment understanding score	English	Mathematics	-.8308	.96324	1.000
		Afan Oromo	1.7111	.99929	.532
		Amharic	-.5000	1.12311	1.000
	Mathematics	English	.8308	.96324	1.000
		Afan Oromo	2.5419	.99015	.067
		Amharic	.3308	1.11498	1.000
	Afan Oromo	English	-1.7111	.99929	.532
		Mathematics	-2.5419	.99015	.067
		Amharic	-2.2111	1.14627	.332
	Amharic	English	.5000	1.12311	1.000
		Mathematics	-.3308	1.11498	1.000
		Afan Oromo	2.2111	1.14627	.332
Formative assessment practice score	English	Mathematics	-5.6115*	1.81720	.014
		Afan Oromo	-3.5333	1.88521	.376
		Amharic	-1.1000	2.11880	1.000
	Mathematics	English	5.6115*	1.81720	**.014**
		Afan Oromo	2.0782	1.86796	1.000
		Amharic	4.5115	2.10346	.200
	Afan Oromo	English	3.5333	1.88521	.376
		Mathematics	-2.0782	1.86796	1.000
		Amharic	2.4333	2.16249	1.000
	Amharic	English	1.1000	2.11880	1.000
		Mathematics	-4.5115	2.10346	.200
		Afan Oromo	-2.4333	2.16249	1.000

Another one-way between-subjects multivariate analysis of variance (MANOVA) was conducted to investigate differences in formative assessment understanding and formative assessment practice scores as a function of teachers' sub-city (Furi, Koye, Sebeta). A Box's M test result ($p = .050$) indicated equal variance-covariance matrices of the dependent variables across levels of teachers' subcity, allowing us to proceed to analyze the multivariate effect.

The formative assessment understanding and practice scores of teachers working in different sub-cities did not differ significantly, according to the MANOVA results in Table 22 (Wilk's Lambda = .975, F (4, 730) = 2.353, p = .056, partial eta squared = .013). Thus, there were no significant differences in the average scores of formative assessment understanding and practices among teachers working in Furi, Koye Feche, and Sebeta subcities.

Table 22

Mean Scores and Standard deviations; multivariate and univariate analyses of variance of FA understanding and FA practice; and multivariate test results of the composite FA measure as a function of teachers' sub-city

Subcity	FA Understanding (M)	FA Understanding (SD)	FA Practice (M)	FA Practice (SD)	Effect Values	Multivariate F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Furi	26.90	4.37	52.06	10.28						
Koye Feche	26.58	5.03	50.64	9.29						
Sebeta	25.13	4.28	52.54	9.70						
				Subcity	0.025 (Pillai's)	2.353	4	732	.053	.013
					0.975 (Wilks')	2.353	4	730	.056	.013
					0.026 (Hotelling)	2.354	4	728	.053	.013
				Multivariate	0.022 (Roy's)	3.980	2	366	.020	.021
					2.353					
				Univariate FA Understanding	3.025, p=.05					
				Univariate FA Practice	1.335, p=.264					

4.3.Influences of Personal and Contextual Factors on FA Practice

Personal and contextual factors are key in the FA implementation because they function as internal and external pressures that either promote or hinder its successful application by shaping teachers' attitude, ability, and opportunity to employ ongoing feedback to improve student learning. Understanding these impacts helps teachers provide focused support to enhance useful practices and overcome obstacles, ensuring FA meets its aim of improving learning.

4.3.1. Teachers' Responses to Selected Personal and Contextual Factors

As shown in Figure 5, most of the respondents (75.6%) reported they felt there was not enough internal support on formative assessment implementation at the schools; thus, making it a major barrier for effective implementation. At the same time, as shown in Figure 6, most participants (71.5%) stated that the school favours the use of a formative assessment approach, indicating that the schools would generally wish FA practices within their schools. This is in contrast with the limited support available for teachers to be able to use and sustain the use of formative assessment practices.

Figure 5

Teachers' Response on Internal Support Given to Them (N=369)

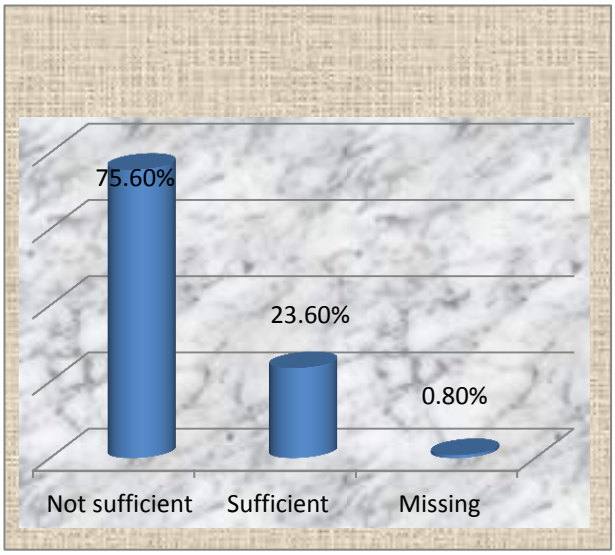


Figure 6

Teachers' Response on Assessment Type Schools Prefer (N=369)

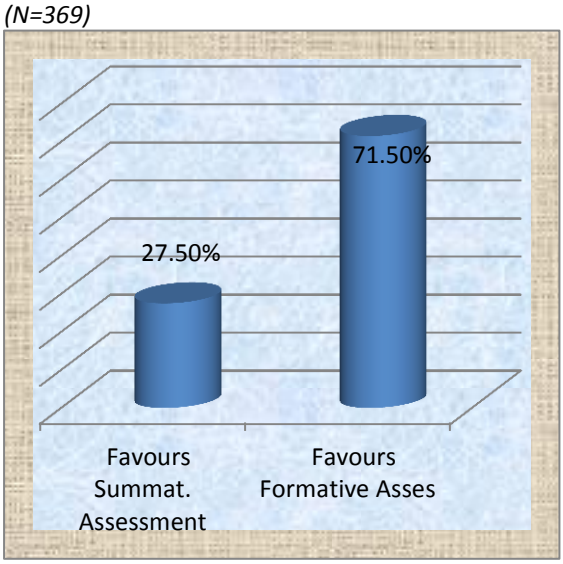


Figure 7 shows that overcrowded classrooms are common, with 82.7% of teachers stating that their classes were larger than 50 students. This presents difficulties in applying individualized formative assessment methods. However, the majority of teachers had a generally positive instrumental attitude toward formative assessments, as 76.2% of them expressed a positive instructional attitude towards formative assessments (fig.8).

Figure 7

Teachers' Response about Class Size

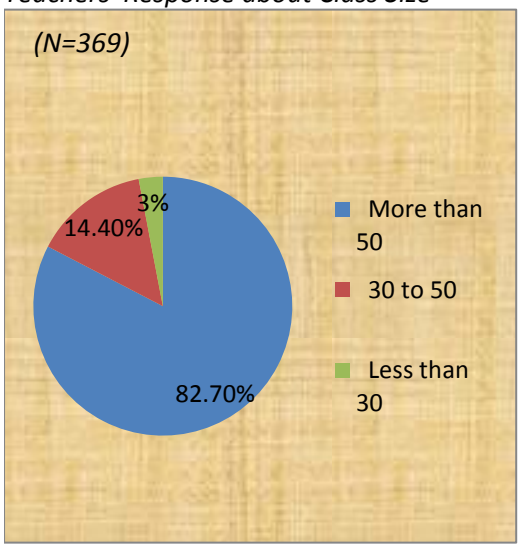
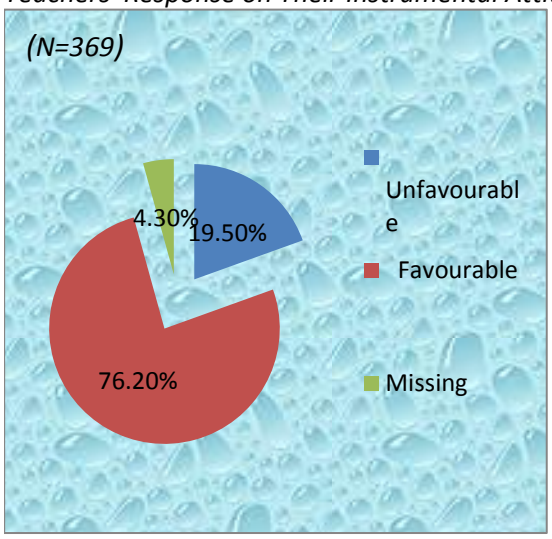


Figure 8

Teachers' Response on Their Instrumental Attitude to FA



As indicated in Figure 9, more than half of the respondents (56.9%) reported that they were working at their normal weekly workload, but nearly 43% reported that they were overloaded. Similarly, almost three-fourths of the teachers (71%) indicated they had "almost enough" instructional time (figure 10); however, nearly 29% responded with "never enough" instructional time. The combination of these two domains of pressure on teachers and limited time was cited as a practical issue for many teachers that inhibited them from being more in-depth in their use of formative assessments.

Figure 9
Teachers' Resonse on Their Weekly Workload

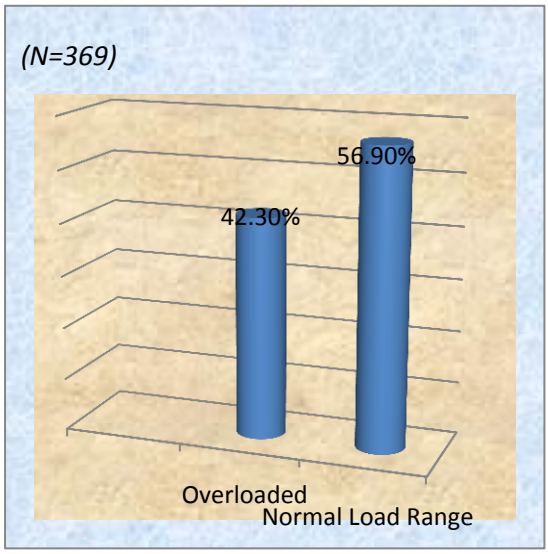
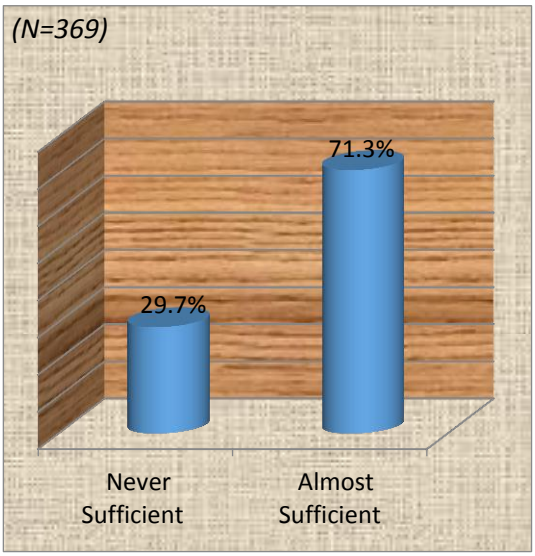


Figure 10
Teachers' Response on Adequacy of Instructional Time



4.3.2. Results of Regression Analysis of Selected Factors Influencing Teachers' Formative Assessment Practices

A standard multiple regression analysis was conducted to examine the predictive relationship between various independent variables and formative assessment (FA) practice. The predictors were instrumental attitude towards formative assessment, class size, internal school support, assessment type required by the school (assessment policy), workload, adequacy of instructional time, pre-service training opportunitieis on assessment and evaluation, and teachers' level of understanding of formative assessment.

As the data for regression analysis were collected through a self-administered questionnaire, both procedural and statistical techniques were employed to avoid a common method bias. Firstly, as presented under the 'ethical considerations; section in the methods chapter, the researcher assured the respondents that the procedural approach protects anonymity and maintains confidentiality with the intention of reducing social desirability bias. Furthermore, it was emphasized in the instruction that there are no right or wrong answers to reduce acquiescence bias.

Secondly, Harman's single factor test was conducted to check for the presence of common method bias (CMB). For this test, an exploratory factor analysis was conducted. The result, as indicated in Table 23, indicates that the first extracted factor accounted for only 30.62% of the variance, which is less than the 50% or above cut-off contribution suggested for a CMB to exist, indicating the absence of a single factor accounting for a significant amount of variance and hence indicating the absence of a common method bias.

Table 23

Results of Harman's Single-factor Test for Common Methods Bias (variance explained)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.349	30.619	30.619	6.845	28.522	28.522
2	2.804	11.683	42.302	2.358	9.826	38.349
3	1.548	6.451	48.753	.969	4.037	42.385
4	1.215	5.063	53.816	.750	3.126	45.511
5	1.058	4.407	58.223	.577	2.406	47.917
6	.984	4.102	62.325			
7	.891	3.711	66.036			
8	.828	3.449	69.485			
9	.715	2.978	72.463			
10	.650	2.709	75.172			
11	.619	2.581	77.752			
12	.597	2.489	80.241			
13	.574	2.390	82.631			
14	.523	2.179	84.810			
15	.499	2.079	86.889			
16	.468	1.948	88.837			
17	.444	1.851	90.689			
18	.397	1.653	92.341			
19	.373	1.556	93.897			
20	.364	1.518	95.415			
21	.326	1.357	96.773			
22	.305	1.272	98.044			
23	.273	1.139	99.184			
24	.196	.816	100.000			

Extraction Method: Principal Axis Factoring.

Moreover, collinearity diagnostics as revealed in Table 27 is in the acceptable levels of multicollinearity, with tolerance values ranging from .88 to .97 (values greater than .01) and variance inflation factors (VIF) ranging from 1.03 to 1.13 (are all less than 10). Furthermore, the bivariate intercorrelation coefficients shown in Table 24 indicate the absence a large magnitude coefficient between any pairs of the predictors. The table also

indicates that the criterion variable (the FA practice) achieved low correlations with most of the predictors.

Table 24

Bivariate Intercorrelations between the Predictors and the Outcome Variable

		1	2	3	4	5	6	7	8	9
Pre-service training on asses. & evaluation	Pearson Correlation	1								
	Sig. (2-tailed)									
Instrumental attitude towards FA	Pearson Correlation	.188**	1							
	Sig. (2-tailed)	.000								
Average number of students	Pearson Correlation	.015	-.010	1						
	Sig. (2-tailed)	.774	.846							
Internal school support	Pearson Correlation	-.034	-.144**	.000	1					
	Sig. (2-tailed)	.520	.007	.994						
Assessment type required	Pearson Correlation	-.054	-.091	.056	.055	1				
	Sig. (2-tailed)	.305	.089	.289	.297					
Weekly workload	Pearson Correlation	.095	.005	.139**	.172**	.056	1			
	Sig. (2-tailed)	.069	.927	.008	.001	.290				
Adequacy of instructional time	Pearson Correlation	.054	.009	.114*	.154**	.093	.220**	1		
	Sig. (2-tailed)	.299	.873	.029	.003	.076	.000			
Formative assessment understanding score	Pearson Correlation	.202**	.164**	.023	-.098	-.015	.000	-.011	1	
	Sig. (2-tailed)	.000	.002	.659	.060	.781	.996	.829		
Formative assessment practice score	Pearson Correlation	.089	-.068	.056	.159**	-.041	.102	.035	.129*	1
	Sig. (2-tailed)	.089	.203	.279	.002	.439	.052	.507	.013	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Regression results summarized in the ANOVA (Table 25) revealed that the overall model was statistically significant, F (8, 334) = 3.044, p = .003. The R-squared value (Table 26) was .068, signifying that 6.8% of the variance in formative assessment practice was explained by the model. Since the objective of social science and educational research is often to determine whether particular predictors have a substantial impact rather than to maximize predictive power, a low but significant R-squared model is an acceptable result (Ozili et al., 2023).

Table 25

Analysis of variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2177.004	8	272.126	3.044	.003[b]
	Residual	29854.867	334	89.386		
	Total	32031.872	342			

a. Dependent Variable: Formative assessment practice score

b. Predictors: (Constant), Formative assessment understanding score, Assessment type required, Weekly workload, Average number of students, usefulness of FA, internal school support, Adequacy of instructional time, Pre-service training on assessment and evaluation

Table 26

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.261	.068	.046	9.45441

Predictors: (Constant), Formative assessment understanding score, Assessment type required, Weekly workload, Average number of students, usefulness of FA, internal school support, Adequacy of instructional time, Pre-service training on assessment and evaluation

As depicted in Table 27, FA understanding and internal school support turned out to be significant predictors of FA practice scores, while other variables, such as perception of the usefulness of FA, class size, weekly workload, pre-service training opportunity in

assessment and evaluation, assessment type required by the school, and adequacy of instructional time, showed non-significant contributions (p>.05). More specificalyy, understanding of formative assessment accounted for about 16% of the differences in teachers' formative assessment practice, while internal school support contributed 13% to those variations.

Table 27

Coefficients and Multicollinearity Statistics for the Regression Model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	SE	Beta			Tolerance	VIF
(Constant)	38.51	5.09		7.56	.00		
Pre-service training on assessment and evaluation	1.92	1.35	.08	1.42	.16	.897	1.12
Perception on the usefulness of FA	-2.40	1.33	-.10	-1.81	.07	.918	1.09
Class size	1.37	1.078	.07	1.27	.21	.970	1.03
Internal school support	2.98	1.30	.13	2.39	.02	.924	1.08
Assessment type required	-1.04	1.17	-.05	-.89	.37	.972	1.03
Weekly workload	.77	1.09	.04	.71	.48	.890	1.12
Adequacy of instructional time	.19	1.17	.01	.17	.87	.912	1.09
Formative assessment understanding score	.32	.11	.16	2.86	.004	.929	1.08

Dependent Variable: Formative assessment practice score

A further investigation done through collecting qualitative data from key informant interviews (interviews with school principals) revealed that limitations in providing internal school support, lack of in-service training programs, and inconvenient working conditions are the main challenges to FA implementation.

Internal school support given to teachers

Formative assessment requires prominent roles to be played by school leaders. As teachers develop lesson plans and assessment methods that enable students to increasingly become responsible for their own learning, school leaders must give teachers the support and flexibility they need to rethink their approach to teaching. This begins with their awareness of the concept and purpose of formative assessment.

Most of the key informants (principals) responded that they did not give the necessary support on the implementation of formative assessment to teachers. In this regard, SP2 said that she has never given any support focusing on the implementation of FA; SP1, 3, 6, 9, and 12 replied that they gave formats and monitored teachers' records of continuous assessment (that is, an accumulation of mini summative assessments); and SP8, 10, and 11 confessed that there was no strong support system for FA in the school. Only SP4 & 7 reported that they checked teachers' lesson plans, observed classes, and gave comments on areas to be improved. For instance, SP4 said,

> *The school supports teachers by making them prepare and implement plans, observe classes, give them feedback, and monitor their mark lists and attendance sheets monthly.*

However, the majority of the school principals replied that they use formative assessment for checking students' learning and enhancing the teaching and learning process (SP2, 3, 4, 7, 9, and 11). Other principals responded that the purpose of FA is to rank students and decide on promotion (SP1, SP5, SP6, and SP12). More specifically, SP6 expressed, "50% of student achievement is accounted for by formative assessment." This implies that the school principals have confused the purpose of FA with that of the mini summative assessments being carried out in almost all of the Ethiopian classes.

Most of the key informants (the school principals) insufficiently conceived of FA and highlighted that FA is a process or a tool of evaluating students' learning or understanding of the curricular contents (SP2, 3, 4, 8, and 12). For instance, SP12 explained:

> *It is a technique for identifying the daily activities of learners that involves accumulating marks up to 240 or 320, which are later on converted to lower ones. But teachers get bored or feel fatigued (SP12).*

A few school principals have added some more elements to the definition forwarded by the principals listed above and said that it focuses on identifying students' learning and supporting them (SP5 and 6). SP5, for instance, said, "It is a technique used to continuously identify students' competency or learning and give feedback." SP6 on his part said, "It is about identifying students of different ability groups and taking the slow to medium and those at medium level to fast." The data indicate that most of the school principals lack clear understanding of the meaning and purpose of FA. Most of them designate the meaning of a summative assessment to it. All of them ignored the crucial roles played by the learners and the key FA components such as clarification of learning intentions, eliciting of evidence of learning, and self- and peer assessments. Only one school principal mentioned the importance of feedback in his definition of FA.

In-service trainings given to teachers on formative assessment

Most of the key informants (including SP2, 4, 5, 6, 7, 8, 9, 10, and 12) replied that there were no in-service professional development and training opportunities available to teachers on formative assessment. Yet, SP1 and SP11 mentioned that only a few teachers received training on the topic of continuous classroom assessment. This implies that most teachers received little or no in-service professional development training on FA.

Working conditions

Lack of training and professional development activities for teachers (SP1, 3, 5, 6, 7, 8, 9, 10, 11, and 12); large class sizes of 1:80, 1:94, and up to 1:120 (SP2, 3, 4, 5, 7, 8, 9, 11, and 12); shortage of instructional materials, including textbooks (SP5, SP6, 8, 9, 12); presence of students who do not speak the instructional language (SP5); and teachers teaching subjects they are not trained in, including those newly introduced ones, such as Geda, Safu, and arts (SP3), are the major challenges to the implementation of FA. In relation to teaching subjects for which they were not trained, SP5 stated, "Most teachers teach subjects they were not trained for, which resulted in insufficient planning and shallow teaching because they simply teach what they have read."

A focus group discussion (FGD) conducted with selected 6^{th}, 7^{th}, and 8^{th} grade students from primary school coded as FGD1, FGD2, and FGD3 collectively revealed that teachers used various assessment strategies and supported slow learners. Some teachers clarify learning objectives and use self- and peer-assessment methods (maths, science and English teachers). They also clearly expressed that some teachers teach subjects they were not trained for. Furthermore, FGD1participants said that they did not practically learn IT due to a lack of electric power service and computers.

Chapter Five

Discussion

The fifth chapter presents the study's discussions based on the major findings. This study aimed to examine primary school teachers' formative assessment understanding, practices, and correlates of the practices. To this end, the study attempted to answer basic research questions that addressed the level of the teachers' FA understanding and practice, differences among various subgroups of teachers on their understanding and practices of FA, and the factors associated with FA practices, including instrumental attitude towards FA, understanding of FA, education and training obtained, workload, perception of support from school leaders, and assessment-related school policy. The findings are discussed as presented below.

5.1. Teachers' Understanding of Formative Assessment

The quantitative results of the self-report survey reveal that teachers considerably vary in their understanding of formative assessment, with the majority (44.72%) having a basic level of FA understanding. The combined average level of understanding, according to the proficiency level of Kanjee and Mthembu (2015), falls in the range of the basic level of understanding, indicating a sufficient understanding of FA.

This finding disagrees with most of the earlier studies that reported teachers' below-basic understanding of FA (Black & Wiliam, 2012; Dayal, 2021; Hailay & Abate, 2022; Kanjee & Mthembu, 2015; Vlachou, 2018). For instance, Black and Wiliam (2012) and Vlachou (2018) reported that teachers lacked understanding of the principles and theoretical underpinnings of FA. Similarly, a study conducted in South Africa by Kanjee and Mthembu (2015) showed that no teacher demonstrated sufficient understanding of formative assessment to enable its use. In addition, Dayal (2021) studied mathematics teachers' FA conception and

practices in Fiji and reported that teachers held an emerging understanding of FA, even after a professional learning intervention. Moreover, in a study conducted in Ethiopia, Hailay and Abate (2022) observed limitations in teachers' awareness of FA in their qualitative exploration of the subject. On the other hand, Singh et al. (2022), similar to the finding of this study, reported that selected Malaysian teachers had good awareness of formative and alternative assessments.

The average basic level of understanding of FA principles and strategies reported by the majority of the teachers in the present study might be associated with their tendency to overstate their FA understanding level because of the inherent limitations of the self-report method (Van de, 2008).

In the in-depth item-by-item analysis, teachers confessed that they possessed a low level of understanding of more complex formative assessment techniques, such as using diverse methods of assessment. The average lower level of understanding of eliciting evidence of learning when teachers use a variety of assessment techniques signals a definite limitation that should be addressed in teachers' professional development programmes.

5.1.1. *Teachers' Formative Assessment Understanding as a Function of Sex, Pre-service, and In-service Training Opportunities*

The results revealed that the understanding of formative assessment varied by sex and the pre-service training received by teachers. However, no evidence was found to support the notion that teachers' understanding of formative assessment varies according to the in-service training opportunities they receive. Hence, the hypothesis that teachers' FA understanding varies as a function of teachers' gender and pre-service training opportunity was supported by

the findings of the current study, but variation by in-service training opportunity was not supported by the results.

Compared to female teachers, male teachers had a higher understanding of formative assessment. Although the interpretation of these findings needs to be done with caution since the survey data were collected through teachers' self-response questionnaires, the findings may be due to the variation in the criteria for the selection of male and female teacher candidates for colleges of teacher education in the region, which was relatively tougher for male candidates'. This is demonstrated in the annual directives issued by the Oromia Education Bureau regarding the recruitment and selection of candidate teachers. Irrespective of the reason, further exploration is needed to sufficiently justify this result.

Additionally, teachers who received training during the pre-service teacher preparation program had better formative assessment understanding than those who did not receive such training.

Consistent with this finding, Hamodi et al. (2017) reported that pre-service teachers' early exposure to formative assessment practices might have led to a positive attitude, which facilitated better understanding and implementation of formative assessment practices later in their teaching careers.

Nevertheless, even though teachers who received some in-service training opportunities on FA reported a relatively better understanding of FA than those who did not receive such opportunities, the difference was not statistically significant. The absence of a significant difference in teachers' FA understanding as a result of in-service training opportunities may be due to the training focusing on more conventional rote memorization that lacked active learning and critical thinking as part of their program curriculum.

Consistent with this, a local study conducted by Abiy (2017) shows that teacher education pedagogy in the country is dominated by traditional lecture methods, which heavily rely on rote memorization rather than active learning, critical thinking, and practical applications of concepts. This implies the need for providing more intensive, practical, and targeted training that could make a difference between teachers who are trained and those who are not.

This finding is inconsistent with several earlier studies. For instance, Black and Wiliam (2009), Brookhart (2011), and the Global Partnership for Education (2024) reported a positive influence of professional development and education on teachers' understanding of formative assessment. Research work by Wiliam et al. (2004) also showed that sustained professional development experiences increased teachers' assessment literacy and resulted in greater use of formative, alternative, or authentic assessment tasks in the classroom.

5.2. Teachers' Practice of Formative Assessment

Most teachers reported basic to below-basic formative assessment practice. The average formative assessment practice was approximately 61.4%, which is a basic level of practice (Kanje & Mthembu, 2015), suggesting an evolving but insufficient or poor utilization of the strategies (Kanje & Mthembu, 2015).

Teachers who received pre-service training, in-service refresher training, and male teachers were found to have slightly better FA practice, with no statistically significant difference. This indicates that the training was not practical or effective. On the other hand, the fact that teachers who received practical in-service training on educational assessment (ALFA project) demonstrated comparatively better FA practice highlights that targeted practical training can enhance FA implementation.

Therefore, need-based in-service training and professional development opportunities could be helpful for their specificity and purposefulness, on the one hand, and for the possibility of learning from more experienced and qualified colleagues, on the other hand. Congruent with this finding, Wiliam et al. (2004) showed that sustained professional development experiences increased teachers' assessment literacy and resulted in greater use of formative, alternative, or authentic assessment tasks in the classroom.

In addition, the study revealed significant diversity in teachers' usage of formative assessment (FA) techniques, relying more on continuously recorded summative assessments. The least practiced FA strategies, such as training students to act on feedback information, applying peer assessment, and clarification of assessment purpose," indicate a remarkable gap in formative assessment practice that could limit the effectiveness of FA and student learning.

Contrary to the nearly moderate quantitative results of teachers FA practice, observations of classrooms in certain primary schools generally revealed poor teachers' formative assessment practice (all failing to clarify objectives to students and use self-assessment, several failing to provide feedback, with only a few giving only evaluative feedback, use of limited techniques (particularly oral questioning to those active students) to elicit evidence of learning with no use of the elicited evidence to make adjustments to lessons, and failing to encourage students to assess themselves and their peers. A relatively better practice (using some of the main strategies of FA, with the exception of the shortcomings in using the elicited evidence to inform subsequent instructions) was noted in a few of the classes observed.

The poor practice of FA, particularly in identifying, determining, and clarifying learning goals and success criteria, may be due to the absence of stated or formulated learning

competencies in the curricular materials (especially in the student textbooks for the early grades of primary school).

The current results are in line with most of the findings in previous studies, which painted a mixed picture of a) relying on traditional summative assessment methods (Anil Kanjee, 2020; Askalemariam Adamu, 2015; Chroinín & Cosgrave, 2013; Govender, 2020; Hailay & Abate, 2022; Sintayehu, 2016; Vlachou, 2018; Wong, 2014) and b) occasionally employing some of the FA strategies (Carla C. Johnson, 2019; Grob *et al*., 2019; Janbo etal., 2020; Martin *et al*., 2022; Singh *et al*., 2022; Vingsle, 2014). Contrary to the current findings, other studies, such as those by Leigh M. Tolley (2022) in the USA and Xiayong Wang (2017) in China reported commendable FA practices.

An overall poor practice of teachers' formative assessment regardless of training received (with statistically non-significant effects of training opportunities) implies that the training was not effective. On the other hand, the better FA practice noticed in the ALfA class indicates that targeted practical in-service training opportunities on student assessment coupled with professional support are essential. Congruent with this, Wiliam *et al*. (2004) showed that sustained professional development experiences increased teachers' assessment literacy and resulted in greater use of formative, alternative, or authentic assessment tasks in the classroom. Moreover, the absence of a significant effect in teachers' FA practice (with poor practice among the majority of teachers) implies that pre-service teacher training programs in Ethiopia need to be revisited in terms of their formative assessment activities so that they can make significant differences between graduates and others.

Teachers' use of key strategies of formative assessment

Contrary to the findings from the self-report quantitative data, classroom observations revealed that none of the observed teachers clarified or shared learning intentions and success criteria with the learners. Besides, there are teachers with very low teaching competency, particularly in the medium of instruction (spelling of Afaan Oromoo scripts, Amharic scripts, and spoken English). Key informants also remarked that there were limitations in clarifying and sharing the learning intentions and success criteria with students. Some textbooks were developed without learning outcomes/competencies stated. This implies that the students are not clear about the learning competency expected of them. Where this is not clear to students, it is obvious that the students lack focus and fail to assess themselves or their peers. Consistent with this finding, Kanjee (2020) found that among primary school teachers in South Africa, a small percentage of teachers were able to effectively introduce LIs and SC, with a more severe limitation in introducing and using SC. Similarly, Kanjee and Mthembu (2015) and Mkhwanazi et al. (2014) reported in their respective studies that they did not observe any teacher clarifying learning intentions.

In addition, *c*lassroom observations and key informant interviews revealed that the techniques the teachers used to elicit evidence of students' learning were dominated by asking oral questions, and they engaged a few actively learning students, without a substantial use of the elicited evidence for making adjustments to the teaching and learning or for other decisions. This use of limited techniques of eliciting evidence of student learning may be due to the teachers' low level of motivation arising from poor living conditions, and also due to limitations in the practical skills to use a variety of FA techniques as indicated in the present study. Similar to the findings of the present study, previous studies by by Kanjee (2020) himself and Nakabugo and Sieborger (2001) cited in Kanjee (2020) showed teachers' use of

only open-ended questions to elicit evidence of students' learning. Kanjee (2020) stated that teacher-initiated questions were directed to the whole class, with a minority of learners reacting by raising their hands, and teachers mainly obtained responses from those who raised their hands.

Similarly, the investigator noticed that, in the majority of the classes observed, students received no feedback, except very rare evaluative feedback that involved checking and stating the correct answers, instead of giving descriptive feedback that helped learners move forward. Key informant interviews confirmed the same findings of the absence of descriptive formative feedback, implying poor support provision to address specific learning gaps of learners. Large class size, as reported by almost all the respondents, coupled with a gap in the skills to provide descriptive feedback seems to be the reason for the absence of descriptive feedback. Anil Kanjee reported a finding similar to the findings of this study: that the prevalence of descriptive feedback was extremely low, and evaluative feedback was predominant. Relatedly, Kanjee and Mthembu (2015) reported that they observed no descriptive written feedback in the students' exercise books.

Regarding the use of self-and-peer assessment strategies, the classroom observations and most of the key informant interviews indicated that there was no self-assessment in all classes observed, with some incomplete kinds of use of peer assessment in some classes in the form of inviting the students' peers to judge if answers were correct. The teachers who failed to clarify and share learning intentions and success criteria with students also failed to use self- and peer assessment strategies, because these strategies depend on the success criteria identified for the lessons. One can infer that the majority of teachers do not seem to understand the benefit that self- and peer-assessment strategies would have in enhancing students' critical thinking and autonomy and use them. Congruent with the findings of the

present study, Nicol & Macfarlane-Dick (2006) reported that no teacher in their study was able to support the development and practice of self and peer assessment skills.

Overall, only a few of the formative assessment strategies outlined by Wiliam and Thomson (2007) were observed in the practices of the teachers, and only a few teachers were able to demonstrate effective use of some specific strategies.

5.3. Formative Assessment Understanding and Practice across School Subjects Taught

The findings of the present study revealed that the dependent variate (i.e., combined FA understanding and FA practice) significantly differed based on the school subjects teachers teach. Specifically, mathematics teachers had significantly higher formative assessment practices than English teachers. This suggest that subject area trainings may help to improve teachers' formative assessment practices.

A similar finding was reported in previous studies by Alkharus (2011), Bo et al. (1998), and Yan et al. (2021), in which mathematics teachers reported using traditional assessment methods much less frequently, favoring FA tools, than did teachers in other subject areas.

5.4. Formative Assessment Understanding and Practice across Teachers' Sub-city

According to the findings of the current study, there were no significant differences in the average scores of formative assessment understanding and practices among teachers living in the different sub-cities of Sheger. The average formative assessment understanding and practice scores of teachers working in different sub-cities did not differ significantly.

5.5. The Relationship among Selected Personal Factors, Contextual Factors, and Formative assessment practice

Prediction of the teachers' formative assessment practice from teachers' instrumental attitude towards FA, understanding of FA, teaching experience, internal school support, adequacy of instructional time, class size, assessment policy, and workload indicates a varying degree of contribution of the independent variables listed.

It was found that FA understanding and internal school support were significant predictors of FA practice scores, whereas other variables, such as teaching experience, instrumental attitude towards FA, and assessment type required, showed nonsignificant associations.

Interviews with school principals and vice principals identified further challenges to formative assessment (FA) practices, including large class size, in-service training shortages, a shortage of instructional resources, including textbooks, and teachers teaching subjects they are not trained in.

Students' perspectives have also been added through focus group discussions (FGD), which reveal teachers' teaching of subjects they are not skilled in, and a lack of electricity and computers hindering practical IT classes. Therefore, in addition to the factors identified as significantly affecting FA practices.

Several previous study findings are consistent with the findings of the current study. For instance, in Zi Yan et al.'s (2021) systematic review, it was found that teachers' application of formative assessment may differ due to their differing levels of understanding to apply formative assessment strategies, even with similar assistance and in the same context.

Support and encouragement from principals, the school management team, and head teachers were found to be influential factors that propel teachers to implement formative assessment in previous studies (Brink and Bartz, 2017; Moss and Brookhart, 2019), consistent with the findings of the present study, which identified a considerable impact of internal school support for teachers.

However, the non-significant impact of time constraints on FA implementation identified in the present study is in disagreement with the results of previous studies (for instance, Crichton and McDaid (2016), which indicated a significant influence of time constraints on FA practice.

Consistent with the findings from the qualitative data analysis that revealed class size as one of the major challenges to FA practice, Tebeje and Abiy (2015) and Brown and Gao (2015) found that large student-teacher ratios were practical constraints for teachers in the implementation of formative assessment because of the difficulties of class management and time.

Findings from the quantitative data showed that school policy, teachers' instrumental attitude, and teaching experience had non-significant relationships with teachers' FA practice. Regarding the influence of teachers' teaching experience on their FA practice, previous studies showed varying findings. For instance, Bol et al. (1998, as cited in Alkharusi, 2011) reported that most experienced teachers indicated the use of some FA strategies more often than the least experienced teachers. Nevertheless, Zi Yan et al. (2021) found that teachers with fewer years of teaching experience had higher FAP, arguing that such teachers were more likely to be trained in the latest FAP or more open to experimenting with novel assessment methods. Therefore, future research needs to be undertaken to further explore the influence that years of teaching experience have on formative assessment practice.

The findings of the current study regarding the effect of assessment-related school policy on FA practice disagree with earlier research evidence, which revealed the negative effects of conventional types of summative (high-stakes) assessment on the teaching and learning process, particularly on the use of formative assessment (Anil Kanjee, 2020; Shepard, 2000; Wiliam et al., 2004).

The results of this study about the role of teachers' instrumental attitude towards FA on its implementation contrasted with most previous study reports, which revealed that the more positive instrumental attitude teachers held regarding the desirable consequences of practicing formative assessment, the more willingly they were to implement formative assessment (Brink & Bartz, 2017; Dixon & Haigh, 2009).

Likewise, weekly workload was reported to have no impact on teachers' formative assessment practices, consistent with a study by Askalemariam (2015). Nonetheless, it was noted through the qualitative data analysis that teachers' FA practices were significantly influenced by resources (computers, books, and other facilities), which is supported by the findings of Askalemariam's (2015) study on science teachers in secondary schools.

With regard to the theoretical significance of the present study, teachers' understanding of FA as a personal factor and internal school support and school policy that favors summative assessment as contextual factors affecting FA practice indicate that the conceptual framework considered in this study was supported by the results of this study. Similarly, since the FAU and school support have significantly affected FA practice in this study, then Kozma's micro- and meso-level factors that were used as a guide were also clearly supported by the data of the study. Therefore, it can be said that the study has good theoretical significance.

Chapter Six

Conclusion and Recommendations

In this final chapter, a brief summary, conclusion, and recommendations of the study are presented.

6.1. Summary

This study sought to examine primary school teachers' understanding, classroom practices and associated factors of formative assessment in Sheger City, Ethiopia. It employed both quantitative and qualitative approaches stressing an explanatory sequential design. Quantitative data were collected via a survey of 369 primary school teachers, and qualitative data were collected through direct classroom observations, interviews, and focus group discussions. The quantitative data were analysed using descriptive statistics (such as percentage, frequency counts, mean, and standard deviation), MANOVA, and multiple regression analysis, while the qualitative data were thematically analysed.

The results of the survey indicated only basic levels of understanding and application of formative assessment among teachers with widespread misconceptions regarding its use and a reliance on summative-oriented approaches. The results also indicated differences on FA understanding among teachers by gender, training status, and subject matter they teach. The qualitative findings substantiated the results that formative assessment was often employed as a relatively surface-level tool, primarily revealing minimal use of feedback, peer assessments, or self-assessment practices. Regression analysis revealed that teacher knowledge-level and the level of school support had a significant impact on teachers' practice of formative assessments. Evidence further supports the assumption that the limited application of formative assessment is related to deficiencies in assessment literacy, poor professional development opportunities, and contextual limitations.

The following recommendations were put forward to improve teacher practices of formative assessment: Better support to teachers from the school leadership, practical pre- and post-service training on formative assessment to teachers, and revisions to the curriculum to better match classroom practice requirements.

6.2. Conclusion

Based on the integrated findings of the quantitative and qualitative data, the following key conclusions were drawn.

First, teachers have a basic but limited understanding of formative assessment. Although their overall level of knowledge is considered "basic," this does not provide a sufficient foundation for effective classroom implementation. The analysis of item-level data as well as qualitative evidence revealed key conceptual gaps in teachers' understanding, especially when using more advanced formative assessment techniques, such as using multiple strategies to elicit evidence of learning and then using that evidence to inform instruction. The difference between these findings and those of previous studies that reported below-basic may be attributed to a self-reporting inflation issue, meaning that the real understanding level is likely much lower than what was indicated through the data obtained through surveys. Thus, teachers' literacy with respect to formative assessments can be viewed as emergent and fragmented rather than complete and operational.

Second, formative assessment is poorly executed and inconsistent, with a clear difference between self-reported and observed practices. While survey data would suggest that formative assessments are used at a moderate level, classroom observations show a predominantly superficial level of practice (i.e., procedural or summative). Teachers mainly use summative continuous assessments over time and ask oral questions to only a few active students in the class lesson, while key formative assessment strategies of clarifying learning

intentions and success criteria to students, providing descriptive and formative feedback to students on their performance, and promoting self- and peer-assessments are largely absent. Therefore, it appears that formative assessments have not yet been internalized as a pedagogical method for teaching, but rather implemented in fragmented ways. Consequently, many of the benefits of using formative assessments (i.e., improved learning, enhancing students' independent learning style, and developing metacognitive skills) remain largely unrealized.

Third, teacher training (both pre-service and in-service) has a limited impact on the way teachers practice FA in classrooms, which raises serious concerns about the quality and relevance of these training programs. Although pre-service training showed some positive association with formative assessment understanding, there was no statistically significant difference in FA practice based on the pre-service and general in-service training received by teachers. This indicates that most teacher training is either too theoretical, only a method of transmitting knowledge, or does not give the teachers enough practice with FA. However, the relatively high levels of FA implementation for teachers who have participated in directed, practice-based professional development (i.e., ALFA) demonstrate that long-term, contextualized, hands-on professional development can improve FA implementation. Therefore, the problem with teacher training is not about whether or not there is access to training, but rather the design, depth, and pedagogical orientation of the training.

Fourth, FA is greatly influenced by external contextual and systemic circumstances rather than by individual teacher characteristics. Analysis of the data from this research revealed that, of the variables tested, only teachers' level of understanding of formative assessment and internal school support had a significant impact on how effectively they employed FA in their classrooms. This indicates that simply possessing knowledge does not

ensure the employment of FA, as an enabling school environment must also be present. Significant forms of enabling environments include providing leadership support, opportunities for collaborative learning among teachers, and instructional support/guidance. Additionally, the qualitative findings revealed numerous structural barriers—such as large class sizes, inadequate instructional materials, absence of curricular competencies (especially in the lower primary grades), and teachers' teaching outside of their area of expertise— that eventually impact the ability to enact FA. Ultimately, these findings demonstrate that FA is a system practice rather than that of a mere individual teacher.

Fifth, several frequently mentioned factors, such as teaching experience, workload, teachers' instrumental attitude towards formative assessment, and assessment-related school policy, have weak or non-significant correlations with any observed change in FA classroom practice. This indicates that their effects may be indirect, dependent on contextual factors, or mediated by other variables.

Sixth, there were significant differences between subgroups, although the differences did not consistently result in causation. Males and those with pre-service exposure reported greater FA understanding than their counterparts, and mathematics teachers generally demonstrated stronger FA practices than teachers of other subjects. However, the differences were generally small and did not lead to substantive changes in the teachers' FA practice. Furthermore, because there is no difference across the sub-cities, the challenges of implementing FA are system-wide rather than location-specific.

Seventh, the findings of this study indicate that there is a misalignment among curriculum, pedagogy, and assessment practices. Specifically, the lack of clearly defined learning competencies within curriculum materials (especially in early grade textbooks) limits teachers' ability to effectively clarify learning intentions and success criteria, which are

essential elements of formative assessment. This structural gap directly contributes to the ineffective implementation of several critical FA strategies and restricts students' ability to self-regulate their learning.

Finally, the findings support (or validate) the conceptual framework of this study from a theoretical perspective, indicating that both individual (participants' understanding of formative assessment) and contextual (school support provided to teachers) variables substantially determine the implementation of formative assessment. Additionally, the results provide empirical evidence supporting multi-level theoretical constructs, including Kozma's model of teacher cognition at both the micro-level (individual teachers) and meso-level (the school environment), and how they influence teachers' instructional practices.

Taken together, the study indicates that formative assessment in the setting studied is still a relatively new concept and that there has been limited use of it to date due to a lack of knowledge and systemic limitations in turning knowledge about formative assessment into effective practice. All these factors contribute to teachers' inability to develop their skills to implement formative assessments in their classrooms. To improve formative assessment implementation, multi-level interventions that address both the individual teacher's ability to use formative assessment and the conditions in which he/she works, as well as the alignment between the policy and practice of formative assessment, must take place concurrently.

6.3 Recommendations

Based on the findings of this study, the recommendations outlined below aim to address both systemic/institutional and classroom-level gaps in the understanding and practice of formative assessments. The recommendations set forth below aim to address both the systemic/institutional as well as the classroom-level gaps in the formative assessment understanding and practice (FAs) based on the findings of this study. Thus, recommendations are proposed for each group of stakeholders so that everyone will be clear about their role and work together in implementing the recommendations.

1. **Establish a coherent, supportive policy implementation framework for formative assessment.**

Education officers need to maintain alignment among formative assessment policies, curriculum expectations, teacher professional development, supervision mechanisms, and what actually happens in classrooms. Formative assessment should be folded into educational quality assurance, instructional leadership, and accountability frameworks.

2. Strengthen formative assessment capacity across the teacher education and professional development continuum.

Teacher education institutions and education authorities should provide longer-term, practice-centred learning opportunities for teachers so that they can build both conceptual understanding and actual practice of formative assessment. For shared knowledge of formative assessment ideas and techniques, capacity-building programs should target pre-service teachers, practicing teachers, teacher educators, school administrators, and supervisors.

3. Promote school-based professional learning and instructional leadership.

For teachers to actually join peer learning, do reflective practice, and engage in professional conversation around formative assessment, schools need to grow collaborative professional cultures. For formative assessment to be really integrated into classroom instruction, school administrators should provide chances for collaborative inquiry, mentoring, and day-to-day instructional support.

4. Improve the quality of how classroom formative assessment plays out in real-day-to-day teaching.

Teachers should be encouraged to use a variety of assessment approaches, give feedback that is directly tied to further learning, and support improvement. At the same time, they should genuinely involve students in the assessment process and use the assessment results carefully for instructional decisions. Making formative assessment part of the teaching and learning itself, not just disconnected techniques, should get special attention.

5. Address the contextual as well as systemic barriers that hinder formative assessment implementation.

Education stakeholders should address structural drivers like the availability of instructional resources, teacher workloads, and supportive learning environments. These factors have a direct influence on whether formative assessments can be put into practice.

6. Strengthen partnerships, innovation, and research in formative assessment.

In order to promote innovation, the development of resources, technology use, and ongoing studies that feed into context-specific and sustainable formative assessment

practices, cooperation among education bureaus, education offices, schools, teacher education institutions, development partners, and researchers should be strengthened.

In general, a system-wide and coordinated effort that blends policy execution, professional capacity building, instructional leadership, supportive school environments, and ongoing research is required if Ethiopia's primary schools are to enhance formative assessment. Standalone interventions are unlikely to bring lasting movement; instead, it needs the combined work of a range of stakeholders for the institutional, professional, and contextual conditions for proper formative assessment practice to actually be put in place.

Contributions and Limitations of the Study

This study makes significant contributions to the body of knowledge and practice. The Study's Contributions to Knowledge include **a**ddressing teachers' level of understanding of formative assessment, which has been less studied in previous research, providing deeper and broader insights on formative assessment through the use of both quantitative and qualitative data strands, identifying factors that more significantly affect the implementation of formative assessment, presenting additional insights into formative assessment in primary education, and confirming the relevance of formative assessment study tools to Ethiopian culture.

In addition, based on the key findings of this study, some practical contributions towards improving formative assessment implementation were observed. These include the need to revise teacher education curricula for practical training on formative assessment, promote professional development opportunities, establish professional learning communities (PLCs), and improve feedback practices, student self-assessment, and peer assessment practices.

However, the current study did not address student learning outcomes as a function of implementing formative assessment. In addition, the study was restricted to investigating formative assessment understanding, practice, and demographic correlates in government primary schools. Moreover, some important predictors of formative assessment (such as teachers' self-esteem, students' motivation, and macro-level factors) have not been studied in this study. The teachers' level of formative assessment understanding was measured using closed-ended self-response items with some response categories, rather than open-ended questions that can capture the actual level of understanding. Finally, this study was cross-sectional and failed to explore changes over time. Therefore, future studies in this area should consider filling these gaps.

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Appendices

Apprndix 1: English version Questionnaire for Teachers

Dear Teachers,

I'm studying for a doctorate at the University of Addis Ababa. My dissertation topic is "Formative Assessment in Primary Schools of Sheger City: Teachers' Understanding, Practices, and Correlates," and I am now working on it. This is the reason behind my request to you to take part in this study. The purpose of this study is to examine teachers' understanding, current practices and factors of formative assessment to subsequently improve students' learning. It will also look for issues that may be impeding teachers' use of formative assessment. Your answers to the questions on this questionnaire will be extremely helpful for the research.

The questionnaire must be filled out in an anonymous manner (no need of writing your name). The information you provide will only be used for this research and will be kept private.

Thank you in advance.

Gadisa Terefe

Addis Ababa University

College of Education and Language Studies

School of Psychology

Tel: 0911787816

Email: gadisapsych@yahoo.co.uk

The survey consists of two parts:

Part 1: Background information

Part 2: Statements on formative assessment understanding and practices

Part 1: To answer the following questions, circle or fill in the proper phrases in the spaces provided as needed for each of the following items.

1. You are a

    1. Male
    2. Female

2. Your sub-city_____: School_____

3. Which of the following do you mostly teach?

    1. English
    2. Afan Oromo
    3. Amharic
    4. Mathematics
    5. Environmental Science
    6. Integrated science
    7. General science
    8. Physical and health education
    9. Arts/music
    10. IT
    11. Geda Education
    12. Ethical/moral education
    13. Other(please specify)_____
    14. Social Science
    15. Technical and career Development

4. Your teaching experience is:

    1. Less than 2 years
    2. 2 to 5 years
    3. 6 to 10 years
    4. More than 10 years

5. Your highest educational attainment is:

    1. Less than college diploma
    2. College diploma
    3. First degree
    4. Above first degree

6. Have you taken any in-service training on assessment and evaluation covering formative assessment, in the past three years?

    1. No
    2. Yes

7. Have you taken courses in classroom assessment/educational measurement during your pre-service training (at teacher-training colleges and/or universities)?

    1. No
    2. Yes

8. How useful do you find formative assessment in the classroom?

    1. It is an additional classroom task
    2. It is an integral part of classroom instruction

9. The average number of students in your class is:

    1. More than 50 students
    2. 30-50 students
    3. Less than 30 students

10. Internal school support given to you on formative assessment is:
    1. Not sufficient
    2. Sufficient
11. Which assessment type does your school require you more to implement?
    1. Assessment conducted after the teaching and learning process to evaluate students' learning
    2. Assessment conducted in the process of teaching and learning to improve it
12. Your weekly workload is
    1. overloaded
    2. in the normal load range
13. How do you judge the adequacy of the instructional time allotted to cover the contents of the subject you teach?
    1. Never sufficient
    2. Almost sufficient

Part 2: Formative Assessment Understanding and Practices

Instructions:

Please read each statement and then put the tick mark (√) to show the level of agreement that best matches your typical formative assessment notion.

Key:

1. Strongly disagree
2. Disagree
3. Slightly agree
4. Agree
5. Strongly agree

Code	**Statements**	**Degree of agreement**				
		1	2	3	4	5
U1	The rationale for formative assessment is to improve students' learning					
U2	Students' learning needs are best identified through summative rather than formative assessment methods					
U3	Formative assessment tasks should be aligned with learning goals					
U4	Formative assessment tasks are used to elicit evidence about students' knowledge of what has been taught					
U5	Formative assessment results are useful for teachers to cater for students' needs					
U6	Formative assessment is a sole responsibility of teachers					
U7	Formative assessment allows learners to demonstrate their learning when teachers use classroom written tests					

Read also each of the following statements and then put the tick mark (√) to show the frequency that best matches your typical formative assessment practice.

Key:

1. Never
2. Rarely
3. Sometimes
4. Frequently
5. Very frequently

Code	**Statements**	**Degree of agreement**				
		1	2	3	4	5
P8	I use a variety of assessment methods that allow students to demonstrate their learning					
P9	I teach students to engage in peer feedback process					
P10	I help students to develop self-assessment skills					
P12	I engage students in using feedback information in subsequent tasks					
P12	Based on assessment results, I show students what they need to do in order to improve their learning					
P13	I train students to act on assessment feedback information to improve their learning					
P14	I clarify assessment purposes to students					
P15	I share assessment criteria with students					
PS 16	I share the learning intention before students start working in class					
PS 17	I clarify what is valued for each assessment task					
PS 18	I ensure homework can check students' learning progress					
PS 19	I point out students' strengths and weaknesses in my feedback					

PS 20	I provide suggestions for students to improve their performance					
PS 21	I ask students to evaluate peers*'* work					
PS 22	I ask students to provide feedback to help peers improve					
PS 23	I ask students to identify strengths and weaknesses in their own work					
PS 24	I ask students to identify strategies that will improve their own work					

Thank you for completing the questionnaire.

Please make sure that you answered all items.

Appendix B. Classroom Observation of Formative Assessment (COFA) of the English version

School Name_____ Sub-city_____ Grade & sec._____ Subject _____ # of students: M:____ F: _____ Date_____

Lesson start time-end time_____ Observer_____

Capabilities	**Indicative Behaviour**	✓	**Practices**	**Evidence/ rational for rating**
Elicit evidence of student learning to determine what students know and can do(1)	Teacher elicits responses from individuals to determine what students know and can do (1.1)		Teacher elicits responses to match a preconceived ‘‘correct’’ response (1.1.1)	
			Teacher elicits responses to identify the methods or processes used by the student/s(1.1.2)	
			Teacher elicits responses to identify the mental model/conceptual understanding of the students (1.1.3)	
	Teacher elicits response from the class to determine what students know and can do(1.2)		Teacher can identify individual responses from all class members (1.2.1)	
	Teacher uses techniques to elicit students response (1.3)		Teacher has main mode of eliciting response/s(1.3.1)	
			Teacher is flexible and adapts mode/s to situation (1.3.2)	
Use of evidence of student learning to move towards the learning	Teachers gives feedback based on students response(2.1)		Teacher indicates if response is correct/incorrect (2.1.1)	
			Teacher gives information specific to the task or product (2.1.2)	

goal(2)			Teacher gives feedback about the main process used to understand or perform task (2.1.3)	
			Teacher gives feedback focused at supporting the student to evaluate their own process (2.1.4)	
	Teacher uses information to inform instructional decisions(2.2)		Teacher attempts to bridge or partially bridges the gap between the lesson and the student level(2.2.1)	
			Teacher matches lesson with elicited evidence of student level(2.2.2)	
	Peer gives feedback(2.3)		Teacher provides opportunities for students to give each other feedback(beyond just correcting responses or giving marks) (2.3.1)	
	Students self-assess(at individual or group level) (2.4)		Teacher provides opportunities for students to assess themselves (beyond just correcting responses or giving marks) (2.4.1)	

Appendix C. Interview Guide for School Principals-English version

i. Schedule:

Date:_____

Place:_____

Starting time: _____End time:_____

ii. Background Information:

Name of the school:_____

Code of the leader: _____sex:_____

Educational Level:_____

Service Years:_____

1. Please tell me how long you have been leading schools.
2. Why do teachers in your school carry out assessments in the classroom?
3. What does formative assessment mean to you?
4. Do teachers in your school use formative assessment in their classroom? If so, what kind?
5. Do you think the teachers share learning objectives and assessment criteria with their students?
6. How do you describe the experiences of implementing students' peer and self-assessment in your school?
7. How do you describe the experiences of teachers providing feedback to students?
8. How do you describe teachers' experiences with questioning techniques in your school?
9. For what purpose does your school use assessment evidence?
10. Have the teachers received classroom assessment training? If so? What kind? How do you describe their relevance to implementing formative assessment?

11. What kind of support do you provide teachers to implement formative assessment effectively?
12. Are there challenges to implementing formative assessment strategies? If so, what are they?
13. What do you suggest to improve the implementation of formative assessment in your school?
14. Is there anything we missed in our discussion? Would you like to add anything before we close?

Appendix D. FGD Guide for Students-English version
Date.....

Place.....

Starting time.....End time.....

School Name..... Sub-city…….

Number of participants: M…….. F……. Grade and section……..

1. Do your teachers use formative assessment techniques such as questioning, observing students' individual and group work, giving feedback in the classroom? If yes, in what ways were they useful?
2. Do your teachers share learning objectives and assessment criteria with you?
3. Do your teachers make you self and peer assesses your works? If yes, how do you perform them?
4. How do you describe your teachers' experiences of providing you feedback?
5. How do you describe your teachers' experiences of questioning techniques in your classroom?
6. For what purpose do your teachers use assessment evidence?
7. Are there challenges to implementing formative assessment strategies? If so, what are they?
8. What do you suggest to improve the implementation of formative assessment in your class/school?

Appendix E.Teachers' questionnaire-Afaan Oromoo version

Baar-gaaffii Barsiisotaaf

Jaallatamoo Barsiisotaa,

Ani Yunivarsitii Finfinneetti barnoota digirii doktarummaa barachaan jira. Yeroo ammaa kana ''Hubannoofi Dalagaa Barsiisonni Iyyaafannoo Adeemsa Keessaa (Formative Assessment) ilaalchisee Qabaniifi Qabattoota Dhiibbaa Geessisan'' irratti qorannoofi qo'annoo gaggeessaan jira. Isinis kana keessatti akka hirmaattaniif barbaadamtan. Qorannichi hubannoofi dalagaa barsiisonni iyyaafannoo adeemsa keessaa ilaalchisee qaban sakatta'uun dhaawataan barachuu barattootaa fooyyessuu kan kaayyeffateedha. Deebii dhugaan isin kennitan milkaa'ina qorannichaaf baay'ee waan fayyaduuf, deebii dhugaafi amanamaa ta'e akka kennitan isin gaafanna.

Baar-gaaficha yeroo guuttan maqaa keessan ibsuun hinbarbaachisu. Odeeffannoon isin kennitan dhimma qorannoo kana qofaaf kan oolu yoo ta'u, hunduu iccitiidhaan kan eegamu ta'a. Yeroo keessan irraa qooduun baar-gaaficha guutuuf eeyyamamoo waan taataniif durseen isin galateeffadha.

Gaaddisaa Tarrafaa

Yunivarsitii Finfinnee

Kolleejjii Qo'annoo Barnootaafi Yaad-qalbii

Mana Barumsaa Saayikoloojii

Lakk. Bil: 0911787816/0921326029

Email:

gadisa.terefe@aau.edu.et ykn

Gaafannoon kun kutaa lama qaba.

Kutaa1: Odeeffannoo Waliigalaa

Kutaa 2: Himoota hubannoofi dalagaa iyyaafannoo adeemsa keessaan walqabatn

Kutaa 1: Gaafilee asiin gadii haaluma gaafatamteen filannoo kee itti marsuun ykn bakka kenname irratti barreessuun deebisi.

1. Koorniyaa:

    1. Dhiira
    2. Dhalaa

2. Kutaa magaalaa_____: Mana barumsaa_____

3. Kanneen asiin gadii keessaa yeroo baay'ee kam barsiista?

    1. Afaan Ingiliffaa
    2. Afaan Oromoo
    3. Afaan Amaaraa
    4. Herrega
    5. Saayinsii Naannoo
    6. Saayinsii Walsimataa
    7. Saayinsii Waliigalaa
    8. Barnoota Fayyaafi Jabina Qaamaa
    9. Og-aartii
    10. Teekinooloojii Odeeffannoo(IT)
    11. Barnoota Gadaa
    12. Barnoota Safuu
    13. Kan biraa yoo ta'e (barreessaa)_____
    14. Saayinsii Hawaasaa
    15. Teekinikaafi Ogummaa Dagaagsuu

4. Muuxannoo hojii barsiisummaa ykn bara tajaajilaa:

    1. Waggaa lamaa gadi
    2. Waggaa 2 hanga 5
    3. Waggaa 6 hanga 10
    4. Waggaa 10 ol

5. Sadarkaa barnootaa kee inni ol aanaan:

    1. Dippiloomaa gadi
    2. Dippiloomaa
    3. Digirii jalqabaa
    4. Digirii jalqabaa ol

6. Waggoota sadeen darban keessatti leenjiwwan iyyaafannoofi madaallii dhimma iyyaafannoo adeemsa keessaa of keessaa qabu fudhattee beektaa?

    1. Lakki
    2. Eeyyee

7. Leenjii hojii duraa keessatti (yeroo kolleejjii ykn yunivarsitii turtetti) koorsota iyyaafannoo daree barnootaa ykn safarrii barnootaan walqabatan fudhattee jirtaa?

    1. Lakki
    2. Eeyyee

8. Iyyaafannoon adeemsa keessaa daree barsiistuuf hagam bu'aa qaba jettee yaadda?

    1. Hojii dabalataa daree barnootaati.
    2. Qaamuma barnoota dareeti.

9. Baay'inni barattoota daree kee giddu galeessaan:

    1. Barattoota 50 ol
    2. Barattoota 30-50
    3. Barattoota 30 gadi

10. Deeggarsi iyyaafannoo adeemsa keessaa irratti karaa mana barumsaan siif taasifamu:
    1. Gahaa miti.
    2. Gahaadha.
11. Manni barumsaakee gosa iyyaafannoo isa kam akka hojiirra oolchitu irra caala sirraa eega?
    1. Iyyaafannoo adeemsa baruufi barsiisuun booda barachuu barattootaa madaaluuf gaggeeffamu
    2. Iyyaafannoo adeemsa baruufi barsiisuu fooyyessuuf adeemsa baruufi barsiisuu keessatti gaggeeffamu
12. Ulfaatinni hojii torbee kee (weekly workload):
    1. Hanga baatamuu qabuu oli
    2. Kanuma baatamuu malu
13. Yeroon (wayitiin) barnootaaf ramadame qabiyyee barnoota barsiistuu uwwisuuf hagam tokko gahaadha?
    1. Gonkumaa hingahu
    2. Gahaadhuma

Kutaa 2: Hubannoofi Hojiirra Oolmaa Iyyaafannoo Adeemsa Keessaa

Qajeelfamoota:

Himoota asiin gadii dubbisuun gulantaalee taa'an keessaa kan sadarkaa hubannoo iyyaafannoo adeemsa keessaa kee caalmaatti ibsu filachuun mallattoo ‘‘√’’ fayyadamuun agarsiisi.

Furtuu:

1. Gonkumaa itti walii hingalu
2. Itti walii hingalu
3. xiqquman itti waliigala
4. Ittan Walii gala
5. Baay'een itti waliigala

Koodii	**Himoota**	**sadarkaa waliigaltee**				
		1	2	3	4	5
U1	Xiyyeeffannoon iyyaafannoo adeemsa keessaa barachuu barattootaa fooyyessuudha					
U2	Fedhiin barachuu barattootaa kan adda bahu karaa iyyaafannoo xumuraatiin malee iyyaafannoo adeemsa keessaatiin miti					
U3	Gochaaleen iyyaafannoo adeemsa keessaa galmoota barachuu waliin walsimuu qaba					
U4	Gochaaleen iyyaafannoo adeemsa keessaa odeeffannoo waa'ee barachuu barattootaa argamsiisuuf fayyadu					
U5	Faayidaa firiin iyyaafannoo adeemsa keessaa barsiisaaf qabu fedhii barachuu barattoota isaa akka guutu taasisuudha					
U6	Iyyaafannoon adeemsa keessaa hojii barsiisaa qofti raawwatuudha					

U7	Iyyaafannoon adeemsa keessaa barattoonni waan baratan akka mul'isan kan taasisu yeroo barsiissaan qorumsa barreeffamaa fayyadameedha					

Himoota asiin gadii dubbisuun gulantaalee taa'an keessaa kan sadarkaa hojiirra oolmaa iyyaafannoo adeemsa keessaa kee caalmaatti ibsu filachuun mallattoo ''√'' fayyadamuun agarsiisi.

Furtuu

1. Gonkumaa hinraawwadhu
2. Baay'ee yeroo muraasan raawwadha
3. Altokko tokkon raawwadha
4. Yeroo baay'een raawwadha
5. Yeroo hundan raawwadha

Koodii	**Hubannoo Iyyaafannoo Adeemsa Keessaa**	**Haala raawwii**				
		1	2	3	4	5
P8	Malleen iyyaafannoo adda addaa barachuu barattootaa adda baafachuuf oolan nan fayyadama					
P9	Barattoonni adeemsa kenniinsa duubdeebii hiriyaa keessatti akka qooda fudhatan nan barsiisa					
P10	Barattoonni dandeettii of-madaallii akka horatan nan gargaara					
P11	Odeeffannoo duubdeebii irraa argamu hojiiwwan fuula duraaf fayyadamuu keessatti barattoota nan hirmaachisa					
P12	Firii iyyaafannoo irratti hundaa'uun barattoonnii barachuu isaanii fooyyessuuf maal gochuu akka qaban ittan agarsiisa					

P13	Haala barattoonni odeeffannoo duubdeebii irraa argamu fayadamuun barachuu isaanii fooyyeffachuu danda'an irratti leenjii nan kennaaf					
P14	Dhimma/barbaachisummaa iyyaafannoon qabu barattootaaf nan ibsa					
P15	Ulaagaalee iyyaafannoo/madaallii barattootaaf nan beeksisa					
TFAPS 16	Akkuma barnoonni daree eegaleen kaayyoo barnootaa barattootaaf nan ibsa					
TFAPS 17	Tokkoon tokkoon gochaalee iyyaafannoof haala gatiin ykn qabxiin itti kennamu nan ibsa					
TFAPS 18	Hoji-maneen fooyya'iinsa barachuu barattootaa agarsiisuu waan danda'uuf nan fayyadama					
TFAPS 19	Duubdeebiikoo keessatti ciminaaf laafina barattootaa nan agarsiisa					
TFAPS 20	Barattoonni raawwii isaanii akka fooyyessaniif yaada nan kennaaf					
TFAPS 21	Barattoonni hojii hiriyoota isaanii akka madaalan na gaafadha					
TFAPS 22	Barattoonni duubdeebii hiriyoota isaanii fooyyessuuf gargaaru akka kennan nan gaafadha					
TFAPS 23	Barattoonni ciminaafi hanqina hojii ofii akka adda baasan nan gaafadha					
TFAPS 24	Barattoonni tarsiimoo hojii isaanii ittiin fooyyeffatan akka adda baasan nan taasisa					

Baar-gaaficha waan guuttaniif galatoomaa!

Himoota hundaaf deebii kennuu keessan mirkaneeffadhaa.

Appendix G. Class Room Observation Formative Assessment (COFA)-Afaan Oromoo version

Daawwannaa Daree Iyyaafannoo Adeemsa Keessaa (DDIAK)

Maqaa M/B_____ Kutaa Magaalaa_____ kutaafi daree _____ gosa barnootaa _____ # barattootaa: Dh:____ Dub: _____ Guyyaa_____

yeroo barannoon eegalamee- yeroo xumurame _____ Daawwataa_____

Dandeettii	Yaad-qalbiiwwan mul'istootaa	✓	Dalagaalee	Mul'istuu
Ragaa barachuu barattootaa (kan wanta barattoonni beekaniifi hojjechuu danda'an ittiin adda bahan) maddisiisuu(1)	Barsiisaan deebisa beekumsaafi dandeettii waa hojjechu barattootaa agarsiisuu danda'u barattoonni dhuunfaan akka kennan taasisuu (1.1)		Barsiisaan deebisa deebii sirrii dursee beekamu wajiin walsimu burqisiisuu (1.1.1)	
			Barsiisaan deebisa maloota ykn adeemsa barattoonni fayyadaman beekuu nama dandeessisan burqisiisuu (1.1.2)	
			Barsiisaan deebisa hubannoo barattootaa adda baasuu nama dandeesisan burqisiisuu (1.1.3)	
	Barsiisaan deebisa beekumsaafi dandeettii waa hojjechu barattootaa agarsiisuu danda'u daree guutuun akka kennan taasisuu (1.2)		Barsiisaan deebisa tokkoon tokkoon barataa adda baasuu danda'uu (1.2.1)	
	Barsiisaan deebisa barattoota irraa maddisiisuuf tooftaalee fayyadamuu (1.3)		Barsiisaan mala ittiin deebisa burqisiisu qabaachuu(1.3.1)	
			Barsiisaan mala ittiin deebisa burqisiisu haala qabatamaa jiruun walsimsiisuu (1.3.2)	
Ragaa barachuu barattootaa imala gara galma barachuutiif fayyadamuu (2)	Barsiisaan deebisa barattootaa irratti hundaa'uun duubdeebii kennuu (2.1)		Barsiisaan deebisni sirrii ta'uufi ta'uu dhabuu agarsissuu (2.1.1)	
			Barsiisaan odeeffannoo gocha ykn bu'aa jiru irratti xiyyeeffate kennuu (2.1.2)	
			Barsiisaan duubdeebii adeemsa ittiin hubannoon argame ykn gochi dalagame ibsuu danda'u kennuu (2.1.3)	
			Barsiisaan duubdeebii barattoonni adeemsa ofii isaanii akka madaalaniif isaan gargaaru kennuu irratti	

			xiyyeeffachuu (2.1.4)	
	Barsiisaan odeeffannoo argame murteewwan baruufi barsiisuu murteessuuf fayyadamuu (2.2)		Barsiisaan garaagarummaa barannoofi gulantaa barataa gidduu jiru dhiphisuuf yaaluu (2.2.1)	
			Barsiisaan barannoo kennamu ragaa waa'ee gulantaa barataa ibsu wajjin walsimsiisuu (2.2.2)	
	Hiriyaan duubdeebii kennuu (2.3)		Barsiisaan, deebisa barattootaa sirreessuufi qabxii kennuu caala, akka barattoonni duubdeebii waliif kennaniif carraa kennuu(2.3.1)	
	Barattoonni akka dhuunfaattis ta'e akka gareetti ofiin of-madaaluu (2.4)		Barsiisaan, deebisa barattootaa sirreessuufi qabxii kennuu caala, akka barattoonni of-madaalaniif carraa kennuu (2.4.1)	

Appendix H. Interview guide for school principals- Afaan Oromoo version

Af-gaaffii Gaggeessistoota Barnootaaf Qophaa'e

i. Sagantaa(Schedule):

Guyyaa.....

Bakka.....

Yeroo gaaffiin itti eegale.....Yeroo gaaffiin itti xumure.....

Meeshaa ittiin waraabbame .....

ii. Odeeffannoo Waliigalaa (Dugudee):

Maqaa Mana Barumsaa.....

Koodii gaggeessaa.....Korniyaa.....

Sadarkaa barumsaa.....

1. Manneen barnootaa waggaa meeqaaf hooggantan?
2. Barsiisonni mana barumsaa keessan iyyaafannoo dhimma maaliif gaggeessu?
3. Iyyaafannoon adeemsa keessaa (formative assessment) maal jettanii yaaddu?
4. Barsiisonni mana baumsaa keessan daree isaaniitti iyyaafannoo adeemsa keessaa nifayyadamuu? Yoo nifayyadamu ta'e. maal maalfaa fayyadamu?
5. Barsiistonni kaayyolee barnootaafi ulaagaa iyyaafannoo barattootaaf ni beeksisu jettanii yaadduu?
6. Muuxannoo hojiirra oolmaa of madaalliifi madaallii hiriyaa barattoota mana barumsaa keessanii akkamiin ibsitu?
7. Haala kenniinsa duubdeebii barattootaa barsiisota m/b keessanii akkamiin ibsitu?
8. Haala fayyadama malleen maddisiisa ragaalee barachuu barattootaa akkamiin ibsitu?
9. Manni barumsaa keessan ragaalee iyyaafannoo dhimma maaliif fayyadama?

10. Barsiisonni leenjii iyyaafannoo daree fudhatanii jiruu? Yoo fudhatan ta'e, leenjii akkamiiti? Bu'aa leenjichi iyyaafannoo adeemsa keessaa hojiira oolchuuf qabu akkamiin ibsitu?
11. Barsiisonni iyyafannoo adeemsa keessaa ga'umsaan akka hojiirra oolchaniif deeggarsa akkamii kennituuf?
12. Danqaaleen hojiirra oolmaa tarsiimoowwan iyyaafannoo adeemsa keessaa gufachiisan jiruu? Yoo jiraatan maalfaadha?
13. Mana barumsaa keessanitti hojiirra oolmaa iyyaafannoo adeemsa keessaa fooyyessuuf maaltu ta'uu qaba jettu?
14. Wanti daganne, kan itti dabaltan jiraa?

Apendix I. FGD Guide for Students- Afaan Oromoo version

Marii Garii Xiyyeeffannoo (FGD) Barattootaaf

Guyyaa.....

Bakka.....

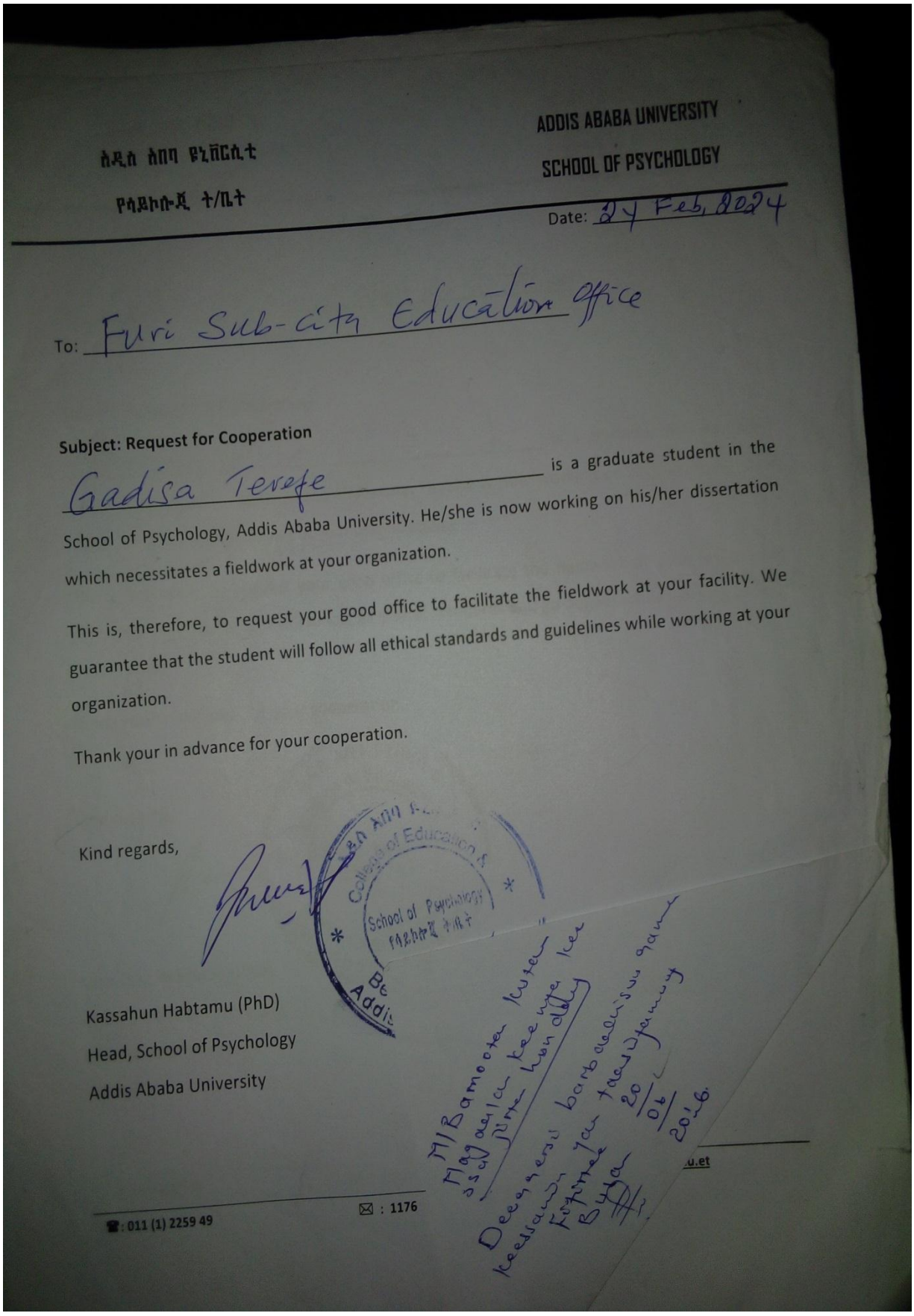
Yeroo mariin itti eegale.....Yeroo marii itti xumure.....

Maqaa Mana Barumsaa..... Kutaa Magaalaa……

Baay'ina hirmaattotaa: Dh…….. Dub……. Kutaafi Daree……..

1. Barsiisonni keessan daree keessatti yeroo isin barsiisan iyyaafannoo adda addaa kan akka gaafiifi deebii, hojii dhuunfaafi gaaree ilaaluu, duubdeebii barataaf kennuu kkf nifayyadamuu? Yoo nifayyadamu ta'e. mee faayidaa maal isiniif buuse?
2. Barsiistonni keessan kaayyolee barnootaafi ulaagaa iyyaafannoo isiniif ni ibsuu?
3. Barsiisonni keessan akka isin hojii ofii keessanii ykn kan hiriyoota keessanii madaalan ni taasisuu? yoo eeyyee ta'e, mee akkamiin raawwattu?
4. Haala kenniinsa duubdeebii barsiisota keessanii akkamiin ibsitu?
5. Haala fayyadama tooftaalee gaafannaa gaaffii barsiisota keessanii akkamiin ibsitu?
6. Barsiisonni keessan ragaalee iyyaafannoo dhimma maaliif fayyadamu?
7. Danqaaleen hojiirra oolmaa tarsiimoowwan iyyaafannoo adeemsa keessaa gufachiisan jiruu? Yoo jiru ta'e, maalfaadha?
8. Mana barumsaa keessanitti hojiirra oolmaa iyyaafannoo adeemsa keessaa fooyyessuuf maaltu ta'uu qaba jettanii yaaddu?

Appendix J. Reseach project/Data collection support letter



ADDIS ABABA UNIVERSITY
SCHOOL OF PSYCHOLOGY

Date: 24 Feb, 2024

To: Furi Sub-city Education office

Subject: Request for Cooperation

Gadisa Terefe is a graduate student in the School of Psychology, Addis Ababa University. He/she is now working on his/her dissertation which necessitates a fieldwork at your organization.

This is, therefore, to request your good office to facilitate the fieldwork at your facility. We guarantee that the student will follow all ethical standards and guidelines while working at your organization.

Thank your in advance for your cooperation.

Kind regards,

Kassahun Habtamu (PhD)
Head, School of Psychology
Addis Ababa University

☎: 011 (1) 2259 49 ✉: 1176