UNIVERSITY OF CAPE COAST

JUNIOR HIGH SCHOOL TEACHERS' KNOWLEDGE AND CHALLENGES IN THE PRACTICE OF FORMATIVE ASSESSMENT IN THE MFANTSEMAN MUNICIPALITY

ADWOA NYANTAKYIWAA

2021

UNIVERSITY OF CAPE COAST

JUNIOR HIGH SCHOOL TEACHERS' KNOWLEDGE AND CHALLENGES IN THE PRACTICE OF FORMATIVE ASSESSMENT IN THE MFANTSEMAN MUNICIPALITY

BY

ADWOA NYANTAKYIWAA

Thesis submitted to the Department of Education and Psychology of the Faculty of Educational Foundations, College of Education Studies, University of Cape Coast, in partial fulfilment of the requirement for the award of Master of Philosophy degree in Measurement and Evaluation.

APRIL 2021

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature.....Date.....

Name:……..

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines of supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: ..... Date.....

Name: …….

Co- Supervisor's Signature:……... Date……..

Name: ……..

ABSTRACT

The study sought to examine the knowledge of junior high school teachers on the practice of formative assessment in the Mfantseman Municipality of the Central Region. A descriptive research design was used for the study. The target population for the study consisted of 79 public junior high schools in the Mfantseman Municipality, which is made up of eight educational circuits. The sample for study consisted of 300 junior high school teachers.These were made up of 189 male teachers and 111 female teachers in the Mfantseman Municipality. Simple random sampling, specifically, the lottery method, was used to select five circuits out of the eight circuits. The questionnaire, which contained both close-ended and open-ended items, was the major instrument that was used. The study found that teachers in the Municipality have an adequate level of knowledge about formative assessment. The study again found that the sampled teachers on the average practise formative assessment effectively. The study further found that, teachers have difficulties in using scores generated through students' peer-assessments to inform future teaching and learning, which generate feedback loops during classroom discourse with students. The study found no statistically significant differences between the means of the teachers' years of experience and knowledge of formative assessment. It was also found out that there was a weak, positive correlation between the teachers' knowledge and practice of formative assessment. The study recommended that the Ghana Education Service in Mfantseman Municipality should organise workshops to educate teachers on how to use scores generated through student peer-assessments to inform future teaching and learning.

KEYWORDS

Classroom assessment

Formative assessment

Junior high school

Knowledge

Practice

Summative assessment

ACKNOWLEDGEMENTS

I would like to express my profound gratitude to everyone who helped me in diverse ways of writing this thesis. First of all, I would like to wholeheartedly acknledged my supervisors, Dr. Kenneth Asamoah-Gyimah and Dr. Andrews Cobbinah who provided critical inputs during the production of this report.

Secondly, I would like to thank all the respondents who gave me their precious time and provided useful information for the study. I owe tonnes of gratitude to all my lecturers for providing the enabling environment, encouragement and assistance for the successful completion of my studies. I am highly indebted to Mr Robert Appiah and Mr David Anu-Baidoo for their unflinching support.

DEDICATION

To my mother, Ms Mary Odum.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

Background of the Study

The culture of assessment was mainly viewed as highly dependent on competitive examination with emphasis on students' scores (Carless, 2011). Carless (2011) added that this competitive conception about examinations put so much stress on teachers to concentrate on teaching their students for marks to improve the performance of students in examination. In the same vein, students' pass rate in examinations appears to have emerged as one most important yardstick for measuring the extent of teacher effectiveness in class. The practice often leads to the "transmissive, exam-oriented teaching style" of teachers and students (Carless, 2011, p. 80). This is why teachers should create multiple processes to determine what students are learning throughout the year.

Bordoh, Bassaw and Eshun (2013) described the formative assessment method as a very important ingredient for measuring the academic achievement of students. In the view of Bordoh, Bassaw and Eshun (2013) formative assessment aims to discuss with students, feedback on their academic performance and to provide them with relevant feedback to improve learning. Therefore, teachers should make excellent use of the information that is collected from formative assessment exercises to enhance learning operations and encourage the learning of students. Boud and Falchikov (2006) established that assessment contributes positively to the development of knowledge, skills and learning arrangements. It, therefore, means that assessment is very

important to the teaching enterprise so that leaners become more optimistic and self-directed in their learning endeavours.

In particular, formative assessment was considered a key source of encouragement for learning. A systematic review of research evidence by Harlen and Deakin (2003) on formative assessment of student motivation for learning, for example, suggests that high-stakeholder evaluation can be the explanation for all that is done in schools. They added that formative assessment creates a classroom environment which enables teachers to impart knowledge to provide a highly organised understanding of students' learning. This then suggests that formative assessment enhances students' academic achievements provided that the learning environments are conducive and devoid of drawbacks to learners self-esteem. It means that students prefer more active and creative learning experiences for more effective learning outcomes. As Black and William (1998) noted, in reality, as an essential element of the teaching and learning process, formative assessment is becoming increasingly apparent. As Bordoh, Bassaw and Eshun (2013) rightly pointed out that formative assessment can be used to provide information on students' expected learning outcomes that recognises students' weaknesses for purposes of providing feedback to learners. Therefore, formative evaluation gives information to the teacher about what the students say and how they think.

Formative assessment also helps educators to understand what learners already know and what learners need to learn. In the view of Ampiah, Hart, Nkhata and Nyirenda (2003), educators need to know what children can or cannot do if they want to practise formative assessment effectively. Eshun (2013), for example, suggests that approaches and methods centred on students

should be used to teach social studies. The key approaches highlighted by both the Education College curriculum and the junior high school social studies syllabus are brainstorming, role-playing, simulation, and discussion. Despite the innovative inventions and changes that were introduced at all levels of the education system, the provisions for formative assessment are intended to improve the teaching and learning interactions.

According to Vik (2013), formative assessment happens during the learning phase and the knowledge obtained through the various assessment processes are used to enhance students understanding of teaching. Teachers can then use the information gathered during the teaching-learning interaction to improve students' teaching and to learn in a useful way. Formative assessment is the element that is used to establish the educational change required (Boston, 2002). Relatedly, Young and Giebelhaus (2005) view formative assessment as all those activities carried out by teachers and their students, providing information that can be used as feedback to enhance teaching and learning practices. Nicol and Macfarlene-Dick (2006) have stated that formative assessment does not only offer input to students but also acts as a basis for collaborative instructional goals that monitor students' learning progress.

According to Black and William, as cited in (Morris & Adamson, 2010), a wide range of measures have been introduced to encourage the use of formative assessment method in schools. In the view of (Morris & Adamson, 2010), this creates oportunity for teachers to provide positive feedback to pupils. Morris and Adamson (Morris & Adamson, 2010) further argued that such programmes are called "learning to learn" or "assessment for learning" which encourages policies to use appraisals as a teaching tool. For instance, the

Singaporean Ministry of Education's guidelines from the Primary Education Review and Implementation Committee (PERI) (2009), called for an assessment of the holistic development of students' knowledge, skills, values and attitudes.

The Primary Education Review and Implementation Committee (PERI) proposed several recommendations at the primary school level to strengthen the assessment process at that level and to allow teachers to recognise assessment as an essential element of instruction to promote student learning, i.e. shifting focus from summative assessment to formative assessment. According to PERI (2009), ideas are well linked to the global vision of providing essential skills, skills and arrangements to students in the 21st century. Moreover, according to the Organization for Economic Co-operation and Development (OECD, 2005), the need for knowledge, information and skills from the 21st century also motivates a shift in focus from rote training and memorizing core subject material to gain higher-order thinking skills as well as self-directing skills such as coaching how to learn.

Boud and Falchikov (2006) argued that formative assessment or Assessment for Learning (AfL) could be used to facilitate learning by allowing students to evaluate their work and learn how to make progress based on multiple types of teacher-made test (TMT) and quality assignments such as student portfolios. A formative assessment that connects the teacher between teaching and assessment is an effective way to produce independent and critical thinking students who can plan and measure their success (Bordoh, Bassaw, & Eshun, 2013). Bordoh, Bassaw and Eshun further argued that formative assessment allows them time to explore new knowledge and ideas. They added

that with the teacher's guidance, the students would then be encouraged to direct their learning.

When formative assessment becomes an essential component of a learning experience, inspiring students can be improved by integrating real assessment behaviour into the teaching and learning process (Berry, 2008). Since formative assessment has become an essential component of the evaluation process, students are encouraged to become more accountable to play an active role in their learning as opportunities are offered to reflect on their learning and determine their next learning steps (Berry, 2008). For learning to become self-regulated in order to achieve the learning goals, learners and teachers must apply teaching strategies that will encourage learners to become successful learners. This can be accomplished through, providing feedback that teachers need to improve their teaching strategies that can be applied to other academic fields (Heritage, 2010).

Furthermore, the views of teachers on the importance of effort rather than learning (or intrinsic intelligence) play an important role in the views of the students themselves (Ames cited in Organization for Economic Co-operation and Development, OECD, 2005, p. 48). The ultimate objective of formative assessment is to encourage students to develop their learning skills and strategies such as intrinsic motivation of the student, self-esteem, academic self-concept, causal attributions of the student, and teaching for metacognitive or command (OECD, 2005). As a result, students with “control” approaches are using their vocabulary and learning tools to solve problems (OECD, 2005). Black and Wiliam (1998b) identified three crises in the classroom due to the lack of formative assessment in the teaching and learning practice: first, the lack

of transition in learning due to the lack of meaning in teaching. Before a lesson, didactic teaching techniques do little to resolve the understanding of older students. Second, mark-giving overemphasis often contributes to low-performing students' self-doubt. As a result of regular summative evaluation feedback, many students thought they could not improve. The giving of marks and grading features is often not accompanied by useful advice. Marks are often used to remind students about other achievements. Besides, the function of assessment management may have unintended effects on cooperative learning. The diverse mix of students with distinct skills decreases as the latter fosters the creation of a homogeneous educational capacity-based class as a result of placement and ability control. Such monitoring and skill grouping can adversely affect students ' self-esteem and motivation. Stiggins (2002) affirmed that standardized testing does little to promote more challenging attempts by students with low academic achievement and low self-efficacy. In the view of Stiggins, accountability by unusual standardized testing provides evidence for policymakers and teachers to make informed choices while overlooking the student as an active user of assessment information. Stiggins further argues that classroom support in the form of teacher training assessments offers regular, if not daily, feedback for students to prepare, monitor and assess their learning. In this regard, it is prudent to ensure that students are encouraged to attribute academic achievement to individual efforts in classroom settings when they use assessments to know what success looks like and how to do better.

Statement of the Problem

Assessment is regarded as a key element in the teaching and learning process. In the same vien, formative assessment which is also a critical

component of the assessment process in the teaching and learning process in evaluating students' learning and performance appears to be receiving little attention by teachers. Goodrum, Hackling and Ronnie (2001) argues that although, formative assessment is very crucial in both teaching and learning, there is little evidence that teachers use formative assessment processes successfully in the preparation and teaching of their students. However, the study of Goodrum, Hackling and Ronnie and Bordoh, Bassaw and Eshun (2014) focused on teachers in the Colleges of Education. Given the fact that formative assessment provides useful information in understanding the strength and weaknesses of students concerning their success in school. It is therefore, important for teachers at all levels of the educational ladder to acquire the requisite skills in the practice of formative assessment.

Carless (2011) argues that teachers are unlikely to improve their teaching task without spending time on formative assessment. This implies that formative assessment is a necessary condition for improving teaching and learning. In Ghana, there are several studies on formative assessment in various fields, particularly in the field of social studies. For instance, Bordoh, Bassaw and Eshun (2014) in their study on the evaluation of social studies students' learning, using formative assessment in selected colleges of education in Ghana, found that evaluation in the classroom motivates tutor-student relationship in formative assessment. Relatedly, Armah (2013) also studied the perception and understanding of junior high school teachers' on classroom assessment and practice of formative assessment in mathematics teaching in the Awutu Senya District. The studies of Armah (2013) was unable to investigate teachers' practice of formative assessment in junior high schools in the Awutu Senya

District. This suggests that very title research is done on the state of knowledge and practice of formative assessment among Junior High Schools teachers in the Mfantseman Municipality in the Central Region of Ghana. The study was driven by the fact that junior high school teachers' knowledge in in the use of formative assessment plays a major role in the practice of formative assessment practices plays amojor role in their efficient use of of the formative assessment strategy. That is, when teachers lack the requisite knowledge utilizing formative assessment methods, they are likely to wrongfully implement it in their schools. The crux of this study, therefore, is to assess junior high school teachers' knowledge of the practice on formative assessment in the Mfantseman Municipality in the Central Region of Ghana

Purpose of the Study

The purpose of the study was to investigate junior high school teachers' knowledge and chanlleges encountered in the practice of formative assessment in the Mfantseman Municipality. Specifically, the study sought to:

i. determine junior high school teachers' knowledge of formative assessment in the Mfantseman Municipality.
ii. find out whether junior high school teachers have the requisite skills in the practice of formative assessment in the Mfantseman Municipality.
iii. determine the challenges that junior high school teachers face with the implementation of formative assessment in the Mfantseman Municipality.
iv. determine whether a statistically significant difference exists in junior high school teachers' knowledge about formative assessment based on teaching experience in the Mfantseman Municipality.

Research Questions

1. What knowledge do junior high school teachers' have on a formative assessment in the Mfantseman Municipality?
2. What skills do junior high school teachers in the Mfantseman Municipality have in the practice of formative assessment?
3. What challenges do junior high school Teachers face in their implementation of formative assessment methods in the Mfantseman Municipality?

Research Hypotheses

1. H_0: There is no statistically significant difference in Junior high school teachers' knowledge on formative assessment, based on teaching experience in the Mfantseman Municipality.

   H_1: There is a statistically significant difference in junior high school teachers' knowledge on formative assessment, based on teaching experience in the Mfantseman Municipality .
2. H_0: There is no statistically significant relationship between junior high teachers' knowledge and practice of formative assessment in the Mfantseman Municipality.

   H_1: There is a statistically significant relationship between junior high teachers' knowledge and practice of formative assessment in the Mfantseman Municipality.

Significance of the Study

The results of this study are expected to provide helpful information to the Municipal Directorate of Education on junior high school teachers' knowledge about formative assessment in the Municipality. The study is also

expected to provide a scientific insight about junior high school teachers knowledge, with respect to the practice of formative assessment in the Mfantseman Municipality. The findings of this research could provide useful information to the Mfantseman Municipal Directorate of Education on the extent to which formative assessment feedback are used to enhance students learning in the Municipality. The research would further assist the Municipal Directorate of Education in providing teachers with the necessary support to perform the formative assessment in a better way to support the teaching and learning interaction in junior high schools. Finally, the study will serve as reference material for teachers on the practice of formative assessment for future researchers.

Delimitation

This study was delimited to junior high school teachers in the Mfantseman Municipality of the Central Region of Ghana. The study was delimited to only activities related to teachers' knowledge, practice and challenges of formative assessment. In this study, concepts such as knowledge of formative assessment, the practice of formative assessment and challenges related to the practice of formative assessment were explored in the study.

Limitations

A study of this nature was expected to face some limitations. One of the limitations of the study was that the study used only a quantitative research design approach for the study. Another limitation was the fact that the research instrument was given to respondents to complete and return within a day or two. There was the likelihood that some of the respondents within the same school may compare their responses. This was controlled by ensuring that respondents

provided their candid opinion on the items on the questionnaire without comparing with other respondents.

Organisation of the Study

The study was organised into five chapters, with each chapter dealing with an aspect of the study. The first chapter dealt with the background to the study, statement of the problem, the purpose of the study, research questions, delimitation, limitation and significant of the study. Related literature were reviewed in the second chapter while the third chapter was focued on the methodology which included the research design, population, sample and sampling procedure, data collection instrument and data analyses. The fourth chapter deals with result and discussion of the findings. Chapter Five focuses on the summary of the study, conclusion and recommendations for further study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter focuses on the review of related literature on the subject matter of the study. The literature review was organised into theoretical framework, conceptual framework and empirical review. The review was further structured into themes based on the research questions and hypotheses that guided the study.

Theoretical Review

Learning requires a behavioural change or behavioural skill arising from practice and experience (Ertmer & Newby, 2013). The literature reveals different opinions which guide the learning and assessment debates and strategies. Teachers' perspectives on education affect their learning and assessment practice. In the view of Yorke (2003) assessment and learning are relatively interconnected. This means that assessment and classroom learning complement each other in the teaching and learning interaction. Assessment and learning are, therefore known to be inseparable. Cognitive psychology concepts and learning models are popular to describe the learning process (Ertmer & Newby, 2013). As Jonassen (1991, p. 6) states, "Cognitive psychology believes that learning is not so much about emotional responses, but rather about what students know and how they obtain it". As a result of the issues mentioned earlier, understanding of learning and the meaning of assessment are becoming complex. Recognizing and addressing the main theories that guide learning and

assessment is important. This section addresses the main learning and assessment theories. The literature labels them respectively as the theories of socio-cultural, behaviourist, and cognitive-constructivist theories. Hence, the review discusses how the different theories guide the use of formative assessment to lead to academic progress and student self-regulation.

Sociocultural Theories of Learning

Sociocultural theories focus on the relational effect of cultural contexts on human development and on learning through social engagement as appropriation (Cole, 2006). In conjunction with the concept of learning location, socio-cultural theories developed. The local learning model was suggested by Lave and Wenger (1991) to emphasize that learning is in a specific context and affected by a multitude of socio-cultural variables. Learning, as these authors have stated, occurs as a result of the relationships of participants in a particular society. As involvement rises, apprentices become more engaged in more complicated operations until they lastly assume the duty of an expert within the learning community.

Wenger (1998) recognized collective engagement, joint venture, and a common repertoire as three acts through which individual members learn in a group practice. He added reification, a dual process of participation, to illustrate how people can build their identity concerning their fields of study. Rogoff (2003) also describes how people can learn through interactions with experienced community members using the apprenticeship model. She claims that this model includes three interrelated aircraft in which newcomers are deemed to be apprentices who are participating in cultural (community process) operations. By watching and carrying out activities under the supervision of

more qualified individuals (guided involvement), novices acquire sophisticated understanding and abilities that are part of the society and may contribute to the development of the society (participatory appropriation) (Rogoff, 2003). Models of situated learning and apprenticeships have created a major change in understanding the nature of learning, moving from simple acquisition to students' active participation (Handley, Sturdy, Findcham, & Clark, 2006).

While many scholars understand the importance and relevance of socio-cultural views to describe human thinking, there are also examples of the limitations of this technique. First, some argue that a socio-cultural perspective over-emphasizes social determinism (Roth, 2008) and tends to neglect an individual's cognitive aspect and active role in their community contribution. In the apprenticeship model, Rogoff (2008) uses the term ' participatory exploitation rather than the phrase internalization in Vygotsky's theory to address these critiques. This theoretical shift is to emphasize the active role of a person when engaged in social interactions.

Based on the main concept of learning as a mediated and located system, socio-culturalists have developed different learning models (James & Lewis, 2012). James and Lewis came up with models that need to be closely examined when they are adapted and adjusted for specific situations. Such knowledge is important for a socio-cultural view of teaching. James and Lewis's study focused on the perception and use of assessment for learning (AfL) in Vietnamese higher education. Their work sought an appreciation of the various impacts on assessment practice of Vietnamese socio-cultural variables which need consideration in the layout of analysis, study approach and interpretation of information, gathered from teacher and student interviews and classroom

observation. The following sections addressed the socio-cultural factors that are relevant to education as they are necessary for the study of assessment for learning analysis.

Cole and Scribner (1978) first identified the mediated essence of learning, that was inspired by Marxist ideology's claim of the prestige of labour with resources and language in human development. They saw learning as a method of internalizing social world experiences with other people and objects, not as individualistic or pre-fixed. In transmitting human knowledge and skills to current generations, other individuals and cultural instruments play a mediating role (Rogoff, 2008). Other people's mediating position is expressed more clearly through the definition of the Zone of Proximal Development (ZPD) by Vygotsky and is further developed in the concept of "guided participation" in the community of practice. Vygotsky (1978) defines ZPD as "the difference between the actual stage of development as determined by autonomous problem resolution and the rate of prospective development as determined by issue resolution under adult supervision or in collaboration with more qualified peers" (p. 86). It indicates that students are limited when working alone, but in collaboration with and guidance from experienced peers, they can do much more. Social interactions are important learning conditions that allow students to internalize the principles of history and culture. This cycle of internalization, driven by others, is a continuous loop in which mental functions have not matured; they are in "the maturing process" and "the maturing tomorrow" (Vygotsky, 1978, p. 86). Rogoff (2008, p. 60) concluded that support is linked to interpersonal participation in a society where "the participants become more responsible". In an attempt to help others, active involvement of the person and

the performance of experiences are critical mediating variables to facilitate the training of the individual in public practice.

Other people's assistance is seen as scaffolding, an important learning mechanism as it represents the structured character of learning, helping to move workers from the current stage of development to a more advanced level of development (James, 2006). Bruner indicates that scaffolding is a term used by frame-to-frame scaffolding to equate learning with construction technique. The teacher needs to assess and comprehend the student's current understanding and intervene correctly to promote the student's learning to scaffold teaching (Murphy, 2008) effectively. In the view of Rogoff (2008) the process of directed participation, "cultural and social values as well as social partners" provide the scaffolding (p. 60). Opinions are divided on the role of individual expert teaching partners and peer partners. Vygotsky's ZPD theory suggests that in favour of intellectual growth, optimal partners should be more competent. This is in contrast to Piaget, who believed that by working with peers of the same stage, the child's intelligence would develop better. Piaget argued that since colleagues typically have the same position, they are more likely to discuss topics publicly.

On the other hand, more informed partners are often dominant, thus inhibiting conversations. In Rogoff's (2008) extended model of learning, she argues that a person benefits from engaging with others, regardless of whether they are experts or novices, as she assumes that development takes place in "all three planes" (p. 62). This means that a combination of the same norm and more experienced peers provides the ideal environment for learning through interaction.

The Student's agency is another key component that promotes learning (Rogoff, 2008). Agency for students relates to human positivity and proactivity. Human beings are not only the products of social conditions but also contributors and creators of self-organization, self-regulation and self-reflection to their lives (Bandura, 2006). A learner is seen as an active knowledge-builder from a socio-cultural point of view (Steiner & Mahn, 1996), establishing an identity and contributing to group awareness and activities (Lave & Wenger, 1991; Rogoff, 2008; Wenger, 2008). Newcomers are engaged in multiple relationships with multiple activities, such as talking, thinking, feeling, doing and belonging, to be an agent in a community of practice (Lave & Wenger, 1991). In addition to observing what others are doing in society, they need to be involved directly in the activities through communication, negotiation, renegotiation, collaboration and adjustment in order to achieve shared awareness of new goals and strategies of activities between co-participants (Rogoff, 2008; Wenger, 2008). Active involvement will contribute to learning performance as an increase in a newcomer's involvement, and a desire for membership will help advance their knowledge and skills (Lave & Wenger, 1991). Most specifically, this approach contributes to the development of the personality of the individual and is known as discovering "a way of being in the social world" (Wenger, 2008, p. 106). The third major factor of performance in community practice is the quality of relationships and social interactions (Lave & Wenger, 1991; Wenger, 1998). This can be affected by relationships of authority and trust in relationships between community members (Carless, Salter, Yang, & Lam, 2011). For example, old-timers tend to be stronger than newcomers, so they have more opportunities to access resources and

opportunities in their communities. When relationships of dominance remain hierarchical in communities, this can limit learning opportunities for newcomers. Socioculturalists agree that exchanging experiences with participants to give them "opportunities to participate in a shared decision-making process" is a key factor in promoting learning (Rogoff, 2003). Therefore, a trustworthy link, where newcomers can articulate their voices and communicate with others in public, can establish favourable learning circumstances.

Viewing the learner as an agent of social interaction has contributed to a radical change in teaching, training and evaluation methods (Gipps, 2002; Griffin, McGraw & Care, 2012; Lidz & Gindis, 2003). Teachers were usually seen as the authoritative source of information and assessment for their students. Teachers are not seen through a socio-cultural lens as the primary source of information or skills, since their students can also learn from peer interactions and other outlets. It should also be noted that technological developments as a repository and peer-to-peer communication platform have helped undermine the sole power of teacher and challenge those societies that uphold a teaching/learning hierarchy. Cooperative learning and interactive classrooms are socio-cultural-friendly learning environments (James & Pedder, 2006). The way evaluation is looked at has also changed. Assessment is now recognized as communication and negotiation between teachers and learners for purposes of encouraging self-assessment and self-tracking of learners (Elwood & Klenowski, 2002; Gipps, 1992). This, therefore, implies that teachers should create different classroom activities and incentives for students to interact and

learn from each other in order to promote teaching, as well as support students in becoming owners of their learning.

Behaviourist View on Learning and Assessment

From the start of the twentieth century, the behaviourist theory of education was established and dominated until the 1970s. This view describes learning as the relation between events known as stimulus and response. According to this view, the emphasis on the learning process is setting goals and assessing the activities of the students in evaluation (Jonassen, 1991). The targets and assessments are continuously related until the students achieve the desired level of performance (Schunk, 1991). This was termed "mastery learning by psychologists and teachers". With the behaviourist theory, university courses are usually offered through the transmitting mode of teaching. The involvement of the students in the processes of learning and assessment is generally passive. The teacher's role is to present the learning content and formulate assessment to enable the students to respond based on the presented content.

Ertmer and Newby (2013) classify this form of learning as studying behavioural outcomes, where little attention is paid to students' cognitive operations. Ertmer and Newby argue that this state of affairs is referred to as didactic learning. Surprisingly, this perspective does not very well consider the students' gaps and experiences. The objective view of learning suggests that all students can transmit information effectively through teachers to be gained (Jonassen (1991). Education takes place when students give correct responses after a stimulus or learning material has been introduced (Ertmer & Newby, 2013). On the other hand, repetitive learning, instructional signals, and feedback

may improve the connection between stimulus and response. Nevertheless, as Schunk (1991) puts it, this understanding of learning does not well explain the teaching of higher-level cognitions such as critical thinking, problem-solving, and producing inference and vocabulary.

Assessment is considered as the student's behaviour in performing appropriate responses to the stimuli learned (Ertmer & Newby, 2013). As a result, the student may lack the opportunity to advance in the construction of alternative knowledge. The assessment focuses on evaluating the student's measurable reactions as justification for achieving the expected learning goals. The assessment emphasizes knowledge of facts and events rather than the student's intellectual development. Assessment tasks appear to function as tools to check whether the student received, absorbed and memorized the content presented during instruction (Harlen, 2006). The marking of assessment questions focuses on the accuracy and inaccuracy of the student responses. Feedback is usually limited to presenting the wrong answer or the right answer with little feedback on how to inform the progress of learning (Rawlins, 2007). Due to the negligible understanding by the behaviourist interpretation of the active role of the students' brain, cognitive and constructivist perspectives emerged in the discussion regarding the phenomenon of effective learning and evaluation.

Cognitive-constructivist views on learning and assessment

The behaviourist theory of learning in the learning process gives no attention to the brain or human cognition. The theory postulates that learning is, student's behaviourist nature that can be changed by selective strengthening. As Jonassen (1991) argues, the soft focus on human cognition from the behavioural

perspective was a significant theoretical reason for the psychology of learning paradigm revolution. Cognitive learning perspective emphasizes "how students know and how they gain knowledge" rather than probabilistic measurable responses (Ertmer & Newby, 2013, p. 51). In terms of learning transition, Ertmer and Newby (2013, p. 50) point out that learning theory began to shift from the use of behavioural methods to an approach based on cognitive science training principles and models. Psychologists and teachers began to de-emphasize a fold obsession with transparent, measurable behaviour, stressing more complex cognitive processes such as thought, problem-solving, language, idea creation and knowledge processes. The intellectual point of view acknowledges the student's active involvement in acquiring knowledge and skills. Nonetheless, because of the contradictory statements about the nature of the brain, it has limits. Nevertheless, it was inconclusive whether the subconscious is something metaphysical or a physical force influencing the individual's actions (Jonassen, 1991).

Mind or mental constructions were later regarded by cognitive psychologists as representations of the real world that the individual assimilates or accommodates for knowledge. As Ertmer and Newby (2013) note, the cognitive view labels learning as isolated improvements in mental information rather than the likelihood of responses. Learning happens when the brain stores information in a coherent and ordered manner for cognitive psychologists. As a result, the learning process focuses more on evaluating the ability to retrieve information and also using the information in a different context (Ertmer & Newby, 2013). Cognitive understanding of learning also emphasizes the importance of practice.

On the other hand, since the analytical point of view only stresses objective reality, contemporary thinkers have questioned it (Jonassen, 1991). Such theories propose a version of reality that has been created independently. This conceptualization led through the lens of constructivism, viewed learning as a cognitive process. Besides, successful learning can occur when a student is introduced to new experiences and attempts to change their cognitive structure through the assimilation and adaptation process (Ray, 2002). Learning is said to have taken place by information analysis rather than simply data recording. This means that knowledge is gained through the active involvement of the individual instead of passive assimilation and rote memorization of information. Knowledge is therefore interpreted in terms of abstract constructs, which the participant adapts to the context of his/her experiences instead of reflecting an objectively defined objective universe (Anthony & Walshow, 2008). Therefore, from a constructivist point of view, learning happens through cognitive development and cognition change which leads the student to the techniques of problem-solving, metacognition and self-efficacy skills (Alt, 2015).

However, Ray (2002) argues that it becomes difficult to translate the constructivist concept of learning into actual educational techniques. Jonassen (1991) also affirms the shortcomings of this learning process. In his vew, the concept should be well prescribed for learning and assessment theories. In reality, it has questioned the current educational and learning assessment practices. The role of a teacher in the constructivism context is limited to coaching and instruction. It encourages the student to develop from beginner to expert. It is assumed that the teacher should assist the student in self-regulating their learning. In general, a constructivist view of learning focuses on

individual-level learning. There is also no clarity as to the social mechanisms that facilitate learning and assessment. However, there is a growing interest in explaining learning and evaluation as a social process at the moment. The following sub-section, therefore, deals with the socio-cultural view of learning and assessment.

Conceptual Review

The Concept of Assessment

Learning assessment is an essential activity in teaching a course. Assessment is an important instructional task to enable teachers to find out whether specific instruction sequences have resulted in the achievement of intended learning outcomes (William, 2011). Many modern paradigms on education find assessment as part of the learning cycle rather than the endpoint of the learning episode (Careless, 2005). When studying, the paradigms impose different expectations on students (Rawlins, 2007). The new paradigms consider students to be active participants in practising communities rather than passive knowledge recipients (Robbins & Aydede, 2008). The role of thinking and social interactions in the learning environment affects the degree of learning according to these learning paradigms such as constructivism. A central element in teaching a course is learning assessment. Assessment is an important task in instruction to allow teachers to assess if particular instruction sequences have resulted in the achievement of planned learning outcomes (William, 2011).

Assessment is a tool for gathering both qualitative and quantitative data to determine how well students are making progress in their academic achievements. It seeks to find out students strengths and weaknesses with regards to determining the level of progress in students' learning. In the teaching

and learning interaction, one essential activity that comes to mind is assessment. Assessment is task in the teaching and learning process. Assessment is a necessary variable in measuring the impact of the instructional process. In the view of Black and William (1998a), it includes all activities that teachers and learners carry out to get information that can be used to diagnose learners' progress which can be used to reshape teaching techniques.

In the view of Taras (2005), assessment is of importance in learning, which can be justified in terms of specific weighted set goals, yielding either comparative or numerical ratings. Besides, Taras further argues for the necessity of adding additional stage, that is, an explanation of the judgment based on the stated objectives and criteria. Taras added that an additional stage needs to be added, which is to explain the judgment based on the stated goals and criteria. In terms of this definition, it is necessary to justify the instruments or criteria for data collection, weightings and goal selection. Assessment is defined as an information-gathering mechanism for decision-making on teaching, curricula and programmes, and education policy (Brookhart & Nitko, 2014). Educators take many decisions regarding the education of students. According to Linn and Miller (2005), assessment is the term used to describe practices to gather information about what students have learned from cognitive, psychomotor, and affective domains intersections. Linn and Miller also described the assessment as the strategic process for collecting and creäting information relevant to the intent of learning and tracking students' strengths and weaknesses, preparing and improving instruction or system assessment, and making decisions about students and the process, resources and methods used to collect information. As well, Dhindsa, Omar and Waldtrip (2007) viewed assessment as a crucial

constituent of teaching and learning process of collecting information on the progress of students.

According to William (2011, p. 7), when the learning was finalized, the word" assessment" was used primarily to pronounce the procedures for assessing the utility of instructional activities. Before the teaching was finished, teachers did not consider the tasks in the learning process as evaluation procedures. In assessing students' progress in teaching and learning engagement, it is important to collect and use relevant information. Some methods such as informal and formal student observations, paper-and-pencil assessments, assignment results, laboratory works, projects, research papers, and questioning help gather information for assessment purposes.

Assessment of student, in particular, is a structured method of gathering information on the progress of students towards the learning goals. In essence, assessment is described as a process of gathering information for decision-making on teaching, curricula and programs, and education policy as (Brookhart & Nitko (2014). Assessment is a term that has a significant impact on the development of sustainable learning methods. Such methods of learning assist students in adapting to and reacting to new learning experiences. In teaching and learning, it is the main characteristic that affects education (Crooks, 1988). It increases the students' commitment and time allocation to a course. A helpful practice is to reinforce learning and direct the thinking of the students about what is essential to study. Learning assessment, according to William (2011, p. 3), is an important practice in the teaching of a course. Evaluation is an important instructional activity to allow educators to find out if particular

sequences of instruction have resulted in the achievement of anticipated learning outcomes.

According to Crooks (1988, p. 438), assessment is the most powerful feature on teaching and learning interaction that influences the level of learning. Assessment influences the effort and time that the students assigned to a particular subject or course. It is a useful activity that strengthens learning and directs the students' thinking about what is relevant to study. Crooks added that assessment influences students' self-efficacy and motivation to learn which implies that assessment exerts have considerable influence on the development of lasting learning approaches of students.

According to William (2011, p. 3), education assessment is an important task in the teaching of a course. For assessment, teachers make many decisions about learners' teaching. Some of these include conducting classroom training, recognizing strengths and weaknesses in learning for students, discussing learning and issues. Assessment is an essential and integral part of the teaching process and is divided into formative assessment and summative assessment, as the instructional tasks point out. Formative assessment is distinct from summative assessment. Whilst summative assessment based on teachers' overall learing outcome, formative assessment is an evaluation of stages in the teaching-learning interaction and it is 'student-centred' emphasises on how learners are coping with the lesson.

The Concept of Classroom Assessment

The classroom assessment technique is generally ungraded, anonymous, in-class exercises designed to provide the teacher and the student with valuable input on the teaching-learning process as it is taking place. According to Angelo

and Cross (1993), classroom assessment is a formative assessment approach that serves two purposes. This implies that formative assessment can help the teacher evaluate the degree to which his or her students appreciate the content of the course and provide information about the efficacy of their teaching methods.

In the view of Nitko (2004), summative assessment provides information on the judgment of students' learning achievement, with emphasizes on measuring the extent to which there is a change in students' knowledge. Formative assessment on the other hand provides feedback to learners on an ongoing instruction with a focus on the extent at which the learners are coping with the instructional process. Formative assessment is an informal means that is used to help the instructor to improve upon his instructional approach and to enhance students' academic achievements. Results of formative assessment, are mostly not used by teachers to determine students' final academic achievement, but they may use it as part of their continuous assessment results for the final grading of the students.

Any assessment that is carried out to improve instructional effectiveness, and student learning is referred to as formative assessment (Shepard, 2005). Experts in the educational assessment explained formative assessment in many different ways. For instance, Shepard (2005) stresses that formative assessment plays a mediating role in adjusting students learning.

Looney (2011, p. 21) defines formative assessment as, "a frequent and interactive assessment of student's progress and understanding, to identify learning needs and adjust instruction appropriately." In the view of Looney, formative assessment is the process by which a classroom teacher, monitors

how well students are coping with a particular lesson. Formative assessment, therefore, provides the feedback needed by the teacher to adjust the lesson plan so that all students can grasp the intended learning experiences (Labay, 2011, p. 5).

In recent years, the student achievement evaluation has been receiving the attention of teachers, parents, researchers, and education systems as a whole. For this reason, learner information is needed by decision-makers, educators, as well as other stakeholders. We need information about the nature and scope of the child's learning to allow them to assess how far the teaching goals and objectives have been accomplished and what remains to be learned. This knowledge can be gained by assessment. Assessment is defined by Tamakloe, Atta and Amedahe (2005) as a process by which "one person obtains and interprets information about another person in terms of his/her knowledge and understanding or abilities or attitudes through some kind of interaction with another person".

There are many definitions and explanations for assessment for learning. For instance, according to Freeman and Lewis (1998), assessment evaluates students' level of reading. Assessment for learning can be considered to take place whenever an individual is conscious of acquiring and understanding other person's information, skills and attitudes in some form of direct or indirect communication. To some extent, the assessment of learning is a process of assessing, gathering and evaluating facts related to the learning goals being assessed and could be differentiated by its intent in an effort in understanding the student (Harlen, 2004; Erwin as cited in Brown & Knight, 1994).

Generally, assessment is the term used to describe the acts to gather information on learners concerning psychomotor and affective domains. Wiliam (2011) claimed that assessment is the tool that enables students to provide evidence of their learning, as well as the avenue that provides teachers with the much-needed assurance that their hard work in classrooms is not in the vein. For Freeman and Lewis (1998), assessment judges students' extent of learning. Assessment of learning can be considered to take place if one person, in some form of direct or indirect contact with another, is aware of the knowledge and understanding, skills and attitudes of that other person to teach that person.

Categories of Assessment in Education

Assessment of learning can be explained as both internal and external actors in the teaching and learning interaction. The ‘internal assessment' focuses on formative assessment managed by the school, while ‘external assessment' is an assessment performed through a structured examination test. Assessment in education may also be a criterion versus standard referenced evaluation (Rust, 2002). Measurement, in its simplest form, is a process of assigning numbers to something in a quantitative form or a process of gaining information using an instrument and usually ends up with a quantitative form of information such as raw marks, raw percentage marks, percentiles and aggregates. Measurement is involved when, for example, a student's English language abilities are assessed using an English language assessment and a score of 30 out of 50 could be achieved (Muijs & Reynolds, 2011).

Assessment, on the other hand, is "the method of judging, evaluating and rating pupils" (Muijs & Reynolds, 2011, p. 266). It is involved, for instance,

when a student is graded as 'good' or 'not good', based on his or her test marks and the previous record of results. Assessment is seen as a 'journey' in order to distinguish assessment and evaluation in an educational setting, while evaluation is a 'snapshot' (Rust, 2002). Assessment is seen as an ongoing process of improving training, concentrating on how learning is going and being used to find areas for improvement.

On the contrary, assessment is a process to gauge education quality at any final task, focusing on what has been learned in order to gain overall grade or score (Muijs & Reynolds, 2011). In terms of intent and timing, assessment can be divided into four types: formative, summative, assistive and educative (Valencia, 2002).

The Concept of Summative Assessment

The summative assessment presents a final judgment on student learning achievement. Moreover, it also emphasizes the extent of the change in knowledge as a result of instruction. Besides, formative assessment provides feedback on current teaching and reflects on how students in the learning process are evolving. Usually, at the end of a course or task, summative analysis is conducted mainly to evaluate what was achieved at a given time. It means that summative assessment takes place at the end of a term or course and it is used by teachers to provide feedback on how much students have learned and how well a course has gone (Gardiner, 2012). In support of this, Earl (2003) argues that the object of summative evaluation is to perform a learning assessment at some conclusion of a course or program. It is often marked as an end-of-key-stage levelling evaluation process (Clark, 2011). This is because in learning goal evaluations, it is an ultimate collection of information. It focuses

on summing up students' achievements or classes or schools. The summative assessment has evolved into a high-stakeholder method in the teaching and learning system because it uses well-designed tests that are valid, reliable and suitable for enabling accurate evaluation of student achievement (Butt, 2010). Other studies see summative assessment as involving normal tests, separated from teaching, conducted with structured procedures on specific occasions and often performed with techniques that have little or no influence over individual educators (Black, Harrison, Lee, Marshal & William, 2004). For example, according to Black and William (1998b), summative assessments are given periodically, at a specific point in time to decide what learners know and what they do not know. Even, according to Angelo and Cross (1993), there are examples of summative assessment often used in schools, and these are:

1. District benchmark or interim assessments;
2. End of unit or chapter tests; and
3. Tests that are used for accountability for schools and learners

Harlen (2005) comparatively illustrates the key elements of summative assessment as follows:

1. The process takes place at a particular time; it is not ongoing and cyclical;
2. The evidence is interpreted according to terms of publicly available criteria;
3. The judgment is reported in terms of levels which need to be underpinned by some quality assurance procedure; and

4. Pupils have a limited role in the process. Summative Assessments are given periodically to determine at a particular point in time what students know and do not know.

Many people associate summative assessment with standardized tests such as state evaluations, but are also used as important components of district and school systems (Garrison & Ehringhaus, 2007). For example, district or classroom level summative assessment in America is a transparency measure that is typically used as part of the grading process (Garrison & Ehringhaus, 2007). Summative assessment provides teachers with information on how effective teaching strategies have been, how time is needed for teaching, and how future students can improve teaching. Contrary, Ogunniyi (1991) claims that such assessment is useless in evaluating the accomplishments of students as well as the process of teaching and learning.

Mpapalika (2013) found that summative assessment focused primarily on cognitive skills and paid little attention to psychomotor and affective domains. In other terms, the type of assessment carried out at the end of the term or year allows students to participate in rote learning and memorize information to answer test questions. Black and William (1998b) also criticised this type of assessment as impressing in that children have little chance of recognising their strengths and skills due to their limited summative feedback assessment. This can, therefore, be argued that, despite the numerous advantages of summative assessment, students in all aspects of the learning process cannot be assessed.

The Concept of Formative Assessment

As Andrade, Bennett and Cizek (2010) rightly put it, the origins of the formative assessment has its root from American Educational Research

Association (AERA) monograph, in which Michael Scriven first coined the idea of formative assessment concept in 1967. Also, Black and William (1998a, p. 25) described formative assessment as all those activities performed by teachers and their students, that provide knowledge, that can be used as input to change the teaching and learning activities they are engaged in. According to Boston (2002), formative assessment aims to gain an understanding of what learners know and do not know in order to make sensitive teaching and learning changes.

Researchers in the field of academic evaluation describe formative assessment in a variety of ways. Most of the definitions indicate the existing learning and assessment conceptualisations. Shepard (2005) argue that the official definition of formative assessment is the one that best fits the research base from which one derives its claims of effectiveness. Correspondingly, as Shepard points out, there is general agreement that "What makes the formative assessment, the formative assessment, is its immediate use to make adjustments for the formation of new learning. Any assessment that is carried out to improve instructional effectiveness, and student learning is referred to as formative assessment (Shepard, 2005). Experts in the educational assessment explained formative assessment in many different ways.

Looney (2011, p. 21) defines formative assessment as “a frequent and interactive assessment of student progress and understanding to identify learning needs and adjust instruction appropriately.” In the view of Looney, formative assessment is the process by which a classroom teacher used to monitor how well students are coping with a particular lesson. Formative assessment, therefore, provides the feedback needed by the teacher to adjust the lesson plan so that all students can grasp the intended learning experiences

(Labay, 2011). Formative assessment is nothing more than the mechanism used by teachers in the classroom to track how well students understand a particular lesson. This means that formative assessment serves as an input that teachers need to change the lesson plan so that all students can learn the concepts that are being taught. Formative assessment is an assessment activity that supports learning by providing feedback information as a result of which education and learning activities are improved by educators and students (Black, Hassison, Lee, Marshall & William, 2004). Here, the evidence obtained through evaluation activities helps by improving instruction to address the needs of the students. Popham (2006) has a similar view as well. To him, formative assessment is the degree that it helps to modify the curriculum in order to meet the educational needs of the students assessed. Kahl (2005) and Trumbell and Lash (2013) characterize formative assessment as a method used by teachers to recognize the students' different mistakes and errors while the teaching is ongoing. Formative assessment is an event performed to find evidence that can be used as guidance to change instruction. Assessment is a purposeful activity where evidence benefits teachers and students in adjusting ongoing learning and instruction (Dunn & Mulvenon, 2009).

On the other hand, Elwood and Klenowski (2002, p. 244) and Clark (2011, p. 163) conceptualized formative evaluation by classifying it as "Assessment for Learning (AfL) and Assessment as Learning (AaL)" into two categories. AfL focuses on the student and is used to assess progress towards the desired goal, trying to narrow the gap between the performance rate of the student and the learning outcomes expected. It includes activities such as discussing the expected learning goals, performance criteria, questioning and

feedback that help to achieve the desired learning goals. Assessment as education, on the other hand, encourages free training and self-assessment as well as peer engagement in learning and evaluation. Students have the opportunity to prepare and share the learning goals and success requirements of each other in the assessment as learning (Clark, 2011). He stated that students could understand clearly what they are trying to learn and what is expected of them, give immediate input on the quality of their work and what they are doing to strengthen it, offer advice on how to make progress, be fully involved in determining what to do next, and know who can provide support if they need it and have full access to it.

Considering assessment, as a method for encouraging student learning is not a new concept in teaching and learning endeavours. The assessment helps in measuring the extent to which learners are in the formal education enterprise. The prominence assessment on learning of students is precisely the historical focus of formative assessment. Nevertheless, if the input is the central figure of the formative evaluation, then the formative evaluation in the classroom should be implemented effectively. Formative assessment is the hands on the deck knowledge process about the students' academic achievements in the classroom (Bordoh, Bassaw & Eshun, 2013). It is the kind of continuous assessment in the context of educational delivery. In this context, the assessment of the learning in teaching must be taken seriously. Quashigah, Eshun and Mensah (2013) say that the awareness of pedagogical material of teachers has an impact on how their classes are evaluated. Relatedly, Bordoh, Bassaw and Eshun (2013) support this claim that the context knowledge of teachers is based on their learning organizations and influences the way they teach (i.e. topic choice, unit

or subject selection, goal formulation(s), teaching style and assessment method used).

As a result, curriculum implementers must be up-to-date with the formal assessment of the subject. Formative assessment is a mechanism that continues to take place during teaching and learning to provide input to teachers and students to close the gap between actual learning and desired objectives (Heritage, 2010). The role of formative assessment as a means of improving learning during teaching is very crucial, given the fact that not only teachers but also students are active users of formative assessment. However, this was stressed by Bordoh, Bassaw and Eshun (2013) that tutors emphasized the cognitive domain to the neglect of affective and psychomotor domains, which are also of paramount importance, due to the hurried nature in formulating formative evaluation and scoring. Therefore, much is needed to help social studies teachers to be up-to-date with the nature and content of social studies in a harmonized topic (Bekoe & Eshun, 2013).

Formative assessment is an important component of the teaching process as it offers information on the learners' strengths and weaknesses in their development. Teachers can use it to decide what to do next to improve both learning and teaching. The primary purpose of the formative assessment is to guide the teaching process for educators and learners. Assessment is formative, informing teaching and learning only when the teacher uses the data to adapt instruction and when the learners use the data to affect their learning (Black, 2007). The distinctive feature of formative assessment is that information is used to adjust the teaching program in order to make it more effective. The teacher uses formative evaluation as information on how well the

learning is being done. The teacher uses information for the learners to address learning problems. The importance of formative assessment, as Black and William (1998b) pointed out, is to ensure high-quality and it has a positive impact on student learning. Also, for low-performance learners, formative evaluation is particularly efficient and therefore tends to narrow the gap between low and high achievements.

The recognition of the difference between what students have learned and what they should learn is another essential use of formative assessment. Shepard (2005) has emphasised that formative assessment can directly improve learning, given that learning is ongoing and can serve as a basis for providing timely feedback to improve learning for students. Likewise, Boston (2002) states that when teachers know the success of students and where they have difficulties, they can use the information to create meaningful learning improvements, such as trying alternative methods of teaching and offering more exercise opportunities. These activities can lead to improved teaching comprehension. Too often, assessment is performed primarily to position students in programs or to mark or identify them.

Furthermore, if the information collected from the test is instructively important, it can be used to assess positive intervention and alternative teaching strategies. According to Bell and Cowie (2001), in order to improve learning, the formative assessment includes collecting, analysing and acting on knowledge about student learning. Literature suggests that information gained through formative assessment should be used to change teaching and learning practices to reduce the gap between desired student performance and observed student performance (Black & William, 1998a; Shavelson, Black, William &

Coffey, 2002). It is also important to include students, as students need to understand, evaluate and respond to their own and other learning assessments (Bell & Cowie, 2001).

According to Bell and Cowie (2001), formal or structured formative assessments take the form of curriculum-embedded assessment that focuses on specific aspects of learning, but they can also be direct questioning, quizzes, brainstorming, question generation, and much more. Informal formative assessment, on the other hand, is more improvisational and can take place throughout the class in any student-teacher interaction. It can result from any educational or learning activity at hand which is embedded in and that is strongly linked to learning and teaching activities (Bell & Cowie, 2001).

In informal formative assessment, the knowledge gained on various occasions is unrecorded. In the course of an event, it may also be non-verbal based on teacher observation of students.

How Formative Assessment is Applied in the Classroom

Sadler (1998) opined that formative assessment is considered as feedback only when it is used to alter the distance. This means that the feedback produced from the formative evaluation must be used to improve the learning status of the students and enable them to close the gap between their current status and the expected learning objective. Black and William (1998a) asserted that teachers using formative assessment had improved their classroom environment by focusing on helping learners feel safe to take risks and make mistakes and develop self-confidence in the classroom. These teachers also try to understand the cultural backgrounds of their learners.

To address a variety of learner needs, teachers adapt teaching methods, by ensuring that, lessons provide different approaches to communicating new concepts, offering opportunities for independent work in the classroom, and motivating learners who have mastered a new concept to support their peers. This ensures that students are exposed to various assessment approaches, that provide opportunities for specific learning outcomes to be achieved. Many learners who have grasped the concept quickly are encouraged to help slow learners. We also use probing methods during classroom experiences. Teachers also make the learning process more visible by setting and sharing learning goals, monitoring the progress of learners, and in some cases, changing goals to meet the needs of learners best. Teachers should compare their evaluations with other teachers and ensure that students are treated fairly.

Formative Assessment Practices

Formative assessment practices are generally explained as those assessment practices that teachers use as learning assessments. Formative assessment is generally used to review learning during the learning process that informs teachers decisions about future instruction (Bailey & Jakicic, 2012). These imply that, formative assessment provides a guide that aims at focusing on finding out what students know and need to learn, to achieve the oval goal of the teaching and learning interaction. Formative assessment activities conducted during the learning process encourage progress for students because, they are intended to support learning (Stiggins, 2005).

Formative assessments can be explained as those activities that are used in classrooms to promote learning (Stiggins, 2005). Black and William (1998b) contend that formative assessments include all those activities undertaken by

teachers' and learners, which provide information, giving feedback, in order to modify the teaching and learning activities in the classroom. Common formative assessments comprise of short questions and writing tasks that are aligned to standards and are administered to all learners in a specific grade. Normally, these assessments resemble an assortment of assessment items, learners will face during examinations (Frey & Fisher, 2009).

Types of Formative Assessment Practice

In educational assessment, researchers have classified formative assessments into two categories, thus formal or planned and informal formative assessment activities. Bell and Cowie (2001, p. 84) defined formal or planned and informal or interactive assessment continuous from school. Moreover, Shavelson, Young, Ayala, Brandon, and Furtak (2008) also explain formative assessment as an assessment for learning. Scholars have distinguished formational evaluation as formal and informal. In order to mark the formative assessment as either formal or informal, Shavelson *et al*. have taken into account the extent of the planning involved, the formality of the assessment information, the type and quality of feedback given to students. They thus locate three points of an anchor on the continuum, such as formative assessment planned for interaction, formal and "embedded-in curriculum formative assessment." The following paragraphs address formal formative assessment and informal formative assessment.

Formal Formative Assessment

Formal formative assessment is a structured assessment that focuses on obtaining information from a whole school. Formative assessment planned-for-interaction is the intentional action of the teacher. The teacher may build key

questions on the teaching objectives in order to identify the level of student understanding and future expectations to fulfil norms (Shevelson et al., 2008). In the course of implementing the following practices in the classroom, as discussed by Regier (2012), the types of formative assessment are: (1) discussions, (2) observation, (3) questioning, (4) observation and questioning, (5), peer-assessments, (6) self-assessments, (7) presentation, and (8) projects (9) quizzes. Regier therefore, provided a detailed discussion of the various forms of formative assessment, as indicated below:

Discussions: Having a class discussion as part of the way through a study unit can provide the teacher with relevant information on what the students know about the subject. Discussions must concentrate on higher-level thinking skills, and students should be given a few minutes before beginning the discussion to reflect on their learning. Encourage students to discuss what they have learned and how the learning can affect their everyday lives. Brainstorm forms, in which data can be applied, to other subject areas or situations which students can face. It will provide useful information for future teaching by, carefully listening to the answers given by students. The teacher asks exact questions, and the student's answers are reported informally. As a whole team or as a small group, this can be done. The information can then be passed on to the grade pages of the student.

Observation: Student assessment can provide important information on the development and learning strategies of the students. It can take several different forms to record observation data. Students may use sticky notes to classify remarks. At the end of the day, it is easy to place these sticky notes in individual files or student file binders. One useful tool to gather information is to use a grid

with all the names of the members of the school. Once teachers observe different students, they put information on the map in their bag. The grid helps the instructor to see the names of the unobserved students at a glance, which can then become the subject of the evaluation of the next lesson.

Another collection tool is file card, where notes on individual students can be stored. These cards can be placed behind each student's name at the end of the class. When the teacher evaluates the findings, he/she must remove all the file cards of the student and read the observations made during the observations. It can be used to assess, if the observed behaviour has a trend of observations that are made from several classes. As the students engage in an exercise, the teacher walks around the hall. Specific skills are discussed, and the teacher will record as informal notes, what she/he sees, for further instruction to be transferred to the grade pages of the student (Regier, 2012).

Questioning: Questioning is a great strategy for formative assessment to test the participant's depth of understanding. Ask students to ask lower-level questions about the truth and general concept data by using higher-level questions to inspire students to think about their learning and concentrate on it. Ask students to state the Pythagorean Theorem in a trigonometry model. The theorem's statement would be a lower-level issue. It would be a higher-level issue to ask students to explain how the Pythagorean Theorem can be applied to real-life issues in the world. Bloom's Taxonomy has six levels of logic that teachers can use to answer their students ' questions (Regier, 2012).

Observing and Questioning: While it may not even be understood to students, the teacher is likely to include the next type of formative assessment in his/her daily routine: evaluation and questions. The teacher can see how every

individual student learns and gets a view of the class as a whole by watching students and asking questions about them. It is an easy way for students to know and continue to circulate the room while they work or as teachers teach a lesson. There is much constant movement that alarms students and helps teachers to see improvement in student work. The teacher can stop and ask one-on-one questions from individual students instead of questioning the whole class. More personal connections may encourage students to try to answer the question, even if the answer is unsure.

Peer-assessments: Peer assessment are powerful ways of gathering high school level student information and understanding. Students can use set standards to determine the work of their classmates. Peer assessment can be used in different subject areas. For example, students may analyze another student's writing in writing and provide input on what they found. Students are required to assess their colleagues when students are working in teams.

Self-assessments: Students should be subject to the study group's self-assessment. Self-assessment allows unit targets or results to concentrate on their learning. Checklists or open-ended questions may be used to help students reflect. Include questions that address the student's understanding of the subject matter and identify areas that need more information or practice. Students are often able to articulate the learning needs of teachers. Teachers just need to ask the right questions. Self-assessment is one way of asking students about their learning and then using the information to help prepare teaching in the future.

Presentation: Students can learn a peer-input communication model. Students work on verbal work and presentation skills in a conversation and explain the relevant information.

Projects: Students gain knowledge of a common set of standards by presenting information to the entire group. Before the presentation is made, a rubric will be given, and this document will assess the student/group. Small group lessons should be created as a result of this information.

Quizzes: Students respond to a request or a couple of directed questions. They receive prompt input on what they are going to do as a result of the test. Perhaps the most classic formational assessment can be given to students at any point during a unit or class. Quizzes are short detailed tests, for students who are learning to provide quantitative data. Quizzes can be graded at times but are most useful when used to assess students knowledge of a subject. For example, in the middle of a fractional unit, a short quiz can be given to see if students have mastered fractional basics. This quiz will ask numerator, denominator, and whole sections questions. For example, in the middle of a fractional unit, the teacher can give a short quiz to see if students have learned the basics of fractions. This quiz will ask numerator, denominator, and whole parts questions.

Informal Formative Assessment

Informal formative assessment, on the other hand, is an assessment which the teacher applies during the daily interactions between teacher and student. It refers to the various procedures used by educators to collect on ongoing basic information on the understanding of the students (Primo & Furtak, 2006). At any stage of teacher-student interactions, whether one-on-one, small group or a whole school, the instructor can use informal formative assessment in the everyday classroom chat. Wherever feasible, in any student-teacher relationship, informal or collaborative formative feedback focuses on obtaining information about student learning.

Shavelson et al. (2008, p. 300) describe this type of assessment as "one-on-one assessment that occurs when a teacher in a moment needs correction in the learning process of the misconceptions of the learners." As stated by Heritage (2007), during instruction, informal formative assessment occurs spontaneously. Consequently, the evaluation information, allows the teacher to use a pop-up lesson to clear misunderstandings before continuing with the scheduled instructional sequences. On the other hand, the efficacy of informal assessment methods can also be assessed by the complexity and validity of the teacher's techniques (Ruiz-Primo & Furtak, 2006).

Elements of Formative Assessment

There are four core elements of formative evaluation. These are, (1) recognition of the “void”, (2) feedback, (3) participation of students, and (4) advancement of learning. For purposes of elaboration, these four elements have been explained below:

Identifying the gap: In a seminal article in 1989, Royce Sadler defined the critical goal of formative assessment as the means of identifying the difference between a student's current learning status and some desired academic target. He emphasised that this difference would vary from student to student and clarified the results of the pedagogy: If a student finds the distance to be too large, the target may be unattainable, leading to a sense of failure and discouragement on the part of the student. Likewise, if the gap is seen as too ‘tiny’, it may not be worth any individual effort to close it. Thus, borrowing from Goldilocks is a strategy that involves identifying the ‘just right gap’ (Black & William, 1998b). Black and William further indicate that the teacher's job is to identify and create frameworks that are unstable yet mature and foster cognitive development through cooperation and instruction. The child

internalizes the resources needed in the effort to address a particular problem, and the resources are part of the child's developmental achievement.

Feedback: Formative assessment aims to provide multi-level feedback. Next, it provides input to the teacher on the student's current level of knowledge. This input also provides information on what should be the next steps in learning. Feedback is also important if learners are to be directed on their next steps. By using the feedback loop, Sadler's design puts great emphasis on learner feedback. The system involves teachers and their students in a continuous process. Effective teacher feedback provides clear, descriptive, criterion-based information that shows learners where they are in a learning progression (described below), how their knowledge differs from their learning goal and how they can move forward. Teachers take action to bridge the gap between current student learning and target by modifying curriculum, reassessing additional learning information, and re-modelling instruction, among others. Another important element of the link between feedback and learning is that feedback has a powerful impact on learners ' motivation and their sense of self-efficacy on how they think about their different skills – both of which are major factors in teaching (Black & William, 1998b).

Student involvement: Improving learning by formative assessment often relies on the active involvement of students in their evaluation. Students learn the capacity for self-assessment and peer evaluation in formative assessment and collaborate with their teachers and develop a shared awareness of their current learning status and what they need to do to progress their learning, as Sadler points out. In doing so, they use metacognitive methods. We analyse, track and understand what they know about their learning, and decide when more

information is needed. They can develop self-regulation techniques and can adapt their methods of learning to suit their own learning needs (Black & William, 1998b).

Learning progressions: In the view of Black and William (1998b), when a formative assessment is to provide feedback to teachers and learners, it must be linked to a teaching creation. Learning advancement must clearly articulate the sub-objectives that reflect progress towards the ultimate goal. Indeed, many state standards do not even give a clear image of what is expected to be learned. The creation of learning progress against expectations is a critical element of formative assessment. Learning progressions provide a broad picture of what to learn and help teachers find the current learner's teaching position on the spectrum where students are expected to improve. A critical element of formative assessment is the creation of the advancement of learning towards norms. Learning development provides a large picture of what to expect and help teachers find the current teaching status of learners on the spectrum where students are expected to advance. Students also need to have short-term goals derived from learning growth, that are identified in terms of achievement criteria. The learning guide is a decisive criterion while the student is engaged in the learning tasks. The criteria for achievement provide the structure within which the formative evaluation takes place and allow the interpretation of evidence (Black & William, 1998b).

Student Self-Assessment

Students need to be taught to assess their own learning as well as others learning. This includes helping students set goals and achievement criteria, reflecting on their own and other knowledge, and evaluating learning by criteria

(Black & William, 1998b). Strategies for involving students in self-assessment can be as simple as asking students to reflect on their performance through questions like; "Do you think that understanding has been demonstrated by your response? If so, why do you think about that? If not, why don't you think you have shown understanding? "Students can learn to be more independent of this foundation and recognize when they do not know when they have to do something about it, and what they can do to improve it (Black & William, 1998b). Teacher skills also include helping students learn how to provide positive feedback to their peers that can help them grow in the future. Students can proceed from simple beginnings to a detailed analysis of their peers ' performance against specific criteria such as saying, "It was not clear to me when." or "I did not know your point." Once again, the teacher should model all of this in the classroom so that students see that they are agents in building shared awareness of their current learning status and what they need to do to move forward (Black & William, 1998b).

Interpreting evidence: Teachers' ability to draw inferences from student's answers is important to the efficacy of formative assessment. Regardless of the assessment technique, observation, dialogue, demonstration request or written response, teachers should evaluate learners' reactions from what they reveal regarding their perceptions, misunderstandings, skills and understanding (Black & William, 1998a). This involves carefully analysing the responses concerning the criteria for success. Essentially, teachers need to determine the gap between the current state of students understanding of the teaching method applied by the teacher and what students are expected to know in the learning interaction.

A student job assessment included in the course may take place after the class, where the teacher must provide more time for close examination. In both cases, the value of domain knowledge for analysis cannot be overestimated; it depends entirely on the performance of the analysis. There is a danger that the study of teachers may concentrate on the surface aspects of teaching at the cost of deeper levels of understanding without a clear base of knowledge of the subject. The inaccurate estimation of the teachers' teaching status will result in errors in what the next instruction steps will be. The students response review also provides feedback to students with the content.

Teachers need the skills to turn their research into simple and succinct evaluations that suit the criteria for performance that learners can use to advance their learning (Black & William, 1998a).

Review of Empirical Studies

Formative Assessment Practices

Akyeampong (1997) conducted a study to investigate the essence and context of teacher activities and challenges in continuous assessment practices at the post-secondary level of teacher education in Ghana. The study also discussed the curriculum and standards for assessment and effects on teaching and learning of the current assessment. A longitudinal case study was used as the model, and three teacher training institutions (now Colleges of Education) were selected based on the researcher's comfort as the study areas. Within 90 days, data were collected using 16 tutors, four vice-principals and 65 students as participants in the study, through interview and school learning observation. Research results show that, many problems continue to threaten the advantages of carrying out a continuous assessment in training colleges. Central to such

concerns include, organisational and institutional situations in schools, tutor's professional support structures for ongoing evaluation, tutor's assessment skills, and factors embedded in assessment, tutor's values and beliefs that determine their evaluation culture and agenda.

Bordoh, Bassaw and Eshun (2013) studied social studies tutors' knowledge of formative assessment at educational colleges in Ghana. In this analysis, a variety of case research models have been implemented. The study was conducted in the Central Region of Ghana at three Colleges of Education. The tutors and the schools were collected purposefully and randomly for the study. The data were used together to form one case. In the classroom, interviews and observations were used to gather information. It was revealed that formative assessment is the hands-on process of checking information on the students ' academic achievements in the classroom. Since the curriculum determines what is taught and assessed in an educational institution, it was proposed that the University of Cape Coast (the reviewing body), reorient its course material for Colleges of Education, to be more about capacity development, favourable attitudes, values and not the over-emphasised elements of information as tutors show. Bekoe, Eshun and Bordoh (2013) analysed the formative assessment approaches used by tutors in social studies to assess teacher training colleges. The case study analysis was used. The research was conducted in the Central Region of Ghana at three Colleges of education. Tutors in colleges of education were purposefully selected for the study. Nine (9) tutors participated in the study. The study found that tutors emphasised the intellectual domain to the detriment of affective and psychomotor domains, which are also of importance, due to rushed complexity

in formulating formative assessment and scoring. Furthermore, the results stated that diagnostic evaluation, portfolio evaluation, self-assessment and peer evaluation are the main methods of formational evaluation in the colleges of education in Ghana.

Relatedly, Asare (2015) analysed kindergarten teachers' formative assessment activities based on two subscales: (a) widely used methods of assessing teachers, and (b) their reasons for choosing a specific method of assessment. The sequential blended techniques research design was used. The quantitative data was gathered by questionnaires given to 192 teachers in the six government and private kindergarten classrooms in Ghana. Out of the 192 surveyed teachers and three selected respondents, the qualitative data were gathered through interviews. In statistical data analysis, separate t-test samples were used. Research findings showed that the style of assessment of paper and pencil is often used by teachers. Also, teachers have tended to use assessment style in particular, only to meet the demands of parents and instructional leaders, without meeting the curriculum evaluation prescription. Furthermore, the findings showed no significant difference between the public and private kindergarten school teachers in almost all the items in the two subscales used in this analysis but differed significantly on four factors for choosing a particular mode of assessment. Therefore, seminars, workshops and in-service training and education are suggested for all stakeholders, including parents, school leaders and teachers, to allow for more constructive use of developmentally appropriate formative assessment strategies to support pupils' learning.

Awoniyi (2016) in his study to address the challenges faced by senior high school mathematics teachers in School-Based Assessment (SBA) noticed a total of 110 students, including 100 male and 10 female mathematics teachers, attended the study. Data were obtained using a questionnaire, and an interview schedule and the data were analyzed using frequencies and percentages. The study found that mathematics teachers at Cape Coast Metropolis senior high schools do not understand and do not use SBA rules, so they still follow the ancient 'continuous assessment' process that seems to control school methods. Because of this, in-service training in the form of workshops and seminars could significantly enhance their skills and introduce them to effective ways of implementing SBA.

Various types of evaluation are required to evaluate complex processes such as solving problems, justifying or proving solutions, or connecting mathematical representations. Teachers are encouraged to use a variety of methods for assessment as a way to listen and respond to student learning, such as assignments for meetings and observations. Any learning activity or assessment that requires students to perform and demonstrate their knowledge, understanding and skills of these practices form part of the formative evaluation (Wiliam, 2011b). Practice in a classroom is formative to the degree that, evidence of students achievement is produced, perceived and used by educators, learners, or their peers to make decisions about the next steps in instruction that are likely to be better or more well-founded than the decisions they would have taken in the absence of evidence. The definition provided by Black and Wiliam, as outlined by Leahy, Lyon, Thompson and William (cited

in Wiliam, 2011a), was reinforced by the following five techniques or principles to direct teachers on formative evaluation:

1. Teachers should clarify learning outcomes and conditions for success and then share them with students.
2. Teachers should engage students in classroom activities that provide evidence of learning.
3. Teachers should provide feedback to help students make progress.
4. Students should be resources for each other.
5. Students should own their learning.

Black and Wiliam (2005) identified three practices that teachers could use to engage in continuous and formative assessment as part of classroom instruction. These practices were:

1. Questioning with appropriate waiting time: Students should be given ample time to think about an acceptable response to a question asked so that questioning becomes worthwhile rather than superficial.
2. Providing feedback without necessarily attaching a degree. This is because attaching a degree can harm the perception of students about their work and cause them to disregard helpful feedback that tells them about positive aspects of their response and what changes may be needed;
3. Helping students learn to peer and self-assess. These are critical components in helping students take ownership of their learning; and using summative assessments on formative ways to help students learn to develop potential questions, for summative assessment and to decide what appropriate responses may entail.

Teachers' Knowledge of Formative Assessment

Teachers need particular understanding in terms of knowledge and skills to effectively use formative assessment in the classroom. Four core aspects of teacher knowledge are critical: 1) domain knowledge, 2) pedagogical content knowledge, 3) knowledge of students' previous learning, and 4) knowledge of assessment.

Domain knowledge: Teachers need to understand the concepts, abilities and skills that need to be taught in a field that learners need to develop and what a good performance to expect from learners. Vandeyar and Killen (2007) explained curriculum structure with sub-objectives, towards the constant learning with this understanding that will act as the framework for guiding assessment and instruction. In their view, when students have shown good performance, it meant teachers provide constructive input to students, a sufficiently detailed progression will also provide the success criteria for recognition. Teachers must also consider the metacognition of learners as it relates to evaluation. As described above, in order to recognise when they are not teaching, they establish the ability to monitor and assess their teaching. Self-assessment is synonymous with self-regulation imlies the ability to act in ways that contribute to learning. Furthermore, when students understand that they are not learning, they have the strategies to do something about it. Lastly, teachers need to recognize that students ' motivational views— for example, beliefs about their overall skill level or self-efficacy can influence their learning (Vandeyar & Killen, 2007).

Pedagogical content knowledge: To adapt instruction effectively to student learning, teachers ' knowledge of pedagogical content must include familiarity

with various teaching models for student achievement in a particular field and awareness of which teaching model is suitable for what reason. As mentioned earlier, the difference between current status and learning objectives will vary from student to student, so teachers will need specific various approaches of teaching and understanding on how to use them in the classroom. In order to promote student self-assessment, teachers will also need to know different styles of learning metacognitive procedures and self-assessment skills (Vandeyar & Killen, 2007).

Students' previous learning: To build on the prior learning of students, teachers need to understand what that prior learning is. Previous learning for students involves the following:

1. Their level of knowledge in a specific content area,

2. Their understanding of concepts in the content area (i.e., the degree to which they can make generalizations through a process of abstraction from several discrete examples),

3. The level of their skills specific to the content area (i.e., the capacity or competence to perform a task),

4. The attitudes the students are developing (e.g., the value the students place on the subject, the interest they display, and their levels of initiative and self-reliance),

Their level of language proficiency (Vandeyar & Killen, 2007).

Assessment knowledge: Teachers need to know about the continuum of formative assessment methods so that they can optimise the possibilities of gathering evidence. Also, while formative assessment approaches will not always meet agreed validity or consistency criteria, teachers need to understand

that the performance of the evaluation is an important issue. The overriding challenge is the validity issue. Because formative assessment aims to promote more learning, its relevance depends on how successful learning takes place in subsequent practice. Teachers also need to know how to match formative assessment with instructional goals and needs to ensure that the information from the formative assessment and the inferences they draw from it is of sufficient quality, to allow them to understand whether the learner is following teaching progress. Finally, teachers need to know that their learning assessments are not the only available sources of evidence; student and peer self-assessments provide significant opportunities to determine their current learning status (Vandeyar & Killen, 2007).

Teaching Experience and Practice of Formative Assessment

Research by Young and Kim (2010) discusses teachers, as well as institutional processes and features, relevant to uses of formative assessment in the state of Arizona, USA. They noted that approximately, one-third of teachers with less than five years of experience, indicated that they were not at all or partially ready to assess students in their first year of teaching in both the 1999-2000 and 2003-2004. The sample of the study by Young and Kim was nationally representative of all schools and staff. This simply, means that inexperienced professors in their schools often do not conduct analyses.

Wiredu (2013) investigated teacher assessment practices at nursing schools in Western and Central Region of Ghana, using a compact study design that used census. The methods used for collecting information were the questionnaire method of the Likert scale and the checklist of analysis. The study found that, 68.75% of respondents had both a certificate of professional

education and teaching experience. The sum of years of teaching experience was found to have a greater impact on assessment procedures than the certification of an educational professional. Again, it was noted that, there was no statistically significant difference in the base of all tutors in the assessment. However, Wiredu added that, there was a significant distinction in the methods of evaluation of tutors in terms of all indices used, except for test administration. While the study reported the findings and showed that the results were significant, there was no reference or explanation of the degree of significance.

A study conducted by Hauser (2015) explored the extent of use of formative assessment approaches and forms of input by high school English and mathematics teachers in the northwest suburbs of Chicago, Illinois. The study used a qualitative, non-experimental approach to investigate. The population consisted of 12,164 students and 900 teachers in the five high schools. It was revealed that 231 professors were selected based on the subject fields and courses taught, using a convenient sample method. Of these 231 respondents, 125 were English teachers, and 106 were mathematics professors. The overall result was that formational assessment methods were not always used by teachers during teaching. The author once again reported that the use of formative evaluation approaches based on years of teaching experience did not make a significant difference. The drawback of this analysis is in the second observation. This is because the author used teachers with an average teaching experience of 13.6 years to leave those students with an average teaching experience of less than 13.6 years.

Amoako, Asamoah and Bortey (2019) concludes that, in the wake of a situation where teachers possess but little knowledge of formative assessment practices, there is more likelihoods that classroom assessments for learning are merely rigged with flaws which eventually deviate from it targeted purpose. Moreover, it is worth accepting that competent formative assessment practice is a function of a teacher's knowledge in such assessment procedure. Arrafii and Sumarni (2018) in their study of English teachers in senior high schools in Central. They also added that gender is a strong predictors of teachers understanding of formative assessment. Heritage (2007) argues that, to use formative assessment correctly, teachers will need to optimize their knowledge in their domain area, pedagogical content, assessment knowledge, and knowledge of students' previous learning.

Uses of Formative Assessment

The assessment has many applications within the context of higher education. The assessment provides information on learning development, teaching and programme performance, and organizational accountability. Several studies have shown that major learning gains are possible if teachers use formative assessment in their classroom learning. Formative assessment has many uses. It provides information about the progress of teaching and learning effectiveness. Educators obtain information on the effectiveness of their teaching from assessment results (Yorke, 2003). Gibbs and Simpson (2004) refer to formative assessment as a means of providing information on how well students are learning and how they can improve performance in their future learning. In effect, formative assessment plays a crucial role in enhancing students' learning and achievement. In the view of Williams (2006), the power

of formative assessment is potent in producing remarkable improvement in student's learning and academic gains.

Furthermore, as mentioned earlier, formative assessment plays an important role in enhancing students learning and achievement. For example, Williams (2006) believes that formative assessment improves students' ability to generate unparalleled learning and achievement gains. Relatedly, Heritage (2007) asserts that the effective use of formative assessment can provide relevant information to improve students learning. This means that, the use of formative assessment can improve students' knowledge and skills in the subject matter of the instruction. Regardless of the enormous benefits of formative assessment, there is a little knowhow and application of formative assessment among teachers at all levels of the educational system (Duckor, Holmberg & Becker, 2017).

The attitudes of the teacher and student towards formative assessment information may result in improvement in knowledge and skills of the teaching and learning endeavours. In arguing in favour of formative assessment in education Dunn and Mulvenon (2009) have conclusively demonstrated that the use of formative assessment provides an improvement in instructional practices, identifies gaps in the curriculum and contributes to increasing students' performance. The literature on formative assessment reveals the presence of limited empirical evidence resulting in notable improvements on educational outcomes.

The essential use of formative assessment is to define the difference between what students have learned and what they should learn. For example, Sadler (1998, p. 120) indicated that, an essential use of formative assessment is

to define the difference between a student's learning and certain necessary academic goals. The key factor in formative assessment for learning is understanding the differences between what learners know and need to understand and where instructional learning will be most successful in meeting the learning needs (Pinhok & Brandt, 2009, p. 5). It is useful to compare the assessment performance of students with normal performance (Brookhart & Bronowicz, 2003).

An assessment has many applications in the sense of higher education. An assessment provides information on the advancement of education, quality of teaching, curriculum and transparency of institutions. Higher education teachers obtain information from test reports on the quality of their teaching (Yorke, 2003, p. 479). In general, formative assessment plays an important role in enhancing the performance and achievement of learners. For example, Williams (2008, p. 398) believes in the capacity of formative assessment to deliver unparalleled progress in learning and achievement gains for students. Nonetheless, in the sense of higher education, there is limited understanding and implementation of formative evaluation (Duckor, Holmberg, & Becker, 2017). Despite pressure on universities to strengthen their teaching and the performance of student learning evaluation (Hattie, 2009, p. 15).

An assessment is formative when the teacher and the students use the information to change the curriculum to meet the needs of the students. Shute (2008, .p 154) suggests that existing assessment methods are problematic because the test data are not being used, as educators can and should do for teaching change. Teachers can use the formative assessment details promptly to make instructional changes and advise new learning (Shepard, 2005, p. 70).

Yorke (2001, 478) also notes the purpose of formative evaluation, as providing the information needed to change and direct teaching in order to improve the quality of teaching and to support student learning. Other researchers consider the practices of formative assessment to be successful, particularly for students with low achievement. Black and Wiliam (1998a, p. 13) advocate the use of formative evaluation, to narrow the gap between low and high achieving students while at the same time increasing the overall level of achievement for all students. Most specifically, formative assessment improves the drive and participation of students in the learning process. Looney (2011, p. 7) states that students will boost their learning if they are "motivated and actively involved in the learning process".

Impact of Formative Assessment on Students'performance

Assessing the performance of students and the actual level of success in schools is a very important part of any educational system. The use of formative assessment in the teaching and learning process involves breaking up the subject matter of the curriculum into smaller hierarchical units for instruction; setting goals for each unit; designing and conducting validated formative tests; providing group-based remediation in areas where students are impaired before progressing to other units and then implementing them. Gronlund and Linn (1990) contend that, formative assessment plays three specific roles in teaching and learning endeavours. In the opinion of Gronlund and Linn, formative assessment is used to (i) to plan corrective action for overcoming learning deficiencies; (ii) to aid in motivating learners and (iii) to increase retention and transfer of learning. In the view of Gronlund and Linn students' responses to a formative assessment, tests could be analyzed to reveal group and individual

errors that need correction. It there suggests that formative assessment could serve as a strategy to identify gaps in learners' academic ability to provide requisite remedies.

For instance, in Singapore, a study confirmed that formative assessment leads to the learning of students as well as to the professional development of teachers, by moving professional development activities to the lesson plans (Koh, Lim & Habib, 2010). In the classroom, teachers use a range of assessment methods and techniques to gain detailed insight into how much students learn, as part of formative evaluation. According to Berry (2008), formative assessment evaluates the content, comments on it, and uses it to review and coordinate teaching, in addition to providing input to the students. Students are effective providers of data. Not only does it engage in learning and teaching events, but they also use assessment information to identify priorities, make decisions about their growth and develop an understanding of how work is skilled. According to Stiggins (2005), formative assessment process in the classroom can play an important role in increasing student engagement and achievement. In other words, it can help teachers improve student performance by communicating clearly, defined learning goals, through student participation in the evaluation process, where students can take responsibility for their learning in turn. Most significantly, this sense of responsibility and control will increase the intrinsic motivation of the students to learn and enhance their performance.

There is no doubt that formative testing is now accepted as one of the most important ways to increase the motivation and achievement of students. For instance, according to Clark (2011), formative classroom assessment aims

to provide classroom-level information to teachers, administrators and policymakers, to enhance teaching methods and to direct and encourage students to participate actively in their learning. Formative assessment can help students become more successful, self-assessing, self-directed learners on the face of it. Autonomy may be the big idea behind formative evaluation: the philosophical goal of formative evaluation is to develop fully autonomous learners who can self-assess their work, make meaningful inferences from it, and prepare the next steps for further development (Black & William, 1998a). Students need to believe that achievement is possible in order to build the desire to accomplish this, which ensures that early success opportunities should be given. It is, then, important to add strength to a moderate effort to academic success (Cauley & McMillan, 2010). In reality, a student-centred approach to formative assessment could also have a positive effect on students in addition to increasing achievement. For example, Cauley and McMillan (2010) have acknowledged that formative assessment by creating autonomous students often supports mastery goals.

Nonetheless, students who practise self-assessment are in control of their learning, which can also support the mastery of goals development. However, self-assessment helps students to understand the project goals and the steps needed to meet the learning target. Admittedly, we have high expectations for achievement as students work towards achieving specific learning goals. Self-assessment eventually helps the student to decide what to do and when to do it. Ajogbeje (2010) believed that, the breakdown of the subject or course into small units would allow students to prepare adequately for regular tests. Assessments also provide a means of getting more students involved and

committed to the teaching-learning process, thereby, improving their performance. Consequently, regular testing of the ability of students as required, assists greatly in the discovery of students performance and could also be used to improve learning.

Teachers Skills in Formative Assessment

In addition to an appropriate knowledge base, the successful implementation of formative assessment requires specific teaching skills. In their argument, Black and William (1998b) postulate that, teachers must be able to (1) create classroom conditions that allow for successful assessment, (2) teach the students to assess their learning and the learning of others, (3) interpret the evidence, and (4) match their instruction to the gap creating the conditions. Black and William further, mentioned that when students are to be interested in assessment, two things need to happen. First, teachers need to build a culture that promotes self and peer evaluation in the classroom. This implies that a classroom is a place where all students feel respected and appreciated and have to make a significant contribution. Second, teachers need the skills to build a learner culture, marked by understanding and acceptance for individual differences (Black & William, 1998b). Classroom standards of respectfully listening to each other, responding favourably and constructively, and appreciating the distinct skill levels between colleagues should enable all learners to feel secure in the teaching environment and to learn with and from each other. In particular, teachers will need the abilities in their behaviour to model the "security" standards of the classroom (Black & William, 1998b).

Role of Teachers in Formative Assessment

Heritage (2007) argued that for an effective application of formative application, there is the need for an effective teacher. Relatedly, Pinchok and Brandt (2009) opine that, for an effective application of formative assessment, teachers need to have optimized knowledge in their area of expertise. This means, teachers should have definite objectives with indicators of how to achieve the set objectives. When the teacher has clear objectives, then finally, the teacher can use formative assessment to test whether he succeeded in conveying appropriate knowledge to his students or otherwise.

Many experts in the assessment fraternity emphasize the importance of feedback in the practice of formative assessment. These experts argue that teachers' feedback is beneficial to helping students to understand their current learning abilities and also provides guidelines for improvement. Some of the researchers who argued in favour of teacher feedback includes Gipps and Stobart (2003); Harlen (2005) and Sadler (1998). They support the fact that, teacher feedback is an opportunity to assist students to improve their learning abilities. Thus, feedback cannot be overlooked in the practice of formative assessment because of the following reasons:

1. It is an essential factor for teachers to redirect learning by adjusting their method of instruction, to ensure that students' learning is on track.
2. Feedback is an essential resource so the students can take active steps to advance their learning.

In the context of the above, Kulger and De Nisi (as cited in Elliot, 1999) postulate that, feedback was directly associated with improvement in 60% of

studies examined. The teacher's role in formative assessment can be seen as creating situations where the students can play the role of participants, so they can acquire the habits that enable them to share responsibility for learning and assessment (Cowie, 2005). Cowie, therefore, reinforces the idea that, students embark on their learning by assuming the role of a participant in the learning process.

In contrast, Carless (2007) perceives the teacher as "the key mediator in enhancing students learning" (p.172). In the view of Black and William (1998b) opine that the teacher can assist in building students' capacity to evaluate themselves and assess each other. The added that the teacher can control the learning situation in the learning environment.

Arguably, students teachers should be skilful in using formative assessment results when making decisions about students learning, planning to teach, and developing curriculum for school improvement. In other words, teachers should be experienced in identifying what item should be measured, be able to analyze students' work, and should be able to determine the next step in the instructional process. Furthermore, teachers who practice formative assessment are expected to support students to acquire skills required for enhancing learning (Dixon & Haigh, 2009). Relatedly, Heritage (2010) pointed out that teachers must be able to create a collaborative and supportive classroom environment where students are free to ask questions, constructive feedback is given to students, and self-assessment is embraced without any form of threat.

Role of Students in Formative Assessment

Formative assessment is a partnership process between teachers and students in the learning endeavours. It means that for effective application of

formative assessment, both teachers and students have important roles to play. This suggests that formative assessment requires the active participation of the students. The process requires students to develop self-assessment strategies that enable them to think about their learning progress. Ideally, effective feedback enables learners to self-assess, self-reflect, and self-regulate their learning (Nicol & Macfarlane-Dick, 2006). Self-regulated learning is explained as learners, setting their own learning goals that they strive to achieve through monitoring and regulating their motivation and cognitive behaviours, that propel them to achieve their goals (Pintrich, 2000a). During this process, teachers' facilitative feedback is seen to be significant to the success of the students. In light of this, students can generate internal feedback that informs them about the need for making adjustments to their learning strategies. This process involves students', thinking about their own learning and deeping the understanding of their performance, in the learning process. This can be realized when students can give feedback to their classmates in order to make progress toward the lesson goals.

Properly executed, formative assessment can help students to understand and improve the quality of their work through self-assessment, self-monitoring, and self-regulation. Students should be able to apply self-regulation and self-monitoring skills during the learning process to complete their learning task (Butler & Winne, 1995; Perrenoud, 1998). The role of the student is to assess and improve upon his/her work through comprehensive assessment criteria. The role of the student is to support and develop student's learning that enables the students to become autonomous and self-regulated learners (Dixon, 2011b; Sadler, 2010; Swaffield, 2011). These strategies facilitate the promotion

of students' understanding of their own learning goals and expected performance, as well as the generation of feedback, by both teachers and students on their current and desired performances in the learning process (James, 2008; James & Pedder, 2006). This implies that, students' engagement in peer and self-assessment, and taking control of their learning through self-assessment is vital for assessing students' progress in the learning process.

Teachers Challenges with Formative Assessment

The analysis of the literature on formative assessment, revealed the existence of a wealth of information on formative assessment in the classroom. A significant amount of knowledge exists to show the many difficulties associated with applying and using formative assessment for its fundamental purpose. There is no such thing as a quick fix in education. This has been demonstrated by the many educational reforms and challenges that emerged over the years. It requires time and cares to incorporate and improve the current methods of formative assessment approaches in our schools.

One result found in multiple studies was the difficulty faced by many teachers in using assessment information to prepare subsequent instruction (Heritage, Kim, Vendlinski, & Herman, 2009; Watson, 2006). One research used power source: a formative assessment strategy that was being established at the University of California's National Center for Evaluation, Standards and Student Testing (CRESST) (Heritage, Kim, Vendlinski & Herman, 2009). Teachers were asked to participate in three activities: analyzing students' knowledge of mathematical concepts, providing feedback, and deciding what to do next based on student responses in their teaching. A discovery that emerged as the researchers examined their data, was the teachers' difficulty in

using student information in their instructions, to plan what they would do next. This was an area of great difficulty, compared to understanding student work, which proved less troublesome.

Another study also had similar results in Heritage et al. (2009) research. A study by Watson (2006) found that, educators had trouble in effectively using formative assessment to direct further learning. This study followed, two highly qualified educators who were self-identified as practising many of the required qualitative elements of formative assessment. The study found that, teachers lacked a strong link in both cases between the use of formative assessment and the feedback information, to gain knowledge of where students are and how to push them forward. The author proposed that, a way for enhancing the use of formative assessment would be to expand teachers' knowledge and assignments in order to focus more on developing a conceptual understanding, as well as teaching students how to measure themselves in terms of their mathematical understanding. One of the teachers in the study had students that do many self-assessments, but these were more oriented toward the students' affective domain, in this case, their feelings concerning the learning environment, rather than their skills as mathematical students.

The King's-Medway-Oxfordshire Formational Assessment Project (KMOFAP) Black and Wiliam (1998a) found that, most teachers have been active in improving students' achievement. Nevertheless, in four correlations among twelve mathematics teachers, the study provided negative results. The authors' theories ranged from the existence of the comparative classes to the lack of skills of the teachers. Watson (2006) interpreted this as raising the question of whether there is anything unique to the topic that makes it

insufficient to achieve the adoption of developmental approaches on its own. The study shows the teacher's need for in-depth knowledge of the material, theoretical comprehension and pedagogical information (Ginsburg, 2009). The idea that the formative assessment itself does not result in particular instructional actions and that a teacher must use his/her own 'intermediate creative brain' to create specific choices about the course of action that he/she should take was also important (Ginsburg, 2009). Numerous comparative research summarized by Heritage et al. (2009) shows a lack of teacher choice in teaching experience, relative to other high-performing nations such as Japan. New teachers spend much time working in these nations, with other teachers, to examine and refine in-depth individual lessons. This method allows inexperienced and seasoned teachers to create a greater sense of how students develop their understanding of specific mathematical material and how teachers should inform classes about their understanding and respond to common misunderstandings. This is the kind of knowledge that is crucial to the successful implementation of formative assessment, where a teacher collects data on student comprehension, to effectively push individual students' and school, forward to the important teaching goals.

Education innovations, new creations and different methods that resulted in differences of view and difficulties are increasing challenges teachers face in the daily assessment of classrooms. Many researchers highlight challenges such as social reform criteria, the availability of educational resources, different approaches to role-players in educational reform, the creation of a teaching and learning environment, and conflicts over nature, leadership and class measurement. Assessment is also often viewed as the most

important source of concerns for schools and educators. The problem of assessment, as Chisholm (2005) puts it, is further complicated by reasons for or against two methods for assessing college learning and examinations: an input-based, summative method of assessment or an outcome-based model of formative and continuous assessment. The numerous challenges of assessment encountered by teachers highlight the importance of assessment the implications of formulating sound assessment policies.

Traditionally, assessment has been seen as an unnecessary burden resented by learners, thus disturbing the main duties of educators, namely, teaching and learning. Brookhart and Bronowicz (2003) reported that, students often see assessment as a method for identifying failure, rather than recording development and achievement. Students see the learning context as being mainly rooted in defining and reproducing a correct response to a well-defined problem with a specific and predetermined solution. Ultimately, the majority of students, view assessment as a positive and autonomous aspect of teaching and learning. As Chetcuti, Murphy and Grima (2006) argued, information is perceived as rigid and inflexible, with focus on data, set procedures, and finished products; learned processes need to be remembered and applied in crucial problem-solving circumstances, and the task of the students is to rediscover such skills. Unless students consider assessment as fixed, predetermined processes of memory and reproduction, the entire instructional aim will be defeated. Therefore, there is very little, if any, development in such an evaluation strategy. It is not possible to achieve higher learning skills and outcomes, unless the assessment helps learners to develop. In achieving these, skills, variable degrees of adequacy must be exhibited, and therefore tools,

procedures and assessment processes must represent the achievement of performance measures and standards.

Webb (2005) identified factors that, influence formative assessment practices in the classroom, such as school structure, traditions and routines. He also stresses the length of the class periods, student participation in the classroom, and the system's standards for grade-level material as guiding to teachers' teaching procedures. In Webb's (2005) comments, he clarified that brief length, class times, such as those less than forty minutes, frequently limit ongoing learner engagement, classroom discussion and reflective possibilities. Furthermore, a large enrollment of learners in a class may present a challenge in offering positive feedback on open-ended learner issues and projects (Kotze, 2002). Kotze noted that, evaluation as a reform agent is influenced by specific pressures and requirements for real life. In this pledge, he emphasizes that, assessment as a curriculum method is influenced by feedback, observations, perception from role players and by degrees of adequacy that decide school standards. Kotze further examined aspects of the abilities of learners by concentrating on thought and learning as opposed to merely assimilating information in exploring variables that influence the assessment of classrooms. This form of evaluation, imposes higher rational expectations on students, not only in terms of understanding those areas of content but most importantly in terms of understanding, implementation and presentation of skills.

In many countries, including the United States, teachers have experienced excellent problems for successfully incorporating formative assessment into their teaching methods (Black & Wiliam, 1998a). When formative assessment is known as an area of interest or focus, it is often

labelled as such and does not provide concrete advice in the form of recommendations, techniques or resources for educators such as professional development (Black & Wiliam, 1998a; Heritage et al., 2009; Watson, 2006). Research has shown that the most successful thing in getting students to use formative assessment effectively in their classroom was the following: access to information on formative assessment was provided to teachers in the classroom; A collegial support and input network has been developed to encourage and provide mentoring for educational professionals that are trained in the field of formative assessment. Teachers have an objective means of linking formative evaluation with their current practices and curriculum (Allsopp, Kyger, Lovin, Gerretson, Carson & Ray, 2008; Dixon & Haigh, 2009).

Summary

This chapter reviewed related literature to the subject matter of the study. The literature on the theories of socio-cultural learning, the concept of assessment of classrooms, summative assessment, idea of formative assessment and assessment of learning was explored. Also, the literature on components of formative assessment, the need for teacher's information, students, and teachers with difficulty in formative assessment was reviewed. The reviewed literature suggests that formative assessment can take several forms, ranging from formal to informal. Even though formative assessment results are not used for the final grading of the student, they serve a diagnostic of improving teaching and learning in the school. That is, formative assessment results are used to provide relevant information that will enhance students' learning abilities. It also emerged from the literature review that the essence of formative assessment is to improve teaching and to learn among students and teachers in the education

enterprise. Regardless of the usefulness of formative assessment, there are some challenges with its use of among teachers.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter discusses the research methods employed for the study. The chapter focusses on research design, population, sample and sampling procedure, data collection instrument and validity, pilot-testing of the research instrument, data collection procedure and data processing and analysis. It then focuses on the procedure for collecting data and the schedule for analysing data.

Research Design

The descriptive survey design was employed for the study. In the view of Fraenkel and Wallen (2000), the descriptive survey design describes existing conditions without analysing variables or relationships. Creswell (2008) also advocates for the use of a compact design to assess people's views on a policy issue. Since the study seeks to assess the knowledge and practice of formative assessment of junior high school educators, the compact structure was considered appropriate to accomplishing the task of finding out teachers knowledge in the practice of formative assessment.

However, Kumekpor (2002) argues that, there are some hitches in the use of a descriptive survey design. Kumekpor added that these hitches include the challenge of ensuring that correct answers are provided by respondents so that right responses are elicited for the studies. Another challenge is getting respondents to answer questions accurately and completing and returning enough questionnaires to provide a meaningful analysis. Regardless of the

inherent shortcomings of the descriptive survey, it was chosen for the study because it is capable of providing useful data from a cross-section of the target population (Fraenkel & Wallen, 2000). Fraenkel and Wallen further claim that the descriptive research design is appropriate to analyze a problem and assess concrete patterns in both small and large scale.

Population

The population can be explained as an aggregate or totality of objects, subjects or members that conform to a set of specifications. Banerjee and Chaudhury (2010) defined population as the entire group about which some information is required to be ascertained. The target population for the study consisted of all 79 public junior high schools within the Mfantseman Municipality in the Central Region of Ghana. The choice of Junior High Schools in the Mfantseman Municipality is influences by my interaction with some teachers in the Municipality, where I have also taught in one of the junior high schools. My interaction suggests that teachers lacked the requisite skills in the practice of formative assessment. The Municipality was made up of eight educational circuits with 465 teachers. The target population was made up of 304 male teachers and 161 female teachers in all the public junior high schools in the Municipality.

The results in Table 1 shows that, out of the 465 teachers who teach at in junior high schools in the Mfantseman Municipality, 304 are males while 161 are female teachers. It, therefore, means that, the population for the study was 465 junior high school teachers in public basic schools in the Mfantseman Municipality. This number includes both trained and untrained teachers. The results of the analysis are presented in Table 1.

Table 1: Population of the study

Circuits	Number of JHS Schools per Circuit	Number of JHS Teachers per Circuit	Gender Distribution of JHS Teachers	
			Male	Female
Anomabo A	8	39	43	27
Anomabo B	9	59	38	21
Mankessim A	9	67	48	19
Mankessim B	7	42	28	14
Saltpond A	12	70	25	14
Saltpond B	8	61	36	25
Yamuransa	9	63	37	26
Dominase	10	64	49	15
Total	72	465	304	161

Source: GES, Mfantseman Municipality, 2018

Sampling Procedure

A sample is a carefully selected number of units representing the entire population (Sarantakos, 1998). Sarantakos (1998) sees a sample as a subset of a population to which the researcher wants to generalize the findings. Sampling techniques and procedures refer to approaches used for choosing samples by the target population. The method of selecting a part of the population to represent the entire population is known as sampling (Polit & Hungler, 1999). Simple random sampling techniques, specifically the lottery method, was used to select five out of the eight circuits to participate in the study. Simple random sampling was used because, for each circuit, the investigator wanted to give equal opportunities for all teachers in the circuit to participate in the study. That means once a circuit was selected, all the junior high schools within that circuit qualified to be part of the sample. In choosing the circuits, names of circuits in the Municipality were written on pieces of papers, folded, and placed into a container. All the pieces of folded papers were picked one after the other with

replacement. That is, once a paper was picked from the box, and the name is recorded, the paper is placed back into the box. This was done to ensure that all the lists of papers in the box have equal at each round of the picking process. This process was repeated until all the five circuits were picked from the box. At the end of the section process, the following educational circuits within the Mfantseman Municipality were sampled:

1. Anomabo 'A' Circuit
2. Mankessim 'A' Circuit
3. Saltpond 'A' Circuit
4. Saltpond 'B' Circuit
5. Yamuransa Circuit

Overall, there were a total of 300 teachers in all the five circuits that were selected. In the view of Amedahe (2002), a sample size of 5% to 20% of the population was adequate to represent the population. Therefore, a sample size of 300 out of 465, representing 65.8% was considered appropriate. The distribution of teachers in the sampled circuits in terms of their schools and gender in public junior high schools in the Mfantseman Municipality are presented in Table 2.

Table 2: Distribution of sampled JHS schools in terms of gender

Circuits	Number of JHS Schools per Circuit	Number of JHS Teachers per Circuit	Number of Teachers	
			Male	Female
Anomabo A	8	39	43	27
Mankessim A	9	67	48	19
Saltpond A	12	70	25	14
Saltpond B	8	61	36	25
Yamoransa	9	63	37	26
Total	46	300	189	111

The list of five sampled school that were selected for the study are presented in Table 2. The respondents were drawn from Anomabo "A" Circuit, Mankessim "A", Saltpond "A" and "B" Circuits and Yamoransa Circuit. In all 300 respondents made up of 189 male teachers and 111 female teachers from the five circuits were sampled for the study. The number of junior high schools teachers in each circuit, as well as the number of junior high school teachers in each of the sampled schools, are shown in Table 2.

Data Collection Instrument

The primary instrument for data collection was the questionnaire. The questionnaire was made up of only close-ended items. The instrument was divided into sections, with each focusing on each of the research questions that guided the study. They were developed by the researcher based on the issues that emerged from the literature review and in accordance of the research questions and hypothses that quided the study. In each case, respondents were asked to indicate their responses on a four scaled Likert-type scale on the questionnaire by ticking (√) appropriately. The questionnaire requested respondents to indicate the extent to which they Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) to the items on each section of the questionnaire.

The questionnaire consisted of four sections namely, Section A, Section B, Section C and Section D. Section A sought to obtain the teachers' demographic information; section B sought to obtain information on the knowledge of the teachers on the formative assessment. Section C provided information on the assessment of learning practice of teachers and, ultimately, section D requested information on the challenges faced by teachers in

implementing formative assessment in their schools. The major weaknesses of the use of the questionnaire is that, it is unable to do probing into issues that were unclear to both respondents and the researchers.

In validating the research instrument, the skills that were obtained from educational research methods in drafting was applied. After preparing the draft of the questionnaire, I sought inputs from my supervisors and other colleagues, after a critical review of the draft research instrument. After a rigorous review of the instrument, it was pilot-tested for its validity and reliability before the main data collection.

Pilot-Testing of Instrument

The research instrument was piloted in the remaining three circuits in the Mfantseman Municipality, which were not sampled for the study. These were Anomabo "B', Mankessim ' B' and Dominase Circuits. Schools in which the instruments was piloted are also in the same Municipality, so it was expected that the respondents in the pilot-testing of the instrument had similar characteristics as those who were sampled for the study. However, the use of only closed-ended items for the questionnaire post some weaknesses. The opened-ended items were deleted because participants in the pilot-testing did not respond to them. In all, 60 junior high school teachers in the three circuits were used for the pilot-testing of the research instrument to ascertain its validity and reliability. The pilot-test aimed to verify for comprehension and uncertainty of the items on the questionnaire. After the pilot-testing, all items that had low reliability scores were deleted from the questionnaire before the main data collection started.

The results of the pilot-test indicate a Cronbach's alpha coefficient of 0.74 for junior high school teachers' knowledge in the use of formative assessment, 0.76 for teachers junior high school teachers' practice of formative assessment and 0.73 for junior high school teachers' challenges in the use of formative assessment. Furthermore, the results of the pilot-test generated an overall Cronbach's alpha coefficient of 0.74. George and Mallery (2003) provided the following rule of thumb for alpha coefficient: > 0.9 = Excellent, > 0.8 = Good, > 0.7 = Acceptable, > 0.6 = Questionable and > 0.5 = Poor. This implies that the closer the alpha value is to 1.0, the greater the internal consistency of the items on the scale (Gliem & Gliem 2003). This means that the far-away an alpha value is to 1.0, the lesser the internal consistency of the items on the scale (Gliem & Gliem, 2003). Based on the recommendation of George and Mallery (2003), there is a good internal consistency of the items on the questionnaire.

Data Collection Procedure

An introductory letter from the Postgraduate Unit of the College of Distance Education (CoDE) was received. This introductory letter was delivered to the Mfantseman Municipal Directorate of Education at Saltpond for authorization to collect information for the study. Before I was allowed access to the participating schools, we delivered a copy of the introductory letter to the Municipal Directorate of Education to seek permission to enable us to administer the research instrument. At each of the participating schools, we consulted the headteacher to explain the main objective of the study and sought approval for the collection of information. In each of the schools, a copy of the permission letter was handed over to headteacher for permission to administer

the questionnaires. The respondents were asked to complete the questionnaire and return it within two days.

Data Processing and Analysis

Data were coded to identify for successful numerical analysis and interpretation of the information before the assessment. Software version 25 of the service solution Statistical Package for Social Sciences (SPSS) was used to analyze data. The results that emerged from the data analysis were presented in tables and figures with frequencies and percentages to support interpretation and discussion of the results. All items on the questionnaire were coded. The four-points Likert type scale has (Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1). They were ranked 4-1, with four, being the highest and one, the lowest in the case of positive statements and ranked 1-4, with one, being the highest and four being the lowest for instances where we have negative statements that were indicated. In the case of the background information of the respondent, percentages and frequencies were used to interpret the results.

For Research Questions One, Two and Three, Means (M) and Standard Deviations (SD) were used to analyze the data and interpret the results that emerged from the study. Since the four Likert-type scales were used for the questionnaire, with 4 being the maximum value and 1 being the minimum value, the case of positive statement and with 1, being the maximum value and 4 being the minimum value in the case of a negative statement, this implies that a common criterion was set for all mean scores (thus, mean score < 2.5 and mean score > 2.5). This means all mean scores above 2.5 were indications of the higher mean score, while mean scores below 2.5 imply lower mean score. One-

way Analysis of Variance (ANOVA) was used to test for this hypothesis 1 while 2 hypothesis was tested using the Pearson Product Moment Correlation to find out the relationship between teachers knowledge and the practice of formative assessment.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The research aimed to explore junior high school teachers' knowledge and challenges face in the practice of formative assessment in the Mfantseman Municipality of the Central Region of Ghana. This chapter presents the analyses of the data and discussion of the results that emerged from the study. The analyses of the data and the discussions of results were done in line with the research questions and hypotheses that guided the study. The study was guided by three research questions and two hypotheses. The data was analysed using frequency distributions, percentages, means and standard deviations. The first part of the discussion of the results deals with the demographic characteristics of the respondents. The results of the study are provided in four parts in the second strand based on the questions asked for the study. The study was guided by the following research questions and hypotheses:

Research Questions

1. What knowledge do junior high school teachers in the Mfantseman Municipality have in formative assessment?
2. What skills do junior high school teachers in the Mfantseman Municipality have in the practice of formative assessment?
3. What challenges do junior high school teachers in the Mfantseman Municipality face with the implementation of formative assessment strategies in their schools?

Research Hypotheses

1. H_0: There is no statistically significant difference in junior high school teachers' knowledge in formative assessment in the Mfantseman Municipality.

   H_1: There is a statistically significant difference in junior high school teachers' knowledge on formative assessment based, on experience in the Mfantseman Municipality.

. H_0: There is no statistically significant relationship between junior high school teachers' knowledge and practice of formative assessment in the Mfantseman Municipality.

H_1: There is a statistically significant relationship between junior high school teachers' knowledge and practice of formative assessment in the Mfantseman Municipality.

For the analyses and discussion of Research Questions One, Two and Three, Means (M) and Standard Deviations (SD) were used to analyse the data for the study. A common criterion was set for all mean scores (thus, mean score < 2.5 and mean score > 2.5). This means all mean scores above 2.5 were indications of the higher mean score, while mean scores below 2.5 imply lower mean scores. In the case of positive statements, a mean of 2.50 and above indicates respondents' agreement with the factors while a mean of 2.49 and below indicates respondents' disagreement with the factors. Again, in the case of negative statements, a mean of 2.50 and above indicates respondents' disagreement with the factors while a mean of 2.49 and below indicates respondents' agreement with the factors.

Demographic Characteristics of the Respondents

The teachers' demographic attributes were considered as the teaching

experiences of respondents. This demographic information enhanced the understanding of the respondents' category that participated in the study. The results on the teaching experience of the respondents is presented in Table 3. The Table 3 shows that, majority 151 (50.3%) of the respondents have taught for 6-11 years. Also, 104 (34.7%) of the respondents have taught for between 0-5 years.

Table 3: Distribution of Teaching Experience of Respondents

Year Range	Frequency	Percentage
0 – 5 years	104	34.7
6 – 11 years	151	50.3
12 – 17 years	23	7.7
18 and years	22	7.3
Total	300	100.0

Source: Field Study (2015)

Moreover, 23(7.7%) of the respondents indicated that they have taught for between 12-17 years. Notwithstanding, 22(7.3%) had been teaching for 18 years and above. The result that most respondents have taught for between 6-11 years indicates that they have enough teaching experience to provide adequate information about formative assessment practices

Junior High School Teachers' Knowledge on Formative Assessment

The results of junior high school teachers' knowledge of formative assessment were shown in Table 4. The main goal of this research question was to examine the awareness of the teachers of junior high schools on formative assessment. On a four-point, Likert-type scale, the positive statements were coded (1 = strongly disagree, 2 = disagree, 3=agree, and 4 = strongly agree),

and the negative statements being coded (4 = strongly disagree, 3 = disagree, 2 = agree, and 1 = strongly agree). Teachers were asked to indicate their levels of agreement or disagreement with statements posed by the researcher on the knowledge being conversant with formative assessment strategies.

In Table 4, it was obvious that the majority of junior high school teachers in the Mfantseman Municipality acknowledged that they know formative assessment (M = 2.88; SD = .76).

Table 4: Junior High School Teachers' Knowledge of Formative Assessment

Statements Formative assessment …	N=300 Mean	Std. Deviation
provides information on how well schools are doing.	3.60	0.589
is done to determine the effectiveness of my instruction.	3.38	0.620
is a way to determine how much students have learned from teaching.	3.35	0.695
is not done to determine student grades.	3.23	0.619
is done before teaching a topic or skill.	3.08	0.783
establishes what students have learned	3.07	0.839
is done to monitor students' learning progress.	3.02	0.822
results should be treated cautiously because of measurement error.	3.00	0.860
is an engaging and enjoyable process for students	2.87	0.804
results are filed and ignored	2.78	0.791
identifies how students think.	2.73	0.758
provides feedback to students about their performance	2.66	0.903

is not assigning a grade or level to student work.	2.62	0.942
is comparing students' work against a set criteria.	2.61	0.678
Information, modifies on-going teaching of students.	2.57	0.712
do not help students improve their learning.	2.23	0.814
places students into categories.	2.09	0.702
Mean of Means	**2.875**	
Mean of Standard deviations		**0.76**

Source: Field Survey, 2019

This result confirmed the findings of Shepard (2005) who pointed out that formative assessment can immediately improve learning, as it happens when teaching is underway and can serve as a basis for providing appropriate input to enhance student learning. Likewise, Boston (2002), who argued that when teachers know how learners develop and where they have difficulties, they can use this data to create the required learning improvements, such as trying new methods of teaching or providing more exercise opportunities for students to try their hands on. Such exercises can lead to better learner instruction. However, the research respondents disagreed (M = 2.23; SD = .81) that formative assessment does not improve students' learning. This means that most of the respondents agreed that formative assessment improves junior high school students' learning in the Mfantseman Municipality. This was an indication that, junior high school teachers in the Municipality agrees the usefulness of formative assessment in the teaching and learning interaction. The statement, "formative assessment, places students into categories that had a mean score of below the average (M = 2.09; SD = .70). This result also means that, some teachers knowledge on formative assessment places the student into categories.

However, Amoako, Asamoah and Bortey (2019) concluded that, in the wake of a situation where teachers possess only little knowledge of formative assessment strategy. There is therefore, the likelihoods that classroom assessments for learning are rigged with flaws, which eventually deviate from its targeted purpose. This suggests that, teacher knowledge and skills are essential for the use of formative assessment because, formative assessment included relationships between teachers and learners and colleagues. This requires teachers to shift their pedagogical values from a teacher-centred strategy to a student-centred strategy. It, therefore, implies that the teachers' knowledge in the use of formative assessment is relevant to enhancing teachers' ability to adapt and adjust new approaches and methods of formative assessment to their specific context. These findings suggest that junior high school teachers in the Mfantseman Municipality have relevant knowledge and skills in the use of formative assessment.

Junior High School Teachers Skills in the Practice of Formative Assessment

Research Question 2 sought to find out the skills of junior high school teachers in the practicing of formative assessment in the Mfantseman Municipality. In answering this research question, the respondents (teachers) were required to indicate their level of agreement or disagreement with statements on Section C of the questionnaire in Appendix A. The results that emerged from the analysis were presented in Table 5.

The overall mean score and standard deviation, respectively (3.23; .67) in Table 5, shows that most junior high school teachers in the Mfantseman Municipality practice formative assessment. These imply that most junior high

school teachers in the Mfantseman Municipality, use formative assessment to enhance their approaches to teaching and learning and better understanding of the challenges their teachers' face during a classroom lesson. This finding is consistent with Dunn and Mulvenon (2009), who demonstrated that, the use of formative assessment provides information for improvement in instructional practices. Dunn and Mulvenon added that, formative assessment helps to identify gaps in the curriculum and contributes to increasing students' performance.

Table 5: Junior High School Teachers' Practice of Formative Assessment

Statements	N=300 Mean	Std. Deviation
I use individual students' results for decision-making on individual student.	3.62	0.195
I use assessment results to guide my teaching	3.58	0.614
I ask questions during the lesson to assess the whole group's progress.	3.58	0.663
I provide students with multiple options to demonstrate their learning.	3.43	0.405
I use assessment results to evaluate class progress.	3.40	0.590
I provide students enough time to internalize feedback and apply it in a meaningful way.	3.36	0.765
I make adjustments to instruction, during the lesson, based upon student responses.	3.08	0.704
I ask questions during the lesson to assess individual student learning progress.	3.06	0.861
I analyze student responses and work to identify patterns of understanding during the lesson.	3.04	0.744
I use follow-up questions when assessing students.	2.98	0.633
I engage students in peer assessments.	2.90	0.950

I inform students of the objectives of the assessment before the assessment begins.	2.78	0.990
Mean of Means **Mean of Standard deviations**	**3.234**	**0.676**

Source: Field Survey, 2019

Common formative assessments comprise on short questions and writing tasks that are aligned to standards and are administered to all learners in a specific grade. Normally, these assessments resemble an assortment of assessment items learners will face during examinations (Frey & Fisher, 2009). This finding supports the view of Berry (2008), who argued that formative assessment evaluates learniners' understanding of the as well as providing inputs to the students.

Challenges Junior High School Teachers Face in the Implementation of Formative Assessment in their Schools

Research Question Three, sought to investigate challenges faced by junior high school teachers in the Mfantseman Municipality with regards to the implementation of formative assessment in their schools. Items in Section D on the questionnaire, focued on the challenges teachers encountered in utilizing formative assessment practices in their schools. Please refr to Appendix A for the items. The results that emerged from the analysis were presented in Table 6.

Overall, junior high school teachers in the Mfantseman Municipality (M = 2.56: SD = .99) admitted that they face challenges with the implementation of formative assessment in their schools. One of such challenges in the view of the teachers was the difficulties they faced in engaging students to discuss their lessons in smaller groups (M = 2.67: SD = 1.042). This difficulty could probably be attributed to the large class sizes in most public basic schools in the

Municipality.

Teachers also reported that, they faced challenges in using students' formative assessment scores generated through peer-assessment to inform future teaching and learning interactions (M = 2.65; SD = 1.082). However, the teachers disagreed to the statement that, they allow students to engage in self–assessment (M = 2.47; SD = 1.09). This implies that teachers generally do not approved of students self-assessment as a useful teaching and learning tool in their schools.

Table 6: Challenges that Junior High School Teachers Face in Respect to Implementation of Formative Assessment in their Schools

Statements I find it difficult to …	N=300 Mean	Std. Deviation
engage students in a discussion regarding lessons taught in small groups.	2.67	1.042
use of scores generated through student peer-assessments to inform future teaching and learning.	2.65	0.918
assessment of problem-solving skills.	2.65	1.082
assessment of individual class participation.	2.62	0.986
reasons why students make mistakes.	2.62	1.026
analysis of student responses and work to identify patterns of understanding/misunderstanding within the lesson.	2.53	0.966
use of assessment results for decisions-making.	2.52	0.955

use assessment results to plan to teach.	2.52	0.997
generation of feedback loops during classroom discourse to discuss students' feedback with them.	2.51	0.934
allowing students to engage in self-assessments.	2.47	1.089
Mean of Means	**2.56**	
Mean of Standard Deviations		**0.99**

Source: Field Survey, 2019

The findings support the view of Watson (2006), who found that, it was difficult for educators to use formative assessment to direct further teaching. Watson's study further found that teachers lacked the skills to link formative assessment results and feedback information to gain knowledge of where students are and how to push them forward.

Hypotheses Testing

The study tested two research hypotheses. These were:

$H_0$1: There is no statistically significant difference in junior high school Teacher's knowledge in formative assessment basis, of their teaching experience in the Mfantseman Municipality.

$H_0$2: There is no statistically significant relationship between junior high school teachers' knowledge and practice of formative assessment in the Mfantseman Municipality.

For analysis and better interpretation of Research Hypothesis One (**$H_0$1)**, a One-way Analysis of Variance (ANOVA) was conducted based on years of teaching experience to establish whether there is any difference between teachers' knowledge formative assessment skills. Before conducting the One-

way ANOVA, the assumptions of normality, linearity and homoscedasticity (homogeneity of variance) were checked as indicated in Appendix A. The results of the assumptions of normality, homoscedastic and linearity were presented in Appendices A, B and C were all satisfied. The results that emerged from the study were presented in Table 7.

Table 7: Descriptive Statistics of Teachers' Teaching Experience

Teaching Experience	Frequency	Mean	Standard Deviation
0 – 5 years	104	48.19	6.60
6 – 11 years	151	49.15	4.47
12 – 17 years	23	50.04	5.90
18 and above	22	49.23	6.26

Source: Field Data (2019)

The result in Table 7 shows that, the mean scores of teaching experience vary. The results indicated that, there were variations in the several years of teaching experience among the teachers. The descriptive statistics for the means of the variables - teachers' knowledge (M_1) and teaching experience (M_2), were presented in Table 8.

Table 8: Descriptive Statistics for Teachers' Knowledge and Teaching Experience

Variables	Mean	Standard Deviation	Count (N)
Teachers' Knowledge	48.89	5.54	300
Teaching experience	1.88	.84	300

Source: Field Data (2019)

The overall mean (M_2) of the teaching experience was 1.88, and teachers' knowledge of formative assessment (M_1) was 48.89. Nevertheless, as to whether these means (i.e., M_2 = 1.88 and M_1 = 48.89) are statistically significant in reality, a One-way ANOVA was used to determine the significant difference (or equality). The result was presented in Table 9.

Table 9: ANOVA Results Comparing Teachers' Knowledge of Formative Assessment Based on Teaching Experience

Model	Sum of Squares	df	Mean Square	F	Sig (P-Value)	Accept Region (P > .05 or P ≤ .05)
Between Groups	70.68	17	4.16	8.49	.001	We fail to Accept H_0
Within Groups	139.75	282	.50			
Total	210.44	299				

Source: Field Data (2019)

Results from Table 9 shows that junior high school teachers' knowledge about formative assessment based on teaching experience is statistically significant ($p < .05$). Statistically, $F(17, 282) = 8.39$, $p = .001$.

The inferences drawn from the ANOVA table, shows that, the mean (M_2) of teaching experience is different from the mean (M_1) of the teachers' knowledge about formative assessment. In other words, the difference between the means of the teaching experience and teachers' knowledge of formative assessment is big enough to be statistically significant. As a result, it is more likely to reject the null hypothesis that "there is no statistically significant

difference in junior high school teachers' knowledge about formative assessment based on teaching experience.

However, the results from the above one-way ANOVA do not indicate which of the four groups (in years) of teaching experience differ from one another. However, there are several possibilities which might have resulted in this, for instance, three teaching experienced groups might be similar, with just one group having a different mean, or there could be differences between all four groups. Hence, it is of interest to follow with a post hoc test or a planned comparison among means. In finding the several comparisons between pairs of means, it was prudent to use the Tukey HSD test that controls the alpha inflation, and the results are shown in Appendix C.

A detailed study of the endpoints of the 95% confidence interval in the Table in Appendix C, shows that, we have the same sign (both positive or both negative). This means, zero (0) is not in the interval and we can conclude that the means of the Teacher's Knowledge and Teaching experience are different.

Table 10: Homogeneous Subsets

Dependent Variable: Teacher's Knowledge

Tukey HSD [a, b]

Teaching experience	N	Subset for alpha = 0.05		
		1	2	3
0 – 5 years	104		3.24	
6 – 11 years	151		3.51	3.51
12 – 17 years	23			3.70
18 and above	22	2.86		
Sig.		1.00	.190	.514

Means for groups in homogeneous subsets are displayed.

i. Uses Harmonic Mean Sample Size = 38.033.

ii. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

The results from the Tukey HSD and Homogeneous Subsets Post hoc tests indicated that, mean number of teacher's knowledge on formative assessment based on teaching experience, differed significantly from the years of teaching experience of all groups.

This result is in agreement with research conducted by Young and Kim (2010), which discussed teachers as well as institutional process and features relevant to the uses of formative assessment in the state of Arizona, USA. They found out, that, approximately, one-third of teachers with less than five years of teaching experience, are not at all or partially ready to assess students in their first year of teaching. This simply means that, inexperienced professors or teachers in their schools often do not conduct an assessment due to inadequate knowledge they have on formative assessment. Similarly, Wiredu (2013) investigated teacher assessment practices at nursing schools in Western and Central Regions of Ghana. The study found out that about 69 percent of the teachers who responded, had both a certificate of professional education and teaching experience. It was noted that, the sum of years of teaching experience has a greater impact on assessment procedures, than the certification of an educational professional. That is to say, the teachers are well vested or have adequate knowledge on formative assessment, if they have more teaching experience than teachers who have less than five years of teaching experience. Furthermore, the findings support Hauser (2015) that, formative assessment

methods were not always used by teachers during teaching and this was because of inexperience in teaching.

In conclusion, formative assessment requires time to plan, courage and different kinds of content knowledge and pedagogical knowledge from the teacher. This can, however, be achieved if the teacher has some years of teaching experience and has acquired the adequate knowledge on formative assessment. However, implementing this kind of instruction, is complex and requires deeper and wider knowledge than the knowledge, required in regular teachers' practice. Thus, inexperienced teachers who mainly follow the plan for their lesson, no matter what, and leave the responsibility for understanding to the students without specific support, will perform badly in practising formative assessment.

$H_0$2: There is no statistically significant relationship between junior high school teachers' knowledge and practice of formative assessment in the Mfantseman Municipality.

This hypothesis sought to investigate whether a linear relationship exists between the skills of teachers and the formative assessment process. Thus, we tried to find out if there is a significant correlation between the expertise of educators and the formative assessment activity. Pearson's correlation coefficient was used for the analysis, and the detail of the results is presented in Table 11.

Table 11: Pearson Product-Moment Correlation Coefficient on teachers' knowledge and practice of formative assessment

Count (N)	Sig. (2-Tailed)	Pearson Correlation (r)	Coeff. of Determination (r^2)	Adjusted R-Squared
300	.001	.56	.32	.29

Source: Field Data, (2019) *Significant at P < .05

The result shows the relationship between the teachers' knowledge and the practice of formative assessment. Thus, the coefficient of association between teachers' knowledge about formative assessment and the practices of the formative assessment, was investigated using the Pearson Product Moment Correlation Coefficient. Preliminary analyses were conducted to ensure that normality, linearity, and homoscedasticity were not violated. However, none of the assumptions was found violated as indicated in Appendix C and D; hence the test statistic of Pearson's r was considered. The results indicated that, there was a positive but moderate relationship between the knowledge of teachers and the practice of formative assessment [r = .56, N = 300 and p < .05], with high levels of teacher knowledge of formative assessment being associated with high levels of teachers' practice of formative assessment. This explains that, any improvement or otherwise on teachers' knowledge about formative assessment, would have a direct impact on their professed assessment practices.

Similarly, based on the adjusted r-squared (adj. r^2 = .29), it could be inferred that teachers' knowledge of formative assessment, explains about 29 percent of teachers' practice of formative assessment in their schools. Hence, there is a relatively strong overlap between the variables, teachers' knowledge, and teachers' practice of formative assessment. In Appendix C (scatter plot), how much the points vary from left to right, is how much variation there is in

the teacher's practice of formative assessment variable, and how much the points that vary from top to bottom, represents the amount of variation in the teachers' knowledge in formative assessment variable. That is, other variables account for about 71 percent of training the teacher, for formative assessment. Inferences drawn from the test results, therefore, indicate that, there is a correlation between teachers' knowledge and the practice of formative assessment, thereby failing to accept the null hypothesis. This presupposes that their knowledge influences what they practice.

The findings concluded that most teachers in the Mfantseman Municipality had the basic knowledge of formative assessment practices. It is probably that the inadequate knowledge level of teachers in formative assessment, might take its root from their training in the Universities or Colleges of Education. In Ghanaian Education, it is known that, as parts of teacher's training for either a 3-year diploma in Education or a 4-year degree in Education, teachers (trained teachers) are exposed to the dynamics of assessment, just in a single course within a semester which is not enough to prepare them with the requisite knowledge for the teaching job. Similarly, it is more likely that, teachers in the Mfantseman municipality are not given frequent in-service training, regarding formative assessment which constitutes their poor practice of formative assessment. In this case, we could only expect them to possess but not adequate knowledge for classroom practice. The findings agree with the study conducted by Watson (2006), which concluded that the adequate knowledge and experience in practicing formative assessment, lacks among most teachers which tends to weaken their classroom. The findings also support the study of Amoako, Asamoah, and Bortey (2019), who concluded that, in the

wake of a situation where teachers possess but little knowledge of formative assessment practices, there are more likelihoods that classroom assessments for learning are merely rigged with flaws, which eventually deviate from their targeted purpose.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Introduction

This chapter presents the summary, conclusion, and recommendations of the study. The chapter describes a brief description of the research methods used for the study and the research questions and hypotheses that guided the study. Furthermore, the key findings and conclusions that emerged from the study, are also presented in this chapter. Finally, this chapter suggested areas for further research.

Summary

The purpose of the study was to find out about formative assessment awareness of junior high school teachers in Mfantseman Municipality. Specifically, the study sought to determine teacher's knowledge in formative assessment, teachers' skills in the practice of formative assessments, to identify the challenges faced by junior high school teachers in the practice of formative assessments. Again, the study sought to ascertain whether there is any significant difference between knowledge of formative assessment and teaching experience. The target population was 79 public junior high schools in the Mfantseman municipality. Simple random sampling was used to select five circuits out of the eight circuits in the municipality. A questionnaire was used as the data collection instrument. Means and standard deviations were used for the analysing research questions one, two and three. Hypothesis one was tested using a one-way analysis of variance, and hypothesis two was tested, using Pearson's Product-Moment Correlation Coefficient to determine the

relationship between the knowledge of teachers and the practice of formative assessment.

Key Findings

The following are the key findings that emerged from the study:

1. The study found that, most junior high school teachers in the Mfantseman Municipality, have knowledge in formative assessment.
2. The study also found that, most junior high school teachers in the Mfantseman Municipality, practise formative assessment in their schools.
3. However, because of the level of experience in formative assessment, most teachers still have difficulties in practicing it. Some of the challenges were:
   i. That teachers find it difficult to use scores created by peer-reviews to inform future teaching and learning.
   ii. It was difficult to generate feedback loops during classroom discussions to address input from students.
   iii. It was difficult to evaluate individual class participation.
   iv. It was difficult for students to participate in small group discussions.
4. The study found that, there are statistically significant differences between means of the teachers' years of experience and the knowledge of formative assessment. This means that, the more experienced the teachers are, the more they have knowledge concerning formative assessment.

5. It also emerged from the study that a positive correlation, exists between the knowledge of teachers and the practice of formative assessment.

Conclusions

Based on the findings on the practice of formative assessment by the junior high school teachers of Mfantseman Municipality, the study concluded that the knowledge of teachers about formative assessment is not generally in line with the current practice of formative assessment. However, teachers generally had positive perceptions about what should be assessed, how it should be assessed and the feedback to give to students in line with formative assessment practices. This implies that teachers generally have inadequate training in formative assessment practices.

The study further concluded that, teachers' use of formative assessment practices in junior high schools within the Mfantseman Municipality do not conform to approved practices of formative assessment in general. Furthermore, the study concluded eventhogh, junior high school teachers in the Municipality claimed to have knowledge on formative assessment practices, they do less in terms of practice of it. This implies that, teachers know what they ought to do, but certain factors may be influencing their actual practice of formative assessment. These factors may include; but not limited to operational and structural conditions formative assessment in the schools, professional support systems for teachers to carry out continuous formative assessment in their schools.

Finally, there was no evidence to support the fact that, all teachers have adequate level of knowledge to implement formative assessment in the

classroom. This means that, caution must be taken in generalizing that, all teachers have adequate knowledge, skills, and a positive attitude towards the practice of formative assessment, since no empirical evidence has been found to prove such a relationship.

Recommendations

Based on the findings drawn from the study, the following are recommended:

1. Regular in-service training should be organized by the Mfantseman Municipal Directorate of Education, for teachers in the municipality to equip themselves with current on formative assessment pracices.
2. To ensure that formative assessment is properly practised by junior high school teachers, the Municipal Directorate of Education could organise continuous professional development trainings to sharpen teachers' skills in formative assessment practices.
3. The Municipal Directorate of Education could provide additional support for teachers to carry out the formative assessment practices in their schools. These supports can be in the form of building additional classrooms and providing teaching and learning materials to minimize the challenges teachers face in implementing the practice of formative assessment in their schools.
4. Headteachers should assign experienced teachers to mentor beginning teachers to enable unskilled teachers to acquire more skills in the practice of formative assessment.

Suggestions for further research

The study was conducted in only one Municipality in the country, and it is suggested that, it should be replicated in other districts/municipalities and metropolitan areas in Ghana. Other researchers can also conduct a qualitative study on the challenges of the practice of formative assessment among junior high school teachers in the Mfantseman Municipality.

REFERENCES

Ajogbeje, O. J. (2010). *Break–down of integrated science course content into class–loads for effective teaching.* A paper presented at the Third Quarter 2008 Capacity Building Workshop on Global Perspective on the Teaching and Learning of Integrated Science at the Junior Secondary School level, organized by Ekiti State Universal Basic Education Board [SUBEB] in Collaboration with Capacity Building Consultancy and College of Education, Ikere – Ekiti, February, 2010.

Akyeampong, K. (1997*). Continuous assessment in post-secondary teacher training in Ghana: A case study evaluation*. Unpublished Ph.D. Thesis. University of Nottingham, U.K.

Alt, D. (2015). Assessing the contribution of a constructivist learning environment to academic self-efficacy in higher education. *Learning Environments Research*, *18*(1), 47-67.

Allsopp, D. H., Kyger, M. M., Lovin, L. Gerretson, H., Carson, K. L., & Ray, S. (2008). Mathematics dynamic assessment: Informal assessment that responds to the needs of struggling learners in mathematics. *Teaching Exceptional Children*, *40*(3), 6-16.

Amedahe, F. k. (2002). *Research methods in education.* Cape Coast: Centre for Continuing Education.

Amoako, I., Asamoah, D., & Bortey, J. (2019). Knowledge of formative assessment practices among senior high school mathematics teachers in Ghana. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, *3*(3), 08-13.

Ampiah, J. G., Hart, K., Nkhata, B., & Nyirenda, D. M. C. (2003). *Teachers' guide to numeracy assessment instrument*. Nottingham: University of Nottingham.

Andrade, H. L., Bennett, R. E., & Cizek, G. J. (Eds.). (2010). *Handbook of Formative Assessment in the Disciplines*. New York: Routledge.

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers*. San Francisco: Jossey-Bass.

Armah, B. D. (2013). Mathematics teachers' perception on classroom assessment and practices at the junior high schools in Ghana. A case study at Awutu Senya District. (Master's dissertation, University of Education, Winneba.

Arrafii, M. A., & Sumarni, B. (2018). Teachers' understanding of formative assessment. *Lingua Cultura, 12*(1), 45-52.

Asare, K. (2015). Exploring the kindergarten teachers' assessment practices in Ghana. *Developing Country Studies, 5*(8), 2225-0565

Awoniyi, F. C. (2016). The understanding of senior high school mathematics teachers of school-based assessment and its challenges in the Cape coast metropolis. *British Journal of Education, 4*(10), 22-38.

Bailey, K., & Jakicic, C. (2012). *Common formative assessment: A toolkit for professional learning communities at work*. Bloomington: Solution Tree Press.

Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science, 1*(2), 164-180.

Banerjee, A., & Chaudhury, S. (2010). Statistics without tears: Populations and samples. *Industrial Psychiatry Journal, 19*(1), 60-65.

Bekoe, S. O., Eshun, I., & Bordoh, A. (2013). Formative assessment techniques tutors use to assess teacher-trainees' learning in Social Studies in Colleges of Education in Ghana. *Research on Humanities and Social Sciences, 3(4),* 20-30.

Bekoe, S. O., & Eshun, I. (2013a). Curriculum feuding and implementation challenges: The case of senior high school social studies in Ghana. *Journal of Education and Practice, 4*(5), 39-45.

Bell, B., & Cowie, B. (2001). The characteristics of formative assessment in science education. *Science Education, 85*(5), 536-553.

Bennett, R. E. (2011). Formative assessment: A critical review. *Assessment in Education: Principles, Policy & Practice, 18*(1), 5-25.

Berry, R. (2008) *Assessment for learning*. Hong Kong: Hong Kong University Press. Black, P. J. (1993). Formative and summative assessment by teachers. *Studies in Science Education, 21*, 49-97.

Black, P., & Wiliam, D. (1998a). Assessment and classroom learning. *Assessment in Education, Principles, Policy and Practice*, *5*(1), 7–73.

Black, P., & Wiliam, D. (2005). Lessons from around the world: How policies, polictics and cultures constrain and afford assessment practices. *Curriculum Journal*, *16*(2), 249-261.

Black, P., & William, D. (1998b). Inside the black box: Raising standards through classroom assessment. *Phi Delta Kappan, 80*, 139-144.

Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working inside the black box: Assessment for learning in the classroom. *Phi Delta Kappan, 86*(1), 8-21.

Black, P. (2007, Spring) Full marks for feedback. Make the grade. *Journal of the Institute of Educational Assessors, 2*(1), 18-21.

Bordoh, A., Bassaw, T. K., & Eshun, I. (2014). Social studies tutors' cognition in formative Assessment in colleges of education in Ghana. *Development Country Studies, 3*(11), 1-11.

Boston, C. (2002). *The concept of formative assessment.* Retrieved on 20 February 2018 from http://par eonline.net/getvn.asp?v=8&n=9.

Boud, D., & Falchikov, N. (2006). Aligning assessment with long-term learning. *Assessment and Evaluation in Higher Education, 31(4),* 399-413.

Brookhart, S. M., & Nitko, A. J. (2014). *Educational assessment of students*. New York: Pearson.

Brookhart, S. M., & Bronowicz, D. L. (2003). I don't like writing. It makes my fingers Hurt: Students talk about their classroom assessment. *Assessment in Education: Principles, Policy &Practice*, *10*, 221–242.

Brown, S., & Knight, P. (1994). *Assessing learners in higher education.* London: Kogan Page.

Butler, D., & Winne, P. (1995). Feedback and self-regulated learning: Theoretical synthesis. *Review of Educational Research*, *65*(3), 245–274.

Butt, G. (2010). *Making assessment matter*. London: Continuum.

Carless, D. (2007). Learning-oriented assessment: conceptual bases and practical implications. *Innovations in Education and Teaching International, 44*(1), 57-66.

Carless, D. (2011). *From testing to productive student learning: Implementing formative assessment in Confucian-heritage settings*. New York: Routledge.

Carless, D., Salter, D., Yang, M., & Lam, J. (2011). Developing sustainable feedback practices. *Studies in Higher Education, 36*, 395–407.

Carless, D. (2005). Prospects for the implementation of assessment for learning. *Assessment in Education: Principles, Policy & Practice, 12*(1), 39-54.

Cauley, K. M., & McMillan, J. H. (2010). Formative assessment techniques to support student motivation and achievement. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 83*(1), 1-6.

Chetcuti, D., Murphy, P. & Grima, G. (2006). The formative and summative uses of a professional development portfolio: A maltese study. *Assessment in Education, 13* (1), 97-112.

Chisholm, L. (2005). The making of South Africa's curriculum statement. *Journal of Curriculum Studies, 37* (2), 193-208.

Cole, M., & Scribner, S. (1978). Introduction. In M. Cole, V. John-Steiner, S. Scribner & E. Souberman (Eds.), *Mind in society* (pp. 1-14). Cambridge: Harvard University Press.

Cole, M., & Miyake, N. (2006). Remembering Giyoo Hatano. *Journal of the Learning Sciences, 13*(3), 429–430.

Creswell, J. W. (2008). *Research design: Qualitative, quantitative and mixed methods approach* (3rd ed.). California: Sage Publications.

Cizek, G. J. (2009). Reliability and validity of information about student achievement: Comparing the contexts of large-scale and classroom testing. *Theory Into Practice, 48*(1), 63-71.

Clark, I. (2011). Formative assessment: Policy, perspectives and practice. *Florida Journal of Educational Administration & Policy, 4*(2), 158-180.

Cowie, B. (2005). Pupil commentary on assessment for learning. *Curriculum Journal, 16*(2), 37-151.

Dhindsa, H., Omar, K., & Waldrip, B. (2007). Upper secondary bruneian science students' perceptions of assessment. *International Journal of Science Education, 29*(10), 1281-1280.

Dixon, H., & Haigh, M. (2009). Changing mathematics teachers: Conceptions Of assessment and feedback, teacher development. *An International Journal of Teachers' Professional Development, 13*(2), 173-186.

Dixon, H. R. (2011b). Infusing peer assessment into classroom programmes: Descriptions of practice. *SET: Research Information for Teachers, 2*, 3-10.

Duckor, B., Holmberg, C., & Becker, J. R. (2017). Making moves: formative assessment in mathematics. *Mathematics Teaching in the Middle School, 22*(6), 334-342.

Dunn, K. E., & Mulvenon, S. W. (2009). A critical review of research on formative assessment: The limited scientific evidence of the impact of formative assessment in education. *Practical Assessment, Research & Evaluation, 14*(7), 1-11.

Earl, L. (2003*). Assessment as Learning: Using classroom assessment to maximize student learning*. San Francisco: Corwin Press.

Eshun, I. (2013). Appraisal of colleges of education social studies curriculum vis-à-vis the junior high school (JHS) social studies curriculum implementation in Ghana. *Journal of Education and Practice, 4*(1), 12-18.

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist, 34*, 169–189.

Elwood, J., & Klenowski, V. (2002). Creating communities of shared practice: The challenges of assessment use in learning and teaching. *Assessment & Evaluation in Higher Education*, *27*(3), 243-256.

Ertmer, P. A., & Newby, T. J. (2013). Behaviourism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance improvement quarterly*, *26*(2), 4371.

Fraenkel, J. R., & Wallen, N. E. (2000). *How to design and evaluate research in education* (2nd ed.). New York: McGraw-Hall Inc.

Freeman, R., & Lewis, R. (1998). *Planning and implementing assessment.* London: Kogan Page.

Frey, N., & Fisher, D. (2009). Using common formative assessments as a source of professional development in Urban American School. *Teaching and Teacher Education*, *25*(5), 674-680.

Gardiner, L. F. (2012). Assessment and evaluation in higher education: Some concepts and principles. *The National Academy of Academic Leadership*. Retrieved January 18, 2012, from http://www.thenationalacademy.org/readings/assessandeval.html

Garrison, C., & Ehringhaus, M. (2007). *Formative and sumaative assessments in the classroom.* Dover: Measured Progress.

George, D., & Mallery, P. (2003). SPSS for windows step by step: A simple guide and reference. 11.0 update (4th ed.). Boston: Allyn & Bacon.

Ginsburg, H. P. (2009). The challenge of formative assessment in mathematics education: Children's minds, teachers' minds. *Human Development, 52*(2), 109– 128.

Gipps, C., & Stobart, G. (2003). Alternative assessment. In T.Kellaghan & D. L. Stufflebeam (Eds.), *International handbook of educational evaluation* (pp. 549-575). Dordrecht: Kluwer Academic.

Gipps, C. (1992). *Assessment: A teachers' guide to the issues*. London: Hodder and Stoughton.

Gibbs, G., & Simpson, C. (2004). Conditions under which assessment supports students' learning. *Learning and Teaching in Higher Education, 1*, 3-31.

Gipps, C. (2002). Sociocultural perspectives on assessment. In G. Wells & G. Claxton (Eds.), *Learning for life in the 21st century: Sociocultural perspectives on the future of education* (pp. 73-83). Oxford: Blackwell.

Gliem, J. A., & Gliem, R. R. (2003). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales.* Retrieved on June 12, 2013. https://scholarworks.iupui.edu/ bitstream/handle/1805/344/Gliem+&+Gliem.pdf? sequence=1.

Goodrum, D., Hackling, M., & Rennie, L (2001). *The status and quality of teaching and learning of science in Australian schools*. Canberra Department of Education: Training and Youth Affairs.

Griffin, P., McGaw, B., & Care, E. (2012). *Assessment and teaching of 21st century skills*. New York: Springer.

Gronlund, N. E., & Linn, R. L. (1990). *Measurement and evaluation in teaching*. New York: Macmillan.

Handley, K., Sturdy, A., Findcham, R., & Clark, T. (2006). Within and beyond communities of practice: Making sense of learning through participation, identity and practice. *Journal of Management Studies, 43*(3), 641-653.

Harlen, W. (2004). *A systematic review of the evidence of the reliability and validity of assessment by teachers for summative purposes*. London: University of London.

Harlen, W. (2006). On the relationship between assessment for formative and summative purposes. *Assessment and learning*, *2*, 95-110.

Harlen, W. (2005). Teachers' summative practises and assessment for learning tensions and synergies. *Curriculum Journal, 16*(2), 207 - 223.

Harrison, C., & Harlen, W. (2006). Children's self and peer assessment. In W. Harlen (Ed.), *ASE guide to primary science education* (pp. 183–190). Hatfield, England: Association for Science Education.

Hargreaves, A., Earl, L., & Schmidt, M. (2002). Perspectives on alternative assessment reform. *American Educational Research Journal, 39*(1), 69-95.

Hattie, J. A. (2009). The black box of tertiary assessment: An impending revolution. *Tertiary Assessment & Higher Education Student Outcomes: Policy, Practice & Research*, 259-275.

Hauser, L. D. (2015). Formative assessment strategies: Levels of use by high school English and mathematics teachers. (Master's Thesis and Dissertation, Illinois State University).

Heritage, M., Kim, J., Vendlinski, T., & Herman, J. (2009). From evidence to action: A seamless process in formative assessment. *Educational Measurement: Issues and Practice*, *28*(3), 24-31.

Heritage, M. (2007). Formative assessment: What do teachers need to know and do? *Phi Delta Kappan*, *89*(2), 140-145.

Heritage, M. (2010). *Formative assessment: Making it happen in the classroom.* Thousand Oaks, CA: Corwin Press.

James, M. (2008). Assessment and learning. In S. Swaffield (Ed.), *Unlocking assessment: Understanding for reflection and application* (pp. 20-35). Abingdon: Routledge.

James, M., & Pedder, D. (2006). Beyond method: assessment and learning practices and values. *The Curriculum Journal*, *17*(2), 109-138.

James, M. (2006). Assessment, teaching and theories of learning. In J. Gardner (Ed.), *Assessment and learning* (pp. 47-60). London: Sage Publications.

James, M., & Lewis, J. (2012). Assessment in harmony with our understanding of learning: problems and possibilities. In J. Gardner (Ed.), *Assessment and learning* (2nd., pp. 187-205). Los Angeles: Sage Publications.

Jonassen, D. H. (1991). Objectivism versus constructivism: Do we need a new philosophical paradigm? *Educational Technology Research and Development*, *39*(3), 5-14.

Kahl, S. (2005). Where in the world are formative tests: Right under your nose. *Education Week, 25*(4), 11.

Koh, K., Lim, L., & Habib, M. (2010). Building teachers' capacity in classroom-based formative assessment. In *meeting of the 36th International Association for Educational Assessment Conference, Bangkok, Thailand*.

Kotze, G. S. (2002). Issues related to adapting assessment practices. *South African Journal of Education*, *22*(1), 76-80.

Kumekpor, T. K. B. (2002). *Research methods and techniques of social Research.* Accra: SonLife Press and Services.

Labay, M. (2011). Formative Assessment: A brief overview of its theory and practice in K-12 education. Bradford J. Parks: Oakland University.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, England: Cambridge University Press.

Lidz, C. S., & Gindis, B. (2003). Dynamic assessment of the evolving cognitive functions in children. In A. Kozulin, B. Gindis, V. S. Ageyev & S. M. Miller Bibliography 293 (Eds.), *Vygotsky's educational theory in cultural context* (pp. 99-116). Cambridge: Cambridge University Press.

Linn, R. L., & Miller, M. D. (2005). *Measurement and assessment in teaching* (9th ed.) Upper Saddle River, NJ: Prentice Hall.

Looney, J. W. (2011). *Integrating formative and summative assessment: Progress toward a seamless system*. Retrieved on 26th May, 2010 from: OECD Education Working Papers, No. 58, OECD Publishing. http://dx.doi.org/10.1787/5kghx3kbl734-en

Morris, P., & Adamson, B. (2010). *Curriculum, schooling and society in Hong Kong*. Hong Kong: Hong Kong University Press.

Mpapalika, K. (2013). *Tanzania science teachers' practices and challenges in continuous assessment.* Retrieved on 2nd January 2020 from: http://wiredspace.wits.ac.za/bitstream/ handle/

Muijs, D., & Reynolds, D. (2011). Effective teaching: Evidence and practice. London: Sage Publications.

Murphy, P. (2008). Defining pedagogy. In K. Hall, P. Murphy & J. Soler (Eds.), *Pedagogy and practice: Culture and identities* (pp. 28-39). London: The Open University.

Nicol, D., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199-218.

Nitko, A. J. (2004). *Educational assessment of students* (4th ed.). New Jersey: Pearson Education.

Ogunniyi, M. B. (1991). *Educational measurement and evaluation.* Lagos: Longman Nigeria Limited.

Organisation for Economic Co-operation and Development, (2005). *Formative assessment: Improving learning in secondary classrooms*. Paris: OECD.

Perrenoud, P. (1998). From formative evaluation to a controlled regulation of learning processes. Towards a wider conceptual field. *Assessment in Education: Principles, Policy & Practice, 5*(1), 85-102.

PERI (2009). Report of the Primary Education Review and Implementation Committee. Retrieved on January 28 from http://www.moe.gov.sg/initiatives/ peri/files/perireport.pdf.

Pintrich, P. R. (2000a). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451-502). San Diego, CA: Elsevier Academic Press.

Pinchok, N., & Brandt, W. C. (2009). *Connecting formative assessment research to practice: An introductory guide for educators*. New York: Learning Point.

Popham, W. J. (2006). *Determining the instructional sensitivity of accountability tests*. Paper presented at the Annual Large-Scale Assessment Conference, Council of Chief State School Officers, San Francisco, CA.

Pilot, D. F., & Hungler, B. P. (1999). *Nursing research: principles and methods.* Phildelphia: JB Lippincott Company.

Pryor, J., & Crossouard, B. (2008). A sociocultural theorization of formative assessment. *Oxford Review of Education, 34*(1), 1-20.

Quashigah, A. Y., Eshun, I., & Mensah, M. F. (2013). Influences of the pedagogical content knowledge of graduate social studies teachers on questions they set in senior high schools in Ghana. *Research on Humanities and Social Sciences, 3*(6), 76-86.

Rawlins, P. L. C. (2007). *Students' perceptions of the formative potential of the national certificate of educational achievement.* Doctoral Dissertation, Massey University, USA.

Ray, J. A. (2002). Constructivism and classroom teachers: What can early

childhood teacher educators do to support the constructivist journey. *Journal of Early Childhood Teacher Education, 23*(4), 319-325.

Regier, N. (2012). *Focus on student learning: Instructional strategies series book two: Sixty formative assessment strategies.* New York: Regier Educational Resources.

Robbins, P., & Aydede, M. (Eds.). (2008). *The Cambridge handbook of situated cognition*. Cambridge University Press.

Rogoff, B. (2003). *The cultural nature of human development.* New York: Oxford University Press.

Rogoff, B. (2008). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In K. Hall, P. Murphy & J. Soler (Eds.), *Pedagogy and practice: Culture and identities* (pp. 58-74). London: The Open University.

Roth, W. M. (2008). That nature of scienttific conceoptions: A discursive psychological perspective. *Educational Research Review, 3*, 30-50.

Ruiz-Primo, M. A., Furtak, E. M (2006). Exploring teachers' informal formative assessment practices and students' understanding in the context of scientific inquiry. *Journal of Research in Science Teaching, 44*(1), 57–84.

Rust, C. (2002). The impact of assessment on student learning: How can the research literature practically help to inform the development of departmental assessment strategies and learner-centered assessment practices. *Active Learning in Higher Education, 3*(2), 145- 158.

Sadler, R. D. (2010). Beyond feedback: developing student capability in

complex appraisal. *Assessment & Evaluation in Higher Education, 35*(5), 535-550.

Sadler, R. D. (1998). Formative assessment: Revisiting the territory assessment in education. *Principles, Policy & Practice, 5*(1), 77-84.

Sarantakos, S. (1998). *Social research* (2nd ed.). New York: MaCmillan.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist, 26*(3-4), 207-231.

Shavelson. R. J., Black, P., Wiliam, D., & Coffey, J. (2002). *On aligning formative and summative assessment.* Paper presented at the National Research Council's workshop on Assessment in Support of Instruction and Learning, January 2003.

Shavelson, R. J., Young, D. B., Ayala, C. C., Brandon, P. R., Furtak, E. M., Ruiz-Primo, M. A., & Yin, Y. (2008). On the impact of curriculum-embedded formative assessment on learning: A collaboration between curriculum and assessment developers. *Applied measurement in education, 21*(4), 295-314.

Shepard, L. A. (2005, October). Formative assessment: Caveat emptor. In *ETS invitational conference the future of assessment: shaping teaching and learning.* New York: Educational Testing Service.

Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research, 78*(1), 153-189.

Steiner, V. J., & Mahn, H. (1996). Sociocultural approaches to learning and development: A Vygotskian Framework. *Educational Psychologist, 31*, 191- 206.

Stiggins, R. (2002). Assessment Crisis: The absence of assessment for learning. *Phi Delta Kappan, 8*, 758-765.

Stiggins, R. (2005). From formative assessment to assessment for learning: A path to success in standards-based schools. *Phi Delta Kappan*, *87*(4), 324-328.

Stiggins, R. J. (2001). *Student-involved classroom assessment* (3rd ed.). Upper Saddle River, New Jersey: Prentice Hall.

Swaffield, S. (2011). Getting to the heart of authentic assessment for learning. *Assessment in Education: Principles, Policy & Practice*, *18*(4), 433-449.

Tamakloe, E. K., Amedahe, F. K., & Atta, E. T. (2005). *Principles and methods of teaching*. Accra: Ghana Universities Press.

Taras, M. (2005). Assessment-summative and formative: Some theoretical reflections. *Journal of Educational Studies, 53*(4), 466-478.

Trumbull, E., & Lash, A. (2013). *Understanding formative assessment: Insights from learning theory and measurement theory*. San Franciso: WestEd.

United Kingdom Assessment Reform Group. (2002). *Assessment for learning.* London: United Kingdom Assessment Reform Group.

Valencia, R .R. (2002)). The plight of Chicano students: An overview of schooling conditions and outcomes. In R. R. Valencia (Ed.), *Chicano school failure and success: Past, present, and future* (3-51). New York: Routledge Falmer.

Vandeyar, S., & Killen, R. (2007). Educators' conceptions and practice of classroom assessment in post-apartheid South Africa. *South African Journal of Education, 27*(1), 10–15.

Vik, B. L. (2013). *The assessment of English in two Norwegian upper secondary school*. Unpublished master's thesis, Faculty of Art and Education, University of Stavanger.

Vygotsky, L. (1978). Interaction between learning and development. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society* (pp. 79- 91). Cambridge, MA: Harvard.

Watson, A. (2006). Some difficulties in informal assessment in mathematics. *Assessment in Education, 13*(3), 289-303.

Webb, D. C. (2005). *Classroom assessment as a research context: Variations on a theme of pedagogical decision-making*. Madison, WI: University of Wisconsin Press.

Wiliam, D. (2011). What is assessment for learning? *Studies in Educational Evaluation, 37*(1), 3-14.

Wiliam, D. (2006). Formative assessment: Getting the focus right. *Educational Assessment, 11*(3), 283-289.

Wiliam, D. (2006). Assessment for learning: Why no profile in US policy. In J. Gardner (Ed.), *Assessment and learning* (pp.169-183). London: Sage.William, D. (2008). Changing classroom practice. Educational Leadership Journal. *Association For Supervision And Curriculum Development*. Retrieved May 20, 2012 from: http://www.waikato.ac.nz.

Wiredu, S. G. (2013). *Assessment practices of tutors in the nurses' training colleges in the Western and Central Regions of Ghana*. Unpublished P.hil Thesis University of Cape Coast, Cape Coast.

Yorke, M. (2001). Formative assessment and its relevance to retention. *Higher Education Research & Development*, *20*(2), 115-126.

Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher education 45*(4), 477-501.

Young, S., & Giebelhaus, C. (2005). *Formative assessment and its uses for improving student achievement. Retrieved from* /STIWhite_Pap er.pdf.

Young, V., & Kim, D. (2010). Using assessments for instructional improvement: A literature review. *Education Policy Analysis Archives, 18*(19), 1 – 40.

APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

QUESTIONNAIRE FOR JHS TEACHERS

Dear Respondent,

I am a student of the University of Cape Coast conducting research. The goal of this study is to obtain evidence of formative assessment practices of teachers. I, therefore, solicit your cooperation and consent to participate in this study. The confidentiality of your responses is guaranteed. There is no right or wrong responses, so please feel free to tick (where appropriate) the responses that express your views.

Please indicate your choice by ticking (√) or writing your response where necessary.

SECTION A

Please, kindly tick [√] the appropriate response

Demographic Data

1. Teaching experience: 0 – 5 years [ ]
   6 – 11 years [ ]
   12 – 17 years [ ]
   18 and above [ ]

SECTION B

KNOWLEDGE OF TEACHERS ON FORMATIVE ASSESSMENT

Please, the purpose of this section is to find out the teachers' knowledge on the practice of formative assessment. There is no right or wrong responses, so please feel free to tick (where appropriate) the responses that express your views. You are to select the response that you consider most applicable. The SA means Strongly Agree, A means Agree, D is Disagree, SD means Strongly Disagree.

Instruction: In the tables below for each statement mark how much you agree with a tick [√] in the box to the right of each statement. The responses are on the scale 1-4, where 1 = Strongly Disagree [SD], 2 = Disagree [D], 3 = Agree [A] and 4 = Strongly Agree [SA].

SN	STATEMENTS Formative assessment…	SA 4	A 3	D 2	DA 1
1	Provides information on how well schools are doing				
2	Is not assigning a grade or level to student work				
3	Is a way to determine how much students have learned from teaching				
4	Provides feedback to students about their performance				
5	Is done before teaching a topic or skill.				
6	Is not done to determine student grades.				

7	Is done to determine the effectiveness of my instruction.				
8	Results should be treated cautiously because of measurement error				
9	Is done to monitor students' learning progress.				
10	Places students into categories				
11	Establishes what students have learned				
12	Do not help students improve their learning				
13	Information modifies ongoing teaching of students				
14	Results are filed and ignored				
15	Is comparing student work against set criteria				
16	Identifies how students think				
17	Is an engaging and enjoyable process for students				

SECTION C

HOW TEACHERS PRACTICE THE METHODS OF FORMATIVE ASSESSMENT

SN	STATEMENTS	SA 4	A 3	D 2	SD 1
1	I use assessment results for decision-making about individual students				
2	I inform students of the objectives of the assessment before the assessment begins				
3	I use assessment results when planning to teach				
4	I provide students with multiple options to demonstrate their learning.				
5	I ask questions during the lesson to assess whole group progress.				
6	I provide students enough time to internalize feedback and apply it in a meaningful way.				
7	I ask questions during the lesson to assess individual student progress.				
8	I engage students in peer assessments				
9	I use follow-up questions when assessing students				
10	I make adjustments to instruction during the lesson based upon student responses.				
11	The tasks and activities during the lesson				

	provide evidence of student progress toward learning goal(s).				
12	I analyze student responses and work to identify patterns of understanding /misunderstanding during the lesson.				
13	I use assessment results to evaluate class progress				

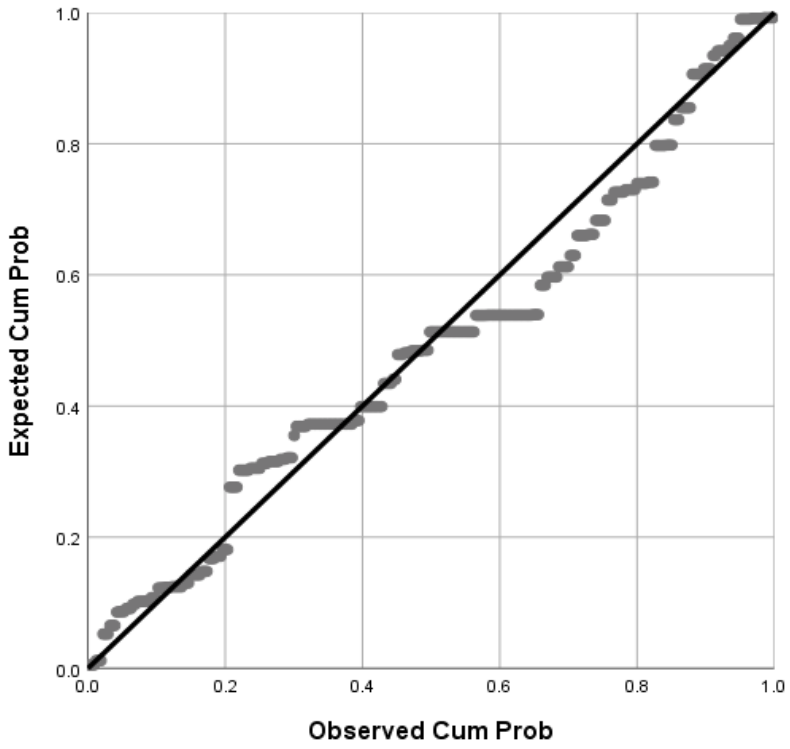
SECTION D

CHALLENGES FACED BY TEACHERS IN PRACTICING FORMATIVE ASSESSMENT

SN	Statements I find it difficult to	SA 4	A 3	S 2	SD 1
1	Review student work during the lesson.				
2	make use of assessment results				
3	Use scores generated through student self-assessments to inform future teaching and learning.				
4	Use scores generated through student peer-assessments to inform future teaching and learning.				
5	Generate feedback loops during classroom discourse to discuss students' feedback with them.				
6	Provide students with opportunities to internalize feedback and apply it in a meaningful way.				
7	Analyze student responses and work to identify patterns of understanding/misunderstanding within the lesson.				
9	Allow students to engage in self-assessments				
10	Assess individual class participation				
11	Assess problem-solving skills				
12	Engage students in a discussion regarding the lesson in small groups.				
13	Use assessment results for decisions				
14	Understand why students make mistakes				
15	Use assessment results to plan to teach				

APPENDIX B

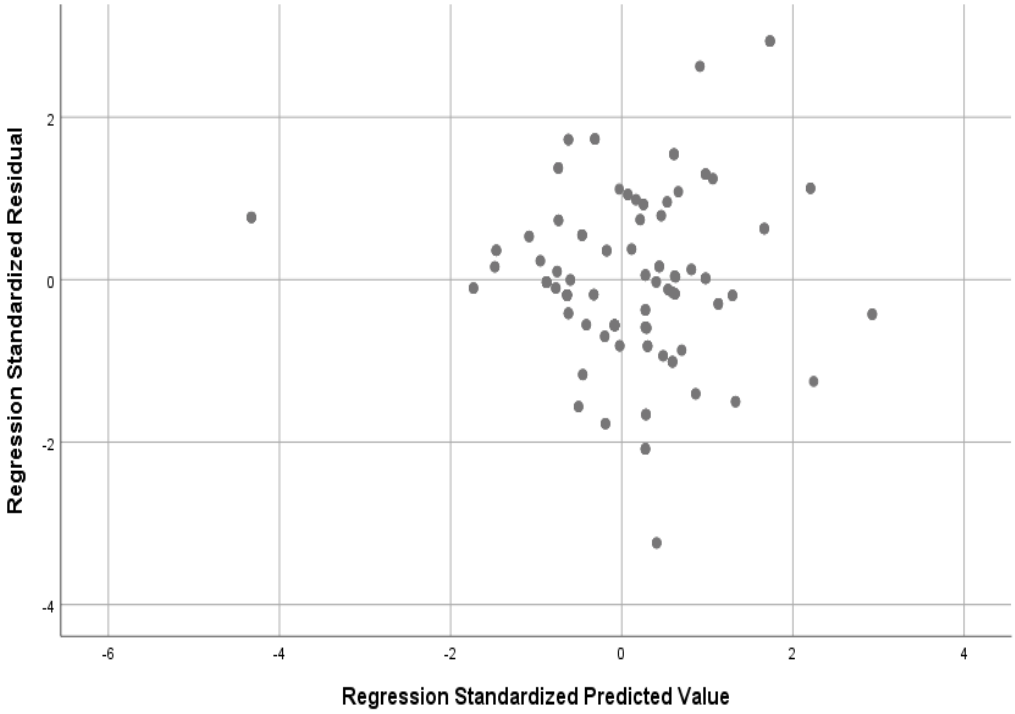
NORMAL P-P PLOT OF REGRESSION STANDARDIZED RESIDUAL



Source: Field Data, (2019)

APPENDIX C

SCATTER PLOT SHOWING THE HOMOGENEITY OF VARIANCE



Source: Field Data (2019)