UNIVERSITY OF CAPE COAST

TEACHERS' KNOWLEDGE AND PRACTICE OF PERFORMANCE-BASED ASSESSMENT IN THE JUNIOR HIGH SCHOOLS IN THE BEREKUM MUNICIPALITY, GHANA

BENJAMIN SUNDEME

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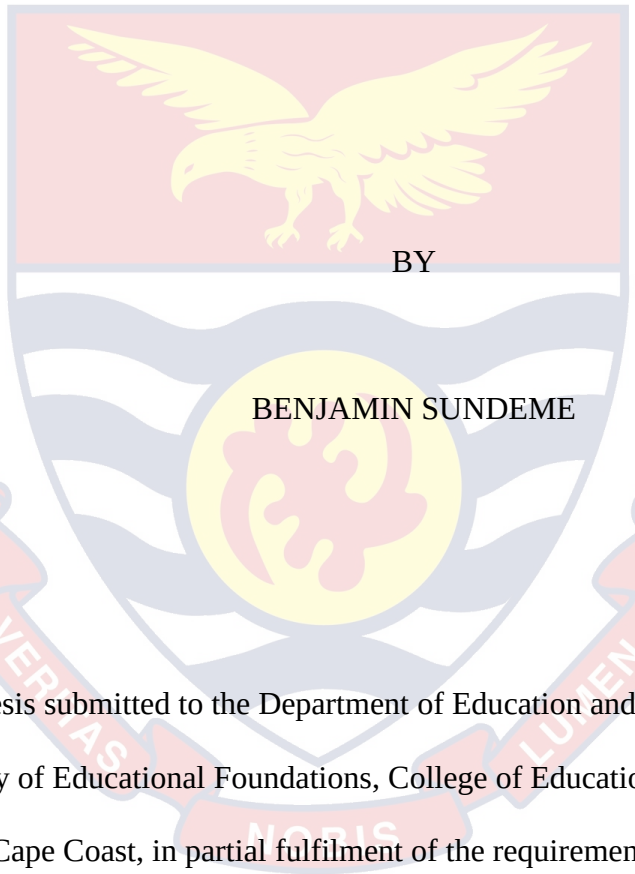

BY

BENJAMIN SUNDEME

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 requirements for the award of Master of Philosophy Degree in Measurement and Evaluation

JULY 2019

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own 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 on 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 assess the knowledge and practice of performance-based assessment among Junior High School teachers in the Berekum Municipality of the Brong-Ahafo Region of Ghana. The study adopted a descriptive survey research design procedure with a quantitative approach. The study employed the census sampling procedures in sampling 588 Junior High School teachers in the Berekum Municipality. Questionnaire and a documentation checklist were used for the research study. The study revealed that Junior High School teachers in the Berekum Municipality are not abreast with what Performance-Based Assessment entails. The study revealed that in the practice of Performance-Based Assessment in the Berekum Municipality, most of the teachers were not really practicing the Performance-Based Assessment because they lacked the required knowledge and skills needed to practice it. It was further evident that Junior High School teachers in the Berekum Municipality were challenged in terms of time factor, insufficient knowledge, lack of attention from policy makers, too much workload, teaching of large classes and lack of practical materials. It was recommended that Junior High School teachers in the Berekum Municipality be retrained on Performance-Based Assessment so that they would know what it is and how it could be applied. This could be done by Ghana Education Service in liaising with measurement and evaluation experts in the University of Cape Coast.

KEYWORDS

Knowledge

Practice

Performance based assessment

Classroom assessment

Assessment practice

ACKNOWLEDGMENTS

A thesis of this nature could not have been accomplished without a certain amount of guidance and support from others. It is in this direction that I wish to express my heartfelt appreciation to my supervisors Prof. Y. K. A Etsey and Dr. Kenneth Asamoah-Gyimah of the University of Cape Coast for their constructive criticisms, suggestions and support which helped to make this work a success.

I am also indebted to my God father, Prof. Eugene K.M. Darteh for his continuous encouragement and support, and to all my family members especially, my parents and my brother and sisters who have contributed a lot to bring me this far.

I am also thankful to the Municipal Director of Education, head teachers and teachers in the Berekum Municipality of the Brong-Ahafo Region of Ghana where the data for the study was collected. Their patience and willingness to participate in the study and immense support throughout the data collection is highly appreciated. I am equally grateful to all my friends for their constant reminder that gave me the urge to work towards the completion of this work.

DEDICATION

In memory of my father

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CHAPTER ONE

INTRODUCTION

Assessment in Ghana's educational institutions are designed to measure either curriculum-based (classroom instructional) achievement and or a variety of student traits. The development of any nation or community largely depends upon the quality of education available to its citizens. It is generally believed that the basis for any true development must commence with the development of human resources. Hence, formal education remains the vehicle for social-economic development and social mobilization in any society. Basic education is the foundation on which further education is built (Adane, 2013**)**. The quality of education can only be measured through testing and assessment hence the importance attached to it by all administrators, supervisors, teachers, stakeholders and learners in the Ghanaian educational system. Tests such as career interest, attitudes, and personality tests, according to Allen (2005), assess a variety of student's traits other than curriculum-based achievement. Tests that are performance-based assess the goals or objectives of the curriculum a student is mastering.

Background to the Study

Assessment, defined as "a systematic process for gathering data about student achievement," (Dhindsa, Omar & Waldrip, 2007, p. 3) is an essential component of teaching. As Struyven, Dochy, Janssens, Schelfhou, and Gielen (2006) argue, the impact of assessment is significantly observable on students' performance. Dhindsa et al. (2007) noted that examining students' perceptions

of assessment stimulates students to develop an authentic and realistic assessment approach that "rewards genuine effort and in depth learning rather than measuring luck" (p. 1262).

Classroom assessment is seen as helpful because it gives a more immediate measure of progress and achievement of learners. It guides and improves instruction, diagnoses learners' knowledge of a topic (Hurley & Tinajero, 2001) provides day-to-day help with teaching and learning, as well as helps teachers identify the weaknesses and strengths in their instruction and encourage them to continuously search for ways to improve teaching (Shepard, 2005).

Globally, there has been a paradigm shift in assessment in schools to include alternative, performance-based assessments in many countries, such as United Kingdom (U.K.) (Assessment Review Group, 2002; Black & Wiliam, 1998; Office for Standards in Education, 2003; Task Group on Assessment And Testing, 1988), United States America (U.S.A.) (Bol, Nunnery, Stephenson, & Mogge, 2000), Canada (Stiggins & Conklin, 1992), and Australia (Ross, Hogaboam-Gray, & Hannay, 2000) .The main reasons proffered in support of the need for such a paradigm shift in assessment are that existing assessment practices are inadequate and ineffective in assessing the valued outcomes of student learning and in providing valid and reliable measures of achievement in schools (Black & Wiliam, 1998). The criticisms made of current assessment and instructional practices is noted to be that teachers often fail to teach and assess the kinds of skills and knowledge which have lasting value for students (Wisconsin Examination Association Council, 1996).

In Ghana, the 1987 educational reform by the Dzobo committee indicated the need for a shift from the elitist reform of 1966 by the Kwapong Review Committee to an educational reform tailored towards the impartation of practical skills to pupils. In 2007, the Ghana Education system was further reviewed owing to some failures of the Dzobo committee's report by the Anamuah-Mensah committee with the objectives of implementing a new educational system to ensure that, education results in the formation of well-balanced and adjusted individuals with the requisite knowledge, skills, values, aptitudes, and attitude. In order to become functional and productive citizens, a student needs to be trained to become enterprising and adaptable to the demand of the world driven by modern science and technology. This is also to support a nation and build a knowledge-based economy within the next generation and improve the quality of life of all Ghanaians (Kuyini, 2013).

This can be done by empowering people to create the wealth needed for radical socio-economic and political transformation and consequently overcome poverty and develop technical, agricultural, and vocational education (Walvoord, 2004). This is in line with the Criterion Reference Test (CRT) which describes performance in assessment in terms of the kind of task a person can do, focusing on the establishment of a person's level of performance (Etsey, 2012). According to Black, Harrison and Lee (2003) and Black and Wiliam (2003), assessing students based on their practical skills brings to bear an increasing realisation that assessment has an influence to enhance and shape student learning have justified the movement of assessment in schools from traditional test based to an alternative performance-based

forms of assessment with an argument that such a shift will make a strong contribution to the improvement of learning in schools.

As Struyven et al. (2006) argue, the impact of assessment is significantly observable on students' performance. The way students approach learning determines the way they think about classroom assignments and tests (Struyven et al, 2006). Recent studies advocate for including students in the process of developing assessment tools because, as Falchikove (as cited in Ounis, 2017) states, student involvement in peer assessment adds more value to the learning process. Dhindsa et al. (2007) note that examining students' perceptions of assessment stimulates students to develop an authentic and realistic assessment approach. Thus, in order to support this concept, studies suggest that students should be held responsible for their learning, including their perceptions of assessment seems to hold promise.

Goldman and Pellegrino (2015) and Shepard (2000) suggested that classroom assessment can be improved in order to increase learning, such as the content and the characteristics of assessment, utilisation of assessment results and integration of assessment as a course in educational programmes. Classroom assessment is integral to effective instruction and learning in the educational system of Ghana. Teachers administer their own assessment and report the results to pupils, parents and the public in general. Assessment has been found to be an effective method for the improvement of learners' learning in schools (Faleye & Dibu-Ojerinde, 2005). It provides opportunities for classroom practice thus providing good ground for self-assessment (Boston, 2002). Teachers are expected to use the assessment to guide effective

decision-making particularly with respect to the identification, remediation and ongoing evaluation of learners (Black & Wiliam, 1998).

Teachers are expected to be assessment literate and capable of using such knowledge to inform instructional practice, yet despite these expectations, limits in teachers' assessment, knowledge and training are well documented (Campbell & Evans, 2000). Airasian (1991) concludes that for many people, the words "classroom assessment" evoke images of pupils taking paper and pencil tests, teachers scoring them and grades being assigned to learners based on their test performance. There is a misleading tendency to equate assessment with tests and examinations. Some teachers are hesitant to use different types of assessment because the teachers feel they do not know enough to assess learners fairly using them (Airasian, 1991).

According to Burns (2005), the insight gained by making assessment a regular part of instruction helps to meet the needs of the students who are eager for more challenges and provide intervention for those who are struggling. Classroom assessment has been generally divided into three types, viz, assessment for learning (formative assessment), assessment of learning (summative assessment) and assessment as learning (diagnostic assessment) (Burns, 2005; McNamee & Chen, 2005).

In defining performance-based assessment as a component of classroom assessment, Nitko (2004) indicated performance-based assessments as tangible and reliable tasks that demand students to do something with their knowledge and skills, such as give a demonstration or presentation, or write a report on what they have been taught.

A performance-based assessment is one which requires students to demonstrate that they have mastered specific skills and competencies by performing or producing something. Advocates of performance-based assessment call for assessments of the following kind: designing and carrying out experiments; writing essays which require students to rethink, to integrate, or to apply information; working with other students to accomplish tasks, demonstrating proficiency in using a piece of equipment or a technique, building models, developing, interpreting, and using maps, making collections, writing term papers, critiques, poems, or short stories; giving speeches, playing musical instruments, participating in oral examinations, developing portfolios, developing athletic skills or routines (Allen, 1996).

According to Lane (2011), performance-based assessment has been an integral part of educational systems in many countries, but then, it has not been fully integrated in assessment systems in some countries. Research has shown that the format of the assessment affects the type of thinking and reasoning skills that are used by students, with performance-based assessment is being better suited to assessing high level, complex thinking skills (Lane, 2011). According to Lane, recent advances in the design and scoring of performance-based assessments, including computer-based task simulations and automated scoring systems support their increased use in large-scale assessment programmes.

There are also promising technical advances that support their use. The educational benefit of using performance-based assessments has been demonstrated by a number of researchers (Lane, 2010). When students are sometimes given the opportunity to work on meaningful, real world tasks in

instruction, students demonstrate improved performance on performance-based assessment (Lane, 2010). Sound educational practice calls for the alignment among curriculum, instruction and assessment, and there is ample evidence to support the use of performance-based assessment in both instruction and assessment to improve student learning for all students (Lane, 2010). This brings to the understanding that performance-based assessment by and large is of significance and can serve as a core component of uncovering the hidden potentials of students when holistically practiced by teachers.

Statement of the Problem

Goodrum, Rennie and Hackling (2001) stated that, ideally, performance-based assessment "enhances learning, provides feedback about student progress, builds self-confidence and self-esteem, and develops skills in evaluation" (p. 2). In addition, they argue that effective learning occurs when correspondence exists between teaching, evaluation, and results. Therefore, due to its close relation with instruction and learning outcomes, performance-based assessment has a key role in learning. Assessments are created, administered and analysed by teachers themselves on questions that are important to them. In other words, teachers are expected to be literate and capable of constructing valid and reliable assessment instruments in order to inform the instructional process. Despite these expectations, limits in teachers' performance-based assessment knowledge and training are well documented (Brookhart, 2001; Campbell & Evans, 2000). Hill (2000) reported that teachers experienced difficulty in designing school systems assessment, in which assessment was used mainly for improving learning through focused teaching rather than where summative reporting dominated.

A similar study in Turkey indicated that, "changes introduced regarding the assessment system with the new curriculum have not entered the classrooms yet, mainly because of the lack of knowledge and skills of teachers." (Cimer & Cakır, 2010, p.7). This study investigated Biology teachers' knowledge and practices of performance-based assessment introduced with the recent curriculum reform in Turkey. Data for the study was collected through a questionnaire and in-depth interviews with 22 Biology teachers working at secondary schools from both rural and urban areas of Trabzon, Turkey.

Boakye (2016) revealed that most Ghanaian teachers had limited skills for performance-based assessment. According to Stiggins (as cited in Agu, Chappuis, & Stiggins 2013), a number of possible reasons could be deduced for such deficiency. It may be either that the teachers' pre-service training did not prepare them adequately for classroom assessment due to little emphasis on assessment during their professional development or that most of the teachers failed to acquire classroom assessment skills needed for quality test item generations while in training.

Previous studies indicated lack of skills and competency in tutors' knowledge in assessment practices in the Teacher Training Colleges (Amedahe, 1989; Etsey, 2003). However it appears there is not much empirical investigation on basic school teachers' knowledge and practice of performance-based assessment in Ghana. As it is, presumably, the phenomena of inadequate knowledge and practice of performance-based assessment seems not to be different among teachers in Berekum Municipality.

The Berekum Municipality is one of the various districts in Ghana that outsource assessment instruments from private examination bodies to assess pupils at the end of the term (Brong Ahafo Regional Education Report, 2016). This therefore gives me the urge to conduct an empirical study to ascertain the knowledge and practices of teachers in performance-based assessment in the Berekum Municipality.

Purpose of the Study

The main purpose of the study is to assess the knowledge and practices of performance-based assessment of Junior High School teachers in the Berekum Municipality.

Objectives of the Study

The study was guided by the following objectives:

1. Examine the knowledge level of Junior High School teachers about performance-based assessment in the Berekum Municipality
2. Assess how Junior High School teachers practice performance-based assessment in the Berekum Municipality
3. Establish challenges faced by Junior High School teachers in the practice of performance-based assessment.
4. Find out the relationship between Junior High School teachers' knowledge level in performance-based assessment and their practice level.
5. Explore the difference between the educational qualifications of teachers with respect to practice of Performance-Based Assessment in the Berekum Municipality.

6. Explore the difference in teachers' years of experience with respect to knowledge in Performance-Based Assessment in the Berekum Municipality
7. Suggest ways that can be employed to improve Junior High School teachers' knowledge and their practice of performance-based assessment.

Research Questions

To address the objectives of the study, a number of research questions were outlined in order to guide the study towards achieving the stated objectives. These research questions are delineated as follows:

1. What level of knowledge do Junior High School teachers have about Performance-Based Assessment in the Berekum Municipality?
2. To what extend do Junior High School teachers practice Performance-Based Assessment in the Berekum Municipality?
3. What are the challenges faced by Junior High School teachers in the practice of performance-based assessment in the Berekum Municipality?
4. What ways can be employed to improve Junior High School teachers' knowledge and practice of Performance-Based Assessment in the Berekum Municipality?

Research Hypotheses

Arising from the research objectives, the following research hypotheses were formulated and tested at 0.05 level of significance.

H_0: There is no statistically significant linear relationship between Junior High School teachers' knowledge and practice in performance-based assessment

H_1: There is a statistically significant linear relationship between teacher's knowledge and practice in Performance-Based Assessment

H_0: There is no statistically significant difference between the professional qualification of teachers and their practice of Performance-Based Assessment

H_1: There is a statistically significant difference between the professional qualification of teacher's and their practice of Performance-Based Assessment.

H_0: There is no statistically significant relationship between teachers' years of teaching experience and their knowledge level of Performance-Based Assessment.

H_1: There is a statistically significance relationship between teachers' years of experience and their knowledge level of Performance-Based Assessment.

Significance of the Study

It is predictive that the study in general would inform the Ministry of Education (MOE), Ghana Education Service (GES) and more importantly concerned stakeholders about the deficiencies that emerge from teachers' knowledge and practices of performance-based assessment and how it improves their teaching. The findings from the study would go a long way to help the GES to provide in-service training for teachers in the Berekum

Municipality to increase their knowledge and practices of performance-based assessment.

Findings from this study would assist the policy makers to place much emphasis on performance-based assessment as part of the curricula in the various Colleges of Education to ensure that products from the institutions are adequately equipped before they graduate as teachers to teach students.

The findings from the present study would also help teachers at the Junior High Schools understand and appreciate the basic rudiments in performance-based assessment and equip them in the knowledge of practices they would use in assessing their students. With the publication of the study, it is going to be a source of knowledge and references for other scholars who are interested in similar studies.

Delimitations

To ensure a comprehensive research, the following delimitations were observed. Contextually, this research looked into the practices and knowledge of teachers of public Junior High Schools relating to only performance-based assessment. The study did not take into consideration the other forms of assessments practiced by public Junior High School teachers in the Berekum Municipality. Geographically, the study was delimited to only public Junior High Schools in the Berekum Municipality in Brong Ahafo Region. The target population was teachers of public Junior High School in the Berekum Municipality.

Limitations

The major limitation to this study was that since questionnaires were distributed to the respondents who were allowed to fill them at their

convenience, I anticipated that some of the respondents might be influenced by other colleagues in answering the questionnaire. Some of them were also unwilling to reveal the information needed. This challenged the collected data.

Definition of Terms

Words within the study are given operational definitions as they are used in the context and scope of the research as follows:

Test: This refers to an instrument or systematic procedure for observing and describing one or more characteristics or trait of a person.

Performance-based assessments: It comprise a continuum of assessment formats ranging from the simplest student constructed responses to comprehensive demonstrations or collections of work over time.

Organisation of the Study

The study was organised under five chapters. Chapter one consists of the background of the study, statement of the problem, the purpose of the study and the research question. The chapter also include delimitation of the study, limitation of the study, definition of terms as well as the organisation of the study. Chapter Two also discusses relevant, empirical and theoretical literatures that have informed the design and execution of the study; Chapter Three describes the methodology that was employed for the study. The chapter describes the research design, population, sample and sampling procedure, research instrument, validity and reliability of the instrument, pretesting of instrument for data collection as well as procedure of data analysis; Chapter Four of the study concentrates on the analyses and discussion of findings. The chapter includes the background characteristics of respondents. The analyses was done in line with the research questions/hypotheses. Chapter Five presents

the summary, conclusion and recommendations of the study. An area of further research was also suggested in this chapter.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This phase of the study is about reviewed works of other researchers about assessment. The chapter is based on three (3) major components namely conceptual review (concept of educational assessment, types of assessment, performance-based assessment and importance of performance-based assessment), theoretical review and empirical review.

Conceptual Review

Concept of Educational Assessment

To Allen (2004), assessment is the systematic process of documenting and using empirical data on knowledge, skill, attitudes, and beliefs to refine programmes and improve student learning. The concept of assessment itself can be defined and interpreted in several ways like financial, educational or even psychological assessment (Angelo & Cross, 1993). Bardes and Denton (2001) conceptualised assessments as systematic methods of gathering data under standardised conditions and reaching a conclusion regarding the knowledge, qualification and potential of an employee. Assessment, according to Bardes and Denton (2001) is the systematic collection, review, and use of information about educational programmes undertaken for the purpose of improving learning and development. To Palomba and Banta (1999), assessment is the process of gathering and discussing information from

multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences. The process ends when assessment results are used to improve subsequent learning.

The Yukon Department of Education (2015) defined the concept of assessment as the systematic process of gathering information from many sources to make appropriate educational decisions. It identifies the student's strengths and needs and contributes to the design and implementation of effective strategies. Classroom teachers are in a position to offer an abundance of information regarding students in their classrooms.

Assessment is an orderly procedure for collecting data about student achievement and serves as an indispensable component of teaching and learning (Dhindsa et al., 2007). According to Hodges, Eames, and Coll (2014) the principal goal of any educational programme is to facilitate student learning. Therefore, in educational programmes, assessment is intrinsically linked to student learning and performance. Assessment of student performance and learning necessarily includes consideration of hard and soft skills and involves a variety of assessors. Struyven et al. (2006) were of view that the impact of assessment is significantly observable on students' performance. The way students approach learning determines the way they think about classroom assignments and tests. Pellegrino and Goldman (2017), and Shepard (2000) suggested that classroom assessment can be improved in order to increase learning, such as the content and the characteristics of assessment, utilisation of assessment results and integration of assessment as a course in educational programmes.

It is noted that because assessment significantly affects students' approach to learning, assessment patterns have shifted from testing learning of students to assessing for students learning (Birenbaum & Feldman, 1998). According to (Gulikers, Bastiaens, & Kirschner, 2006), current assessment methods are attempting to increase the correspondence between what students need to learn and what is expected for them to know once they finish their studies. However, the demand remains whether students are taught so that they can excel on a test or whether they are taught to construct meaning that will sustain in the long term.

According to Romanoski, Cavanagh, Fisher, Waldrip, and Dorman (2005) although teachers and administrators typically select assessment forms and tasks, the purpose of assessment varies among various stakeholders, including students, teachers, parents, schools, and policy makers. Hence, including students' and teachers' perceptions in designing assessment tools would be considered reasonable, given the fact that both students' preferences and teachers' rationale might influence the way students proceed with learning and the way it is tested.

Goodrum, Hackling, and Rennie (2001) state that, ideally, assessment enhances learning, provides feedback about student progress, builds self-confidence and self-esteem, and develops skills in evaluation. In addition, they argue that effective learning occurs when correspondence exists between teaching, evaluation, and results. Therefore, due to its close relation with instruction and learning outcomes, assessment has a key role in learning. Although little evidence exists that students should be involved in decision making about assessment tasks, earlier studies such as Cavanagh, Waldrip,

Romanoski, Fisher and Dorman (2005) recommend an investigation of student involvement in classroom assessment.

Goodrum, Hackling, and Rennie (2001) assert that, assessment is a key component of teaching and learning process. Brown and Pendlebury (1992) indicated that the purpose of assessment is primarily concerned with providing guidance and feedback to the learner on their learning. The nature and extent of this guidance and feedback is dependent upon the purpose of the assessment. As a purpose, assessment prepare students for life and this is based on the view that learning is not something that only occurs during formal education, but is something that occurs throughout life (Rowntree, 2015). Given the influence of assessment on learning, Rowntree (2015) argued that assessment should help students to understand their own learning by providing feedback to themselves and be discouraged from depending on others for knowledge of how well he or she is doing.

Boud and Falchikov (2006) considered that equal attention needs to be given to all components of assessment alongside the well-established purposes of assessment for certification and assessment to aid current learning. Traditional approaches to assessment involve the teacher determining the required learning, the related assessment tasks and criteria, the performance of the student, and the grade awarded. Such approaches mean the student takes a passive, rather than active, role in assessment; counter to the need for sustainable assessment practices that help prepare students for lifelong learning beyond the academy.

Boud and Falchikov (2006) argued that assessment activities should not only address the immediate needs of certification or feedback to students

on their current learning, but also contribute in some way to their prospective learning. When graduates leave the confines of a formal education environment they will need to be equipped to make their own judgments about themselves, their performance and their learning, in a world described by Barnett (1999) as one involving super-complexities in which knowledge of what is required in a job is frequently changing. In such a world, workers will need the capability to learn and change as a result of experience and reflection (Duke, 2002). As far as the concept of assessment is concerned, there seem to be ways that can be employed to get assessment executed, thus, assessment method. According to the University System of Georgia (1992); Western Carolina University (1999), assessment methods are the strategies, techniques, tools and instruments for collecting information to determine the extent to which students demonstrate desired learning outcomes. Several methods should be used to assess student learning outcomes. Direct methods of assessment ask students to demonstrate their learning while indirect methods ask students to reflect on their learning. Tests, essays, presentations are generally direct methods of assessment, and indirect methods include surveys and interviews.

Types of Assessment

Assessment can be done at various times throughout a programme and a comprehensive assessment plan will include formative and summative assessment. When the assessment occurs in a programme differentiates these two types of assessment.

Formative Assessment

According to McTighe and O'connor (2009) formative assessment is generally carried out throughout a course or project and is also referred to as "educative assessment," as used to aid learning. In an educational setting, formative assessment might involve a teacher or the learner, providing feedback on a student's work and would not necessarily be used for grading purposes. Formative assessments in education can be of many kinds and could espouse investigative test or diagnostic test, standardised tests, quizzes, oral question, or draft work. Formative assessments are carried out concurrently with instructions. Formative assessments aim to see if the students understand the instruction before doing a summative assessment (McTighe & O'connor,2009).

By definition, Airasian (1991) opinionated that formative assessments are interactive and are used primarily to form or modify an ongoing learning process or learning activity. Formative assessment is focused on improving student motivation and learning with the goal of producing higher-quality work or thinking. It is important to realise that there are two different spectators for formative assessment (Edmund, 2006). According to Edmund (2006), formative assessment concerns teachers and many of the teachers may check for student understanding by asking questions or by observing students as they discuss a topic in small groups. In formative assessment, teachers are informally "collecting data" that will help them determine what needs to happen next in instruction and teachers serve as the data users. Formative assessment also concerns students as they need to know what would move their responses to questions. Formative assessment is about providing

immediate feedback to students concerning what has been learnt. It is believed that providing students with effective feedback can increase student achievement significantly (Marzano, Pickering, & Pollock, 2001).

According to Palomba and Banta (1999), formative assessment is often done at the beginning or during a programme, thus providing the opportunity for immediate evidence for student learning in a particular course or at a particular point in a program. Formative assessment in the classroom is noted to be one of the most common assessment techniques that teachers use and purpose of the technique is to improve quality of student learning (Palomba & Banta, 1999). As an important component of teaching and learning, formative assessment in the classroom can lead to curricular amendments when specific courses have not met the student learning outcomes (Palomba & Banta, 1999). According to Angelo and Cross (1993), formative assessment in the classroom can also provide important programme information when multiple sections of any course is taught because it enables programmes to examine if the learning goals and objectives are met in all sections of the course. It also can improve instructional quality by engaging the faculty in the design and practice of the course goals and objectives and the course impact on the programme (Bardes & Denton, 2001).

Formative assessment in the classroom has been the focus of almost major stakeholders in an attempt to synthesize the research studies on classroom assessment. Synthesis of more than 250 studies concerning formative assessments as opposed to summative assessment conducted by Black and Wiliam (1998), revealed that formative assessment produces more powerful effect on student learning. Crooks (2001) was of the view that effect

sizes for summative assessments are consistently lower than effect sizes for formative assessments when it comes to assessment in the classroom. It can be said that classroom formative assessment data can contribute to a comprehensive assessment plan by enabling capacity to identify particular points in a programme to assess learning and monitor the progress being made towards achieving learning outcomes (Bardes & Denton, 2001).

In terms of merit, Sasser (2018) indicated that formative assessments are not graded and this takes the anxiety away from students. It also detaches the thinking that they must get everything right. Instead, they serve as practice for students to get assistance along the way before the final tests. Teachers usually check for understanding in the event that students are struggling during the lesson. Teachers address these issues early instead of waiting until the end of the unit to assess. Teachers have to do less re-teaching at the end because many of the problems with mastery are addressed before final tests are administered (Sasser, 2018). According to Sasser (2018), the goal of formative assessment is to gauge student learning and adapt content accordingly. Since it is "low stakes," to Sasser, formative assessments should be used to monitor student learning qualitatively as opposed to examine it quantitatively (final exam). Therefore, when assessing for learning, formative assessment is the way to go; when assessing the measure of learning, summative assessment is best.

Fabiano, Reddy and Dudek (2018) was of the view that formative assessment is necessary and important for behaviour change among learners. In order to face unexpected outcomes and respond to emergent properties,

formative assessment is mandatory. Fabiano et al (2018) outlined some merits of formative assessment:

The main intention of formative assessment is that it helps in the development of knowledge and skills for the learners. With this category of assessment, the instructors, leads or teachers are able to identify the needs of the individuals and direct them towards their objectives or educational goals. The individual's hindrances and difficulties are identified by this method and appropriate remedies are applied to overcome them. With assessment the upcoming lesson or task is also planned. With formative assessment, an assessment is offered by the teacher to make sure that the individuals have mastered the concept that has been taught.

Formative assessment is beneficial as it plans for the future where any methods related to teaching or other career tasks can be altered. Weakness is diagnosed at an early stage and remediation is made. By this way the individuals are kept on track and move towards progress with continuous feedback. Future planning in case of any change in the methods of teaching or given task is planned well ahead, with formative assessment.

Formative assessment covers a wide range of diagnostics that are required by the students or individuals. The feedback is a main parameter which enables students to reflect on what they are learning and know the reason for what they are learning. Formative assessment assists individuals enhancing their performance and producing successful outcomes.

Another beneficial aspect of formative assessment is that it is an ongoing process. By this way, the feedback is increased and issues are detected at an early stage. When academics are considered, conceptual errors

are identified before they start with working with their term papers. Once students initiate with term paper they are guided and validated by their instructors with each step.

Formative assessment is noted to provide the worth of the learning process. A rich picture of the source or programme is learned with the help of formative assessment as it unfolds. With this type of assessment, doors are opened for prospective learning for present programme as well as future programmes that are planned. The success and failure of the project can be determined with the help of formative assessment and the reason for the same is also identified. The complex factors that are present within the programme are also identified with this assessment.

Formative assessment helps provide feedback to the learning process. Reflective practice is assisted with the help of formative assessment. Also, conflict management systems are strengthened in a number of ways. The major advantage is that, formative assessment feedback is offered based on the conflict management and resolution work capacity.

With the help of formative assessment, planning is made and also revisions for any recommendation for plans are allowed in the classroom situation. With this type of assessment in the classroom, programme implementation and programme plans are compared. There is also enhanced opportunity for reconsidering programme plans and goals. When programme plans are revised and presented through formative assessment, teachers who work with the programme can revise plans or also stick to new or old plans that are appropriate to present reliabilities. Formative assessment also offers inputs for future project planning and ideas.

It is widely understood that problems emerge when formative assessment is being reduced to a mini-summative assessment or to a series of teaching techniques for coaching to improve grades and levels. On the one hand, a serious threat to the effectiveness of formative assessment occurs when it is assimilated into larger accountability systems such as National Curriculum Assessment in England Shuichi (as cited in Ninomiya, 2016).

To Sasser (2018) and Fabiano et al (2018), in using formative assessment, some teachers may complain about sacrificing time to assess during the lesson and fear that they may not even finish the lesson. Teachers then feel the need to rush through a series of units, which causes students to lack mastery once the assessment is given at the end of the unit. Teachers may lack training or professional development on how to use formative assessments successfully because, historically, assessments are completed at the end. Formative assessment may lack the same weight, as a summative assessment and students may not take the assessments seriously, which may cause teachers to misread feedback from students. Fabiano et al (2018) suggested the following limitations to the use of formative assessment:

Formative assessment is considered to be a time consuming process if they are followed on a monthly, weekly or daily basis by teachers in the classroom. These assessments are time and resource intensive. This is because they are in need of frequent gathering of data, analysis, reporting as well as refinement of new implementation and how effective it should be, as such, teachers may find it difficult in practicing due to the time demands.

Planning and exercising formative assessment can be a tiring process for teacher who practices it. This disadvantage leads many individual teachers to avoid the practice of formative assessment.

In order to practice formative assessment, well qualified and trained individual teachers are required so that formative assessment is carried over successfully and ended. However, it is indicated that most teachers do not possess the required skills to assess their students formatively (Fabiano et al, 2018).There are a number of methodological challenges such as length of the class periods, school organisation, traditional and routine faced by teachers with formative assessment at times of rapid refinement process which takes place when trying to evaluate the impact of intervention.

Summative Assessment

According to McTighe and O'Connor (2009), summative assessment is generally carried out at the end of a course or project. In an educational setting, summative assessments are typically used to assign students a course grade. Summative assessments are evaluative. Summative assessments are made to summarise what the students have learned, and to determine whether they understand the subject matter well. This type of assessment is typically graded and can take the form of tests, exams or projects. Summative assessments are often used to determine whether a student has passed or failed a class.

Summative assessment looks at whether a student has achieved the desired learning goals or met standards (Edmunds, 2006). In the classroom, summative assessments usually occur at the end of instruction and documents what students have learned. Looking at the grades in a teacher's grade book

should give an idea of what the key instructional goals or outcomes were for a grading period. These grades most likely represent summative assessments (tests, quizzes, projects, reports, written assignments) that tell the teacher whether the student has mastered the skills or learned the content. A key aspect of summative assessment is determining the level to which students need to "master" the content and thinking. Tests that define "mastering" content at the level of memorising events, names, and facts are less likely to be building students' thinking skills than tests that ask students to write about big conflicts or themes that recur over time (Edmunds, 2006).

According to Angelo and Cross (1993), summative assessment in the classroom is comprehensive in nature, provides accountability and is used to check the level of learning at the end of the programme. For instance, if upon completion of a programme students will have the knowledge to pass a certification test, taking the test would be summative in nature since it is based on the cumulative learning experience. Classroom summative assessment programme goals and objectives often reflect the collective nature of the learning that takes place in a programme (Palomba & Banta, 1999). It is noted that, in any educational programme, it is relevant to conduct summative assessment at the end of the programme to ensure students have met the programme goals and objectives. Bardes and Denton (2001) articulated that, attention should be given to using various methods and measures in order to have a comprehensive plan. Eventually, the foundation for an assessment plan is to collect summative assessment data and this type of data can stand-alone.

According to Fabiano et al (2018), summative assessment is one that takes place at the end of the assessment cycle. It is a type of assessment that

judges the worth of the task by the end of programme activities. The main focus of summative assessment is based on the outcome. Summative assessments can also be mentioned as assessments technique that is used to measure students learning outcome. Similarly, in education, summative assessment is used to assess students on what they have learned. Fabiano et al (2018) identified the following merits of summative assessment:

Summative assessment follows certain strategies for assessment by means of assignments, tests, projects and more. By these ways, the teacher can identified if the students have learned and understood the subject. An assignment is said to be a summative one by the way it is utilised and not by the design of the test, assignment or by self-assessment. By this way, the instructor can identified to what degree the students have understood the materials that have been taught.

The usual procedure is that summative assessments are done at the end of any instructional period. Thus, summative assessment is considered to be evaluative in nature rather than being mentioned as diagnostic. They are also utilised to estimate the effectiveness of educational programmes. Another key advantage is that they are utilised to measure improvement towards objectives and goals. More over course-placement decisions are also made with summative assessment.

The results of summative assessments are ones that are recorded as scores or grades into the students' academic records. They can be in the format of test scores, letter grades or report cards which can be used in college admission process. Many schools, districts, and courses consider summative assessment as a major parameter in the grading system.

The presence of summative assessment is a motivator as it assists the individuals and offers them an opportunity to develop a learning environment. This is an assessment meant for learning and is based on the outcome.

The outcome of the summative assessment is considered as an enhancing factor when it is positive. With this type of assessment, confidence is improved and also, it acts as a foundation for certain behaviour change at workplace or institution (Fabiano et al, 2018).

With the help of summative assessment results, trainers and instructors can find out weak areas where the results are steadily low. By this way, alternative methods can be utilised in order to improve the results. New training can be followed for future events focusing towards success.

With the help of summative assessment, educational supervisors can measure the work output of the instructor. The level of performance of all the teachers, and instructors can be measured by means of this assessment. The school needs for teacher's accountability are met by means of summative assessment.

Despite the value attached to summative assessment as a measure of end product, it is not devoid of lapses. A criticism of summative assessments is that they are reductive, and learners discover how well they have acquired knowledge too late for it to be of use (McTighe & O'Connor, 2009). Fabiano et al (2018) identified the following limitations:

Summative assessment demotivates individuals. When student motivation and its impact was reviewed, it indicated that, there was a lower self-esteem by students who performed poorly. This in turn, leads them to put in less effort towards their studies and for their future academic progress.

One main disadvantage of summative assessment is that it focuses on output at the end of instruction or learning process. In case there are hindrances or difficulties during the learning process, it is difficult to be detected at the end. There is no chance to recover as the results are at the end. This is not an accurate reflection when learning is considered. Nothing is done to identify hindrances or challenges well in advance in a summative assessment. Instructional issues are not identified until they blow up and become critical when summative assessment is used in schools.

Since summative assessment is a single test at the end of the complete session of academics, it makes almost all individuals anxious and disruptive. They face the summative assessment with nervousness and fear.

When summative assessment is considered, it focuses mainly on the performance of the teachers as they teach to the test. Overall, summative assessment is not perfect because even outstanding students may face questions that may bring them down. The main reason for that would be a student may become nervous or tensed due to pressure for exams. Hence, summative assessment is not considered as the best reflection for learning in schools.

Repeated practice test for low-achieving students lowers their self-confidence and self-esteem. The summative assessment results have a negative effect on low achievers when they are more pronounced for students than for schools or authorities. Secondary school low-achievers may perform in a worse manner as they are failing in the course of time. It is also considered as a limiting process for the able individuals. Anxiety is another reason which is

caused in a test especially amongst girls and leads to expanding the gap between higher and low achieving individuals.

The instructors and teachers work towards the test and drift focus from the curriculum and the content. There can be chances for distortion in terms of teaching techniques. The other disadvantage is that summative assessment questions may not be framed in a manner similar to formative assessment. The instructors and teachers may themselves have to dedicate more time for summative assessment which may not actually enhance individual's knowledge. With all this, teachers also adopt some didactic teaching style which may not be perfect and comfortable for many students.

Performance-Based Assessment in School

Nitko (2004), defined performance-based assessments as tangible and reliable tasks that demand students to do something with their knowledge and skills, such as give a demonstration or presentation, or write a report on what they have been taught. According to Stecher (2010), performance-based assessment is a structured situation in which stimulus materials and a request for information or action are presented to an individual, who generates a response that can be rated for quality using explicit standards. The standards may apply to the final product or to the process of creating it.

Stecher (2010) indicated that the definition of performance-based assessment is poised with four (4) features that include structured, stimulus, response and standard. The structured situation in performance-based assessment is constrained with respect to time, space and access to materials. The structure makes it possible to replicate the conditions, so the same assessment can be administered to different people and their performances can

be compared. The requirement that there should be structure with respect to administrative conditions does exclude consideration of complex and extended tasks, such as conducting a scientific experiment and reporting the results. Instead, structure insures that tasks can be replicated at different times and in different places. The stimulus material in the performance-based assessment serves as the basis for the response. The response expected from the stimulus in performance-based assessment must have directions indicating the nature of the desired response and the directions can be part of the stimulus materials. The standard in performance-based assessment must prompt responses that can be scored according to a clear set of standards and in most cases standards are developed before the assessment is given (Stecher, 2010).

The Wisconsin Education Association Council (1999) defined performance-based assessment as the one which requires students to demonstrate that they have mastered specific skills and competencies by performing or producing something. The Association indicated that performance-based assessment is about designing and carrying out experiments, writing essays which require students to rethink, to integrate, or to apply information, working with other students to accomplish tasks, demonstrating proficiency in using a piece of equipment or a technique, building models, developing, interpreting, and using maps, making collections; writing term papers, critiques, poems, or short stories, giving speeches, playing musical instruments, participating in oral examinations, and developing portfolios, developing athletic skills or routines.

According to the Office of Educational Research and Improvement (1993), like all types of performance-based assessments, the procedures

require that students actively develop their approaches to the task under defined conditions, knowing that their work will be evaluated according to agreed-upon standards. This requirement distinguishes performance-based assessment from other forms of testing as they require students to actively demonstrate what they know and performance-based assessments may be a more valid indicator of students' knowledge and abilities.

Importance of Performance-Based Assessments in School

According to Lane (2010), performance-based assessment has been an integral part of educational systems in many countries, but then, it has not been fully integrated in assessment systems in some countries. Research has shown that the format of the assessment affects the type of thinking and reasoning skills that are used by students, with performance-based assessments being better suited to assessing high level, complex thinking skills (Lane, 2010). To Lane, recent advances in the design and scoring of performance-based assessments, including computer-based task simulations and automated scoring systems support performance-based assessments' increased use in large-scale assessment programmes. There are also promising technical advances that support performance-based assessment use. The educational benefit of using performance-based assessments has been demonstrated by a number of researchers. (Nitko, 2004;Stecher, 2010 & Herman 1992).

When students are given the opportunity to work on meaningful, real world tasks in instruction, students have demonstrated improved performance on performance-based assessments. (Lane, 2010). Sound educational practice calls for the alignment among curriculum, instruction and assessment, and there is ample evidence to support the use of performance-based assessments

in both instruction and assessment to improve learning for all students (Lane, 2010).

As a category of assessment that includes both formative and summative types of assessments, performance-based assessment has been constructive in nature and has become the most preferred way of assessing students' learning in this 21st Century educational terrain or landscape due to the enormity of contributions it makes to student learning in general.

Lane (2010) indicated that performance-based assessment delves into students' higher-order thinking skills, such as evaluating the reliability of sources of information, synthesizing information to draw conclusions, or using deductive/inductive reasoning to solve a problem. Performance tasks may require students to make an argument with supporting evidence in English or history or social science, conduct a controlled experiment in science, or solve a complex problem or build a model in mathematics. Performance-based assessment often has more than one acceptable solution or answer and also requires students to explain their reasoning. The format of performance-based assessment may range from "on-demand" kinds of tasks that can be completed in a given amount of time to long-term projects that involve independent work or research outside the classroom.

To Lane (2010), educationists who have worked in systems that use performance-based assessment report that such assessment has a positive impact on instructional practice and provides valuable information. According to Kentucky Instructional Results System (KRIS) (as cited in Mathew, 1995) in a study that focused on assessing student' progress through a combination of open-ended response items, multiple-choice items, portfolios, and

performance-based assessments, almost 90% of principals and 77% of teachers testified that the performance-based assessment was valuable for judging the effectiveness of schools. More importantly, performance-based assessment contributed to improved instructional practices with 40% of teachers indicated that performance-based assessment has boundless positive effect on instruction, and virtually none reported that about multiple-choice items (Matthews, 1995).

A report on the Maryland School Performance-based assessment Programme (MSPAP) (as cited in Koretz, Mitchell, Barron, & Keith, 1996) equally revealed that 98% of school principals felt MSPAP had a positive effect on instruction. According to Vogler (2000), current experience makes it clear that performance- based assessment provides a means to assess higher-order thinking skills and helps teachers and principals support students in developing a deeper understanding of content. According to SRN (2008), indicates that how student learning is assessed can play an important role in a student's overall learning. Resnick and Klopfer (1989) and Herman (1992) opined that content and process are intimately related and this relationship makes it enormously important to assess students in meaningful ways to determine if they are learning the content.

According to Herman (1992), cognitive psychologists studying how individuals learn have come to the understanding that mere acquisition of knowledge and skills does not make people competent thinkers or problem solvers. To know something is not just passively receipt of information, but to interpret it and incorporate it. Meaningful learning is reflective, constructive and self-regulated. An exclusive reliance on multiple-choice tests that

primarily measure basic skills and discrete knowledge but neglect complex thinking and problem solving is not consistent with what practitioners in the field know about the kinds of assessments that promote student learning (Herman, 1992).

According to Koretz Mitchell, Barron, and Keith (1996), performance-based assessment is consistent with modern learning theories and also helps teachers employ what the profession considers to be best practices. The MSPAP report Koretz et al. found that in implementing performance-based assessment, teachers changed their instructional practice to emphasize cooperative work, focus more on writing, problem solving, real-world, hands-on activities, and deemphasize rote learning and teaching.

According to Mehrens (1992), performance-based assessment attempts to establish what students can do as complete from what he or she knows. It focuses on doing something, not merely knowing, and on process as well as product (Linn & Gronlund, 2000). Airasian (2001) and Çepni (2007) noted that in performance-based assessment, it is expected that students produce a material or exhibit a performance as in writing or self-expression skills. According to Vogler (2002), a study of the Massachusetts Comprehensive Assessment System revealed that after moving to performance-based assessment, instructional practices began to correspond more with those deemed as best practices. Teachers also reported that the open discussion of performance standards and the professional development received regarding scoring performance tasks were powerful professional development experiences.

Marzano (2003) noted that performance-based student assessments play a powerful role in validating and monitoring the growth of all students and the success of curriculum and instructional programmes. This importance increases in the context of persistently low-achieving schools, in which student growth can be fostered by learning experiences and performance opportunities that invite students to show what they can do with what they are learning. This strategy is not only sound pedagogically, but highly motivating and empowering for students. Such assignments, accompanied by appropriate instructional support, challenge each student to do or create something of value to themselves and others and to take the next step forward in their academic growth.

To Hogan and Rabinowitz (2009), performance-based assessments provide key opportunities for students to engage in tasks like those they will be asked to do in higher education and careers. Such tasks often take extended time and concentrated effort, and may call on students to plan, work cooperatively, and communicate results in a variety of formats. Performance tasks and assessments can be designed to call on students to display higher-order thinking skills and to integrate knowledge, skills, and conceptual understanding to successfully complete the assignment. The "doing" implicit in such tasks allows the assessment of a student's developing cognitive and behavioural capacities for successful achievement. Performance-based assignments and assessments can, in the context of project-based learning, become the ongoing central activities and assignments of the instructional programme. Such rich and powerful assignments can provide an integrating

context for knowledge and skills acquisition, accelerating learning in these specific areas as well.

Challenges in the Practice of Performance-Based Assessment

Despite the rich results and improved academic work performance-based assessment presents to teachers in relation to their students' outcome, performance-based assessment faced is with a number of challenges. Palomba and Banta (1999) indicated that performance-based measures are labour intensive as a significant amount of time and care must be set aside by teachers for planning and using performance-based assessment. Again, it is not clear that performance-based measures can be generalized to the student population. This lowers the level of generalisation and can affect the perceived validity of the use of performance-based assessment measures.

Performance-based assessment is challenged in terms of the knowledge required to learn and execute. As the role of student assessment is changing today, it is largely because today's students face a world that demands new knowledge and abilities, and the need to become life-long learners in a world that demand competencies and skills (Segers, Dochy & Cascallar, 2003).

The information age is characterised by a steadily growing, dynamic and changing mass of information in terms of performance-based assessment. Students and teachers need digital literacy, but also a variety of competences in order to function well in the information society. Birenbaum (1996) has analysed and categorised these competences and skills concerning performance-based assessment in the following way: (a) cognitive competences such as problem solving, critical thinking, formulating questions, searching for relevant information, making informed judgements, efficient use

of information, conducting observations, investigations, inventing and creating new things, analysing data, presenting data communicatively, oral and written expression; (b) meta-cognitive competences such as self-reflection, or self-evaluation (c) social competences such as leading discussions, persuading, cooperating, working in groups, and (d) affective dispositions such as perseverance, internal motivation, self-efficacy, independence, flexibility, or coping with frustrating situations.

Performance-based student assessments take more time to administer, often they are tied directly to specific curriculum and instructional programmes or particular assignments, and take more time for scoring, reporting the results, and putting the results to effective use with students than do standardized tests (Reeves, 2007). According to Reeves (2007), the assessment challenge, at both the district and school levels, is to develop the capacity of classroom teachers to evaluate student work in shared and common ways, often using established rubrics or scoring criteria to evaluate student products and performances. The results are often complex and nuanced. The student's work on such tasks is typically neither right nor wrong, but rather, combines a variety of strengths and areas needing improvement. Such evaluations can inform summative judgments, but, most importantly, they provide formative instructional guidance, challenging teachers to use the results to help students take the next steps towards excellence.

Theoretical Review

Jean Piaget's Constructive Learning

Jean Piaget was a Swiss born psychologist with his academic orientation being fundamentally biological (Campbell, 2006). Piaget as a cognitivist concentrated on mental processes that are involved in learning and instruction. According to Garner (2008), Piaget was committed to cognitive constructions that serve as primary interconnected psychological systems that give people the urge to process information by relating it with past knowledge and experience, finding patterns and relationships, identifying rules, and generating abstract principles relevant in different applications. Piaget rooted for operative knowledge that suggests that alteration and transformation produce knowledge and supported the idea that learning is about construction. As an ardent constructivist, Piaget propounded four-staged cognitive development namely sensorimotor, preoperational, concrete and formal.

Sensorimotor Stage: It is about early part of human life in between birth and the first two years of life. The children experience the world through movement and their senses. According to Santrock (1998), during the sensorimotor stage children are extremely egocentric, meaning they cannot perceive the world from others' viewpoints. Wood, Smith, and Grossniklaus (2001) indicated that this stage involves the use of motor activity without the use of symbols. Knowledge is limited in this stage, because it is based on physical interactions and experiences. Infants cannot predict reaction, and therefore must constantly experiment and learn through trial and error. Such exploration might include shaking a rattle or putting objects in the mouth. As they become more mobile, infants' ability to develop cognitively increases.

Early language development begins during this stage. Object permanence occurs at 7-9 months, demonstrating that memory is developing. Infants realize that an object exists after it can no longer be seen.

According to Campbell (2006), infants and children do not think the way adults do. Young children experience egocentrism because they fail to understand how someone else's point of view might be different from their own or they fail to coordinate their point of view with that other person's.

Preoperational Stage: According to Santrock (1998), the preoperational stage starts when the child begins to learn to speak at age two and lasts until the age of seven. During this period, children are able to do one-step logic problems, develop language, continue to be egocentric, and complete operations. Children in this stage, however, struggle with centering and conservation. During the preoperational stage of cognitive development, Piaget noted that children do not yet understand concrete logic and cannot mentally manipulate information. According to Wood, Smith and Grossniklaus (2001), children increase in playing and pretending takes place at this stage. However, the child still has trouble seeing things from different points of view. The children's play is mainly categorised by symbolic play and manipulating symbols.

Concrete Operational Stage: This stage typically develops between the ages of 7-11 years. Intellectual development at this stage is proved through the use of logical and systematic manipulation of symbols that are related to concrete objects. According to Wood, Smith and Grossniklaus (2001), thinking at this stage becomes less egocentric with increased awareness of external events, and involves concrete references to issues.

According to Dimitriadis and Kamberelis (2006), Piaget believed individuals must adapt to their environment. He described two processes for adaptation which is an organism's ability to fit in with its environment, assimilation and accommodation. Assimilation is the process of using or transforming the information from the environment so that it can be placed in pre-existing cognitive structures. Accommodation is the process of changing cognitive structures in order to accept something from the environment. It changes the schema, so it can increase its efficiency (Campbell, 2006).

According to Piaget (as cited in Dimitriadis & Kamberelis, 2006) the developmental ideal is a balance between assimilation and accommodation, which is also known as equilibrium. It is believed that when a balance between children's mental schemas, which is a mental image produced in response to a stimulus that becomes a framework or basis for analysing or responding to other related stimuli and the external world has been reached, children are in a comfortable state of equilibrium. Thus, students have already mastered what has been taught and have confidence in their abilities to do or perform the assigned task. During this time, students are not in the process of acquiring new information or learning. Disequilibrium occurs when children come across new environmental phenomena and these new environmental phenomena, however, often do not fit exactly into children's mental schemas. Students are drawn towards disequilibrium because of their curiosity. Teachers should use disequilibrium to motivate their students because it allows for changes in students' mental structures (Wood et al., 2001).

Formal Operational Stage: This is the period from adolescence through adulthood. Adolescents and adults use symbols related to abstract concepts.

Adolescents can think about multiple variables in systematic ways, can formulate hypotheses, and think about abstract relationships and concepts (Santrock, 2004). Piaget (as cited in Santrock, 2004) believed that intellectual development was a lifelong process, but that when formal operational thought was attained, no new structures were needed. Intellectual development in adults involves developing more complex schema through the addition of knowledge.

Relating Piaget's theory to performance-based assessment is about teacher planning for the whole process. Teachers' planning performance-based assessment should provide opportunities for themselves as teachers and learners to obtain and use information about progress towards learning goals. It has to be flexible to respond to initial and emerging ideas and skills. Planning performance-based assessment should include strategies like how learners will receive feedback, how they will take part in assessing their learning and how they will be helped to make further progress to ensure that learners understand the goals they are pursuing and the criteria that will be applied in assessing their work.

In Piaget's theory, learners' involvement is emphasised. Learners are engaged as a partner and encouraged to take control in the learning process so that they develop their own skills and awareness through self-assessment and peer review as well as through constructive feedback from the teacher. In applying performance-based assessment to teaching and learning process, teachers should treat students according to their level of maturity. This will enable learners to impart knowledge and skills compatible to their understanding ability. Above all, performance-based assessment should

commence from simple to complex or from abstract to concrete as far as development and maturity of students are concerned.

Jerome Bruner's Theory of Constructivism

Bruner is a cognitive psychologist aligned to the constructivists and in fact, can be called among the founding fathers of the constructivism school of thought. According to Halliwell (2015), Bruner's theoretical framework is based on the premise that learners construct new ideas or concepts based upon existing knowledge and learning is an active process. Aspects of the process include selection and transformation of information, decision making, generating hypotheses, and making meaning from information and experiences. Bruner's theory on constructivism encompasses the idea of learning as an active process wherein those learning, are able to form new ideas based on what their current knowledge is as well as their past knowledge. A cognitive structure can be defined as the mental processes which offer the learner the ability to organise experiences and derive meaning from them. These cognitive structures allow the learner to push past the given information in constructing their new concepts. The learner will take pieces of their past knowledge and experiences and organise them to make sense of what they know, then base further concepts and solve additional problems based upon a combination of what they already processed and what they think should be processed next.

According to Bruner (1957), the consequence of mental growth is intelligence. The intelligent mind creates from experience generic coding systems that allow one to go beyond the data to new and possibly fruitful predictions. To Bruner, children as they grow must acquire a way of

representing the frequent happenings in their environment so important outcomes of learning include not just the concepts, categories, and problem-solving procedures devised previously by the culture, but also the ability to conceive these things for oneself.

According to Bruner (1966), cognitive growth involves an interaction between basic human capabilities and culturally created skills that serve as motivators of these capabilities. These culturally created skills include more abstract notions such as the way a culture categorises phenomena, and language itself. Bruner agreed that language serves to mediate between environmental stimuli and the individual's response.

In his studies, Bruner proposed three (3) approaches namely enactive learning, iconic learning and symbolic learning through which learning takes place among learners

Enactive Learning: According to McLeod (2008), this appears first around aged 0-1. The stage involves encoding action-based information and storing them in the memory. In this, children and adults, specifically students represent the past events through motor responses (muscle movement):

Iconic Learning: This is around age 6 where information is stored visually in the form of images (a mental picture in the mind's eye). For some, this is conscious and others say they do not experience it. This may explain why, when students are learning new subjects, it is often helpful to have diagrams or illustrations to accompany verbal information (McLeod, 2008).

Symbolic Learning: This occurs around 7 years upwards where information is stored in the form of a code or symbol, such as language. This is the most adaptable form of representation, for actions and images have a fixed relation

to that which they represent. Symbols are flexible in that they can be manipulated, ordered, classified etc., so the user is not constrained by actions or images. In the symbolic stage, knowledge is stored primarily as words, mathematical symbols, or in other symbol systems. Bruner (as cited in McLeod, 2008) suggests that it is effective when faced with new material to follow a progression from enactive to iconic to symbolic representation and this holds true even for adult learners.

With respect to this study, Bruner's theory is applicable as it allows students through the guidance of teachers do things on their own like problem-solving situations in class. To Bruner (1961), education is not to impart knowledge, but to facilitate students thinking and problem-solving skills through performance-based assessment, which can therefore be transferred to a range of situations that students encounter in the academic ladder.

With regards to Bruner's theory as applied in performance-based assessment, teachers' instructional assessment process consists of leading learners through a sequence of statements and restatements of a problem or body of knowledge that increase their ability to grasp, transform, and transfer what he is learning in a project-based learning task. In simple terms, the sequence in which a learner encounters learning task within a domain of knowledge affects the difficulty he/she will have in achieving mastery (Bruner, 1960). If the usual course of intellectual development moves from enactive through iconic to symbolic representation of the world, it is likely that a best sequence will progress in the same direction. Ideal sequences cannot be specified independently of the criterion in terms of which final learning is to be judged. Teachers should provide feedback that is directed

towards intrinsic motivation. Grades and competition are not helpful in the learning process. Bruner states that learners must experience success and failure not as reward and punishment, but as information (Bruner, 1961). Performance-based task must be appropriate to the level of the learners. For example, being aware of the learners' learning modes (enactive, iconic, and symbolic) will help teachers plan and prepare appropriate performance-based tasks according to the difficulty that matches learners' level.

Lev Vygotsky's Socio-cultural Theory

Lev Vygotsky was born to Jewish parents in present- day Ukraine. Vygotsky majored in history and philosophy (Palmer, 2001). Vygotsky was influenced by the Marxist theory of historical changes in society. Vygotsky was of the conviction that socio-cultural environment is critical for cognitive development (Huitt, Monetti & Hummel, 2009). The work of Lev Vygotsky as cited in (McLeod, 2007) has become the foundation of much research and theory in cognitive development over the past several decades, particularly of what has become known as Social Development Theory. According to Huitt, Monetti and Hummel (2009), Vygotsky in his work highlighted the roles of social interaction and instruction as he suggested that development does not come first before socialisation, but rather social structures and social relations pave the way for the development of mental functions. Vygotsky's theory stressed on the fundamental role of social interaction in the development of cognition as he believed strongly that community plays a central role in the process of making meaning (Vygotsky, 1980). Vygotsky as cited in (McLeod, 2007) argued that learning is a necessary and universal aspect of the process

of developing culturally organised, specifically human psychological functions.

According to McLeod (2007), Vygotsky just like Piaget indicated that human learning is characterised by attention, sensation, perception and memory which eventually, through interaction within the sociocultural environment are developed into more sophisticated and effective mental processes/strategies which he refers to as higher mental functions. Vygotsky believes that young children are curious and actively involved in their own learning and the discovery and development of new understandings/schema. According to Vygotsky (1980), considerable important learning by children happen through social interaction with a skilful teacher. The teacher may model behaviours and provide verbal instructions for the child. Vygotsky as cited in (McLeod, 2007) refers to this as cooperative or collaborative dialogue. Students seek to understand the actions or instructions provided by the teacher, then internalises the information using it to guide or regulate their own performance.

According to McLeod (2007), Vygotsky theory is operated by two principles namely the More Knowledge Other (MKO) and the Zone of Proximal Development (ZPD). The MKO refers to someone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept. This may represent teachers or the students with intellectual difference in terms of superiority. The ZPD relates to the difference between what a child can achieve independently and what a child can achieve with guidance and encouragement from a skilled partner.

With respect to academic work, Vygotsky (1980) stressed the Zone of Proximal Development as the area where the most sensitive instruction or guidance should be given to students as in allowing the students to develop skills they will then use on their own when developing higher mental functions. Vygotsky (as cited in McLeod, 2007) viewed interaction with friends or age-mates as an effective way of developing skills and strategies. He suggests that teachers use cooperative learning exercises where less competent children develop with help from more skilful peers within the zone of proximal development (McLeod, 2007). The activities within the ZPD can be harnessed through the scaffolding proposed by Vygotsky. Scaffolding by Vygotsky consist of the activities provided by the educator, or more competent peer, to support the student as he or she is led through the zone of proximal development (Wood, Bruner, & Ross, 1976). Wood, Bruner and Ross (1976) defined scaffolding as a process that enables a child or novice to solve a task or achieve a goal that would be beyond his unassisted efforts. As they note, scaffolds require the adults controlling those elements of the task that are initially beyond the learners' capability, thus permitting them to concentrate upon and complete only those elements that are within his range of competence.

Applying Vygotsky theory in performance-based assessment, there is the need for reciprocal teaching to improve students' ability to learn from discovery. By doing this, teachers and students collaborate in learning and practicing four key skills as in summarizing, questioning, clarifying, and predicting where the teacher's direct role in the process is diminished as the process keep going. The use of scaffolding and apprenticeship by teachers can

enhance the practice of performance-based assessment. This is done by allowing advanced peers to help structure or arrange a task so that a learner can work on it successfully. Relating performance-based assessment and instructional scaffolding requires a keen understanding of the underpinning of Vygotsky's learning theory. Assessment and instructional scaffolding are the basic strategies of the teacher in moving forward to the attainment of a learning outcome. Teacher's instructional scaffolding techniques draw authentic apprenticeship contexts in his quest to control elements beyond the learner's ability. This includes a genuine and cautious understanding of various learning theories supportive to this noble task. Owing to the scope of socio-cultural insight of teaching and learning, student-learners internalise criteria by translating them from hidden to manifest and back to hidden again until these criteria become so obviously taken for granted that they need no longer be stated clearly.

According to Vygotsky (as cited in McLeod, 2014), instructional scaffolding techniques used by teachers practicing performance-based assessment strengthens knowledge-activation abilities of the learners through feed-forward mechanisms of learning feedbacks. This technique may be done through feedbacks from inner-rater, inter-rater, intra-rater and criterion-rater. Using the technique, students are able to discern learning from himself or herself, from groupmates, from his or her classmates and from his teacher.

Empirical Review

Teachers' Knowledge of Performance-Based Assessment

It is accepted that the proper use of performance-based assessment requires teachers to possess deep knowledge about the method or the

procedures involved in using it. The American Federation of Teachers (AFT), the National Council on Measurement in Education (NCME), and the National Education Association (NEA) (1990) jointly indicated that, in using performance-based assessment, teachers should competently be able to choose and develop methods appropriate for performance-based assessment decisions, to administer, score and interpret results, and use the results when making educational decisions about students. The standards show that, teachers using performance-based assessment need to develop valid grading procedures, communicate assessment results to various audiences and recognise unethical, illegal, and inappropriate methods and uses of assessment. Brookhart (2011) proposed performance-based assessment knowledge and skills for teachers by emphasising that, teachers need to understand learning in the content area they teach, be able to set and apply learning intentions consistent with content and depth of the curriculum goals, and possess the strategies for communicating the expectations of the learning intentions to students. To Brookhart (2011), teachers need to also understand the purposes of the assessment type, and be able to apply it, be skilful in analysing assessment type methods, be skilful in providing meaningful feedback on student work. Again, teachers need to have the ability to develop scoring schemes to quantify student performance for making informed educational decisions, be skilful in administering external assessments and interpreting their results. Furthermore, teachers need to be able to apply educational decisions made out from classroom assessments, be able to communicate assessment information to students to motivate them to learn, and understand the legal and ethical issues in the classroom performance-based assessment practices.

Koh (2011), indicated that performance-based assessment can be a powerful tool in making improvements in educational systems, and as such, Calderhead (1996) report that its effectiveness depends on teachers' knowledge due to the continual interaction between teachers and students'. Knowledge in performance-based assessment by teachers is very vital in education because it gives them the impetus to do what is required for students to achieve what society expect from them. According to Darling-Hammond and Falk (2013), teacher involvement in the design, use, and scoring of performance-based assessments has the potential to powerfully link instruction, assessment, student learning, and teacher professional development. In a policy document prepared in the United States, Darling-Hammond and Falk (2013) indicated that the use of high-quality standards and performance-based assessments over time has been shown to improve both teaching and learning. As teachers become more experts in their practice through involvement and engagement with performance-based assessments, the outcomes for students can be expected to improve. If used wisely, this approach has the potential to address multiple important education goals through one concentrated investment (Darling-Hammond & Falk, 2013).

According to Joetta and Carter (2001), high-achieving nations implement their standards by developing systems that incorporate curriculum, instruction, and assessment to improve both teaching and students' learning. Teachers are involved throughout the assessment process in developing, reviewing, scoring, and analysing the results of student assessments, which enables them to understand the standards and develop stronger instruction. According to Black and Wiliam (2010), high-performing nations use open-

ended performance tasks to give students opportunities to develop and demonstrate 21st Century skills, such as the ability to find and organize information to solve problems, frame and conduct investigations, analyse and synthesis data, and apply learning to new situations. Students solve extended problems in mathematics and the sciences, showing and explaining how they are approaching the task, compare and synthesize evidence from different kinds of data and texts, and then compose essays that explain and defend their thinking.

According to Darling-Hammond and Falk (2013), the growing emphasis on project-based, inquiry-oriented learning by high- performing nations has also caused many of these countries to introduce school- based tasks into their assessment systems, such as research projects, science investigations, and development of products ranging from software solutions to engineering designs. The use of these types of assessments provides teachers with models of good curriculum and assessment practice, enhances curriculum equity within and across schools, and allows teachers to see and evaluate student learning in ways that can inform instructional and curriculum decisions. Such curriculum-embedded assessments can also build students' capacity to assess and guide their own learning (Darling-Hammond & Falk, 2013).

Recognising the need for teachers to possess an adequate knowledge in educational assessment, Plake and Impara (1992) developed an instrument titled the "Teacher Assessment Literacy Questionnaire (TALQ)" consisting of 35 items to measure teachers' assessment literacy. The TALQ was based on the Standards for Teacher Competence in Educational Assessment of Students

(Chapman, 1991). The instrument was administered to a randomly sampled 555 in-service teachers around the United States. The results indicated that the teachers might not be well prepared to assess student learning as revealed by the average score of 23 out of 35 items correct (Plake, Impara, & Fager, 1993).

In his discussion of the assessment knowledge, Popham (2006) asserted the need for a continuous in-service assessment training aligned with the performance-based assessment realities. In a survey of assessment knowledge of purposively sampled 69 teacher candidates in Bangladesh by adapting Teacher Assessment Knowledge Questionnaire, Volante and Fazio (2007) found that the self-described levels of performance-based assessment knowledge remained relatively low for the candidates across the four years of the teacher education programme.

Likewise, Campbell, Murphy, and Holt (2002) applied the TALQ to a randomly sampled 220 undergraduate students in the United States who completed a course in tests and measurement. The results revealed that the average score for the sample was 21 out of 35 items correct, suggesting the need for more attention to the performance-based assessment literacy of the prospective teachers. Similarly, Mertler and Campbell (2005) developed another instrument titled the "Assessment Literacy Inventory (ALI)" consisting of 35 items in alignment to the "Standards for Teacher Competence in Educational Assessment of Students" (AFT, NCME, & NEA, 1990). The instrument was administered to a sample of 259 pre-service teachers in the United States. The results indicated that (a) the items demonstrated acceptable levels of difficulty, discrimination, reliability, and validity; (b) the TALQ measures a unitary construct of the assessment literacy; (c) the TALQ's scores

had an adequate internal consistency; and (d) the TALQ's scores correlated positively with total course' scores. Percentile ranks were extracted as norms for the raw scores. These results above imply that teachers' performance-based assessment literacy deserve further recognition and investigation. When comparing assessment literacy of pre-service teachers and in-service teachers, the studies have indicated that the performance-based assessment literacy level of pre-service teachers was lower than that of in-service teachers (Mertler, 2003; 2004). This suggests that an observed base in the classroom assessment might cause the difference in performance-based assessment literacy.

Alkharusi, Aldhafri, Alnabhani, and Alkalbani (2012) in their study in Oman, among randomly sampled 165 in-service teachers, using a self-report questionnaire revealed that although teachers held a favourable attitude towards performance-based assessment and perceived themselves as being competent in educational assessment, they demonstrated a low level of knowledge in performance-based assessment. Teachers used a variety of assessments in the classroom primarily for assigning grades and motivating students to learn, with some variations by gender, grade level, and subject area but were limited in terms of performance-based assessment. Teaching load and teaching experience accounted for some of the variations in teachers' educational performance-based assessment practices.

A mixed-method study conducted in Turkey by Cimer and Cakır (2010) randomly sampled 22 teachers using questionnaire, interviews and document analysis revealed that, the teachers interviewed were lacking knowledge about performance-based assessment and the situation was attributed to the fact that it was a new thing that was introduced into the

educational curricular. The questionnaire asked teachers to indicate their perceived level of knowledge regarding the assessment methods introduced with the new curriculum. As indicated in the study, the mean scores of the teachers' knowledge of the various performance assessment methods changed between 2-3, meaning that their levels of knowledge of these methods were between low and medium (Cimer & Cakır, 2010). Supporting this, during the interviews it was seen that teachers were aware of the changes and the requirements of the system but they did not implement them. When asked about the methods they used to assess their students, all of the teachers indicated primarily using written tests, which they had already been using before the changes were introduced. These tests comprised multiple choice, fill in the blanks and true-false type questions (Cimer & Cakır, 2010).

Overall, the results obtained showed that performance-based assessment was not effectively implemented in schools where the mixed-method study was conducted. The teachers continue to use traditional tests in their assessments. Only a few used portfolio and performance tasks, but they were not implemented effectively. For example, only two teachers indicated that they used portfolios but they treated it only as a folder to collect students' work (Cimer & Cakır, 2010). However, what makes a portfolio a valuable learning and assessment tool is its self-reflection component. Self-reflection process adds on the benefits of portfolio process to learning and differentiates it from a process of simply collecting samples of students' work in a folder (Paulson, Paulson & Meyer, 1991; Qimer, 2004). From the analysis it is clear that changes in the assessment system was not being implemented the

classrooms. The main reason drawn from the data is teachers' lack of knowledge of performance assessment methods.

Zhang and Burry-Stock (2003) surveyed a random sample of 297 teachers in America across teaching levels and content areas about their performance-based assessment skills using the Assessment Practices Inventory (API). Zhang and Burry-Stock (2003) found that teachers with training in performance-based assessment tended to report higher levels of self-perceived assessment skills in performance-based assessment, standardised testing, test revision and communicating assessment results. In a survey of 288 teacher candidates who were sampled randomly and enrolled in a teacher education programme in Canada, DeLuca and Klinger (2010) found that teacher candidates who chose to enrol in an educational assessment course had higher levels of confidence in performance-based assessment knowledge and skills than those who did not have formal instruction in assessment.

Teachers Practices of Performance-Based Assessment

According to Alkharusi, Aldhafri, Alnabhani, and Alkalbani (2012), teachers are required to develop classroom assessment that aligns with practices recommended by experts of educational assessment. However, revelation from past and recent studies of classroom assessment practices have consistently expressed a concern about the inadequacy of teachers' performance-based assessment practices (McMillan & Lawson, 2001). According to Zhang and Burry-Stock (2003), it is disclosed that there are some contradictions between teachers' practices and recommendations of educational assessment experts regarding issues of performance-based assessment. This lack of agreement between teachers' practices and experts'

suggestions has been attributed to teachers' lack of knowledge and attitudes about educational performance-based assessment (Siegel & Wissehr, 2011).

Wolfe, Viger, Jarvinen, and Linksman (2007) proposed that teachers' self-perceived confidence in performance-based assessment should be a vital component in the professional development of in-service teachers as that would motivate them towards the practices. In a two-week classroom assessment workshop for 7 randomly chosen in-service teachers in the United States, Mertler (2009) in a mini experiment pre-tested teachers' assessment practices and post-tested teachers' assessment practices using self-developed questionnaire. The results showed that the assessment training had a positive impact on teachers' assessment practices and skills as well as on their feelings regarding assessment and confidence in using performance-based assessment.

Alkharusi, Kazem, and Al-Musawai (2011) using a questionnaire compared assessment skills of randomly selected 279 pre-service teachers and 233 in-service teachers from Oman. Results indicated that in-service teachers tended to have a higher level of perceived practical skilfulness in performance-based assessment than pre-service teachers, thereby testifying the value of including teaching experience when preparing teachers in performance-based assessment.

Using a case study on teachers in Bordeaux Metropolitan high school in France, Lyon (2011) using questionnaire in soliciting teachers' views about performance assessment described the alignment of teachers' beliefs about educational assessment and their classroom assessment practices. As evident by classroom observations and reflective journals, results demonstrated that teachers holding views about educational assessment aligning with

constructivist and sociocultural views of learning tended to put a high emphasis on the performance-based assessment strategies such as group projects compared to traditional assessment practices such as multiple-choice tests. Also, those teachers tended to interpret assessment results using a criterion referenced approach rather than a norm referenced approach. However, teaching load and other school responsibilities could cause conflicts between teachers' assessment beliefs and practices, in that the teachers do not always have time to enact all of the assessment practices that align with their beliefs about educational assessment.

Alkharusi, Aldhafri, Alnabhani, and Alkalbani (2012) in their study in Oman, among randomly sampled 165 in-service teachers, using a self-report questionnaire revealed the importance of teachers attitude towards educational assessment, self-perceived competence in educational assessment, assessment training, and gender when considering teachers' educational assessment. Results revealed that although teachers held a favourable attitude towards and perceived themselves as being competent in educational assessment, they demonstrated a low level of knowledge in educational assessment. Teachers used a variety of assessments in the classroom primarily for assigning grades and motivating students to learn, with some variations by gender, grade level, and subject area. Teaching load and teaching experience accounted for some of the variations in teachers' educational assessment practices.

In a study of randomly sampled 67 pre-service teachers and purposively sampled 10 in-service teachers in the United States, Mertler (2004) found that pre-service teachers demonstrated lower levels of performance-based assessment practices in choosing and developing

appropriate performance-based assessment methods, administering, scoring, and interpreting assessment results and recognizing unethical assessment practices.

In a review of literature on teachers' grading practices concerning performance-based assessment, Brookhart (1994) located 19 studies that were done since 1985. Seven of the studies focused on grading practices of secondary school teachers, 11 studies investigated both elementary and secondary school teachers, and one study included only elementary school teachers. Research methods employed in those studies included surveys in which teachers were asked about the components incorporated in term grades, grade distributions, and their beliefs about grading issues and grading scenarios; and observations, interviews, and document analyses.

Based on this review, Brookhart (1994) concluded that teachers' performance-based grading practices were inappropriate and deviated from the recommendations of educational assessment experts. In a related survey research study of grading practices for 91 middle/high school science teachers, Feldman, Alibrandi and Kropf (1998) found that teachers primarily used traditional forms of assessment to determine report card grades instead of performance-based assessment. Student's work habits, class attendance and behaviour were reported as being rarely used. No statistically significant differences were found by teacher's gender, years of teaching experience, and school's geographic location on forms of assessment used in grading.

Challenges Faced by Teachers in the Practice of Performance-Based Assessment

The act of assessing students through performance-based assessment is good in developing students to work independently but is believed to be fraught with numerous challenges. Edelenbos and Kubanek-German (2004) in reviewing literature on empirical studies revealed that demographics, teacher beliefs, teacher training, class size and teacher experience in actual teaching may combine to serve as challenge to teachers when assessing students through performance-based assessment practices.

According to Ransuran (2006), it is noted that the challenge teachers have in the effective practice of performance-based assessment may relate to teachers' enormous workloads for meeting the policy requirements of performance-based assessment. A report made possible on teacher workload in South Africa about 568 randomly sampled teachers was evidence and presented on the large volumes of paper work required for the recording of assessment information (Education Labour Relations Council, 2005). In the report, it was noted that a moderate amount of time was spent on marking and a substantial amount of time was spent on the preparation of portfolios and the inputting of marks, which ranged from 18% to 36% of total teaching time available. However, limited information was reported on how much time was spent by teachers on preparing for assessments. Given that performance-based assessment is extremely time-consuming activity, it is conceivable that teachers may spend more time on administrative aspects of assessment and less time on learning and teaching activities (Education Labour Relations Council, 2005).

In using questionnaire on performance-based assessment among purposively selected 60 teachers in Man Tak Primary School in China, Chun (2015) noted that teachers encountered a number of challenges in the process. Very often, there were new teachers joining the school in new academic years, with some of them not having the professional knowledge and skills in performance-based assessment. Some others never agreed with the use of performance-based assessment or would not be willing to change their mind-set unless they saw the good results of performance-based assessment. In this, the school had to allow adequate time for these new teachers to establish their relevant concept and practice and again the existing teachers in the school needed to have the professional knowledge and patience to help the new colleagues to understand and work on performance-based assessment.

Although teachers generally accept the concept of performance-based assessment, yet they have difficulties to put it into regular practice. According to Organisation for Economic Co-operation Development (2005), reviewing scholarly based literature indicated that the major identified obstacles in the practice of performance-based assessment are the big class size and extensive curriculum requirements.

In a study using a parallel mixed-methodology approach, Ogan-Bekiroglu (2009) using questionnaire and adopting the probability sampling techniques examined attitude towards and competence in performance-based assessment of 46 Turkish teachers who completed an educational assessment course. The first order of the quantitative part was to determine pre-service teachers' attitudes towards assessment. Then, a possible relationship between pre-service teachers' internal difficulties related to their assessment skills and

their attitudes was investigated. Finally, an investigation was conducted to look for a relationship between pre-service teachers' self-efficacy and their attitudes. For the quantitative aspect of the research, a questionnaire composed of 69 items was used. There were two intentions of the qualitative part. The first intent was to determine pre-service teachers' attitudes towards assessment and validate the results drawn from the quantitative research. The second intent was to examine how subject matter knowledge and external difficulties might affect pre-service teachers' assessment. For the qualitative aspect of the research, open-ended questions were developed and used in both written questionnaire and semi-structured interviews. Results showed that although teachers held constructivist views and had a high sense of competence about performance-based assessment, they had difficulties such as time and grading in performance-based assessment practices.

Bushman and Schnitker (as cited in Ogan-Bekiroglu, 2009) using questionnaire surveyed 29 professional teachers purposively chosen. Their findings indicated that teachers saw performance-based assessment as an effective means of addressing students' progress, strengths, and weaknesses. However, most of them identified practical problems with portfolio use, such as inadequate training and time management. By following a random selection of 38 English secondary school teacher candidates across time, Graham (as cited in Ogan-Bekiroglu, 2009) equally discovered that although many pre-service teachers grew to accept performance-based assessments as valuable evidence sources indicating student learning, they recorded concerns that fell into the following five overlapping categories; designing goals, rubrics,

grading and fairness, grading and motivation, validity of assessments, and time required to plan performance-based assessment.

After surveying 331 teachers from Kentucky, USA who were sampled using probability sampling techniques, using a self-report questionnaire, Kleinert et al. (as cited in Ogan-Bekiroglu,2009) pointed out that teachers realised benefits of performance-based assessment, and perceived positive changes in both instructional programming (students' learning to follow their own individualised schedules, students' learning to assess their own performance) and enhanced student outcomes. On the other hand, teachers expressed frustration with the amount of time required to complete assessment of portfolios. Furthermore, they had concerns over scoring reliability and the extent to which the alternative forms of assessment were more of a teacher assessment than a student assessment. Lofters (as cited in Ogan-Bekiroglu, 2009) conducted a study among 400 Jamaican primary school teachers who were chosen using stratified and random sampling techniques. It was revealed that, teachers had a favourable attitude towards assessment but most of them did not place enough importance on use of performance-based assessment methods in their teaching. According to Ogan-Bekiroglu (2009), the common findings from the study pointed out that teachers' value performance-based assessment for the benefits to their students and also state appreciation for the increased communication with their students. Nevertheless, teachers' express frustration with the amount of time required to complete alternative assessment methods and concern about inadequate knowledge of how to assess their own students' learning. Crowded classrooms, lack of space, lack of facilities, and the structure of the curriculum emerged as factors as well.

It is believed that lack of knowledge or insufficient knowledge regarding performance-based assessment pose a major challenge in the assessment practices by teachers in their daily academic activities. For instance, a study conducted in Turkey by Metin (2013), used descriptive feature of the qualitative approach (semi-structured interview). The study was composed of 90 teachers (30 primary teachers, 15 science and technology, 16 mathematics, 14 social science and 15 Turkish language teachers). The study focus was on difficulties encountered by teachers in using performance-based assessment, and the study revealed that teachers had insufficient knowledge in terms of scoring rubric when using performance-based assessment. The teachers reported that performance-based assessment could be prepared and but cannot find scoring rubrics related to task topics. With those who were using performance-based assessment already, the study further revealed that teachers had not prepared the performance-based assessment task themselves but made use of the previously designed performance tasks (Metin, 2013). In that same study, Metin (2013) indicated that most teachers reported that they were challenged in terms of performance-based assessment because their classes were very large and this defeated objectivity in the practice of performance-based assessment. Again, in most cases teachers were drawn back in the practice of performance-based assessment because they became indecisive in terms of the subject and areas to concentrate on for performance-based assessment and were sometimes constraint with regards to environment or laboratories to execute such performance tasks (Metin, 2013). It was revealed that teachers were challenged with time, so hardly did they engaged students in practical or problems-based learning and this equally defeated the

value of performance-based assessment in the 21st Century educational practice (Metin, 2013).

Although practicing teachers were found to have higher assessment literacy than pre-service teachers (Mertler, 2003; 2004), in-service teachers often believed that they had not received sufficient training in their undergraduate preparation program in order to feel comfortable with their skills in making assessment decisions (Mertler, 2003). A possible consequence of their lack of preparation is that many practicing teachers did not have a clear sense of how to properly use assessment data to improve instruction. In fact, teachers' instructional planning may be based more on classroom management considerations than concern for fine-grained individualised assessment and instruction (Conca, Schechter, & Castle, 2004).

Addressing these concerns with in-service assessment education has been problematic for a number of reasons. Popham (2004) in a study among teachers identified two common barriers to practicing teachers developing their assessment literacy. These were lack of prior assessment training during their preservice education and the common misconception that assessment literacy entails an exclusive focus on learning technical measurement and statistical concepts. He argued that acquiring the knowledge to evaluate standardized tests and use classroom assessments is less challenging than many teachers think. He also contended that sufficient assessment literacy is fundamental for teachers to participate competently in the selection of appropriate tests that allow them to demonstrate their teaching effectiveness.

During schools visit in the USA, Nidhi, Michael and Alison (1995) reported that the effects of performance-based assessments on teaching and

learning were not uniform in the schools visited. They found that a lack of time and poorly defined content and performance standards hindered teachers' efforts to adopt performance-based assessments and teachers who did not have access to adequate professional development and support had even greater difficulty. All the teachers interacted with expressed concern about the lack of time for planning and developing performance-based tasks, and for scoring and interpreting the information gained from the assessments. It was again identified that lack of clearly defined content and performance standards, especially for the state- and district-initiated assessments, was a second major concern. Performance-based assessments were seen to be marginal to the school because of the way they are implemented. In the schools, teachers administer performance-based assessments only once a year and these assessments have not affected teaching and learning in any fundamental way (Nidhi, Michael, & Alison, 1995).

Ways that can be used to Improve Teachers Practice Of Performance-Based Assessment in Schools

Nidhi, Michael, and Alison (1995) visitation to schools in Oregon, United States to ascertain the use of performance-based assessment by teachers demonstrated the need for professional support and development at the local level for teachers who lack knowledge in performance-based assessment. Teachers need training in how to use these different instructional strategies that are embedded in performance-based assessment. They need to learn how to develop projects and performance-based assessments that effectively address multidisciplinary understanding and critical thinking skills of the students they teach. According to Nidhi et al. (1995), the impact of

performance-based assessments on teaching and learning has, on the surface, been substantial. Students are now writing and engaging in projects that cut across traditional subject areas they are engaged in and excited about learning.

Moreover, in an attempt to make educational assessment and measurement training more relevant to classroom teachers' work, several educators (Airasian, 1991; Arter, 1999; Schafer, 1991; Stiggins, 1991) have recommended certain content areas to be included in the professional preparation of teachers in educational assessment and measurement. For example, Airasian (1991) mentioned that non-traditional assessment topics such as using and improving performance-based assessment methods, planning instruction, critiquing instructional materials, assessing learning during instruction, and evaluating curriculum-embedded tests are more important than the traditional topics covered by educational measurement courses.

Stanford & Reeves (2009) deducing from the literature on the challenges or problems faced by teachers when using performance-based assessment noted that, there is the need for a sound and well clear cut assessment standard that can be used as a yardstick in determining whether students have been able to achieve the objectives set. This can be in the form of clear rubrics that is standard to the situation. According to Stanford and Reeves (2009), rubrics are both a tool to measure students' knowledge and ability as well as an assessment strategy. A rubric allows teachers to measure certain skills and abilities not measurable by standardised testing systems that assess discrete knowledge at a fixed moment in time.

To U.S. National Council of Teacher of English (2014), based on the practical nature of performance-based assessment in relation to class size, it will be prudent that teacher-student ratio be reasonable in schools so that teachers can reach out to all students assigned to projects and objectively assess their products. The larger the class the lower and weaker the assessment process and the smaller the class the higher and stronger the assessment process (National Council of Teacher of English, 2014). In United States according to National Council of Teacher of English (2014) report, students in smaller classes perform better in all subjects and on all performance-based assessment tasks when compared to their peers in larger classes. In smaller classes students tend to be as much as one to two months ahead in content knowledge, and they score higher on standardized performance-based assessments.

Bruhwiler, Blatchford and Chingos (as cited in National Council of Teacher of English, 2014) indicated that the positive effects of small class sizes are strongest for elementary school students, and may become more powerful and enduring the longer students are placed in smaller classes. It is believed that smaller class size students stand the chance to benefit directly from teachers who supervise their work because they are easily reached out to than the larger class size. The National Council of Teacher of English (2014) indicated that students talk and participate more in smaller classes as they are much more likely to interact with the teacher directly. Not surprisingly, students describe themselves as having better relationships with their teachers in smaller classes and evaluate both these classes and their teachers more positively than do their peers in larger classes. Students display less disruptive

behaviour in small classes, and teachers spend less time on discipline, leaving more time for instruction (Bedard & Kuhn, 2008).

Specifically, teachers in smaller classes can diagnose and track student learning and differentiate instruction in response to student needs. In smaller classes students spend less time off-task or disengaged from the work of the class, and they have greater access to technology. According to Dee & West (2011) and Fleming, Toutant, and Raptis (2002), smaller class sizes can help students progress greater ability to adjust to intellectual and educational challenges.

In the U.S., the National Board for Professional Teaching Standards (as cited in Baratz-Snowden, 1990) indicated that high and rigorous standards for teachers should be encouraged so that teachers be able to develop and use performance-based assessment techniques to assess their students (Baratz-Snowden, 1990). In that regard, the US National Board of Certification, asserts that, teacher candidates must complete a rigorous two-part assessment. The assessment includes a performance-based assessment (portfolio) completed by the teacher at the school site, which incorporates student work samples, videotapes of classroom practice, and extensive written analyses and reflections based upon these artifacts. The portfolio is meant to allow teachers to present a picture of their practice as it is shaped by the particular needs of the students with whom the teachers work and the particular context of the teacher's school. The assessment also includes a set of exercises completed at a local assessment center during which candidates demonstrate both content knowledge and pedagogical content knowledge through tasks such as

analysing teaching situations, responding to content matter prompts, evaluating curriculum materials, or constructing lesson plans (Sato, 2000).

A common thread running through the research is teachers' reported change in their understanding of assessment in their classrooms due to re-training. For example, Athanases (1994) reported that almost 90% of the teachers in his study indicated that their performance-based assessment practices improved as a result of their participation in the National Board portfolio assessment process. In particular, teachers felt their ability to assess student learning improved. In a longitudinal, quasi-experimental study that investigated learning outcomes for high school science teachers who pursued National Board of Certification exams, Lustick & Sykes (2006) found that one of the most significant areas of learning was related to the teaching standard for assessment. Interview data with teachers suggested that this standard helped the teachers deepen their conception of assessment, leading them to see instructional purposes of assessment beyond summative test results and grades.

Research on learning also suggests that understanding is strengthened when the learners are asked to take an active part in determining what they understand and how they came to that understanding, as well as what they still need to learn (National Research Council, 2000). Classroom practices that aid this kind of metacognition include peer- and self-assessment, reflection on one's own progress and determining what needs further improvement, and activities geared toward allowing students to make sense of new concepts through talk or writing, which allow the teacher to gather information on

student understanding to guide his or her next steps (Palincsar & Brown, 1984; Scardamalia, Bereiter, & Steinbach, 1984; White & Frederiksen, 1998).

Gender and Knowledge and Practice of Performance-Based Assessment

Despite the efforts put in place to bridge the gap between males and females in many fields in terms of their performance, the discrepancy exists and this is not different in education. A study by Alufohai & Akinlosotu (2016) in Nigeria among a randomly sampled 543 teachers concerning their attitudes in the district towards performance-based assessment practices was reviewed. The study was undertaken to determine the influence of gender, age, years of experience and area of educational specialization on teachers' attitude towards PBA practices in secondary schools in the district. The researchers distributed 543 questionnaires. However, 512 questionnaires were recovered and used for analysis. Mean and standard deviations (S.D) were used to analyse the research questions while the t-test statistics was used to test the hypotheses.

It was revealed that performance-based assessment knowledge among the teachers did not differ by gender and age. Rather, the years of experience and area of specialisation were found to be significant predictors of teachers' attitude towards performance-based assessment practices. Further, Alkharusi (2009) found that assessment knowledge of pre-service teachers tended to vary as a function of gender. Specifically, in a survey of 211 randomly sampled pre-service teachers in Malaysia, Alkharusi (2009) using close-ended questionnaire, found that males tended to have on average a higher level of knowledge in performance-based assessment than females.

When studying self-perceived assessment skills of randomly sampled 213 Omani teachers, Alkharusi (2011c) found that female teachers seemed to be more skilful than male teachers in writing test items and communicating assessment results. Further, in a study using a self-report questionnaire on 516 in-service teachers in Oman, Alkharusi (2011a) found that in-service assessment training and gender correlated positively with males having performance-based assessment knowledge better than females. Similarly, when examining educational assessment knowledge of randomly sampled 259 pre-service teachers who completed an educational assessment course, Alkharusi (2011b) found that male teachers tended to have on average a higher level of educational assessment knowledge than female teachers.

Relationship between Teachers' Knowledge in Performance-Based Assessment and the Practice of Performance-Based Assessment

Research on the impact of teacher knowledge in performance-based assessment and its practice and influence on student learning outcomes is scarce. However, it is possible to believe that better knowledge in performance-based assessment of teachers may lead to teachers practicing, which in turn will influence students' performance. According to Guerriero (2012), investigating the knowledge of teachers in performance-based assessment and understanding how this knowledge functions in the teaching-learning process among 521 randomly sampled Italian teachers, it was revealed that teachers applied their knowledge in making decisions about performance-based assessment.

Studies investigating how teacher knowledge in PBA influences their practice of PBA seems to suggest that, for a teacher to make informed

decisions about practicing PBA, teachers must be able to analyse and evaluate specific learning experiences, in combination with contextual and situational factors, and to be able to connect all this information to their specialist knowledge of the teaching-learning process in order to guide subsequent teaching actions (Thus, making good instructive and practical decisions hinge on the quality of the knowledge held by the teacher (Guerriero, 2012).

Qualification, Experience and Knowledge on Performance-Based Assessment

There are studies that have found no significant relationship between teacher educational qualification and their practice of performance-based assessment. Igwe (as cited in Abe, 2014) investigated the differences of teacher's qualification and their practice of performance-based assessment among randomly selected 345 teachers in Kano State, Nigeria. The researcher found no significant difference among teacher's qualification based on their practice of performance-based assessment.

Abe (2014) in a study among 300 randomly selected teachers with different degrees and qualifications in Ekiti State, Nigeria revealed that teachers who possessed advance qualifications or degrees were more adequate in knowledge and practice of performance-based assessment than those with low or intermediate certificates. The revelation therefore implied that the more qualified certificates, the more probable one may practice performance-based assessment as a teacher. While Adeniji (1999); Osokoya (1999) and Oladele (1999) found out that teacher's qualification contributed minimally to the variance with their practice of performance-based assessment, Cowie (2005)

study among randomly selected 340 teachers found that teacher's experience was highly significant on their practice of performance-based assessment.

Chapter Summary

The chapter empirically showed that performance-based assessment is a major component of 21st Century educational assessment. However, the process is fraught with issues in terms of teachers' knowledge to execute performance-based assessment, teachers' practical skills in using performance-based assessment, time constraints as a challenge in using performance-based assessment and the difficulty in getting standardized grade scoring when performance-based assessment is used by teachers'. It was reviewed that the more knowledgeable a teacher is having in PBA, the more he or she would practice PBA it in the classroom, if all things being equal. With respect to the practice of PBA, it was evident in the literature that teachers' knowledge in PBA has a direct relationship with their practice. In previous works, teachers seems to face challenges in the quest of practicing PBA. It was again shown in the literature that small classes, sound and well clear assessment procedure, setting standards could serve as some ways to improve PBA. In relation to gender differences, the literature indicated that gender differences existed among teachers. In some cases, males are higher while in others females are higher in knowledge and practice of PBA. Literature also has it that qualification in some instances has a reflection in teachers' knowledge and practice of PBA. In some studies teachers' with higher degrees are knowledgeable in PBA and practice it as well and the vice-versa. The implication to this study is that, the teachers investigated may or not be having the required knowledge in PBA, the zeal to practice and as well tailor their

teaching towards the self-development of students through hands-on class work.

CHAPTER THREE

RESEARCH METHODS

Introduction

The chapter presents the methodology that was used for the study and focuses on research design, study area population and sampling procedure. It also provides information regarding the data collection instrument, data collection procedure and data analysis.

Research Design

Descriptive research design was used for the study. The design is deemed appropriate since the study sought to examine teachers' knowledge and practices of performance-based assessment in junior high schools in the Berekum Municipality. The study invariably involved self-constructed questionnaire and documentation checklist analysis, using teachers' lesson note books and leading teachers to provide information on their knowledge and practices of performance-based assessment in the classroom.

According to Koul (2009), descriptive research design involves measurement, classification, analysis, comparison and interpretation. It collects three types of information which include what is in existence, comparing what exist with the norm or desirable, and how to achieve goals. Even though descriptive research design is considered primitive, it is able to provide information to solve problems and at times provide data to form the basis of another research. The use of descriptive research design actually

involves concentrating on events that have happened and are related to the current happenings. It gives a picture of a situation as it occurs in its natural setting without any manipulation (Frankfort-Nachmias & Nachmias, 2007).

The use of descriptive research design varies greatly in complexity. At one instance, it constitutes frequency count of events to study local problems without any significant research hypothesis. At another instance, it attempts to ascertain significant interrelationships among phenomena (Koul, 2009). Some short comings of a descriptive research design are that, results obtained from the analysis do not allow for strong findings to be made concerning a cause and effect relationship between variables and also does not reflect in-depth description of the phenomenon (Frankfort-Nachmias & Nachmias, 2007). Per the characteristics of the study, the design helped to assess teachers' knowledge and practices of performance-based assessment in Junior High Schools in the Berekum Municipality.

Population

The population for this study was all Junior High School teachers in the Berekum Municipality in the Brong-Ahafo Region of the Republic of Ghana. The accessible population was all the 598 Public Junior High School teachers in the Berekum Municipality. According to Burns and Grove (2003), population represents all the elements that meet the criteria for inclusion in a research study and where study findings is generalisable on.

Study Area

The Berekum Municipality is one of the 22 Districts in the Brong-Ahafo Region of the Republic of Ghana. The Municipality is located close to the western part of the Brong-Ahafo Region and covers an area of 955km2

(369 sq mi). It shares political and administrative boundaries with four other Municipalities and District, thus, Dormaa Municipal, Sunyani Municipal, Tain District and Jaman South District. The Berekum Municipality lies between longitudes 7.27° East, 2.35° West and latitudes 7.45° North 2.583° South. It has population of 60, 478 predominantly agrarian. The Berekum Municipality has eight educational circuits for public schools. It has 33 public junior high schools. The municipality has six (6) senior high schools, four (4) of which are public senior high and the remaining are private owned senior high schools. The Berekum Municipality also has two tertiary institution, one college of education and one nursing training college. Berekum is therefore, a cosmopolitan area.

Sampling Procedure

The sample size for the study was 588 Junior High School teachers. Polit and Hungler (2010) defined a sample as a proportion or a subset of the target population that serves as true representative of the target population. This study employed a probability sampling technique. Per the nature of the study, census was used to include all teachers in the public Junior High Schools in the nine (9) educational circuits in the Berekum Municipality for the study. A census is an attempt to list all elements in a group and to measure one or more characteristics of those elements. A census can provide detailed information on all or most elements in the population, thereby enabling totals for rare population groups or small geographic areas. Census is used to increase the power of testing the hypotheses, reduce sampling error and also to generalise confidently (Cantwell, 2011).

Data Collection Instruments

The study adopted questionnaire and document observation checklist as the main instruments for the data collection. The choice of questionnaire and document observation checklist was that, after examining the research questions and the objectives, it was clear that an in-depth analysis was to be made to the case, which called for a Likert scale type questionnaire and a documentation checklist for the quantitative method.

A questionnaire is an instrument which consists of a series of questions dealing with psychological, social, and educational topics given to an individual or a group of individuals with the objective of obtaining data with regard to some problems under investigation (Lune & Berg, 2016).

Goode and Hatt (as cited in Koul, 2009) stated that questionnaire refers to a device aimed at securing answers to series of questions by using a form which the respondent fills it himself or herself. Barr, Davis and Johnson (as cited in Koul, 2009) also expressed similar definition by saying that questionnaire is a systematic compilation of questions that are administered to a sample of a population from which information is desired. A questionnaire was chosen because of its ‘‘ability to reach respondents who live at widely dispersed addresses’’ and the ‘‘low cost of data collection’’ associated with it (Oppenheim, 2000, p. 102). The instruments were developed based upon existing literature. In spite of the fact that a questionnaire does not allow probing, prompting, and clarification of question, questionnaire was the most appropriate instrument for the study because it offers greater assurance of anonymity, less opportunity for bias and errors, a stable, consistent and

uniform measure of variation. Besides, questionnaire produces quick results (Creswell, 2013).

A Likert scale is series of gradations, levels or values that describe various degrees of something. Scales are used extensively in questionnaires because they allow fairly accurate assessment of beliefs or opinions. This is because many of our beliefs and opinions are thought of in terms of gradations (McMillan & Schumacher, 2010). Likert type scales are used to register the extent of agreement or disagreement with a particular statement of attitude, beliefs or judgment (Tuckman, 1994). The most widely used Likert type scale is either a four or five-point scale (Gray, 2013). But for the purpose of this study, a four-point Likert scale was used to ascertain the knowledge level and practice of Junior High School teachers in performance-based assessment in the Berekum Municipality.

With a four (4) point Likert Scale, the questionnaire was arranged according to agreement level (Strongly Agree, Agree, Disagree and Strongly Disagree). Observation check list was also used to determine the level teachers' practices of performance-based assessment in their lesson note books. A checklist was prepared as a guide for the observation. The questionnaire was put into five sections labelled A-E, section 'A' focused on the bio data of the respondents which contained four items, as gender, age range, educational qualification and years of service; section 'B' also focused on the teachers knowledge on Performance-based Assessment with thirteen items; section 'C' assessed the teachers practices of Performance-based assessment with ten items under it; section 'D' contained eleven items to examine challenges faced by teachers in the practice of Performance-based

assessment and lastly was section 'E' which contained ten items on ways to improve the practice of Performance-based assessment. Therefore, the four point Likert scale questionnaire contained a total of forty-four (44) items excluding the bio data of respondents.

The document observation checklist was also designed to compensate section 'C' of the questionnaire which is assessing teachers' practices of performance-based assessment. The document observation checklist contained seven items examining teachers' practice of some performance-based assessment approaches. It was dichotomously scored as 'Yes' and 'No'.

Validity and Reliability of the Instruments

According to Dambudzo (2009), the idea of validity hinges on the extent to which research data and the methods of obtaining the data are deemed accurate, honest and on target. Practically, the validity of an instrument is assessed in relation to the extent to which evidence can be generated in support of the claim that the instrument measures the attributes targeted in the proposed research. To ensure the validity of the construct, the self-developed questionnaire was evaluated by my supervisors. The supervisors' expert knowledge and experience helped as they were able to determine whether the individual items of the questionnaire served as a true reflection of the variables of interest. The supervisors also ensured that the questionnaire carried what it is supposed to measure.

To ensure reliability of the instrument, I pretested the questionnaire and the document observation checklist before carrying out the actual study in Berekum Municipality in order to check the relevance of the instruments for the purposes of the research and the clarity of the items on the instrument.

This was in order to eliminate ambiguities in wording, identify redundant questions and misunderstood items, and, to gain feedback on the validity of the instruments.

Items on the questionnaire that were found to be ambiguous and those not suitable were reconstructed. Other items which were found to elicit similar responses were reconstructed. The relevant corrections was made before the final administration of questionnaire. The research instruments were pre-tested at two (2) Junior High Schools in Cape Coast Metropolis, the Imam Khomeini Junior High School in Amamoma and the Kwaporow M/A Junior High School in Kwaporow. The pre-testing took place in these two schools in the Cape Coast Metropolis because the teachers in these two schools and teachers in the Berekum Municipality have the similar characteristics in terms of qualification and training, job description, work environment and curriculum used.

Since the questionnaire was predominantly Likert scale and I wanted to estimate the internal consistency of the instruments, Cronbach's alpha was deemed the best method to estimate the reliability of the instrument. The closer a reliability coefficient value is to 1, the more reliable the test, while the closer the reliability coefficient value is to 0, the less reliable the test (Gay, Mills and Airasian, 2009). The pre-testing was to discover any weakness in the instrument, check for clarity of the questions or items and also elicit comments from respondents that would assist in the improvement and modification of the instrument. Pre-testing also enabled me to detect any flaws in the instrument and amendments were made. Means and standard deviations were used to check how responses on items were homogeneous and for that matter, all items were homogenous. The obtained reliability was .810 indicating that the

instrument was reliable for the composite items. However, the reliability of the sub-scale were obtained. Table 1 presents result of reliability coefficient for each of the variables.

Table 1: *Reliability Coefficient for Each of the Variables*

Study Variables (Skills)	Reliability Coefficient (α)
Knowledge	.690
Practice	.588
Challenges	.943
Ways to improve Teachers Practice of SBA	.769
Document Checklist	.762

Source: Field survey, (2019)

Ethical Considerations

McNabb (2015) points out that there are four stages in research ethics, namely: planning, data gathering, processing and interpretation of data as well as the dissemination of results. First of all, an ethical clearance was sought from the Institutional Review Board (IRB) after an introduction letter was obtained from the Department of Education and Psychology (see Appendix C of page 159). At the data collection stage, in administering questionnaires, due honesty was exercised. The teachers had the opportunity to fill their questionnaires privately, in order to ensure confidentiality. In dissemination of results, measures were taken to ensure privacy, anonymity and confidentiality of all participants. The names of the participants were not used or revealed throughout the research project. The discussion of the findings were based on the trends that emerged from the data and not from any preconceived ideas. A letter of consent to participate in the study was given to teachers. This letter

was to show courtesy to them and also as a means of ensuring their informed consent to participate in the study.

The teachers were given time to consider the risks and benefits of being involved in this research and decide whether to take part without being coerced. Participants were also informed of all the benefits and risks of the study. Since the research participants were teachers, I sought authority from the school management. The participants were told about the general nature of the study as well as about any potential harm or risk that the study may cause.

Data Collection Procedures

A letter of introduction was obtained from the Department of Education and Psychology (see page Appendix B, page 158). The letter spelt out the purpose of the study, the need for individual participation, anonymity as well as confidentiality of respondents' response. The obtained letter together with the proposal was submitted to the Institutional Review Board (IRB) for scrutiny and ethical clearance (see Appendix C, page159). I also established the necessary contacts with the Municipal Director of Education and head teachers of the selected schools to seek permission to administer the questionnaire after the Institutional Review Board (IRB) had granted ethical clearance which was then submitted to the Municipal Director of Education. The head teachers also led the process to co-ordinate the collection of the instruments from teachers who were participating.

Consent was sought from participating teachers of the Berekum Municipality before including them in the data collection. This was achieved by explaining the purpose of the study to them and giving them an informed consent form to fill, indicating their willingness to be involved in the research.

The selected teachers were made to be aware that they have the right to discontinue the process at any time they feel responding to certain questions infringe upon their privacy or right.

Selected teachers for the study were informed that their names and other demographic characteristics which identify them personally would not be disclosed with information they provide to me, ensuring anonymity of data provided. I also allowed the respondents to ask questions for clarity in the items if the need be. They were allowed to seek detailed explanation of items that seemed ambiguous to them. The questionnaire was administered to the teachers at one sitting with the help of the head teachers. Most of the respondents used a maximum of 15 minutes to respond to the items on the questionnaires and the process lasted for two (2) weeks with 98.0% return rate. With the documentation observation checklist, teachers' lesson note books were required for the data collection, nine (9) teachers were trained on how to use the observation checklist to serve as field assistants, this training lasted for a day. With the seven items on the checklist, observation lasted for a day for each school for the two weeks of the data collection period. All the 588 teachers made themselves available for the observation exercise. For the sake of anonymity, the teachers were asked not to write their names as well as their school name on the questionnaire.

Data Processing and Analysis

After data has been gathered, the data was processed and managed by coding the data, editing the data where appropriate, entering the data into the appropriate software (Statistical Package for the Social Sciences, version 22) to generate results and finally cleaning the data to remove any forms of

mistakes that might have gone unnoticed. Descriptive statistics was employed to analyse the background information because it is suitable for meaningful interpretation, conclusions and recommendation of data. For the analysis, research questions one to four were analyse using means and standard deviations. To employ the means and standard deviations in the analysis, the teachers responded to statement using strongly agree, agree, disagree and strongly disagree. The scales were scored as Strongly Agree =4, Agree =3, Disagree=2, Strongly Disagree=1. The criterion value of 2.50 was determined for the scale. To gain the criterion value (CV=2.50), the scores were added together and divided by the number scale (that is 4+3+2+1= 10/4=2.50). Therefore, to interpret the results, any item that scored a mean of 0.0 to 2.49 was regarded as teachers' disagreement and a mean of 2.50 to 4.0 was interpreted as teachers' agreement.

With respect to the hypotheses, research hypothesis one was analysed with inferential statistics (Pearson Product Moment of Correlation coefficient). Correlation determines the direction of a relationship between variables. The Pearson Product Moment correlation coefficient varies between -1 (negative correlation) through 0 (no correlation) to +1 (positive correlation). This means that a correlation coefficient that fall within 0.6 to 1 shows a strong correlation between the variables.

Hypothesis two was analysed using inferential statistics (One-Way Analysis of Variance). ANOVA was to determine whether there is a statistically significant difference between the means in three or unrelated groups. The dependent variables here was the Practice of Performance Based Assesment. In addition, the between groups one–way analysis of variance

(ANOVA) was used to analyse data for research hypothesis three in order to find out the years of teaching experience that had the most influence the teachers' knowledge level and practice in performance-based assessment.

Finally, the documentation observation checklist was also analysed using descriptive statistics (frequencies and percentages) because its nature as it was dichotomously score as 'Yes' and 'No'. This was for easily making meanings, interpretation and recommendation.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the analysis and interpretation of the findings of the study. The purpose of the study was to assess the level of knowledge and practices of performance-based assessment by Junior High School teachers in the Berekum Municipality. The analysis and interpretation of data were carried out based on the results of the research questions and hypothesis formulated for the study. The analysis was based on the 98% return rate data obtained from 588 teachers selected for the study. The data was analysed using descriptive statistics (means, standard deviations, frequencies and percentages). The first part of this chapter was devoted for the demographic characteristics of the teachers which were analysed using frequencies and percentages. In the second part, the research findings are presented based on the research questions and hypothesis stated for the study.

The section A aspect of the questionnaires related to the background information of the Junior High School teachers who took part in the study. Demographic variables for the teachers included their gender, age, educational qualification and years in service. The data was analysed using frequencies and percentages to indicate how the demographic data represented the Junior High School teachers in the Berekum Municipality.

Table 1 presents the gender distribution of the Junior High School teachers in the Berekum Municipality selected for the study.

Table 2: *Distribution of the Respondents by Gender*

Variables	Freq.	Percent %
Male	380	64.6
Female	208	35.4
Total	588	100

Source: Field survey, (2018)

Table 1 shows that on the basis of gender the majority of the Junior High School teachers who took part in the study were males representing (n=380, 64.6%) while the female teachers were (n=208, 35.4%).

Table 2 presents the distribution of the respondents by Age range of Junior High School teachers in the Berekum Municipality.

Table 3: *Distribution of the Respondents by Age Range*

Variables	Freq.	Percent %
Below 30	242	41.2
31-35	206	35.0
41 and above	140	23.8
Total	588	100

Source: Field survey, (2018)

Table 2 shows that most of the Junior High School teachers who responded to the items on the questionnaire were below 30 years (n=242, 41.2%) and those who were within the age range of 31-35 years followed (n=206, 35.0%). Responded who had age 41 and above were the least (n=140, 23.8%).

Obtained results on the educational qualifications of the Junior High School teachers are presented in Table 3.

Table 4: *Distribution of the Respondents by Educational Qualification*

Variables	Freq.	Percent %
Diploma	169	28.7
Bachelors	365	62.1
Masters/PhD	54	9.2
Total	588	100

Source: Field survey, (2018)

Table 3 shows that respondents with Bachelor's degree were the majority (n=365, 62.1%), while those with Diploma followed (n=169, 28.7%). Junior High School teachers with either Masters or PhD recorded the least count (n=54, 9.18%).

Obtained results on the years of service of the Junior High Schools teachers who responded are presented in Table 4.

Table 5: *Distribution of the Respondents by Years of Service*

Variable	Freq.	Percent %
1-4	40	6.8
5-8	324	55.1
9 years and above	224	38.1
Total	588	100

Source: Field survey (2018)

Table 4 shows that most of the teachers had 5-8 years of teaching experience (n=324, 55.1%). Those who had 9 years and above recorded the second highest (n=224, 38.1%) and those with 1-4 years of teaching experience recorded the least count (n=40, 6.8%).

Research Question One: What is the knowledge level of Junior High School teachers in PBA in the Berekum Municipality?

One of the main motivation of this study was to assess the level of knowledge level of Junior High School teachers about performance-based assessment in Berekum Municipality. To achieve this, the teachers were made to strongly agree, agree, disagree and strongly disagree to statements on their level of knowledge about performance-based assessment. The scales of the questionnaire range from 1= Strongly Disagree, 2= Disagree, 3= Agree to 4=Strongly Agree but all statements were negatively worded so in the analysis the scale was reverted as Strongly Disagree =4, Disagree =3, Agree=2, Strongly Agree=1. The criterion value of 2.50 was set for the scale. To obtain the criterion value (CV=2.50), the scores were added together and divided by the number scale (4+3+2+1= 10/4=2.50). It must be noted all the items were negatively worded. Therefore, to interpret the means, any item that scored a mean of 0.0 to 2.49 was regarded as teachers agreeing to the items indicating that their level of knowledge is low and a mean of 2.50 to 4.0 was interpreted as teachers disagreeing to the items and as such indicating that they have high level of knowledge in performance-based assessment. The analysis of the results are presented in Table 5.

Table 6: *Results on the Knowledge Level of Junior High School Teachers in PBA in Berekum Municipality*

Knowledge Level of Teachers in PBA	C Value=2.50		Remarks
	Mean	Std. D	
Performance-based assessment is about assessment that do not require immediate answers like as they allow students to demonstrate practically what has been learnt.	2.809	.7946	High knowledge
Performance-based assessment is not about assessment that require that students actively develop their approaches to the task under defined conditions, knowing that their work will be evaluated according to agreed-upon standards	2.665	1.015	High knowledge
Performance-based assessment is not about assessing students' performance based on execution of project	2.571	.4952	High knowledge
Performance-based assessment is not about developing assessment methods in the classroom through hands on practical work	2.163	.7899	Low knowledge
Performance-based assessment is not about developing, interpreting, and using maps	2.085	1.546	Low knowledge
Performance-based assessment is not about tangible and reliable tasks that demand students to do something with their knowledge and skills on what they have been taught	2.020	.5920	Low knowledge
Performance-based assessment is not expected that students produce a material or exhibit a performance as in writing or self-expression kills	1.942	.6526	Low knowledge

Table 2 continue

Performance-based assessment is not about where stimulus materials and a request for information or action are presented to an individual, who generates a response that can be rated for quality using explicit standards	1.925	.6377	Low knowledge
Performance-based assessment is not about designing and carrying out experiments; writing essays which require students to rethink, to integrate, or to apply information	1.835	.3714	Low knowledge
Performance-based assessment is not about delving into students' higher-order thinking skills such as evaluating the reliability of sources of information, synthesizing information to draw conclusions, or using deductive/inductive reasoning to solve a problem	1.756	.4293	Low knowledge
Performance-based assessment is not about working with other students to accomplish tasks	1.596	.4909	Low knowledge
Performance-based assessment is not about demonstrating proficiency in using a piece of equipment or a technique	1.491	.4339	Low knowledge
Performance-based assessment is not about allowing students demonstrating mastered specific skills and competencies by performance or producing something,	1.406	.4915	Low knowledge
Total	M= 2.028	SD= .6766	

Source: Field survey, (2018)

The results in Table 5 indicated that generally, Junior High School teachers in the Berekum Municipality do not have adequate knowledge in performance-based assessment. This was evident after the group mean (M=2.028, SD=.6766) was less than the cut-off value (2.50). The following are some of the areas that Junior High School teachers in the Berekum Municipality have low level of knowledge in performance-based assessment:

Junior High School teachers in Berekum Municipality were not knowledgeable about the fact that Performance-based assessment is about developing assessment methods in the classroom through hands on practical work (M=2.163, SD=.7899).

Junior High School teachers in Berekum Municipality were not cognisant that Performance-based assessment is about allowing students demonstrating mastered specific skills and competencies by performance or producing something (M=1.406, SD=.4915).

Junior High School teachers in Berekum Municipality do have the idea that PBA is about designing and carrying out experiments; writing essays which require students to rethink, to integrate, or to apply information (M=1.835, SD=.3714). That notwithstanding the above, it was further revealed that Junior High School teachers in the Berekum Municipality lacked the idea that PBA is about working with other students to accomplish tasks (M=1.596, SD=.4909).

Junior High School teachers in Berekum Municipality were not aware that Performance-based assessment is about demonstrating proficiency in using a piece of equipment or a technique (M=1.491, SD=.4339).

Junior High School teachers in Berekum Municipality do not have the knowledge that PBA is about developing, interpreting, and using maps (M=2.085, SD=1.546).

Junior High School teachers in Berekum Municipality do not have the knowledge that PBA is about tangible and reliable tasks that demand students to do something with their knowledge and skills on what they have been taught (M=2.020, SD=.5920).

Further, Junior High School teachers in Berekum Municipality did not know that PBA is about delving into students' higher-order thinking skills such as evaluating the reliability of sources of information, synthesizing information to draw conclusions, or using deductive/inductive reasoning to solve a problem (M=1.756, SD=.4293).

Finally, Junior High School teachers were not knowledgeable that PBA is expected that students produce a material or exhibit a performance as in writing or self-expression skills (M=1.942, SD=.6526).

The following are some of the areas that junior high school teachers in the Berekum Municipality have adequate knowledge level in performance-based assessment.

Junior High School teachers were aware that PBA is about assessing students' performance based on execution of project (M=2.571, SD=.4952).

Junior High School teachers in the Berekum Municipality revealed that PBA is about assessment that require that students actively develop their approaches to the task under defined conditions, knowing that their work will be evaluated according to agreed-upon standards (M=2.665, SD=.1.015).

Research Questions Two: To what extent does Junior High School teachers practice performance-based assessment in the Berekum Municipality?

To achieve this purpose of the study, I assessed how Junior High School teachers in Berekum Municipality practice performance-based assessment. The teachers were made to strongly agree, agree, disagree and strongly disagree to statements on their practice of performance-based assessment. Using means to interpret the results, the scale was scored as Strongly Disagree =1, Disagree =2, Agree=3, Strongly Agree=4. The criterion value of 2.50 was set for the scale. To obtain the criterion value (CV=2.50), the scores were added together and divided by the number scale (4+3+2+1= 10/4=2.50). The items were negatively worded, therefore, to interpret the means, any item that scored a mean of 0.0 to 2.49 was regarded as teachers' practice of PBA and a mean of 2.50 to 4.0 was interpreted as teachers' did not practice of PBA. Table 6 present the analysis of the results.

Table 7: *Results on How Teachers in the Berekum Municipality Practice of Performance-Based Assessment*

Teachers Practice PBA	Cut off Point=2.50		Remarks
	Mean	Std. D	
Speeches are not part of my assessment in school	3.874	.6743	Do not practice
Concept mapping is not part of my assessment method	3.656	.4393	Do not practice
Assessment using individual Projects is not part of me	3.649	.4540	Do not practice
Allowing students to write reports on projects is not encouraging	3.596	.7309	Do not practice
Debate in the classroom is not part of my assessment method	3.493	.3945	Do not practice
Giving homework to students is not all that entertained	3.456	.8293	Do not practice
Allowing students to work in pairs is not part of my assessment methods	3.442	.5940	Do not practice
Essays or writing assignments	3.317	.3361	Do not practice
Assessment using Portfolios is not my habit	2.965	.4357	Do not practice
Group projects are not part of my assessment method	1.619	.6063	Practice

Source: Field survey (2018)

How Junior High School teachers in the Berekum Municipality practice PBA is presented in Table 6. The results portray that overall most of the basic school teachers in the Berekum Municipality did not practice Performance-Based Assessment. This was clear after their responses (majority of the means scores more than the criterion value of 2.50) showed that they did not practice some key concepts in performance-based assessment.

The following are some of the areas of performance-based assessment that they did not practice:

Junior High School teachers in the Berekum Municipality indicated that in the quest of their practicing PBA, concept mapping is not part of assessment method (M=3.656, SD=.4393).

Again, Junior High School teachers in the Berekum Municipality agreed that, debate in the classroom is not part of their assessment method (M=3.493, SD=.3945).They indicated that speeches were not part of their assessment in school (M=3.874, SD=.6743).

Junior High School teachers in the Berekum Municipality agreed that they did not use essays or writing assignments in the quest of their practice of PBA (M=3.317, SD=.3361).

Junior High School teachers in the Berekum Municipality agreed that, assessment using portfolio was not their habit (M=2.965, SD=.4357). The results further showed that most Junior High School teachers in the Berekum Municipality agreed they did not allow students to write reports on projects (M=3.596, SD=.7309).

The results further showed that giving homework to students were not entertained among teachers in the Berekum Municipality (M=3.456, SD=.8293). Teachers further agreed that allowing students to work in pairs was not part of the teachers assessment methods in their practice of PBA (M= 3.442, SD=.5940).

However, most of the teachers agreed that group projects was part of their assessment method (M= 1.619, SD=6063). This indicates that the only assessment method practiced by most of the teachers is group project. The

results suggest that Performance-Based Assessment was not practiced by the teachers. This was complimented by the results obtained using observation guide. The analysis of the results are presented in Table 7.

Table 8: *Results on the Approaches to PBA*

Approaches to PBA	Yes (%)	No (%)
Short constructed-responses	445(75.7%)	143 (24.3%)
Essay	283 (48.1%)	305 (51.9%)
Performance	97(16.5%)	491(83.5%)
Demonstration	140(23.8%)	448(76.2%)
Projects	120(20.4%)	468(79.5%)
Portfolio	100(17.0%)	488(73.0%
Stimulated Environment	150(25.5%)	438(69.5%)

Source: Field survey, (2018)

From Table 7, the results suggest that the majority of the Junior High School teachers agreed that short constructed-responses was commonly used (n=445, 75.7%). However, apart from short constructed responses, all the other approaches were not used. For example concerning essay, it was observed that most of the teachers did not use the essay in the assessment approach (n=305, 51.9%). The results on performance also indicated that most of the teachers did not use the performance as an approach (n=491, 83.5%). On demonstration, the results were observed that most of the teachers did not use the demonstration as an approach (n=448, 76.2%).

The results further show that projects were not used by the Junior High School teachers as most indicated no to areas under consideration (n=468, 79.6%). Similar result was obtained after it was observed that portfolio was not used as an approach (n=488, 73.0%). Lastly, it was evident that most of

the Junior High School teachers did not use the stimulated environment as an approach (n=438, 69.5%)

Research Question Three: What are the challenges faced by Junior High School teachers in the practice of performance-based assessment in Berekum Municipality?

To accomplish this, the teachers were made to rate the challenges they face using strongly agree, agree, disagree and strongly disagree. Using means to interpret the results, the scales was scored as Strongly Agree =4, Agree =3, Disagree=2, Strongly Disagree=1. The criterion value of 2.50 was set for the scale. To obtain the criterion value (CV=2.50), the scores were added together and divided by the number scale (4+3+2+1= 10/4=2.50). The items were positively worded. Therefore, to interpret the means, any item that scored a mean of 0.0 to 2.49 was regarded as Junior High School teachers' disagreement means it was not a challenge and a mean of 2.50 to 4.0 was interpreted as Junior High School teachers' agreement which means that it was a challenge.

The responses from the Junior High School teachers were quantified using Means and standard deviations. The analysis of the accrued results are presented in Table 8.

Table 9: *Results on the Challenges faced by Junior High School Teachers in the Practice of Performance-Based Assessment in Berekum Municipality*

Challenges Teachers Faced in Practicing PBA	Cut off Point=2.50		Remarks
	Mean	Std. D	
I find it difficult giving project-based assessment because practical materials are lacking	3.3282	.84148	Challenge
Too much academic workload prevents me to give practical work to students because I would not get time to monitor progress	2.8690	1.19262	Challenge
I find it difficult to give out hands on project-based assessment because the class I teach is very large and this poses a challenge in supervision	2.7738	.73940	Challenge
I find it difficult to practice PBA because the time for me is not enough to engage in that tedious assessment practice	2.6071	.76358	Challenge
I find it difficult using performance-based assessment because lack of knowledge or insufficient knowledge regarding it	2.5391	.78757	Challenge
I find it difficult to practice performance-assessment because of lack of attention from policy makers.	2.5306	1.05266	Challenge
I find it difficult to scoring project-based assessment of students	2.3656	1.04448	Not challenge
I find it difficult practicing performance-based assessment because I become indecisive in terms of the subject and areas to concentrate and are sometimes constraint	2.3486	.84540	Not challenge
I find it difficult to supervising projects of students	2.2925	1.03243	Not challenge
I find it difficult to use performance-based assessment because of insufficient knowledge about how scoring rubric on performance can be prepared and cannot find rubric related to task topics	2.2806	.82414	Not challenge
I find it difficult to ascertain the appropriate practical-based assessment for students	2.1854	.38893	Not challenge
I find it difficult to assess problem-solving skills	1.9422	.65265	Not challenge

Source: Field survey, (2018)

The results in table 8 showed that, inability of the teachers in the Berekum Municipality to practice Performance-based assessment is due to some challenges. The following were the challenges:

Junior High School teachers found it difficult giving project-based assessment because practical materials are lacking (M= 3.3282, SD=.84148).

Academic workload prevented them to give practical work to students because they would not get time to monitor progress (M= 2.8690, SD=1.19262).

Junior High School teachers found it difficult to give out hands on project-based assessment because the classes they teach were very large and this poses a challenge in supervision (M=2.7738, SD=.73940).

They found it difficult to practice performance-assessment due to the lack of attention from policy makers and lack of resources in developing the assessment process (M=2.5306, SD=1.05266).

They found it difficult using performance-based assessment because of lack of knowledge or insufficient knowledge regarding it (M=2.5391, SD=.78757).

They found it difficult to practice PBA because the time for them was not enough to engage in that tedious assessment practice (M=2.6071, SD=.76358).

The research revealed that Junior High School teachers in the Berekum Municipality were challenged in terms of time factor, insufficient knowledge, lack of attention from policy makers, too much workload, teaching of large classes and lack of practical materials.

Research Question Four: What are the ways that can be employed to improve Junior High School teachers' knowledge and practice of Performance-based assessment in Berekum Municipality?

I found out from the teachers ways that can be employed to improve Junior High School teachers' knowledge and practice of PBA in the Berekum Municipality. To realise this, the teachers responded to statement using strongly agree, agree, disagree and strongly disagree. Using means to understand the results, the scales were scored as Strongly Agree =4, Agree =3, Disagree=2, Strongly Disagree=1. The criterion value of 2.50 was determined for the scale. To gain the criterion value (CV=2.50), the scores were added together and divided by the number scale (4+3+2+1= 10/4=2.50). The items were positively worded. Therefore to interpret the results, any item that scored a mean of 0.0 to 2.49 was regarded as teachers' disagreement means the measure is not effective and a mean of 2.50 to 4.0 was interpreted as teachers' agreement means the measure is effective. Table 9 presents the results.

Table 10: *Results on the Ways that can be employed to Improve Junior High School Teachers' Knowledge and Practice Performance-Based Assessment in Berekum Municipality.*

Ways to Improve Teachers' Knowledge and Practice in Performance-based assessment	Cut off Point=2.50		Remarks
	Mean	Std. D	
Teachers need to taught how to assess the various skill-set and components on the performance-based assessment so that they can easily adopt it	3.593	.4915	Effective measure
There is need for dedicated time allotted for practical-based assessment in schools	3.588	.4925	Effective measure
Teacher need to consider performance-based assessment as normal like all other assessment practices and as such, worth of practicing	3.493	.4115	Effective measure
Teachers ought to make time for the practice of performance-based assessment and consider it the most relevant among all assessment practices	3.423	.4945	Effective measure
There is need for more education about the value of performance-based assessment so that all and sundry will understand it	3.102	1.246	Effective measure
It will be prudent for the practice of performance-based assessment to occur if teacher-students ratio is worked on to check oversized classes	2.974	.9123	Effective measure
Performance-based is practicable if the environment in which it occurs is available and conducive for students and teachers who supervises	2.937	.5122	Effective measure
For performance-based assessment to take place, there is the need for practical materials to be provided for the project-based work of students	2.809	.7946	Effective measure
It would be appropriate if there is a standard ways in determining whether students have been able to achieve the objectives set	2.571	.4952	Effective measure
It will be appropriate if teachers are retrained on the job about the practice performance-based assessment	2.554	.9778	Effective measure

Source: Field survey, (2018)

The results from the study indicated that the inability of the Junior High School teachers to practice performance-based assessment can be improved when measures are put in place. The results were evident after the

Junior High School teachers in the Berekum Municipality agreed with the pre-coded items.

These measures to improve Junior High School teachers' knowledge and practice performance-based assessment in Berekum Municipality are:

1. It will be appropriate if Junior High School teachers are retrained on the job about the practice performance-based assessment (M=2.5544, SD=.97783)
2. It would be appropriate if there is a standard ways in determining whether students have been able to achieve the objectives set (M=2.5714, SD=.49529).
3. It will be prudent for the practice of performance-based assessment to occur if teacher-students ratio is worked on to check oversized classes (M=2.9745, SD=.91236);
4. Performance-based is practicable if the environment in which it occurs is conducive for students and teachers who supervise (M=2.9375, SD=.51226).
5. Junior High School teachers in the Berekum Municipality need to dedicate time allotted for practical-based assessment in schools (M=3.5884, SD=.49254).
6. Junior High School teachers in the Berekum Municipality ought to make time for the practice of performance-based assessment and consider it the most relevant among all assessment practices (M=3.4235, SD=.49453).
7. Junior High School teachers in the Berekum Municipality need to be taught how to assess the various skill-set and components on the

performance-based assessment so that they can easily adopt it (M=3.5935, SD=.49159).

8. Junior High School teachers in the Berekum Municipality need to consider performance-based assessment as normal like all other assessment practices and as such, worth of practicing (M=3.4931, SD=.41153).
9. Finally, Junior High School teachers in the Berekum Municipality need to be provided with practical materials for the project-based work of students (M=2.809, SD=.7946)

The question revealed that teachers in the Berekum Municipality agreed to the statements that seek to suggest ways in making Performance-Based Assessment a reality in the Berekum Municipality.

Research Hypothesis One

***H_0*: There is no statistically significant linear relationship between Junior High School teachers' knowledge and practice of PBA**

***H_1*: There is statistically significant linear relationship between teachers' knowledge and practice of PBA**

To achieve this, Pearson Product Moment correlation was used for the analysis. In the analysis, correlation (r) was used to determine the degree and the direction of the relationship between the variables (teachers' knowledge and practice of PBA). The correlation was tested at 0.05 level of significance. To obtain the scores for knowledge and practice, all the items measuring these construct on the questionnaire were computed to form a single item that measures knowledge and practice.

Table 11: *Means, Standard Deviations and Correlation Coefficients between Junior High School teachers' Knowledge and Practice of PBA*

K*P		1	2
Knowledge		1	
Practice	**(**Co-efficient, r)	.513	1
r-square (r^2)		.263 **	. 263 **
Sig. Values		.000**	.000**

**. Correlation is significant at the 0.05 level (2-tailed) (n= 588)

Key- **K****=Knowledge
P**=Practice
PBA* Performance-Based Assessment

Present the correlation table The results from the study showed that there was a positive moderate linear correlation between Junior High School teachers' knowledge and their practice in PBA (r=.513, r^2=.263, n=588, p<0.05, p=0.000). The results give evidence to believe that Junior High School teachers' knowledge could moderately influence their practice in PBA. The r^2 of the correlation is .263 which explains that 26 percent in correlation between teachers knowledge practice of PBA. The r^2 suggest that the relationship is moderately strong. This means that the increase in teachers' level of knowledge in PBA could enhance to their practice in PBA.

Based on the result, the hypothesis that: "There is no statistically significant relationship between Junior High School teachers' knowledge and practice in performance-based assessment" is therefore rejected. The testing of hypothesis revealed a significant result as teachers who are more knowledgeable in performance-based assessment are more likely to practice it.

Research Hypothesis Two

***H₀*: There is no statistically significant difference between the professional qualifications of teachers in their practice of PBA.**

***H₁*: There is a statistically significant difference among the professional qualification of teachers' in their practice of PBA.**

I tested the hypothesis at 0.05 significance level to find out whether qualification of teachers could differ in teachers practice of PBA. To achieve this, one-way analysis of variance (ANOVA) was used for the analysis. To obtain the scores, the responses on how Junior High School teachers practice PBA computed**.** The data was made up of independent variables (levels) which is categorical and dependent variables (teachers' practice of PBA) which was continuous. The one-way analysis of variance (ANOVA) was used to determine whether there are any statistical significant differences between the means of three or more independent (unrelated) groups (levels). Table 10 presents the normality test results of the variables.

Table 12: *Normality Test Results of the Variables*

Levels	Kolmogorov-Smirnov[a]		Shapiro-Wilk	
	Statistic	Sig.	Statistic	Sig.
Diploma	.362	.006	.315	.250
Bachelors	.550	.010	.466	.302
Masters/PhD	.843	.120*	.828	.276

Source: Field survey, (2018) *Significant difference exist at P≤0.05

Table 10 presents results of the normality test of the data. The Shapiro-Wilk was reported because it is suitable for data with larger sample size (N> 50). The Shapiro-Wilk produced a value of .315 (p>0.05, Sig. =.250)

for Diploma, a value of .466 (p>.05, Sig. =.302) for Bachelors and Masters/PhD levels produced a value of .828 (p>0.05, Sig=.276). From the Shapiro-Wilk results, all the levels produced a significant value greater than the p-value of 0.05 suggesting that the data distribution was normal. Having tested for the normality, I proceeded to check for the homogeneity of variances of the data distribution. The results are presented in Table 11.

Table 13: *Results of Homogeneity of Variances Test on PBA*

Levene Statistic	df1	df2	Sig.
70.648	2	584	.078

Source: Field survey (2018) *Significant difference exists at P≤0.05

Table 11 depicts the test of homogeneity of variances of the study levels. From the table, the homogeneity of variances test results indicated that, assumption of homogeneity has not been violated. [t (2, 584) = 70.648, p<0.05, Sig. = .078, 2-tailed)]. Performing of ANOVA test was therefore justifiable. Figure 1 presents an easy way to compare the mean scores of the professional qualification of teachers by their practice in PBA.

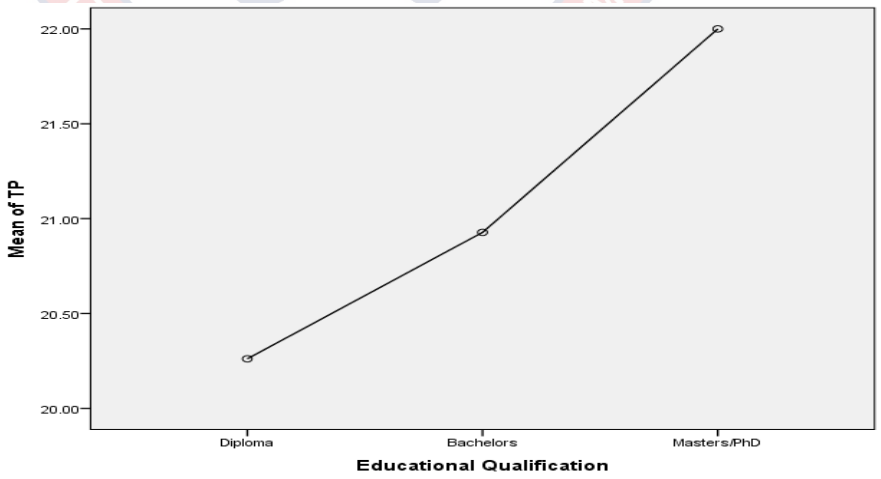

Figure 1: Means Plots of of Teachers Professional Qualification by their Practice of PBA

It is obvious from Figure 1 that those Junior High Teachers in the Berekum Municipality with Masters/PhD recorded the highest mean scores. This was followed by those Junior High Teachers in the Berekum Municipality with Bachelor's degree while those with diploma recorded the lowest mean scores. From the graph, it could mean that Junior High School teachers in the Berekum Municipality with Masters/PhD practice PBA better than other professional qualifications (Degree and Diploma). Nevertheless, one-way between-groups analysis of variance (ANOVA) was conducted to gain more statistical evidence. Table 12 presents the descriptive statistics of the professional qualifications.

Table 14: *Descriptive Statistics of the Professional Qualifications*

Professional Qualifications	Mean	Std. Deviation
Diploma	20.3	3.853
Bachelors	20.9	4.937
Masters/PhD	22.0	3.200

Source: Field survey, (2018)

The descriptive statistics as in Table 12 shows that those teachers with Masters/PhD practice PBA more (M= 22.0, SD= 3.20) than the other qualifications. This was followed by Bachelor's degree (M= 20.9, SD= 4.937). The descriptive statistics indicate that those with Diploma least practiced PBA (M= 20.26, SD= 3.853). Table 13 presents summary of One-way Analysis of Variance (ANOVA) results.

Table 15: *Summary of One-way Analysis of Variance (ANOVA) Results*

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	136.591	2	68.295	3.509	.031
Within Groups	11384.326	585	19.460		
Total	11520.917	587			

Source: Field survey, (2018) *Significant difference exists at P≤0.05

A one-way between-groups analysis of variance (ANOVA) was conducted to compare mean scores of the professional qualification of the teachers in PBA. From Table 13, the results show that there was a statistically significant difference in professional qualification of the teachers in the practice of PBA. *F* (2, 585) = 3.509, p<.05, n=588, Sig. = .031, 2-tailed). This gives statistical evidence to the fact that there were differences in mean scores of the professional qualification of the teachers in PBA. The testing of hypothesis revealed significant result in terms of differences in teachers' qualification and their practice of Performance-Based Assessment in their schools. Hence, the null hypothesis two which states that, "There is no statistically significant difference among the professional qualification of teachers in terms of their practice of performance-based assessment" was rejected. A post-hoc test/follow up test was conducted to find the differences in mean scores. According to Shingala and Rajyaguru (2015), Tukey HSD test as a post-hoc comparison is appropriate when the data do meet the homogeneity assumption of variance. The results are presented in Table 14.

Table 16: *Multiple Comparisons (The Post-Hoc/Follow-up Test)*

	(I) Educational Qualification	(J) Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
Tukey HSD	Diploma	Bachelors	-.7	.473	.337
		Masters/PhD	-1.7*	.656	.023
	Bachelors	Diploma	.7	.473	.337
		Masters/PhD	-1.1	.552	.128
	Masters/PhD	Diploma	1.7*	.657	.023
		Bachelors	1.1	.552	.128

Source: Field Survey, (2018) *Significant difference exists at P≤0.05

The results from the Multiple Comparisons (The Post-Hoc/Follow-up Test) show that statistical significant differences occurred between Diploma and Masters/PhD (MD= -1.7*, SR= .65679, n=588, p<0.05, Sig. = .023, 2-tailed). There was no statistical significant differences between Bachelors and Masters/PhD and also no statistical significant differences between Diploma and Bachelors.

Research Hypothesis Three

***H_0*: There is no statistically significant difference among teachers' years of teaching experience and their knowledge level in PBA.**

***H_1*: There is statistically significance difference among teachers' years of teaching experience and their knowledge level in PBA.**

Teachers' years of teaching experience is said to vary in their practice of PBA. This made me test the hypothesis to find out whether years of teaching experience could vary in the practice of PBA among Junior High

Teachers in the Berekum Municipality. To obtain the scores, the responses on how Junior High School teachers' knowledge of PBA were tabulated together and computed. The test was computed at 0.05 level of confidence.

To achieve this, one-way between-groups analysis of variance (ANOVA) was used for the analysis. The data was made up of independent variable (years in service) which is categorical and dependent variable (teachers knowledge of PBA) which was continuous. The one-way analysis of variance (ANOVA) was used to determine whether there were any statistical significant differences between the means of three or more independent (unrelated) groups (years of service). Table 15 presents the normality test results of the variables.

Table 17: *Normality Test Results of the Variables*

	Kolmogorov-Smirnov[a]		Shapiro-Wilk	
Years in Service	Statistic	Sig.	Statistic	Sig. value
1-4 years	.452	.001	.347	.728
5-8 years	.621	.000	.536	.658
9 years and above	.743	.013*	.932	.256

Source: Field survey, (2018) *Significant difference exist at P≤0.05

The Shapiro-Wilk was reported because it is suitable for data with larger sample size (N> 50). Razali & Wah (2011).

The Shapiro-Wilk produced a value of .347 (p>0.05, Sig. =.728) for 1-4 years, value of .536 (p>.05, Sig. =.658) for 5-8 years and 9 years and above produced a value of .932 (p>0.05, Sig=.256). From the Shapiro-Wilk results, all the years produced a value greater than the p-value of 0.05 signifying that the data distribution was normal. Having tested for the

normality, I proceeded to check for the homogeneity of variances of the data distribution. Table 16 presents the homogeneity of variances test results.

Table 18: *Results of Homogeneity of Variances Test on the Years in Service of the Teachers by their Practice in PBA*

Levene Statistic	df1	df2	Sig.
147.324	2	585	.000

Source: Field survey, (2018) *Significant difference exists at P≤0.05

From the homogeneity of variances test table, the Levene' test result of F (2, 585) = 147.324, p<0.05, Sig. = .000, 2-tailed) is less than the alpha critical value of 0.05. This implies that the assumption of homogeneity has been violated, therefore; the robust test of equality of means **(**Welch**)** test was conducted. Table 17 presents the descriptive statistics of the years of service.

Table 19: *Descriptive Statistics of the Years of Service*

Years in Service	Mean	Std. Deviation
1-4 years	22.23	4.4462
5-8 years	18.30	2.4806
9 years and above	24.54	3.9819

Source: Field survey, (2018)

The results in Table 17 show that those teachers who had taught for 9 years and above were shown to have more knowledge in PBA (M= 24.54, SD= 3.9819). This was followed by those who had taught for 1-4 years (M= 22.23, SD= 4.4462). The descriptive statistics further show that those who had taught for 5-8 years had the least knowledge in PBA (M= 18.30, SD= 2.4806). Figure 2 also presents means plots of years in service of the teachers by their practice in PBA.

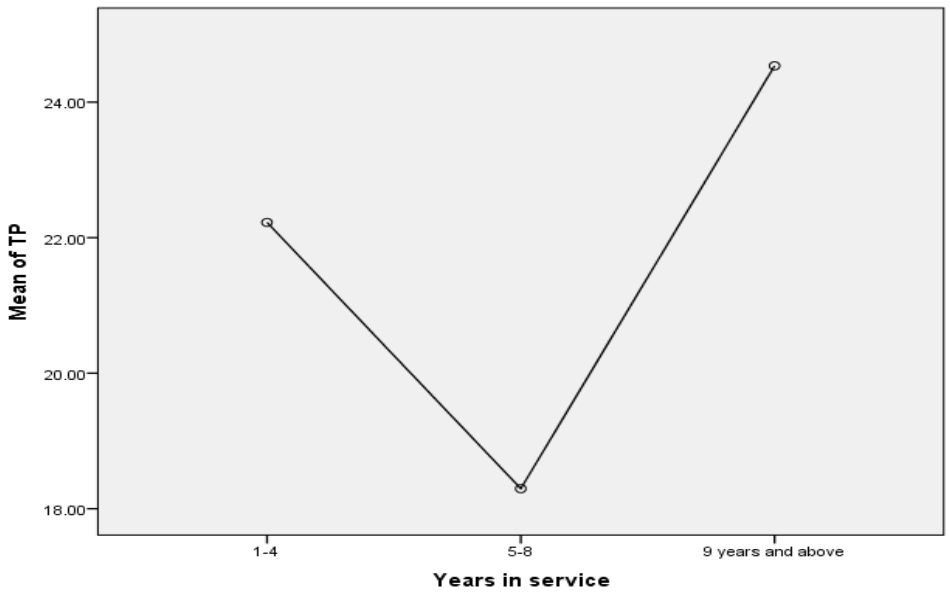

Figure 2: Means Plots of Years in Service of the Teachers by their Practice of PBA

Figure 2 presents a way to compare the means scores of the years in service of the teachers by their knowledge level in PBA. It is seen from Figure 2 that those Junior High School teachers in the Berekum Municipality who had taught for 9 years and above recorded the highest mean scores. Those who had taught for 1-4 years followed and those who had taught for 5-8 years recorded the least. From the means graph, it is clear that teachers who had taught for 9 years and above could practice in PBA than other years of teaching experience.

Nevertheless, in order to gain more conclusions, robust tests of equality of means were reported. The results are presented in Table 18.

Table 20: *Robust Tests of Equality of Means*

	Statistic[a]	df1	df2	Sig.
Welch	221.999	2	98.193	.000

Asymptotically F distributed. *Significant difference exist at P≤0.05

The results on the robust tests of equality of means in Table 18 is statistically significant (P<0.05). This test was conducted based on the evidence that the assumption of the homogeneity of variances had been violated. The results on the Welch test [*F* (2, 98.193) = 221.999, p<0.05, Sig. = .000] confirm the fact that there were differences in the mean scores of the years in service of the teachers by their practice of PBA. Hence, null hypothesis three which states that, "there is no statistically significant difference among teachers' years of teaching experience and their knowledge level of PBA" was rejected.

However, statistically, the significant value of 0.000 produced from the Welch test did not tell which of the years in service that teachers practice PBA. According to Shingala and Rajyaguru (2015), Games-Howell test as a post-hoc comparison is appropriate when the data do not meet the homogeneity assumption of variance. Hence, a post-hoc test/follow up test was conducted to find the differences in mean scores among the years of service of the teachers in PBA as presented in Table 19.

Table 21: *Multiple Comparisons (The Post-Hoc/Follow-up Test)*

	(I) Years in service	(J) Years in service	Mean Difference (I-J)	Std. Error	Sig. Value
Games-Howell	1-4	5-8	3.93*	.7163	.000
		9 years and above	-2.31*	.7516	.009
	5-8	1-4	-3.93*	.7164	.000
		9 years and above	-6.24*	.2996	.000
	9 years and above	1-4	2.31*	.7517	.009
		5-8	6.24*	.2996	.000

Source: Field survey, (2018) *Significant difference exists at P≤0.05

Considering the Levene's test for this data as presented in Table 19, the assumption of homogeneity of variance was not met.

The Games-Howell test indicated that the mean difference score between 1-4 years and 5-8 years (MD=3.93, SE=.7164, Sig.=0.000) was statistically significant and as such Junior High school teachers in the Berekum Municipality who had taught for 1-4 years had more knowledge in PBA than those who had taught for 5-8 years. The Games-Howell Post Hoc/Follow-up test further showed that, teachers who have taught for 9 years and above were able to practice PBA more than those who had taught 1-4 years (Sig.=0.009). In the same vain teachers who have taught for 9 years and above had more knowledge in PBA than those who had taught who had taught for 5-8 years (MD=6.24, SE=.2996, Sig. =0.000).

Discussion

Knowledge Level of Teachers about PBA

Research question one was about teachers knowledge level on PBA and it revealed that, teachers in the Berekum Municipality are having low level of knowledge with respect to Performance-Based Assessment. As such, it might go against their way of assessing their students based on practical and hands on school or academic works.

The study findings corroborate with Plake and Impara (1992) study results using the survey method to investigate performance-based assessment knowledge of 555 in-service teachers in the United States, using Teacher Assessment Knowledge Questionnaire based on American Federation of Teachers et al. (1990) consisting 35 items, which revealed that the teachers were not well prepared to assess student learning through performance-based

assessment because their knowledge was inadequate. Similarly, the findings confirmed that of Volante and Fazio (2007) in assessing knowledge of 69 teacher candidates in Bangladesh using the Teacher Assessment Knowledge Questionnaire and found that the self-described levels of performance-based assessment knowledge remained relatively low for the candidates across the four years of the teacher education programme.

The study findings affirmed Alkharusi, Aldhafri, Alnabhani and Alkalbani (2012) study results in Oman, among 165 in-service teachers, using a self-report questionnaire which revealed that although teachers held a favourable attitude towards performance-based assessment and perceived themselves as being competent in educational assessment, however, they demonstrated a low level of knowledge in performance-based assessment . To them, teachers used a variety of assessments in the classroom primarily for assigning grades and motivating students to learn, with some variations by gender, grade level, and subject area but were limited in terms of performance-based assessment.

The reason for the less knowledge in PBA among teachers could be that, teachers were inadequately prepared during their professional training period. It is possible because all Colleges of Education in Ghana do assessment in education but it is lumped with research methods as one course and this give less room for in-depth teaching and understanding of the courses. Again, it is possible that low knowledge level of PBA among teachers could be a deliberate attempt to avoid such a process because it may seem time consuming and enormous.

Teachers' practices of PBA

Research question two revealed that in the Berekum Municipality, teachers were not practicing PBA on their students. Rather, they engaged in other methods. The results imply that teachers seemed not to practice performance -based assessment in their schools. Zhang and Burry-Stock (2003) in a study in the United States disclosed that there are some contradictions between teachers' practices of performance-based assessment, where sometimes teachers did not practice PBA. This non-practicing habit among teachers was attributed to teachers' lack of knowledge and attitudes about performance-based assessment (Siegel & Wissehr, 2011). Likewise, Alkharusi, Kazem, and Al-Musawai (2011) argued that the study findings with a revelation that in-service teachers have a higher level of perceived practical skilfulness in performance-based assessment if indeed they had passed through teachers professional training.

Challenges in the practice of PBA

Research question three revealed that teachers in the Berekum Municipality were challenged in terms of time factor, insufficient knowledge, lack of attention from policy makers, too much workload, teaching of large classes and lack of practical materials. The study findings support Ransuran (2006) assertion that the challenge teachers have in the effective practice of performance-based assessment may relate to teachers' enormous workloads for meeting the policy requirements.

The findings were in line with those of Bushman and Schnitker (as cited in Ogan-Bekiroglu, 2009) who surveyed 29 professional teachers with the findings indicating that most of them identified practical problems such as

inadequate training and time management. The study findings also re-affirmed that of Graham (as cited in Ogan-Bekiroglu, 2009) surveying 38 English secondary school teacher candidates across time, and discovered that although many pre-service teachers grew to accept performance-based assessment as valuable evidence sources indicating student learning, they recorded concerns that fell into the following five overlapping categories; designing goals, rubrics, grading and fairness, grading and motivation, validity of assessments, and time required to plan performance-based assessment. Faced with these challenges by teachers in the Berekum Municipality, the likely effect would be that students may not be genuinely assessed by their teachers.

Ways to improve practice of PBA

Research question four revealed that teachers are to be retrained on the job about the practice of performance-based assessment; they are to be provided with a standard way in determining whether students have been able to achieve desirable skills. It was indicated that improving teacher-students' ratio to the required status and provision of practical materials for the project-based work of students in making Performance-Based Assessment a reality in schools in the Berekum Municipality was another way of improving the practice of PBA.

The findings are in agreement with the National Council of Teacher of English (2014) report, which states that students in smaller classes perform better in all subjects and on all performance-based assessment tasks when compared to their peers in larger classes. In smaller classes students tend to be as much as one to two months ahead in content knowledge, and they score higher on standardized performance-based assessments. According to

Bruhwiler and Blatchford (2011) and Chingos (as cited in National Council of Teacher of English, 2014), the positive effects of small class sizes are strongest for elementary school students, and may become more powerful and enduring the longer students are placed in smaller classes. It is believed that smaller class size students stand the chance to benefit directly from teachers who supervise their work because they are easily reached out to than the larger class size. The National Council of Teacher of English (2014) indicated that students talk and participate more in smaller classes as they are much more likely to interact with the teacher directly.

Relationship between teachers' knowledge of PBA and practice of PBA

The testing of hypothesis revealed a significant result, as teachers who are more knowledgeable on Performance-Based Assessment are more likely to practice it. There is a moderate relationship between knowledge in PBA and its practices. The revelation correlates with Hartman (2001) view that teachers' knowledge of PBA strategies relates to the practice of PBA as teachers and to aid students to learn 'how to learn skills', that is, to plan, monitor and evaluate their own thinking and understanding through assessment process.

Differences in qualification and practice of PBA

The testing of hypothesis revealed significant result in terms of differences in teachers' qualification and their chances of practicing Performance-Based Assessment in their schools. The finding could imply that performance-based assessment is practiced or emphasized along the educational levels in Ghana, hence the significant difference among teachers with higher and lower qualifications and certifications. The study results

debunks that of Igwe (as cited in Abe, 2014) who investigated the differences of teacher's qualification and their practice of performance-based assessment among randomly selected 345 teachers in Kano State, Nigeria. The researcher found no significant difference among teacher's qualification and their practice of performance-based assessment. This means that teachers with high qualification are more likely to practice PBA and teachers with low qualification are less likely to practice PBA.

Differences in experience and knowledge of PBA

The testing of hypothesis revealed significant result as teachers' experience was shown as a determinant of their knowledge of Performance-Based Assessment by teachers in the Berekum Municipality. The more experienced a teacher is, the more likely he or she stand to gain knowledge and practice of Performance-Based Assessment. The findings corroborate those of Bilesanmi (1999) and Okonwa (as cited in Abe and Adu 2014) who found that teacher's experience was highly significant on their practice of performance-based assessment as the longer they remain on the job, the more knowledge they gain to practice performance-based assessment.

Chapter Summary

The study investigated teachers' knowledge and practice of PBA and revealed that teachers' knowledge was low in PBA. As a result, teachers in the Berekum Municipality did not practice PBA. Furthermore, the study revealed that there are challenges in the practice of PBA due to lack of attention from policy makers and too much workload among others. It also pointed out the need to retrain teachers on performance-based assessment by providing standardised ways in determining how students achieve desirable skills.

Moreover, the study revealed a significant relationship between teachers' knowledge and the practice of PBA in their schools in the Berekum Municipality. Again, teacher qualification was a condition to practicing PBA, with teachers possessing higher degrees practicing PBA than those with lower degrees. Finally, experience was countered as a factor in determining teachers' knowledge in performance- based assessment.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents a summary of the research findings, the conclusion and the recommendations of the study.

Summary

The study sought to assess the knowledge and practice of performance-based assessment among junior high school teachers in the Berekum Municipality of the Brong-Ahafo Region of Ghana. The study adopted a descriptive survey research design procedure with a quantitative approach. The study employed the census sampling procedure in using 588 Junior High School teachers in the Berekum Municipality. A questionnaire developed by the researcher and documentation observation checklist was used for the research study.

Key Findings

Findings obtained on research question one revealed that teachers in the Berekum Municipality had low knowledge in Performance-Based Assessment.

The results on research question two revealed that teachers in the Berekum Municipality did not practice Performance-Based Assessment in their schools.

Findings on research question three revealed that teachers in the Berekum Municipality were challenged in terms of time factor, insufficient knowledge, lack of attention from policy makers, too much workload, teaching of large classes and lack of practical materials.

Research question four also revealed that teachers are to be retrained on the job on the practice of performance-based assessment and be provided with a standard way in determining whether students have been able to achieve. Further improving teacher-students' ratio to the required status and provision of practical materials for the project-based work of students to making Performance-Based Assessment a reality in schools within the Municipality was another way of improving the practice of PBA

The findings obtained on research hypothesis one revealed a significant positive but moderate relationship between teachers' knowledge and their practice of performance-based assessment.

The findings obtained on research hypothesis two revealed that there was a significant result in terms of differences in teachers' qualification and their knowledge and chances of practicing Performance-Based Assessment in their schools.

Research hypothesis three revealed a significant result as teachers' experience was countered as a determinant to the knowledge of Performance-Based Assessment by teachers in the Berekum Municipality.

Conclusions

From the foregoing findings, it can be concluded that Junior High School teachers in the Berekum Municipality knowledge level about Performance-Based Assessment was low. Having this in mind, it could be

deduced that students being taught by these teachers were denied a core component of assessment that measure how creative or innovative they could be in academics when exposed to practical-based assessment technique as the PBA.

It was also concluded that Junior High School teachers in the Berekum Municipality did not practice PBA because they lacked the knowledge to lead and execute such assessment procedure. As it stands, students were being denied the opportunity to explore academically by way of hands-on academic projects.

Recommendations

In light of the findings, the following recommendations were made:

Junior High School teachers in the Berekum Municipality have to be retrained on PBA so that they would know what it is and how it could be applied. Workshop processes that would lead to the successful practices of PBA should be effected. This could be done by Ghana Education Service in liaising with measurement and evaluation experts in the University of Cape Coast. This would enable the teachers to be more abreast with it and its usability.

Teachers should be supervised on a follow-up basis after being taken through the workshops on PBA by experts or professionals in assessment so that they could solve the issue of inability to practice the assessment technique. By so doing, circuit supervisors and head teachers would need to place premium on PBA by making teachers put emphasis on projects that demand PBA usage so that its value would not be defeated by the inability to practice.

Teachers need to be provided with a standard way in determining whether students have been able to achieve desirable skills because they seem to lack an appropriate way in assessing students using PBA.

I recommend that teacher-students' ratio need to be improved by cutting down large class sizes to meet the UNESCO (2007) recommendation of a maximum of 24 students to 1 teacher as most public basic schools seem to have large class sizes and sometimes beyond teachers control.

Suggestion for Future Research

I suggest that a national survey be conducted among all teachers in Ghana about their assessment practices with emphasis on performance-based assessment to check if indeed the situation is specific to the Berekum Municipality or nationwide.

I further suggest that a similar study is conducted using senior high school teachers in Berekum Municipality.

I suggest that a survey is conducted using other informal assessment techniques such as portfolio, anecdotal records, and rating scale among others to assess teachers' knowledge and practices in the Berekum Municipality.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

FACULTY OF EDUCATIONAL FOUNDATIONS

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

QUESTIONNAIRE FOR TEACHERS

Dear Respondent,

I am embarking on study that seeks to find out "***Assessing Teachers' Knowledge and Practice of Performance-based Assessment".*** I would be grateful if you could answer the questions below. There is no right or wrong answer. I am interested in your personal experience and opinion. The confidentiality of your information is guaranteed.

Instruction: For each item, please choose the answer which best describes your experiences by ticking [√]

SECTION A

Demographic Data

1. **Gender/Sex:** Male **[ ]** Female **[ ]**

2. **Age Range:** Below 30 ( ) 31-35 ( ) 41 and above

3. **Educational Qualification:** Certificate A [ ], Diploma [ ], Bachelors [ ], Masters/PhD [ ]

4. **Years of Service:**

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].**

SECTION B

Knowledge of teachers about performance-based assessment

SN	Statements	SD	D	A	SA
1	Performance-based assessment is not about developing assessment methods in the classroom through hands on practical work				
2	Performance-based assessment is not about assessing students' performance based on execution of project				
3	Performance-based assessment is not about allowing students demonstrating mastered specific skills and competencies by performance or producing something				
4	Performance-based assessment is not about designing and carrying out experiments; writing essays which require students to rethink, to integrate, or to apply information				
5	Performance-based assessment is not about working with other students to accomplish tasks				
6	Performance-based assessment is not about demonstrating proficiency in using a piece of				

	equipment or a technique				
7	Performance-based assessment is not about developing, interpreting, and using maps				
8	Performance-based assessment is not about where stimulus materials and a request for information or action are presented to an individual, who generates a response that can be rated for quality using explicit standards				
9	Performance-based assessment is about assessment that do not require immediate answers like as they allow students to demonstrate practically what has been learnt.				
10	Performance-based assessment is about assessment that require that students actively develop their approaches to the task under defined conditions, knowing that their work will be evaluated according to agreed-upon standards				
11	Performance-based assessment is not about tangible and reliable tasks that demand students to do something with their knowledge and skills on what they have been taught				
12	Performance-based assessment is not about delving into students' higher-order thinking skills such as evaluating the reliability of sources of information,				

	synthesizing information to draw conclusions, or using deductive/inductive reasoning to solve a problem				
13	Performance-based assessment is not expected that students produce a material or exhibit a performance as in writing or self-expression kills				

SECTION C

Teachers practices of performance-based assessment

SN	Statements	SD	D	A	SA
1	Group projects not part of my assessment method				
2	Concept mapping is not part of my assessment method				
3	Debate in the classroom is not part of my assessment method				
4	Speeches are not part of my assessment in school				
5	Essays or writing assignments				
6	Assessment using Portfolios is not my habit				
7	Assessment using individual Projects is not part of me				
8	Allowing students to write reports on projects is not encouraging				
9	Giving homework to students is not all that entertained				

10	Allowing students to work in pairs is not part of my assessment methods				

SECTION D

Challenges faced by teachers in practicing performance-based assessment

SN	Statements	SD	D	A	SA
1	I find it difficult to supervising projects of students				
2	I find it difficult to ascertain the appropriate practical-based assessment for students				
3	I find it difficult to scoring project-based assessment of students				
4	I find it difficult giving project-based assessment because practical materials are lacking				
4	Too much academic workload prevents me to give practical work to students because I would not get time to monitor progress				
5	I find it difficult to give out hands on project-based assessment because the class I teach is very large and this poses a challenge in supervision				
6	I find it difficult to practice performance-assessment the lack of attention from policy makers and lack of resources in developing the assessment process				
7	I find it difficult using performance-based assessment because lack of knowledge or insufficient knowledge				

	regarding it				
8	I find it difficult to assess problem-solving skills				
9	I find it difficult to use performance-based assessment because of insufficient knowledge about how scoring rubric on performance can be prepared and cannot find rubric related to task topics				
10	I find it difficult practicing performance assessment because I become indecisive in terms of the subject and areas to concentrate and are sometimes constraint				
11	I find it difficult to practice performance-based assessment because the time for me is not enough to engage in that tedious assessment practice				

SECTION E

Ways that can be used to improve teachers practice of performance assessment

SN	Statements	SD	D	A	SA
1	It will be appropriate if teachers are retrained on the job about the practice performance-based assessment				
2	It would be appropriate if there is a standard ways in determining whether students have been able to achieve the objectives set				
3	It will be prudent for the practice of performance-based assessment to occur if teacher-students ratio is				

	worked on to check oversized classes				
4	Performance-based is practicable if the environment in which it occurs is available and conducing for students and teachers who supervises				
5	For performance assessment to take place, there is the need for practical materials to be provided for the project-based work of students				
6	There is need for more education about the value of performance-based assessment so that all and sundry will understand it				
7	There is need for dedicated time allotted for practical-based assessment in schools				
8	Teachers ought to make time for the practice of performance-based assessment and consider it the most relevant among all assessment practices				
9	Teachers need to taught how to assess the various skill-set and components on the performance-based assessment so that they can easily adopt it				
10	Teacher need to consider performance-based assessment as normal like all other assessment practices and as such, worth of practicing				

SECTION F

CHECKLIST FOR TEACHERS PRACTICES OF PERFORMANCE ASSESSMENT

School ID:……...Circuit:…….

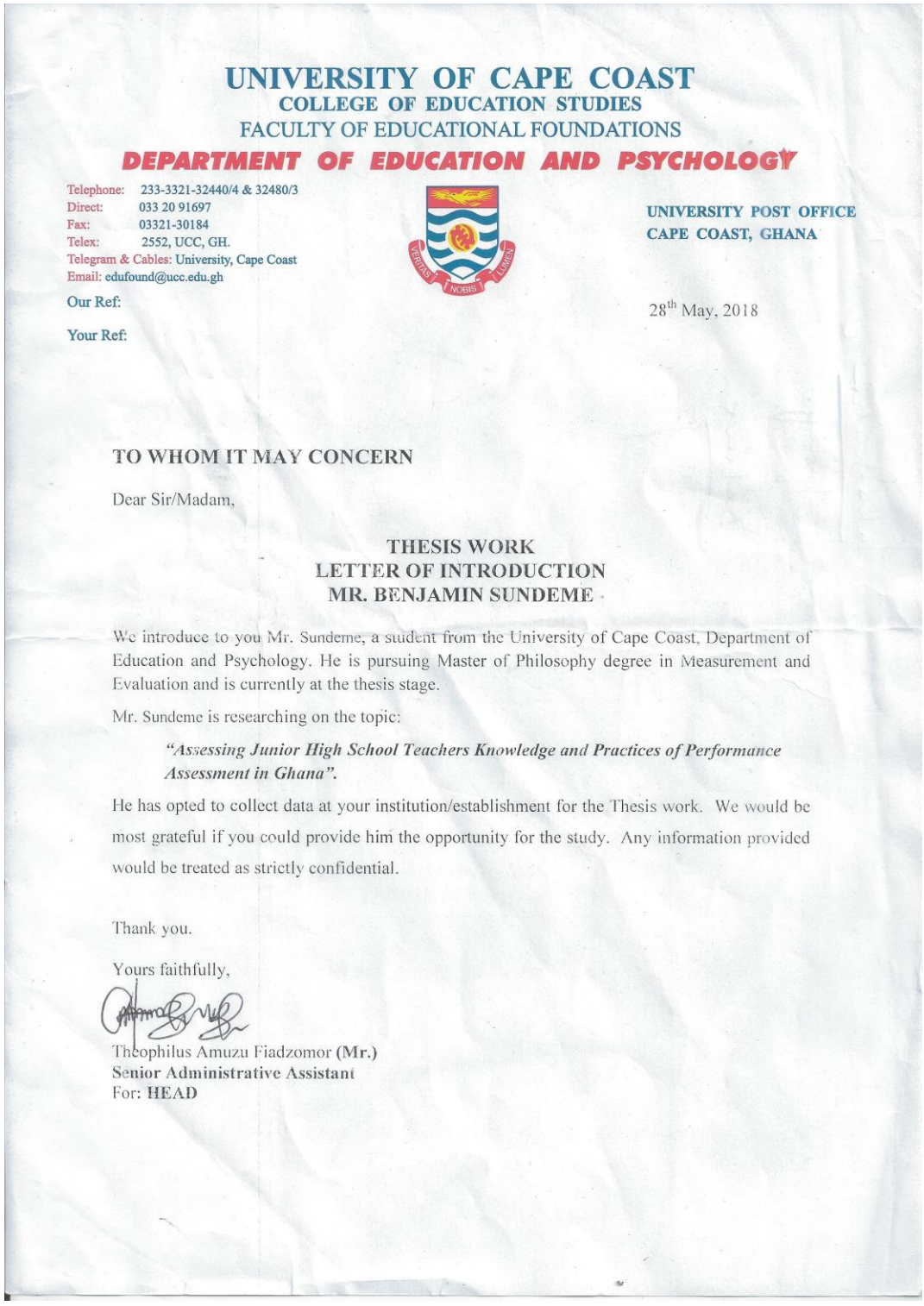
Subject …….....

To be completed by the researcher using teachers lesson notebooks.

	Approaches to Performance Assessment Practices	**Yes**	**No**	**Comments**
1.	Short constructed responses			
2.	Essays			
3.	Performance Task			
4.	Demonstrations			
5.	Projects			
6.	Portfolio			
7.	Stimulated Environments			

APPENDIX B

INTRODUCTORY LETTER



UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 233-3321-32440/4 & 32480/3
Direct: 033 20 91697
Fax: 03321-30184
Telex: 2552, UCC, GH.
Telegram & Cables: University, Cape Coast
Email: edufound@ucc.edu.gh

Our Ref:

Your Ref:

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

28th May, 2018

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

THESIS WORK
LETTER OF INTRODUCTION
MR. BENJAMIN SUNDEME

We introduce to you Mr. Sundeme, a student from the University of Cape Coast, Department of Education and Psychology. He is pursuing Master of Philosophy degree in Measurement and Evaluation and is currently at the thesis stage.

Mr. Sundeme is researching on the topic:

"Assessing Junior High School Teachers Knowledge and Practices of Performance Assessment in Ghana".

He has opted to collect data at your institution/establishment for the Thesis work. We would be most grateful if you could provide him the opportunity for the study. Any information provided would be treated as strictly confidential.

Thank you.

Yours faithfully,

Theophilus Amuzu Fiadzomor **(Mr.)**
Senior Administrative Assistant
For: **HEAD**

APPENDIX C

ETHICAL CLEARANCE

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: CES/ERB/ucc.edu/N2/18-43
Your Ref: .....

Date: Jan 21, 2018

Dear Sir/Madam,

ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH STUDY

Chairman, CES-ERB
Prof. J. A. Omotosho
jomotosho@ucc.edu.gh
0243784739

Vice-Chairman, CES-ERB
Prof. K. Edjah
kedjah@ucc.edu.gh
0244742357

Secretary, CES-ERB
Prof. Linda Dzama Forde
lforde@ucc.edu.gh
0244786680

The bearer, Benjamin Sundeme., Reg. No. ED/MEP/16/0003 is an M.Phil. ~~/Ph.D.~~ student in the Department of Education and Psychology in the College of Education Studies, University of Cape Coast, Cape Coast, Ghana. He / ~~She~~ wishes to undertake a research study on the topic:

Teachers' knowledge and practices of performance assessment in the Berekum Municipality, Ghana

The Ethical Review Board (ERB) of the College of Education Studies (CES) has assessed his/~~her~~ proposal and confirm that the proposal satisfies the College's ethical requirements for the conduct of the study.

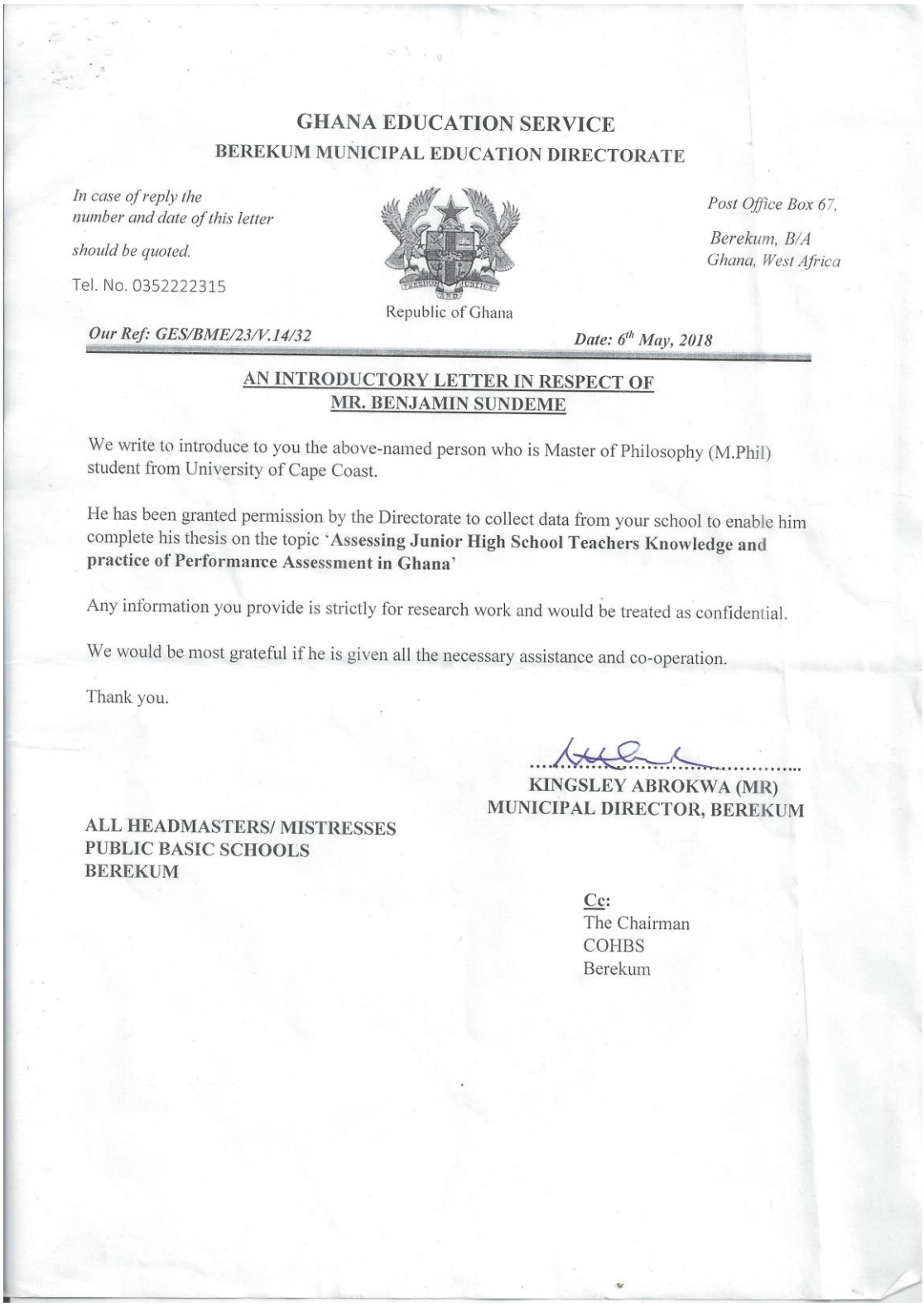
In view of the above, the researcher has been cleared and given approval to commence his/~~her~~ study. The ERB would be grateful if you would give him/~~her~~ the necessary assistance to facilitate the conduct of the said research.

Thank you.
Yours faithfully,

Prof. Linda Dzama Forde
(Secretary, CES-ERB)

APPENDIX D

GES INTRODUCTORY LETTER



GHANA EDUCATION SERVICE
BEREKUM MUNICIPAL EDUCATION DIRECTORATE

In case of reply the number and date of this letter should be quoted.

Tel. No. 0352222315

Republic of Ghana

Post Office Box 67, Berekum, B/A Ghana, West Africa

Our Ref: GES/BME/23/V.14/32 *Date: 6th May, 2018*

AN INTRODUCTORY LETTER IN RESPECT OF MR. BENJAMIN SUNDEME

We write to introduce to you the above-named person who is Master of Philosophy (M.Phil) student from University of Cape Coast.

He has been granted permission by the Directorate to collect data from your school to enable him complete his thesis on the topic '**Assessing Junior High School Teachers Knowledge and practice of Performance Assessment in Ghana**'

Any information you provide is strictly for research work and would be treated as confidential.

We would be most grateful if he is given all the necessary assistance and co-operation.

Thank you.

.....
KINGSLEY ABROKWA (MR)
MUNICIPAL DIRECTOR, BEREKUM

ALL HEADMASTERS/ MISTRESSES
PUBLIC BASIC SCHOOLS
BEREKUM

Cc:
The Chairman
COHBS
Berekum