

UNIVERSITY OF EDUCATION, WINNEBA

**A SURVEY OF REFLECTIVE TEACHING TECHNIQUES AMONG
SELECTED BASIC SCHOOL TEACHERS IN AKUSE**



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**A Dissertation in the Department of SCIENCE EDUCATION, Faculty of
SCIENCE EDUCATION, submitted to the School of Graduate Studies,
University of Education, Winneba in partial fulfilment of the requirements for
the award of the MASTERS OF SCIENCE EDUCATION DEGREE**

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DECLARATION

CANDIDATE'S DECLARATION

I, **DAVID RIIS WILSON**, declare that this thesis, with the exemption of quotations and references contained in published works which have all been identified and acknowledged, is entirely my own original work and that it has not been submitted either in part or whole for another degree elsewhere.

SIGNATURE:

DATE:

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this thesis were supervised by me, in accordance with the guidelines and supervision of thesis as laid down by the University of Education, Winneba.

SUPERVISOR: DR. ISHMAEL K. ANDERSON

SIGNATURE:

DATE:

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The completion of this dissertation has been a long road to success.

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DEDICATION

This thesis is dedicated to my parents, Mr. and Mrs. Ebenezer Riis Wilson, the rest of my family and friends for believing in me and encouraging me through many difficult times during my study. Your unconditional love and support in diverse ways have brought me this far. This is for you all.



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GLOSSARY

Oral reflection: The process of reflecting on one's teaching by verbally asking students questions on teaching techniques or methods.

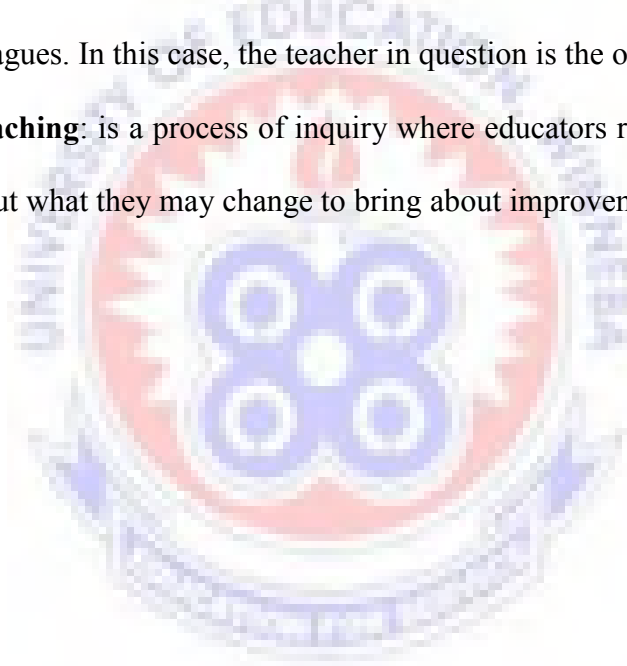
ORID: Objective reflective interpretive decisional model of reflection

POT: Peer observation of teaching

Peer Observation I: The process where a teacher makes a colleague sit and observe his or her lessons. In this case, the teacher in question is the one being observed.

Peer Observation II: The process where a teacher sits in class and observes lessons of other colleagues. In this case, the teacher in question is the observer.

Reflective teaching: is a process of inquiry where educators reflect on their teaching and think about what they may change to bring about improvement.



ABSTRACT

This study investigated the reflective teaching techniques practiced by basic school teachers in Akuse. The specific objectives of the study were to examine the reflective teaching techniques used by basic school teachers in Akuse, the extent to which these techniques were practiced and also find out the most popular and convenient reflective teaching techniques practiced by some selected basic school teachers in Akuse. A 17-item questionnaire was developed to seek information to satisfy the objectives. Sixty-eight (68) teachers made of forty-nine (49) professional teachers and nineteen (19) non-professional teachers with teaching experiences ranging from less than a year to more-than-eight years of teaching experience. The data gathered was analysed using the Statistical Package for Social Science (SPSS). The results of the study showed that the reflective teaching techniques practiced by basic school teachers in Akuse included oral reflection, peer observation, recording in log books and the use of questionnaires. Oral reflection was found to be the most popular and convenient reflective teaching technique. It was also found from the study results that professional teachers and teachers with at least five years of teaching experience do reflect on their teaching using various techniques to a large extent compared to non-professional teachers and teachers with less than five years of teaching experience. It was recommended from the study that peer observation must be encouraged in schools. Workshops on reflective teaching should be organised often to educate and remind teachers of its effectiveness in teaching.

CHAPTER ONE

INTRODUCTION

Overview

This chapter discusses the reflective teaching practices used in Ghanaian classrooms. It includes the statement of the problem, purpose of the study and its significance. Three research questions that guided the study have been stated. This chapter finally ends with the limitations and delimitations of the study.

Background to the Study

Anderson noted that education is a process by which individuals acquire knowledge, skills and attitudes, that will help their faculties in full. Anderson continued with an opinion that one of the benefits of good education is to enable individuals to contribute to the development in the quality of life for themselves, their communities and the nation as a whole (Anderson, 2006).

Education has never been more challenging and pertinent than in today's global world. This is because it is considered as one of the most important factors in the development of nations (Kumar, 2005). Irrespective of the vast reliance on technology for the training of students, teachers remain vital in the teaching-learning process. Therefore, the education and preparation of teachers is a critical issue in national development. Maarof (2007) saw that the attributes of quality teachers include possessing pedagogical knowledge, subject content knowledge, skills, and attitudes necessary for effective teaching, strong sense of ethics, and capacity for renewal and ongoing learning.

Becoming an effective teacher involves reflection of one's teaching methods - a deliberate and consistent examination of teaching practices in an effort to improve instructional practice and foster an environment in which students become engaged learners (Jay, 2003; Lester, 1988).

Deciding what to teach and how to teach it are essential questions upon which teachers reflect (Parsons & Brown, 2002). Whether teachers formally reflect on their practice through instructive comments dutifully logged in a dedicated notebook, group meetings during which teachers cooperatively review student achievement, lessons and delivery, or just through thoughtful consideration of the school day during a planning period or commute home, reflection is integral to exemplary teaching (Ayers, 2003). Yet reflective practice is far from consistent in the manner in which it is undertaken (Valli, 1997).

One of the hardest things to do as one begins to examine and think about his or her teaching practices is to figure out what to look for. One may try to answer the following questions, among others, during reflections on teaching:

- Am I determining what the students know?
- Am I using adequate wait time before and after I receive responses to questions?
- Are my students able to reflect on the experience and identify that was hard or easy for them; what worked and what did not; what they liked and what they did not?
- Are my students taking time to think about the problem, question, idea?
- Am I talking too fast?
- Is my class boring?

Reflection is very important in answering the above asked questions. Although it is a cumbersome and time-consuming practice, without reflection it is almost impossible for actual teaching and learning to occur. Faced with increasing demands to cover as much material as possible to prepare students for examinations, teachers often forego reflection on their work, to instead cover or finish the syllabus (Jay 2003). Reflection involves linking a current experience to previous learnings. Reflection also involves drawing forth cognitive and emotional information from several sources: visual, auditory, kinesthetic, and tactile. Hoover (1994) opined that to reflect, we must act upon and process the information, synthesizing and evaluating the data. In the end, reflecting also means applying what we've learned to contexts beyond the original situations in which we learned something – just as Dewey (1993) puts it, we don't learn from experience. We learn from reflecting on experience

Teaching pupils within the age of six and fourteen is a complex decision process. Goldstein states that teachers' presence, talk, classroom activities and decisions have a profound influence on student's learning during the early years (Goldstein, 2007). It is approved by a number of scholars and researchers that reflective teaching practices allows practitioners not to only ask questions deliberately and routinely, but they also use the answers of these questions to change and guide their instructional practices so they can be more effective (Ayers, 2003; Hoover, 1994; Jay, 2003).

Statement of Problem

Many models of reflective practice have been explored over the years, most of which support the process as a valuable component of educator practice (Parsons & Brown, 2002). According to Schon (1983), being able to reflect and engage in genuine introspection is fundamental to achieving self-awareness. Reflective practitioners are able to think creatively and self-critically about what they are doing, have a better

awareness of their strengths and weaknesses, and adjust their behaviours in their everyday interactions (Maarof, 2007).

However, no literature was found on reflective teaching techniques used by teachers in basic schools in Ghana. This study attempted to bridge the existing gap of inadequate knowledge of reflective teaching techniques practiced by basic school teachers in Ghana and the extent to which these techniques are used. This would provide a sectional baseline data upon which further studies in other parts of Ghana and West Africa could be done.

Purpose of the Study

This study aimed to examine the reflective teaching practices and techniques that basic school teachers in Akuse (a town in the Lower Manya-Krobo District in the Eastern Region of Ghana) engage to shape their thinking and influence decision making. It also aimed to discover which reflective practice is most convenient and could easily be repeated for every lesson. The information gathered will be compared along:

1. Professional and non-professional teachers
2. Teachers with at least five years of experience and those with less than five years of experience.

Five years was chosen because Owen (1972) opined that teachers with at least five years of experience were very effective with teaching methods. Finally the study intended to find out the extent primary school teachers in Akuse reflect on their teaching.

Objectives

The objectives of the study were to examine:

1. The reflective teaching techniques used by basic school teachers in Akuse.
2. The extent to which basic school teachers in Akuse reflect on their teaching
3. The most convenient reflective teaching practiced among basic school teachers in Akuse

Research Questions

The following research questions have been raised to solve the problem of the study:

1. What are the reflective teaching techniques employed by basic school teachers in Akuse?
2. What is the extent to which reflective teaching practices are undertaken?
3. Which reflective practice is most popular and convenient for basic school teachers in Akuse?

Significance of the Study

Through the study, it is anticipated that:

1. provide teachers and educators reflective teaching techniques that can easily be done to enhance teaching and learning
2. provide educators with ideas to plan seminars or training workshops in which teachers could develop their understanding and classroom practice associated with reflective teaching.
3. stakeholders in Education in Akuse may be informed about reflective teaching techniques among teachers
4. provide teachers and educators with the extent of the use of reflective teaching in Akuse educational area

5. it is likely to inform teachers in that educational area the most convenient reflective teaching technique available for use

Limitations

Limitations are conditions beyond the control of the researcher that will place restriction on the validity of the study, according to Best and Kahn (1989). This study also, like any other research work, has limitations.

The collection of significant information to improve quality of study hinges on availability of enough funds, which was limited in this study. Therefore, it would have been more financially burdensome if the study was extended to attract many schools in the study area.

The unwillingness of some of the teachers to respond to the questionnaires was also likely to affect the quality of the results. Some respondents who willingly collected questionnaires too did not return them on time, and this affected the return rate.

Delimitation

This study did not cover all the primary schools in the Lower Manya-Krobo District in the Eastern Region of Ghana. The study was limited to the teachers in the six basic schools in Akuse. Akuse had six primary schools and one Senior High School, at the time this survey was undertaken.

The research work focused mainly on the reflective teaching practices employed by the teachers in the basic schools in Akuse.

Organisation of the Research Report

This dissertation is organised into five chapters. Each chapter begins with a brief overview of what the chapter entails followed by the main content of the chapter. Chapter one being the introduction begun with the background of the study, statement of problem and the purpose of the study. It also included the research questions for the study, the significance of the study, limitation and delimitation of the study. The chapter ended with organisation of the study.

Chapter two deals with the review of literature related to the study. It covered reflective teaching, video-taping oneself, written logs, oral reflections and peer observations. A summary of literature review ended the chapter. Chapter three deals with the methodology of the study. Research design, population and sample selection and data analyses plan were talked about in this chapter. Chapter four deals with the presentation of the results, findings and discussions. The summary, conclusion and recommendations of the study were captured in chapter five.

CHAPTER TWO

LITERATURE REVIEW

Overview

This chapter reviews literature that relates to reflective teaching, video-taping oneself, written logs, oral reflections and peer observation, empirical evidence of impact of reflective teaching on student teaching.

Reflective Teaching

Reflection as educational practice can be traced back to Dewey and from within the framework of self-awareness, as is often the case in the field of education. In *How We Think*, Dewey (1933) expressed the significance of reflection as a holistic procedure for problem solving. Dewey (1933) viewed reflection as an action required for better practice and an innovative consideration of addressing teaching challenges and student learning. Well before Dewey, others, including Socrates in his *Apology*, broadly addressed reflection as important to the progress of reason (Stewart & Blocker, 2006). Further, enlightenment philosopher Descartes espoused that self-awareness leads to virtue (Fendler, 2003). Dewey (1933) declared that, effective reflection of educational practice must come from within a paradigm of self-awareness. Without that characteristic, any examination of teaching is far less potent as reflective enterprise and more akin to teacher evaluation processes often void of context.

To that point, Lieberman (2003) indicated that such self-knowledge was critical to teaching in that it helps us understand what we need to know, where we can find support to help us, and how we go about solving teaching problems that we will inevitably face. Palmer (2003) contributed personal experience to this line of thought

by acknowledging that the ability to connect with students and to connect them with the subject depends less on the methods used than the degree to which selfhood and willingness are made available and vulnerable in the service of learning.

The extent of one's self-knowledge as a pre-condition for effective reflective action becomes part of the variability scholars note in examination of valuable reflective practice, and instead, produces more prominent focus on reflective classifications and approaches, which allow practitioners to foster reflection to varying degrees (Fendler, 2003).

According to Wieczorek-Ghisso (2015), many models of reflective practice have been explored over the years, most of which support the process as a valuable component of educator practice. According to Schon (1983), who began exploring this concept in the early 1980s, being able to reflect and engage in genuine self-examination is fundamental to achieving self-awareness. When undertaken consciously, reflective practitioners are able to think creatively and self-critically about what they are doing, have a better awareness of their strengths and weaknesses, and adjust their behaviour in their everyday interactions. (Wieczorek-Ghisso, 2015).

Metacognition is also an important element of reflection and effective reflective practice (Parsons & Stephenson, 2005). As teachers analyse and evaluate their practice, they are developing their practice. Teachers should be encouraged to consider the different ways that students' learning is promoted in their classrooms by considering not only their technical teaching skills, but also the issues and aspects of their practice that go beyond their actual teaching and influence student learning. Reflection is not simply writing about whether a lesson went well, but rather identifying reasons for success or failure. These reasons must extend beyond the teachers' past teaching experiences, and draw from theoretical knowledge and the

teachers' understanding of children's learning and pedagogy (Parson & Stephenson, 2005). In order for this to happen, teachers must be aware of their own beliefs and learning (metacognition), so that the reflection process can produce a choice for future teaching. The reflection process may cause a teacher to change how he thinks about an issue or situation or their values and attitudes. Or, it may also not cause anything to change. Either way, effective reflection means that the choice was made based on thought and analysis, and the teacher made a conscious decision based on his learning (Parsons & Stephenson, 2005).

Video-taping Oneself

The field of education depends on reflective teaching that successfully sharpens the skills of future subject teachers by making them aware of not only how they implement the methods they learn in class but also of why they make critical decisions about all aspects of their performance (Farrell, 2003). Among the many options for self-reflection, video recording has a large number of advantages. When the procedures for using videotaped lessons as a stimulus for reflection are introduced to teacher trainees during pre-service, there is a good chance that self-reflection will become a natural and enduring component of their teaching that will positively affect them and their students (Bartlett, 1990).

Watching oneself increases self-awareness and confidence which are also relevant to development of constructive reflective attitude (Lofthouse & Birmingham, 2010). Pellegrino and Gerber (2012) also reported that teachers who engaged in reflection through video recording analysis experience heightened awareness of teaching strengths and weaknesses. Pellegrino and Gerber note:

Specifically, participants noted that employing the observation instrument, coupled with the formalized act of video-recording

analysis, allowed them to focus on details of teaching often overlooked in less formal reflective practice or formal evaluation (Pellegrino & Gerber, 2012, p. 1).

Rich and Hannafin (2009) found that specific, easy to use, and ubiquitous tools such as video-recording and analysis used for reflection could encourage deliberative reflective behavior. The permanence and objectivity potential of video can allow educators to repeatedly and closely examine classroom practice (Orlova, 2009) and sustain professional development (Hennessey & Deaney, 2009). Goodlad (1984) further asserted that with the availability of resources for videotaping lessons for purposes of self-examination, teachers can engage successfully in a considerable amount of self-improvement. While some may consider establishing guidelines for reflection antithetical to the notion of developing self-awareness, providing methods with which to foster a reflective experience can encourage such behavior (Jay, 2003).

Ayers (2003) noted that teachers must be self-critical lest they lose capacity for professional growth. Ayers (2003) also warned, however, that becoming too critical manifests in practitioners who are powerless to take the necessary risks to improve their teaching. As Ayers (2003) stated, “the tension is to end each day with a strong understanding of what could be improved, and to begin the next with forgiveness and hope” (p. 29). Reflection as a tool for practitioners to develop pedagogical skills then, comes from general self-awareness and, in the case of deliberative reflection, the consideration of teaching, mindful of the myriad influences on teacher behavior.

Written Logs

Learning journals, logs and reflective diaries are terms often used interchangeably. However, the purposes of them may differ slightly. When keeping a learning journal, the emphasis is on making explicit and recording the learning that occurs (Richards,

2002). Reflective diaries, as the name suggests, are more concerned with demonstrating reflection on an experience, while logs are a record of events that have happened. They usually, however, all have an aspect of reflection in them. (Moon, 2010).

Writing proceedings of events have been used for a very long time. Secretaries write down minutes of meetings to refer to them when making annual reports or for reference purposes. Written logs are well-accepted by many educators and teachers because it helps students to narrow the gaps between theories and practice, and most importantly heightens students' felt need of constantly monitoring their learning progress (Richards, 2002). Learning should not be a passive process of simply in-taking information from teachers and lecturers, but rather an active process that requires a lot of personal thinking and questioning (Moon, 2010)

Many others also find written logs very useful in so many ways as seen in the following notes.

Journal writing holds before the writer's eye one image after another for closer inspection: is this one worth more words, more development?... In the academic world, where we teach students to gain most of their information from reading and listening, we spend too much time telling our students how to see or doing it for them. That's not how I would encourage critical, creative, or independent thinking. Our students have good eyes; let's give them new tools for seeing better: journal writing is, of course, one of those tools (Fulwiler, 1986).

One of the most engaging uses of personal student journals is as a mirror of the mind. In this mode, journals invite learners to find language deep within self to array one's hopes, dreams, disappointments, concerns and resolves.....The result is that students often express astonishment and delight at the

kaleidoscopic self-portraits which emerge from the pages of their notebooks as they journey through a course (Bowman, 1983).

Keeping a journal is a humbling process. You rely on your senses, your impressions and you purposely record your experiences as vividly, as playfully, and as creatively as you can. It is a learning process in which you are the learner and the one who teaches (Holly, 1991. p4).

...that is what my journals are about to this day. Moments of being in the world that I want to save. Pictures of the world that I have witnessed.....To reread the journal is to see oneself seeing (Grumet, 1990).

Written logs are useful in so many ways. Among the purposes and usefulness of written logs or learning journals according to Moon (2010) are

- To facilitate learning from experience
- To develop critical thinking or the development of a questioning attitude
- To increase ability in reflection and thinking
- For reasons of self-empowerment and personal development
- To enhance creativity
- To improve writing
- To enhance reflective practice

Oral reflection

Discussing issues or doing oral reflections are ways to find out how one is affected by an issue, what they think about the issue and finding out clarifications of hitherto understood concepts. Oral Reflection (feelings, expertise, or cognition) help students express their knowledge, feelings, concerns and frustrations. Discussions may involve the entire class or just small numbers of students. Students can be encouraged to make

cognitive links between their academic learning and service experience, through the **ORID** model of reflection (Stanfield, 2008). This model provides a progression of question types designed to move student from reflecting on a concrete experience to analytical and subjective reasoning.

It was developed by the Institute of Cultural Affairs (ICA) in Canada and involves a facilitator asking people four levels of questioning with each level building on previous levels. It's based on the theory that people need to be cognisant of the actual data and deal with their emotional responses to the topic in order to undertake better analysis and decision-making.

‘**O**’ stands for objective – the facts that the group knows

‘**R**’ stands for reflective – how people felt about the topic being evaluated. What they liked and disliked.

‘**I**’ stands for interpretive – What were the issues or challenges

‘**D**’ stands for decisional – What is our decision or response.

People often evaluate experiences quickly and superficially or allow little to no discussions. The ORID framework enables detailed reflection and helps students (groups) to get to the heart of a matter efficiently. Oral reflection is undoubtedly very useful both for the teacher and the student.

Peer observation

Peer observation of teaching (POT) is a reciprocal process where a peer observes another's teaching (classroom, virtual, on-line or even teaching resource such as unit outlines, assignments). Peers then provide constructive feedbacks that would enable teaching professional development through the mirror of critical reflection by both the observer and the one been observed (Brookefield, 1995). Peel (2005), through her

own experience of POT as a new lecturer describes it as a multifaceted process that involves technical knowledge, class room dynamics, personal growth and change.

While observation of teachers is a common practice, it is generally done for evaluation and personnel matters such as contract renewal. Teacher observation for such purposes is usually done by a supervisor or someone in a position of authority.

This might cause teachers to be overly stressed, nervous, and anxious, which might have a negative impact on their performance- just as Crookes (2003) claims that when the observer is an administrator it “induces anxiety” (p.29). To deal with the potential of a negative performance, teachers may plan easy lessons on something that they have already covered in previous lessons, so as to get positive evaluations.

The aim of reflective peer observation according to the reflective peer observation handbook, School of Education and Lifelong Learning of the Aberystwyth University, UK, is to benefit:

- **the person being observed** -through developing reflective practice. If staff choose, they may also use participation in the scheme as evidence of their own professional development for training courses, professional institutions, etc.
- **the observer** -through reflection on the session observed and its relation to their own practice.
- **the students** -through the continuous improvement of teaching and learning.

Summary of the Literature Review

From the literature reviewed, it can be concluded that, the significance of reflective teaching in the form of, but not limited to video recording, log keeping, peer observation and oral reflections cannot be overemphasized. The attention in this study is to examine reflective teaching techniques or practices utilized by some selected

basic school teachers in Akuse. Further attention is given to the frequency at which these reflective teaching techniques are employed.



CHAPTER THREE

RESEARCH METHODOLOGY

Overview

This section deals with the method used to collect data for the study. Items dealt with in this section include the research design, population, sample and sampling techniques. The chapter continues with the instrumentation of the study, piloting, validity and reliability as well as questionnaire administration.

Research Design

The research design used in this study was the descriptive survey design. A descriptive study is one in which information is collected without changing the environment. That is nothing is manipulated. Sometimes these are referred to as “correlational” or “observational” studies (Dunn, 1999).

The design was chosen because of its ability to investigate existing conditions or relationships, prevailing viewpoints, attitudes and beliefs, ongoing processes and developing trends as indicated by Seidu (2006). This design is appropriate for this study because it enabled the researcher investigate the prevailing reflective teaching techniques adopted by basic school teachers in Akuse.

Population

Dunn (1999) defined a research population as a complete set of data possessing some observable characteristics, or a theoretical set of some observations. Seidu (2006) also said it is the sum aggregate of the phenomena of interest. It can be deduced from these two authors that researchers focus on a population that displays some characteristics of their study interest.

The population of interest in this study is the teachers in the Basic Schools in Akuse. The choice of this group reflects the objectives of the study. The researcher was of the view that proximity to this population can make gathering of information needed for this study in time for analyses.

Sample and Sampling Techniques

The sample of the study was drawn from teachers that teach in the Basic Schools in Akuse, a town in the Lower-Manya Krobo District of the Eastern Region of Ghana. The sampling procedures used were random sampling and quota sampling. The schools that were selected were VRA International School, R/C Basic School, Methodist Basic School, Messiah Preparatory School and Islamic Basic School, all located in Akuse. These schools were chosen because, apart from the proximity to these schools, they also were the only basic schools, at the time of this study, which had classes from Primary 1 to Junior High School 3.

Simple random sampling was used to select the respondents. In statistics, a simple random sample is a subset of individuals (a sample) chosen from a larger set (a population). Each individual is chosen randomly and entirely by chance, such that each individual has the same probability of being chosen at any stage during the sampling process (Yates, David & Daren, 2008).

Fourteen (14) teachers were selected from each school to respond to the questionnaire. Quota sampling was used to select respondents for a fair gender representation. Dunn (1999) stated that quota sampling entailed selecting a number or “quota” of persons who fit some of the predetermined characteristics. The quota for males was six (6) – 70% and that of females was four (4) - 30% for each school. The quota was not even because the male teachers outnumbered the female teachers.

Instrumentation

The main instrument used to collect data for this study was a questionnaire. Siniscalco and Auriat (2005) noted that a questionnaire was a survey instrument used to collect data from individuals about themselves, or about a social unit such as a household or school. Leedy (1980) noted that a questionnaire is widely used for collection of data in educational research when information is obtained from a large number of subjects in diverse locations. A questionnaire is very effective for securing factual information about practices, opinions and attitudes of subjects. It is a research instrument made up of a series of questions and other prompts for the goal of assembling data from respondents. It can also be used to examine the general characteristics of a population to compare attitudes of different groups, or to test theories.

The items in the questionnaire were mostly close ended items on a five-point Likert type scale. The five-point Likert scale was used because it exhausted all possible responses for easy analysis. Arnold, Prichard and McCroskey (2005) opined that Likert type attitude scales are quite reliable and valid instruments for the measurement of attitudes. The questionnaire was made up of seventeen (17) items in three (3) sections. Section A sought the background information of the respondents which included their gender, age, level of education, professional teacher qualification status and number of years they have been teaching. Section B sought information about reflective teaching techniques and their extent of use. Section C sought information about the most convenient reflective technique practiced among basic school teachers in Akuse and also when best they do their reflections. That is the questionnaire was constructed to seek information to answer the research questions of this study.

Trial-testing the Questionnaire

The questionnaire constructed was subjected to review by colleague course mates and the supervisor of this study. The corrected version was pilot tested at Akuse Methodist Senior High Technical School in the Eastern Region. This school was chosen because that was the school where the researcher was employed as a teacher, at the time of this study. This enhanced easy administering of pilot test. The purpose of the pilot test was to find out whether the items were clear and can be interpreted in a desired way by teachers in order to remove ambiguous statements.

Validity of the Main Instrument

Validity describes a measure that accurately reflects the concept it is intended to measure (Babbie, 2005). The questionnaire was therefore developed in consultation with the supervisor of this study and my colleagues who provided advice for correction and amendment to ensure that the items were valid. Thus the items were subjected to critical examination to ensure that they measured the accurate responses necessary to answer the research questions in the long run.

Reliability of the Main Instrument

Reliability on the other hand, refers to the consistency of data when multiple measurements are made (Leedy, 1980). It is an index that estimates the consistency (dependency) of a test. To ensure the reliability of the study results, the questionnaire was administered to a group of teachers at Akuse Methodist Senior High Technical School. A Cronbach's alpha test was run on the pretest results. The Cronbach's alpha obtained was 0.690 which indicates a high level of internal consistency of the questionnaire items.

Cronbach's alpha is the most common measure of internal consistency (reliability). It is most commonly used when there is a multiple Likert questions in a survey or questionnaire that form a scale and used to determine the reliability of the scale (Goodwin, 1998).

The resulting Cronbach alpha ranges from 0 to 1. The higher the Cronbach alpha, the more the items have shared covariance and probably measure the same underlying concept (Dunn, 1999).

Data Collection Procedure

An introductory letter from the Department of Science Education, University of Education, Winneba was sent to the head teachers of the selected schools before the questionnaire was administered. The questionnaires were personally administered to the teachers, school after school, and were collected on the same day after completion. This was done in order to ensure high return rate. The procedure also afforded the researcher the opportunity to offer guidance to the respondents where there was the need.

Data Analysis

The data gathered was analysed using mainly frequencies, percentages and means. The Statistical Package for Social Science (SPSS), version 20.0 for windows was used for the analysis. The analysed data were used to answer the research questions formulated for the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

Overview

This chapter is devoted to the results of the research obtained from the administration of the test items. It also deals with the presentation of analysis and discussions of the result of the data obtained during the study. The results were then used to answer the research questions posed in the study.

Results and Analysis

Background information

Sixty-eight (68) teachers responded to the test items. Twenty (20) of them were female representing twenty-nine point four percent (29.4%) and forty eight (48) were males representing seventy point six percent (70.6%) of the respondents. The age of the respondents ranged from nineteen (19) to fifty-one (51) years.

Nine (9) of the respondents were SHS graduates, 36 were tertiary certificate/diploma holders, 22 of them had Bachelor's degrees and 1 had a Master's degree.

Forty-nine (72.1%) of the respondents were professional teachers while nineteen (27.9%) of them were non-professional teachers.

The teaching experiences of the teachers who responded to the questionnaire are summarized in Table 1.

Table 1: Distribution of teaching experience of respondents

Teaching Experience	Frequency	Percent
Up to 3 years	16	23.5
greater than 3 but less than 5 years	27	39.7
between 5 to 8 years	18	26.5
above 8 years	7	10.3

Table 1 shows that 7 of the respondents have been teaching for more than 8 years, 18 of them have been teaching between 5 and 8 years, 27 of them have been teaching between 3 and 5 years and 16 of them have for at most 3 years.

The reflective teaching techniques enquired about included oral reflection, use of questionnaires, observation logging, peer observation and any other reflective teaching technique the respondents use that was not mentioned in the test items.

The peer observation was enquired about in two forms. Peer Observation I and Peer Observation II.

For Peer Observation I, information was enquired for when a teacher makes other colleagues sit in and observe his/her class. In this case the teacher in question is the one being observed. For Peer Observation II, information was enquired for when a teacher sits in and observes a colleague's lessons. In this case, the teacher in question is the one who does the observation.

The summary of the responses given by the teachers to test items from 6 to 12 of the questionnaire are presented in Table 2.

Table 2: Distribution of responses to test items

Test Item	Statement	Responses*				
		1	2	3	4	5
6.	I use few minutes to the end of the lesson to orally ask my students what they understand and what they did not understand, if I was moving too fast or too slow.(Oral reflection)	55 (80.9%)	8 (11.8%)	5 (7.4%)	0	0
7.	I video-record my lessons and watch the videos afterwards to aid me reflect on my teaching.	0	0	0	0	68 (100%)
8.	Peer Observation I. (I make other colleagues sit in and observe my class and give me feedback afterwards.	0	0	6 (8.8%)	13 (19.1%)	49 (72.1%)
9.	Peer Observation II. (I sit in other colleagues class to observe lessons)	0	0	4 (5.9%)	16 (23.5%)	48 (70.6%)
10.	I make observations of my lessons in a log book and reflect on my teaching afterwards.	0	30 (44.1%)	12 (17.6%)	0	26 (38.20)
11.	I interview my students on my teaching using questionnaires	0	7 (10.3)	15 (22.1%)	21 (30.9%)	25 (36.8%)
12.	Any other reflective teaching technique you make use of, that is not mentioned above. (Write in the spaces below and respond accordingly)	0	0	0	0	0

*1= During every lesson, 2= Once in a week, 3 = Cannot tell how frequent, 4= Once in a term, 5 = Never done this

Of the sixty eight teachers (68) who responded to item 6, fifty-five (55) of them which represent eighty point nine percent (80.9%), as shown in Table 2 , do oral reflection of their during every lesson. Eight of the teachers which represent eleven point eight percent (11.8%), do oral reflections of their teaching lessons on a weekly basis. Five (5) of the teachers representing seven point four percent (7.4%) of the respondents could not tell how frequent they do oral reflection of their teaching. None of the teachers have neither done oral reflection on their teaching nor do oral reflection once in a term.

Table 2 also shows all the teachers who took the test items have never done a video recording of their lesson to watch afterwards for the purposes of teaching reflection.

From Table 2, it can be seen that forty nine (49) of the teachers representing seventy two point one percent (72.1%) have never made a colleague teacher observe their lessons, thirteen (13) of them representing nineteen point one percent (19.1) make a colleague teacher observe their class once in a term, and the remaining six (6) of the respondents representing eight point eight percent (8.8%) cannot tell how frequent they make a teacher observe their lessons to request for feedback afterwards.

Table 2 also shows that 16 (23.5%) do sit in the classes of other colleagues to observe lessons once in a term, 4(5.9%) could not tell how frequent they do Peer Observation II and the remaining 48(70.6%) have never sat in a colleague's class to observe

Thirty (30) of the teachers representing forty four point one percent (44.1%) do record observations of their teaching proceedings in log books once every week. Twelve of them (17%) could not tell how frequent they log the proceedings of their lessons in

books. Twenty six (26) representing thirty eight point two (38.2%) have never recorded their lesson in a log book, as seen in Table 2.

Table 2 also shows that none of the teachers who responded to the test items do administer questionnaire to reflect on their teaching every day. Seven (7) of them representing ten point three percent (10.3%) use questionnaires to reflect on their teaching once a week. Fifteen (15) of the teachers (22.1%) cannot tell how frequent they use questionnaires to reflect on their teaching. Thirty point nine percent (30.9%) of the teachers do use questionnaires to reflect on their teaching once a term. Twenty-five (25) of the teachers representing 36.8% have never used a questionnaire to reflect on their teaching.

None of the teachers that responded to the test items use any other reflective teaching technique apart from those mentioned in the test items.

Respondents' reasons for having not done any of the reflective techniques mentioned

Most of the respondents gave the reason of having not video-recorded their lessons ever to be that the video cameras for the recording are expensive to obtain. Some of the responds said once they can reflect orally, they have no impetus to do any other form of teaching reflection. One respondent noted “Why would I buy an expensive camcorder to do a job my logbook or mouth can easily do?”

Most of the teachers who have never done peer observation (either observing or being observed) explained that their time tables do not allow time to spare for peer observation. Some also mentioned that the feeling of intimidation prevents them from involving in peer observation. Other respondents said they have never done peer observation because they feel the feedback might be insensitive A few could not give reasons for not doing peer observation.

Most of the reasons gathered from the respondents for not using questionnaires to do reflection on teaching were that, developing questionnaires takes time so they rather use oral reflection. A few of them said they avoid questionnaires because people have different ways of interpreting things and hence they may receive subjective feedback from the students. A few of the respondents gave no reasons for not using questionnaires to reflect on their teaching.

The responses given by the teachers to when best they reflect on their teaching is summarized in Table 3.

Table 3: Distribution of teachers' responses to when best they reflect on their teaching

Response	Frequency	Percent
Before the lessons	14	20.6
During the lesson	0	0
After my lessons	54	79.4

It was found from the responses that fifty four (54) of the teacher representing seventy nine point four percent (79.4%) do reflect on their teachings after the lesson the lessons are over and the remaining fourteen (14) do their reflection before their lessons. None of the teachers who responded to the questionnaire do reflect while lessons are ongoing, as seen in Table 3.

Respondents' reasons for their choice of when they best did reflection on their teaching

All of the respondents who chose reflection after lessons mentioned that reflection after lessons make them aware of certain flaws, prevent certain errors and also adopt suitable teaching methodologies in subsequent lessons.

Most of the respondents who chose to reflect before lessons mentioned that it gives them time to anticipate probable questions or outcomes of scenarios in lessons and make them prepare appropriate responses before the lesson. All of the rest mentioned

that doing teaching reflection before lessons make them deliver the lessons with less difficulty.

The summary of the responses given by the teachers to their choice of the most convenient and popular reflective teaching technique to use in their schools is presented in Table 4.

Table 4: Distribution of teachers’ responses to their choice of most convenient and popular reflective teaching technique to use in their schools

Reflective Teaching Technique	Frequency	Percentage
I use few minutes to the end of the lesson to orally ask my students what they understand and what they did not understand, if I was moving too fast or too slow.(Oral reflection)	68	100
I video-record my lessons and watch the videos afterwards to aid me reflect on my teaching.	0	0
Peer Observation I. (I make other colleagues sit in and observe my class and give me feedback afterwards.	0	0
Peer Observation II. (I sit in other colleagues class to observe lessons)	0	0
I make observations of my lessons in a log book and reflect on my teaching afterwards.	0	0
I interview my students on my teaching using questionnaires	0	0
Any other reflective teaching technique you make use of, which is not mentioned above. (Write in the spaces below and respond accordingly)	0	0

When asked “Which reflective teaching technique (choose one from the “statements” described in questions 6 to 12) is most convenient and could easily be done during every lesson in your school?” all the teachers preferred to use few minutes to the end of their lessons to do oral reflection, as seen on Table 4.

Additional comments by respondents

None of the respondents gave additional comments.

The summary of the comparison of observation logging during lessons along years of experience of the teachers is given in Table 5.

Table 5: Comparison of observation logging during lessons along years of experience of respondents

Years of Teaching Experience	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Up to 3	0	5 (31.3%)	4 (25%)	0	7 (43.7%)
Above 3 but less than 5	0	8 (29.6%)	4 (14.8%)	0	15 (55.6%)
Between 5 and 8	0	10 (55.6%)	4 (22.2%)	0	4 (22.2%)
Above 8	0	7 (100%)	0	0	0

Table 5 shows that all of the teachers who have been teaching for at least eight years record observations of their lessons in log books every week. Ten (10) of the teachers (representing 55.6%) who have been teaching between five to eight years do record their lessons in a log book every week. Four each of the teachers in this group (between 5 and 8 years) could not tell how frequent they record observations their lessons in log books and have not recorded their lesson observations in log books respectively. Eight of the teachers who have between 5 and 8 years of experience do record their lesson observations in log books weekly. Four the teachers who have between 5 and 8 years of teaching experience could not tell how frequent they record observations of their lessons in log books. The remaining 4(22.2%) of the teachers who have between 5 to 8 years of experience have never recorded observations of their lessons in log books. Fifteen (55.6%) teachers who have between 3 to 5 years of teaching experience have never recorded a lesson in log books. Four (14.8%) of the

teachers with between 3 to 5 years of teaching experience could not tell how often they record observations of their lessons in log books. The remaining 8 of the teachers with between 3 to 5 years of teaching experience record observations of their lessons in log books once every week.

Of the 16 teachers who have up to 3 years of teaching experience, 5(31.3%) of them record observations of their lessons once every week, 4(25%) of them could not tell how frequent they record observations of their lessons in log books and the remaining 7(43.7%) have never recorded observations of their lessons in log books, as shown on Table 5.

A comparison of observation logging during lessons along professional teacher status of the respondents was made. In all, 73.5% of the professional teachers who responded to the test items record observations of their lessons in log books to some extent as compared to 31.6% of non-professional teachers who do the same, as shown in Table 6.

Table 6: Comparison of observation logging during lessons along professional teacher status of respondents

Teacher Status	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Professional	0	30 (61.2%)	6 (12.2%)	0	13 (26.5%)
Non-professional	0	8 (29.6)	4 (14.8%)	0	15 (55.6%)

Table 6 shows that thirty (61.2%) of the professional teachers do record observations of their lessons once in a week, six (12.2%) of them could not tell how frequent they record observations in their lessons and the remaining 13(26.5%) have never recorded any observation of their lessons in log books.

Table 6 also shows that none of the non-professional teachers record observations of their lessons in log books weekly, 4(14.8%) of the non-professional teachers could not tell how often they record their lessons in log books to do teaching reflection on it afterwards and 15(55.6%) of them have never recorded observations of their lessons in log books to reflect on their teaching afterwards.

A comparison of Peer Observation I along years of experience of the teachers was made. The summary is given in Table 7.

Table 7: Comparison of peer observation I along years of experience of respondents

Years of Teaching Experience	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Up to 3	0	0	0	2 (12.5%)	14 (87.5%)
Above 3 but less than 5	0	0	1 (3.7%)	1 (3.7%)	25 (92.6%)
Between 5 and 8	0	0	5 (27.8%)	3 (16.6%)	10 (55.6%)
Above 8	0	0	0	7 (100%)	0

Table 7 shows that 14(87.5%) of the 16 of teachers with at most 3 years of experience have never made a colleague observe their lesson and the remaining 2(12.5%) do make their colleagues observe their lessons once in a term. 25(92.6%) of the 27 of the teachers with between 3 to 5 years of experience have never made a colleague observe their class ever, 1(3.7%) of this group makes a colleagues observe the class once in a term and the remaining 1(3.7%) of this group of teachers could not tell how frequent he makes his lessons to be observed by a colleague.

Table 7 also shows that of the 18 teachers who have between 5 and 8 years of teaching experience, 10(55.6%) have never made a colleague observe their lessons

ever, 3(16.6%) make their colleagues observe their lessons once in a term and the other 5(27.8%) could not tell how often they allow colleague teachers observe their class and give feedback.

All of the teachers who have over 8 years of teaching experience make their colleagues observe their class once in a school term. From Table 7, it could be seen that 60% of the respondents who have at least 5 years of teaching experience make a colleague observe their lessons at least once in a term as compared to 9.3% of respondents with less than 5 years of teaching experience make a colleague observe their lessons at least once in a term.

A comparison of Peer Observation I along professional teacher status of the respondents was made and the result is summarized in Table 8.

Table 8: Comparison of peer observation i along professional teacher status of respondents

Teacher Status	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Professional	0	0	5 (10.2%)	13 (26.5%)	31 (63.3%)
Non-professional	0	0	1 (5.3%)	0	18 (94.7%)

Table 8 shows that 13(26.5%) of the professional teachers make their colleagues observe their class once in a term. Five (10.2%) of them could not tell how frequent they allow colleagues observe their lessons and the remaining 31(63.3%) of the professional teachers have never made a colleague observe their lessons ever.

Table 8 also shows 18(94.7%) of the 19 non-professional teachers who responded to the test items have never made a colleague observe their lessons and the remaining 1(5.3%) could not tell how frequent he makes colleague teachers observe his lessons and give feedback afterwards.

From Table 8 , it could be seen that only 5.3% of the non- professional teachers who responded to the test items make a colleague observe their lessons in a way as compared to 36.7% of professional teacher respondents who do same.

The summary of a comparison of Peer Observation II along years of experience of the teachers is given in Table 9.

Table 9: Comparison of peer observation II along years of experience of respondents

Years of Teaching Experience	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Up to 3	0	0	0	2 (12.5%)	14 (87.5%)
Above 3 but less than 5	0	0	0	3 (11.1%)	24 (88.9%)
Between 5 and 8	0	0	4 (22.2%)	4 (22.2%)	10 (55.6%)
Above 8	0	0	0	7 (100%)	0

Table 9 shows that 14(87.5%) of the 16 teachers who have at most 3 years of teaching experience have never observed another colleague’s lesson and the remaining 2(12.5%) observe another colleague’s lessons once in a term. Twenty-four (88.9%) of the 27 teachers who have between 3 and 5 years of teaching experience have never observed other colleagues lesson and the remaining 3(11.1%) observe a colleague’s class once in a term. None of the teachers who have between 3 to 5 years of teaching experience do Peer Observation II during every lesson or every week. No teacher in this group also responded “cannot tell how frequent” they do Peer Observation II.

Ten (55.6%) of the 18 teachers who have between 5 and 8 years of teaching experience have never observed a colleague’s lesson; 4(22.2%) of the remaining 8

observe a colleague's lesson once in a term and the remaining 4(22.2%) could not tell how frequent they observe a colleague's class and take notes.

Table 9 also shows that all respondents who have more than 8 years of teaching experience do observe a colleague's lesson once in a term.

It could be seen in Table 9 that 60% of the respondents who have at least 5 years of teaching experience observe colleagues' lessons at in a way as compared to 11.6% of respondents with less than 5 years of teaching experience that do same.

A comparison of Peer Observation II along professional teacher status of the respondents was made. It was found that none of the professional teachers does Peer Observation II during every lesson or every week. The summary of the comparison is given in Table 10.

Table 10: Comparison of peer observation II along professional teacher status of respondents

Teacher Status	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Professional	0	0	4 (8.2%)	15 (30.6%)	30 (61.2%)
Non-professional	0	0	0	1 (5.3%)	18 (94.7%)

Table 10 shows that 30(61.2%) of the 49 professional teachers have never observed a colleague's lesson; 15(30.6%) of the remaining 19 observe a colleague's lesson once in a school term and the other 4(8.2%) of the professional teachers could not tell how often they observe a colleagues lesson.

Table 10 also shows that 18(94.7%) of the 19 non-professional teachers who responded to the test items have never observed a colleague's lesson and the remaining 1(5.3%) observes a colleague's lesson and takes notes once in a term.

Table 10 shows that 38.8% of professional teachers who responded to the test items observe colleagues' lesson and take notes in a way as compared to only 5.3% of non-professional teacher respondents who do same.

The use of questionnaire to do teaching reflection was compared along professional teacher status of the respondents. The results is summarized in Table 11.

Table 11: Comparison of usage of questionnaire to do teaching reflection along professional teacher status of respondents

Teacher Status	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Professional	0	6 (12.2%)	7 (14.3%)	20 (40.8%)	16 (32.7%)
Non-professional	0	1 (5.3%)	8 (42%)	1 (5.3%)	9 (47.4%)

Table 11 shows that of the 49 professional teachers who responded to the test items, 16(32.7%) have never reflected on their lessons using questionnaires, 20(40.8%) use questionnaires to reflect on their teaching once in a term, 7(14.3%) could not tell how they use questionnaires to reflect on their teaching and the remaining 6 interview their students using questionnaires to find out how students understand their lessons. None of the professional teachers use questionnaires to reflect on their teaching during every lesson.

Table 11 also shows that of the 19 non-professional teachers of the respondents, 9(47.4%) have never reflected on their lessons using questionnaires, 1(5.3%) uses questionnaires to reflect on his teaching once in a term, 8(42%) could not tell how they use questionnaires to reflect on their teaching and the remaining 1(5.3%) interviews his students using questionnaires to find out how students understand his lessons. None of the none-professional teachers who responded to the test items use questionnaires to reflect on their teaching during every lesson.

It can be seen from Table 11 that 67.3% of professional teachers who responded to the test items use questionnaires to reflect on their teaching as compared to 52.6% of non-professional teacher respondents who use questionnaires to reflect on their teaching.

A comparison on the use of questionnaire to do teaching reflection along years of experience was made. It was found that none of the teachers with between 5 to 8 years of experience do reflect on their teaching using questionnaires during every lesson.

The summary of the comparison is given in Table 12.

Table 12: Comparison of usage of questionnaire to do teaching reflection along years of experience of respondents

years of Teaching Experience	Responses				
	During every Lesson	Once in a Week	Cannot Tell how Frequent	Once in a Term	Never Done this
Up to 3	0	1 (6.2%)	5 (31.2%)	3 (18.8%)	7 (43.8%)
Above 3 but less than 5	0	2 (7.4%)	8 (29.6%)	5 (18.6%)	12 (44.4%)
Between 5 and 8	0	3 (16.7%)	2 (11.1%)	7 (38.9%)	6 (33.3%)
Above 8	0	1 (14.3%)	0	6 (85.7%)	0

Table 12 shows that of the 16 teachers who have at most 3 years of teaching experience, 7(43.8%) of them have never used questionnaires to reflect on their teaching, 3(18.8%) use questionnaires to reflect on their teaching once in a term, 5(31.2%) could not tell how frequent they used questionnaires to reflect on their teaching and the remaining 1(6.2%) uses questionnaires to reflect on his lesson once in a week. None of the teachers with at most 3 years of teaching experience use questionnaires to reflect on their teaching during every lesson.

Twelve (44.4%) of the 27 teachers who have between 3 and 5 years of teaching experience have never used questionnaires to reflect on their teaching, 5(18.6%) of them use questionnaire to do teaching reflection once in a term, 8(29.6%) could not

tell how frequent they use questionnaires to reflect on their teaching and the remaining 2(7.4%) use questionnaires to reflect on their teaching every week. None of the teachers in this group (between 3 and 5 years of teaching experience) use questionnaires to reflect on their teaching during every lesson, as seen on Table 12.

Table 12 also shows that of the 18 teachers who have between 5 and 8 years of teaching experience, 6(33.3%) have never used questionnaires to reflect on their teaching, 7(38.9%) of them use questionnaires to reflect on their teaching once in a term, 2(11.1%) of them could not tell how frequent they use questionnaires to reflect on their teaching and the remaining 3(16.7%) interview their students to find out how they understand the lessons using questionnaires once every week. Six (85.7%) of the 7 respondents who have over 8 years of teaching experience use questionnaires to reflect on their teaching once every term and the remaining 1(14.3%) interviews his students to find out how they understand lessons using questionnaires once every week. This results show that 76% of teachers who have at least 5 years of teaching experience use questionnaires to reflect on their teaching as compared to 55.8% of the teachers who have less than 5 years of teaching experience who use questionnaires to reflect on their teaching.

Discussion

The high percentage (100%) of teachers who do oral reflection during every lesson could be due to the fact that oral reflection is easy, inexpensive and fast to do (Swarthout, 2006). Oral reflection involved asking questions, making suggestions, to ascertain facts or obtain clarity and these cost little or no money. Swarthout (2006) also mentioned that there was more flexibility in oral communication; you can discuss different aspects of an issue and make decisions more quickly than you can in writing.

As seen from Table 2, sixty three point two percent (63.2%) of the teachers used questionnaires to reflect on their teaching. This high number could be due to the effectiveness of using questionnaires to seek factual information and opinions from individuals. A questionnaire is very effective for securing factual information about practices, opinions and attitudes of subjects (Leedy, 1980).

Twenty five (25) of the teachers representing thirty six point eight percent (36.8%) have never interviewed their students using questionnaires to reflect on their teaching. Most of them gave the reason that students might give subjective answers to questionnaire items. This reason agrees with Ackroyd and Hughes (1981) who opine that people may read differently into each question and therefore reply based on their interpretation of the question.

From the results, it could be seen that the higher number of years of teaching experience of respondents, the greater the frequency (extent) of practicing different reflective teaching techniques and also the greater the extent to which the techniques were practiced. The reason for this trend could be that teaching performance is enhanced with teaching experience. Murnane (1975) was of the opinion that there are significant positive relationships between teaching experience and teaching performance, as measured by student achievement gains. Reflection on teaching has also been said to be one of constant practices of effective teachers (Jay, 2003).

From the results, it could be seen that the percentages of professional teachers who practice different reflective teaching techniques is higher than that of non-professional teachers. The extents to which these reflective teaching techniques are practiced were also greater with professional teachers as compared to non-professional teachers. This could be due to the professional training professional teachers have had. Professional development is very important to be a very effective teacher (Mizell, 2010). Mizell

(2010) opined that good teaching was not by accident and that all effective teaching is the result of study, reflection, practice and hard work. Professional development is the only means by which a teacher can know enough about how a student learns, what impedes student learning and how the teacher's instruction can increase the student learning (Mizzel, 2010).



CHAPTER FIVE

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Overview

This chapter begins with the summary of the main findings of the study. This is followed by the conclusion of the study, recommendations made from the findings and suggestions for further research on reflective teaching techniques practiced by teachers.

Summary of Key Findings

The reflective teaching techniques practiced by basic school teachers in Akuse include oral reflection, peer observation, recording in log books and use of questionnaires.

The most popular and convenient reflective teaching technique practiced by basic school teachers in Akuse is oral reflection. Teachers ask their students questions verbally to enquire how their lessons went some few minutes to the end of their lessons. This is due to the inexpensive and easy to implement nature of oral reflection.

Basic school teachers in Akuse do not use video recordings to reflect on their teaching because of the expensive nature of video cameras and also inexpensive alternative ways of doing teaching reflections like oral reflection and recording in log books.

The study also revealed that extent to which professional teachers reflect on their teachings is higher than that of those without professional teaching qualification. The researcher was of the view that the training professional teachers have had is the reason for this trend.

It is also clear from the study that the greater the years of teaching experience teachers have, the higher the extent of reflecting on their teaching. The reason for this, the researcher was of the opinion which agrees with Murnane (1975) that there are significant positive relationships between teaching experience and teaching performance, as measured by student achievement gains.

Conclusion

From the analysis of the results of the study, it was concluded that

1. Oral reflection is the commonest and most convenient reflective teaching technique practiced by basic school teachers Ghana.
2. Teachers with more years of teaching experience do reflect on their teaching to an appreciable extent than those with lesser years of teaching experience.
3. Professional teachers reflect on their teaching to an appreciable extent than teachers without professional teacher qualification
4. Teachers do reflect on their teaching mostly after lessons.
5. Video recording as a form of teaching reflection is not practiced by basic school teachers in Ghana.

Recommendations

Having considered the findings of this research, for effective teaching and learning, it might also be necessary to consider the following recommendations.

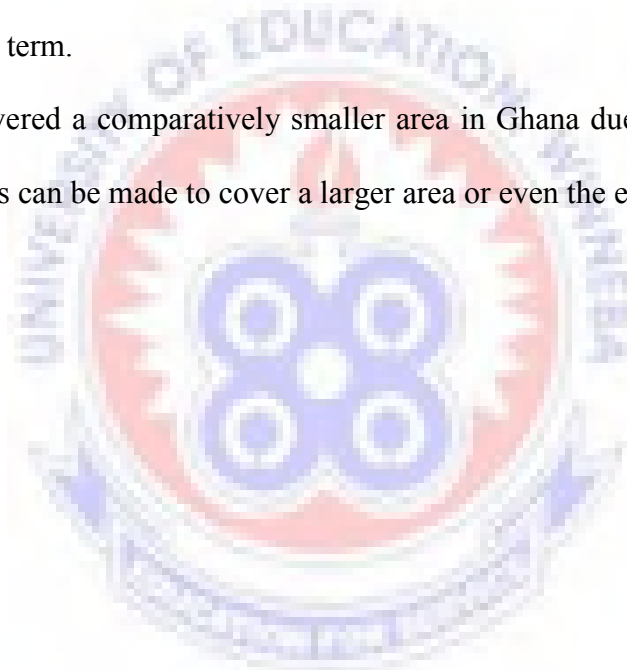
1. Workshops on reflection on teachings should be organised often to educate and remind teachers constantly on the need for reflection on their teaching.
2. Teaching time tables of teachers should be constructed in a way that make teachers have time to spare for peer observation.

Suggestions for Future Research

There are other factors that I suspect have direct impact on teachers' performance in the delivery of lessons that could be further researched. I therefore suggest that other scholars take up research into the following areas to bring out how they impact on teachers' performance in teaching;

1. The impact of video recording, as a reflective teaching tool, on the teaching and learning process in the Ghanaian basic school classroom.
2. The optimum number of times reflective teaching should be practiced in a school term.

The study covered a comparatively smaller area in Ghana due to certain limitations. Further studies can be made to cover a larger area or even the entire country.



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APPENDICES

APPENDIX I

QUESTIONNAIRE

UNIVERSITY OF EDUCATION, WINNEBA

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF SCIENCE EDUCATION

A SURVEY OF REFLECTIVE TEACHING TECHNIQUES AMONG

SELECTED BASIC SCHOOL TEACHERS IN AKUSE

Dear Respondent,

This questionnaire seeks to find out the reflective teaching techniques you use in your teaching. There are no right or wrong answers. Your candid opinion is what is needed. Your responses to these questionnaire items will be treated as confidential and would only be used for academic purposes only.

SECTION A (Background information)

Kindly tick [] the most appropriate response that suits you and write in the spaces provided where necessary.

1. Gender: Male [] Female []
2. I am years old.
3. What is your highest level of education?
SHS [] Diploma [] Bachelors [] Masters []
Doctorate [] Others specify
4. Do you have a professional teacher qualification (Teacher Cert. "A", Diploma In Education, B. Ed, PGDE, M.Ed., PhD,)?
Yes [] No []

5. How long (in years) have you been teaching?

0-3 []

3 < [] < 5

5 < [] < 8

Above 8 []

SECTION B (Reflective teaching techniques and their extent of use)

Kindly tick [] the option that best reflects how you associate with the

following statements

Rating Scale

During every lesson [1], Once in a week [2], Cannot tell how frequent [3],

Once in a term [4], Never done this [5]

Statement	1	2	3	4	5
6. I use few minutes to the end of the lesson to orally ask my students what they understood and what they did not understand, if I was moving too fast or too slow.(Oral reflection)					
7. I video-record my lessons and watch the videos afterwards to aid me reflect on my teaching.					
8. Peer Observation I. (I make other colleagues sit in and observe my class and give me feedback afterwards.					
9. Peer Observation II. (I sit in other colleagues class to observe lessons)					
10. I make observations of my lessons in a log book and reflect on my teaching afterwards.					
11. I interview my students on my teaching using questionnaires					
12. Any other reflective teaching technique you make use of, that is not mentioned above. (Write in the spaces below and respond accordingly)					

13. If you ticked '5' (ie. Never done this) to any of the items in section B above, please state your reason(s) in the spaces below and at the back of this paper

SECTION C (When best you do your reflection)

Kindly tick [] the most appropriate response that suits you and write in the spaces provided where necessary.

14. When best do you do reflection on your teaching?

- [] Before my lessons
[] During my lessons
[] After my lessons

15. What is the reason for your choice in item 14 above?

16. Which reflective teaching technique (choose one from the "statements" described in questions 6 to 12) is most convenient and could easily be done during every lesson in your school? _____

APPENDIX II

INTRODUCTORY LETTER



UNIVERSITY OF EDUCATION, WINNEBA
DEPARTMENT OF SCIENCE EDUCATION

P.O. BOX 25, WINNEBA
Website: www.uew.edu.gh

TEL: NO. 0202041074

Email: science@uew.edu.gh

Our Ref: .

Your Ref:

Date: July 14, 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF INTRODUCTION


WILSON, DAVID RIIS (STUDENT INDEX NO. 7140130014)

We write to introduce the above student who is an M.Ed student of the Department of Science Education at the University of Education, Winneba. Please, he has requested for an introductory letter to enable him conduct a research on "*A Survey of Reflective Teaching Techniques among teachers: A Case Study at Basic Schools in Akuse*" at your outfit.

We should be grateful if you could grant him the required assistance.

Thank you for your cooperation.

Yours faithfully,


for: VICTOR ANTWI (Ph.D)
AG. Head of Department