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THE UNDERSTANDING OF SENIOR HIGH SCHOOL MATHEMATICS TEACHERS OF SCHOOL-BASED ASSESSMENT AND ITS CHALLENGES IN THE CAPE COAST METROPOLIS

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ABSTRACT: *This study focuses on the understanding of mathematics teachers of School-Based Assessment (SBA). It explores the challenges mathematics teachers in the Senior High School face in the management of assessment and ways of improving assessment practices. A total of 110 educators comprising 100 male and 10 female mathematics teachers participated in the study. A questionnaire and an interview schedule were used to collect data for the study and frequencies and percentages were used to analyze the data. Findings revealed that mathematics teachers in Senior High Schools in the Cape Coast Metropolis do not understand SBA guidelines and do not use them so they still practise the old 'continuous assessment' scheme which seems to be directing classroom practices. Considering the revelations from the study that majority of the teachers still used dated continuous assessment, it is obvious that they are not abreast with new trends and development relating to assessment practices. In view of this, in-service training in the form of workshops and seminars could greatly contribute to upgrading their skills and introducing them to effective ways of implementing SBA. This is clearly acknowledged in the submissions of majority of the teachers involved in the study. Taking cognizance of the universal nature of the teaching, learning and assessment of mathematics, it is likely that the problems associated with it in the schools in Cape Coast Metropolis would be found elsewhere across the globe. This study therefore seeks to serve as basis for similar studies in different jurisdictions so as to make its finding more encompassing.*

KEYWORDS: Mathematics, Senior High School, School-Based Assessment

INTRODUCTION

The poor performance of Senior High School (SHS) students and candidates who take the West Africa Senior Secondary Certificate Examination (WASSCE) is a cause for concern to mathematics educators. In spite of government efforts, mathematics has not undergone much change in terms of its lack of attractiveness to students in general. The high failure rate and low scores of students over the years in the West African Secondary School Certificate Examinations (WASSCE) attest to this (Ottevanger, van den Akker & de Feiter, 2007). The same old story repeated itself in the most recently released West Africa Secondary School Certificate Examination (WAEC) results by West Africa Examination Council which declared that only 25.04% of the candidates were successful in mathematics (WASSCE, 2015), that is, between A_1 and C_6. Thus, there is a need for the teachers to adequately improve learning and raise standards through credible, reliable and valid assessment practices. Although the last curriculum review of 2007 expected that mathematics teachers will embrace the new School-Based Assessment system (SBA), research has shown that not all teachers in the secondary schools in Ghana have undergone professional training in testing techniques, according to Amedahe's study (as cited in Anhwere, 2009), much less the

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practice of SBA which is very recent in schools. SBA refers to assessments administered in schools and marked by the students' own teachers. The SBA was designed to provide schools with an internal assessment system that will help schools to achieve the expected standards of mathematics. The introduction of the SBA led to several changes in Continuous Assessment (CA). These changes were necessary for some pertinent reasons, among which was to bring about a reduction in the workload of teachers. In the Continuous Assessment, every term, the teacher was expected to be active in designing and producing a variety of assessment instruments, scoring the class tests, assignments, projects, taking observations, providing up-to-date records on each pupil and simultaneously be involved in remedial and individual teaching. Where classes were large, the workload became unbearable. The teachers then resorted to unfair means of providing the requisite data for each student (Etsey, 2012). The SBA, on the other hand, consists of End-of-month tests, Home work assignments (specially designed for SBA) and project. In the CA, the total class score generated throughout the term was 30% but in the SBA it is 50%. The end of term examination formed 70% in the CA but in the SBA, it is 50%. The emphasis is to improve students' learning by encouraging them to perform at a higher level.

The SBA consists of 12 assessments a year instead of the 33 assessments in the previous CA system, that is, a reduction by 64% of the work load compared to the previous CA system. To improve assessment and grading and also introduce uniformity in schools, guidelines for marking the assessment tasks and grading procedure were suggested. In writing a report on an experiment or any form of investigation, the students have to introduce the main issue in the investigation, project or report. The introduction carries a weight of 20%, the Main text/Actual work- 40%, Conclusions and evaluation of results/issues- 20%, Acknowledgement and other references- 20% ; Grade A: 80-100%, Grade B: 70-79%, Grade C: 60-69%, Grade D: 45-49% etc (CRDD, 2007).

As Etsey (2012) observes, good assessment can make teaching more transparent and reliable. It seeks and interprets evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there. Although it is an accepted fact that SBA is a powerful instructional strategy, successful implementation cannot be achieved unless teachers understand the concept of SBA and are equipped with the right knowledge, skills, and attitudes to practice it effectively (Stillman, 2001).

LITERATURE REVIEW

School Based Assessment (SBA) in the Ghanaian SHS curriculum

SBA refers to assessments administered in schools and marked by the students' own teachers. As indicated above, in Ghana, SBA was introduced into the curriculum in the last curriculum review in 2007 to replace what used to be called Continuous Assessment with the aim of making assessment more comprehensive i.e. to cover more applications profile dimensions (Mereku, Nabie, Appiah & Awanta, 2011). The major changes to assessment which came with the reforms are summarised in Table 1.

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Table 1: Major Changes to Assessment which came with the 2007 Reforms

	Nature of changes	CA	SBA
Overall changes	i. Use of class exercises and home work	Largely for CA	For formative evaluation only
	ii. % contribution of Class Exercises/ Homework/project work to overall school assessment	30%	-
	iii. % contribution of SBA Tasks to overall school assessment (i.e. class tests & project)	-	50%
	iv. % contribution of end of term exams to overall school assessment	70%	50%
	v. % contribution of (I or II and III) to final WASSCE score	30%	30%
	vi. Number of assessments per term	11	4
	vii. Number of assessments per year	33	12
Changes in project	a) Number of project tasks given per term	4	1
	b) Term distribution of project tasks by individual or group	All individual tasks each term	Individual tasks in terms 1 and 3; Group task in term 2
	c) When is project task given and completed?	Any time, i.e. teachers discretion	Beginning of the term and submitted at the end of the term
	d) Written report required?	Optional, largely oral presentation	Yes, with references
	e) Scoring projects	5	20

In SBA, project work has been restructured and its focus is now to encourage students to apply knowledge and skills acquired in the school term to carry out authentic assessment tasks and write analytic reports or use mathematics to solve real life problems. In the old syllabus, hitherto the class exercises and homework scores were recorded as part of continuous assessment, but in the new syllabus, these are supposed to be done as part of the everyday formative assessment and not to contribute to the SBA scores (see Table 1). This means after teaching for the first 3 or 4 weeks in a term, the teacher should set and administer a class test covering the topics (or content) treated and record this as SBA Task 1. Then after the next 3 or 4 weeks in the term, the teacher sets and administers SBA Task 2, etc. Also, unlike the continuous assessment where teachers use homework tasks that can be completed

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overnight or over the weekend as project, in SBA, projects are supposed to take at least six weeks to complete.

Task 4, Task 8 and Task 12 are supposed to be project to be undertaken throughout the term and submitted at the end of the term; a student is expected to select one project topic for each term; and projects for the second term will be undertaken by teams of students as group projects. A project involves tasks or a series of tasks for students to carry out using one or more of the following processes: gathering data, observing, looking for references, identifying, measuring, analyzing, determining patterns and or relationships, graphing and communicating. An investigational task may also be set in the context of algebra, geometry and or measurements. A project usually requires students to take a substantial amount of time (e.g., a few days, weeks, or even months) to finish. As part of project-based learning, the teacher is expected to give the students the opportunity periodically to present progress reports to the class for colleagues' feedback and suggestions. For SBA scoring, it is recommended that each class test (or task) should be scaled to the score 10, and project task scaled to the score 20 (CRDD, 2007).

Despite the fact that the revised syllabi were sent to schools in 2008 and SHS mathematics teachers were expected to have started implementing its contents, the teachers continue to carry out bad continuous assessment practices such as giving more than the required number of exercises to students, manufacturing marks for students, and emphasizing low level of skills in test construction. Some of these negative attitudes toward the continuous assessment approach and record keeping were earlier on observed by Fletcher (2001). He pointed out that the arrangements in assessment of students' achievement in mathematics at the senior high school level were not substantially different from the traditional modes of assessment which they were meant to replace.

Besides, some senior high school mathematics teachers still assess students in the same areas that the West African Examination Council assesses them. Some even use past examination questions set by the West African Examination Council to assess their students as the 'continuous assessment' part of the examination. Thus, as Wuddah (1997) observed, teacher assessment or 'continuous assessment' continues to be a 'top up' external assessment of pupil's achievement in mathematics, rather than it assessing those areas which are difficult, if not impossible, to fully capture in a one-shot test lasting between one to three hours.

In spite of government efforts, mathematics has not undergone much change in terms of how it is assessed. This is reflected consistently in low achievement levels in mathematics among students at the high school levels (Awoniyi & Fletcher, 2013). This is occuring because of the way teaching and learning of mathematics is carried out in schools, interest level in mathematics among students, attitude of teachers toward assessment practices, etc. According to Fletcher (2001), teachers tend to use summative assessment during the instructional phase with the misconceived intention of formatively evaluating the learner. Goldstein (as cited by Fletcher, 2001) opines that the attempt to use the summative assessment in place of formative assessment encourages pupils to hide their weaknesses and exaggerate their strengths.

Many educational reforms have heralded new classroom assessment approaches that go beyond traditional paper-and-pencil techniques to include strategies such as performance and portfolio-based assessment or alternative assessments (Hargreaves, Lorna, & Schmidt, 2009). Changes in classroom assessment represent major paradigm shifts in thinking about learning, schools, and teaching. Alternative classroom assessment requires that teachers use their

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judgments about learner's knowledge, understand how to include feedback in the teaching process, decide how to meet students' varying learning needs and learn how to share decision making about learning and teaching with colleagues, parents and students (Tunstall & Gipps, 1995). These underscore the need for SHS mathematics teachers to have the right understanding about the SBA and use it to ensure students learn the curriculum comprehensively.

Objective of the study

The main purpose of this study was to examine the mathematics teachers' understanding of 'School-Based Assessment'. The study also sought to find out the challenges that senior high school mathematics teachers face in the management of assessment practices.

In pursuance of these purposes, the following research questions were formulated to guide the study:

i. What is the senior high school mathematics teachers' understanding of 'School-Based Assessment'?

ii. What is the purpose of School-Based Assessment?

iii. Who, according to the senior high school mathematics teachers, are the beneficiaries of SBA in order of importance?

iv. How often do senior high school mathematics teachers plan the schedule for assessing students in the schools?

v. What are the problems that senior high school mathematics teachers face in the management of assessment practices?

vi. What are the senior high school mathematics teachers' suggested ways of improving assessment practices?

METHODOLOGY

The descriptive research design was chosen since the study is attempting to describe some aspect of a population by selecting samples of individuals, who are asked to complete questionnaire, thus it was the most appropriate design which could lead the researcher to draw meaningful conclusions from the study. The descriptive research design involves using a sequential mix method strategy where the questionnaire provided the breadth and the interview provided the depth (Cameron, 2009).

A total of 110 mathematics teachers from 10 senior high schools in Cape Coast Metropolis who have the desired features necessary for the study constituted the accessible population. These features include old schools which were 10 years and above, accredited by WAEC and write WASSCE. All mathematics teachers in the accessible population were sampled because of the small size of the population (Cohen et al., 2006).

This current article is a part of a larger study: "Senior High School Mathematics Teachers' Use of School-Based Assessment Guidelines and Test Scores in the Cape Coast Metropolis"

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The research instruments used for the study were a questionnaire and an interview schedule. The instruments were developed based on experts' assessment guidelines (Adamolekun, 1985; Ebel & Frisbie, 1991; Amedahe & Etsey, 2003; Etsey, 2008, etc.) and validated by experts including those who supervised the study. The questionnaire was pilot tested in a school and the Cronbach co-efficient alpha obtained for the pilot-testing was 0.776, an indication of a high correlation among all of the items that make up the scale (Pallant, 2005). The first section of the questionnaire was used to collect demographic data. Following this were sections about the respondents' understanding of 'School-Based Assessment', purpose of SBA, the beneficiaries of SBA in order of importance, indication of how often they planned the schedule for assessing students in the schools, the problems confronting the respondents in the management of assessment and suggested ways of improving assessment practices. All the questions in this section were open-ended. Despite the difficulties associated with collating responses to open-ended questions, Cohen, Manion, and Morrison (2000) point out that such questions allow respondents honest and personal comment that often contain 'gem' of information that otherwise might not be caught in the questionnaire. Furthermore, it puts responsibility for the ownership of the data much more firmly into the respondents' hands.

With the assistance of the Heads of Department, the questionnaire was distributed to the 110 male and 10 female teachers in the schools. Both the questionnaire and interview data were checked, coded and analysed using frequencies and percentages, and the results presented with discussions of relevant findings. Tables and figures were provided to illustrate and support the findings. The presentation of results was done in the order in which research questions were presented. The administration of the questionnaire to the teachers was done in September and October, 2012.

Twelve teachers and their heads of department were interviewed and data obtained were meant to consolidate the data collected through the questionnaire. The interviewees were discovered (using Means plots of different categories of experience of the respondents and their practice of test construction activities) to be outstandingly non compliance of the principles of test construction. The interview is based on the claim by Fontana and Frey (2008) that interviewing is one of the most common and powerful ways in which we try to understand people, while Bell (2005) sees adaptability as one major advantage of interviewing.

Out of the one hundred and thirty teachers given the questionnaire, 20 of them (across the board) did not oblige because of their tight schedules. One hundred and ten respondents returned their completed questionnaires, resulting in 84% return rate.

RESULTS

According to Curriculum Research and Development Division [CRDD] (2007), teachers should use SBA to assess pupils' learning with the view of improving learning; nevertheless, respondents have diverse understanding of SBA. Table 2 displays their various understanding of SBA.

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Table 2: Distribution of the Teachers' Understanding of SBA

Teachers' understanding of SBA	Number of Teachers	(%)
Right understanding of SBA		
• Any activity used by the teacher for evaluating or assessing pupils' learning progress	20	18.18
• Seeks for feedback from the students based on what the teachers have taught	12	10.90
• It is based on class-work, project work, portfolio, group work, journal writing, etc.	16	14.55
• Test administered by the class teacher as lesson progresses.	10	9.09
• information gathering about students' progress in achieving curriculum learning target of the individual students	1	0.91
Vague understanding of SBA		
• Assessment done throughout the term	4	3.64
• Assessment system based on the students' performance in class test, homework, group assignment and co-curricular activities	2	1.82
• assessment comprising the class exercises, homework, project work, class test and standardized test	4	3.64
Wrong understanding of SBA		
• Helps students to do more work during the term to suit the 50% of the term's assessment	3	2.72
• Scores or marks of internal school examinations that has been accumulated	4	3.64
• Individual or a group assessment which contribute 30% of the continuous assessment marks to WAEC	2	1.82
• Activity based method of assessment where reduced number of tasks are used within a whole year	1	0.91
• A means to reduce the workload of the teachers	2	1.82
• Internal assessment that helps school to achieve proper way of marking and grading of test items	1	0.91
• Provides 50% of class work and 50% of examination for assessment	07	6.36
• Assessment planned by the entire school	20	18.18
• Assessment of the child divided in 50/50 instead of 30/70.	1	0.91
Total	110	100

It is observed from Table 2 that only 59 teachers (53.64%) mentioned the important functions of SBA. In other words, many teachers do not see SBA as their opportunity to assess the aspect of the course that cannot be assessed by external examination body. Despite the fact that SBA was introduced into the curriculum with the aim of making assessment more comprehensive, it is indicated on Table 2 that 10 teachers (9.09%) either see SBA as just an assessment done throughout the term, or that SBA includes co-curricular activities or standardized test, while 41 teachers (37.27%) of the respondents have wrong understanding of SBA. Consequently, teachers were asked about the purpose of SBA and interestingly all of

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them believed it is meant to improve performance in Mathematics, with the exception of five respondents who indicated that it is of no other purpose than to replace the old title 'continuous assessment'. To them it is a mere rebranding of assessment practices.

According to GES, the beneficiary of School-Based Assessment in order of importance is Pupil (P), Teacher (T) and School (S). Thus the ideal order is PTS**.** Respondents were therefore asked to state this order. A summary of it is shown in Figure 1. The order is given using the first letters of the beneficiaries. Thus STP means the School is the most important beneficiary, followed by the teacher and the pupil in that order.

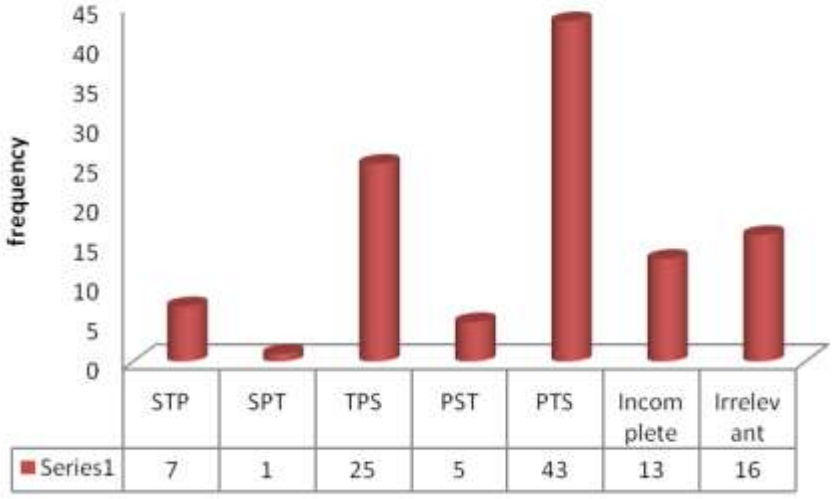

Figure 1: Perceived Beneficiaries of SBA in Order of Importance

It is observed that few respondents (39.1%) were able to state that the beneficiaries of School-Based Assessment in order of importance are Pupil, Teacher and School (PTS). The majority of the respondents (67 out of 110) could not place the beneficiaries in the proper order of importance. Out of those (67) who could not state the order correctly, 16 did not know what the question was about. These responses were classified as irrelevant.

As part of the SBA, teachers are supposed to assess their students as often as possible; nevertheless, the standard schedule for assessing the students should be monthly (CRDD, 2007). Figure 1 shows how often respondents claimed they planned the schedule for assessing the students.

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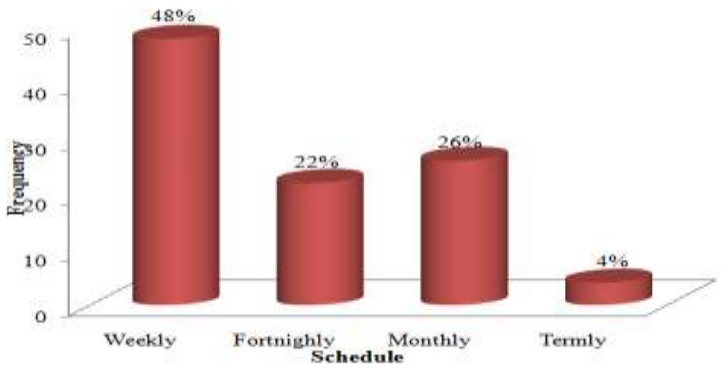

Figure 2: How often respondents claimed they planned the schedule for assessing the students

Figure 2, shows that only a handful (29 out of 110) of the respondents assessed monthly. Thus, from their responses, 26% claimed they followed SBA regarding the schedule for assessing the students while the claims of majority (74%) were not in line with the SBA policy. These respondents claimed they assessed weekly, fortnightly or termly.

There are many problems that teachers face in the management of assessment practices as pointed out by the respondents. Table 3 summarizes the problems.

Table 3: Problems Faced in the Management of Assessment by Respondents

Problems teachers face with SBA	Number of Teachers	Percentage (%)
Lack of skill in assessment practices		
• Difficulty in test construction	11	10.00
• Difficulty in invigilation	42	38.18
• Difficulty in marking	57	51.81
• Difficulty in helping weaker students	9	8.18
• Difficulty in determining student's score in group work	5	4.54
• Difficulty in interpretation of test scores	5	4.54
• Bias in the conduction of assessment	3	3.73
• Contamination of test items	1	0.91
Lack of time		
• Insufficient time for test construction	12	11
• Insufficient instruction time	12	11
• Lack of time for correction after assessment and marking	9	8
• Insufficient time for discussion in groups	8	7

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Lack of integrity by some teachers		
• Favouring of some students	03	2.73
• Inputting of fake results by some teachers because of their closeness to the students or student's parents	02	1.81
Lack of commitment by the students		
• Truancy and absenteeism	17	15
• Copying of one another's assignment and class work	8	7
• Cheating during tests	9	8
• Dormant students in the groups	5	4.54
• Refusal to submit assignments by the students as and when due	3	2.73
• Failure to do assignments	1	0.91
Lack of resources		
• Lack of assessment materials	22	20
• Inadequate record keeping facilities	06	5.45

It is observed from Table 3 that the sum of the frequencies exceeds the sample size because respondents gave multiple factors. About half (52%) of the respondents, find marking of SBA difficult. Quite a number (38%) indicated that invigilation was difficult for them, while 20% teachers specified that lack of assessment materials is a concern to them. As many as 10% have difficulty in test construction, while at least 11% have time related problems. As many as 15% listed students' truancy and absenteeism as a problem as indicated on Table 3. This is rather unfortunate; students need to see assessment as learning and not as a 'roadblock'. As many as 52% specified difficulty in marking as their nightmare, while determining student's score in group work and difficulty in interpretation of test scores make 5% of the respondents uncomfortable.

Likewise, some respondents, 2% to 3%, indicated unprofessionalism on the part of some of the teachers. This has to do with favouring some students or inputting of fake results by some teachers because of their closeness to the student or student's parents.

Finally, respondents were asked to suggest ways of improving assessment practices. The responses were as summarized in Table 4.

Table 4: Distribution of the Suggestions to Improve SBA

Suggestions to improve SBA	Frequency	Percentage (%)
In-service training in Assessment (SBA)	69	63
Incentives for teachers	16	15
Adequate and current TLMs	16	15
Need to reduce class size	11	10
Need to provide materials for assessment	10	09
Assessment items should match instructional objectives	10	09
Give assignment at the end of each lesson	9	8
Periodic involvement of students in marking	8	7
Award marks during lessons for classroom participations	8	7
Encourage students to take active part in group project work	7	6

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Although respondents stated diverse views, the majority of the respondents (63%) suggested in-service training in assessment. 15% of the respondents indicated incentives for teachers as a way to improve assessment. Another 15% of the respondents suggested provision of adequate and current TLMs. There were many more suggestions, prominent among them were the need to reduce class size, periodic involvement of students in marking, awarding marks during lessons for classroom participations and 'others'. The 'others' included suggestions such as: giving feedback to students in the form of correction after marking, testing items should be as objective as possible for easy marking, giving prior notice of test to students, using past questions in assessment, organizing class exercise at the end of each topic, all known assessment procedures should be employed in assessing students, increasing contact period between teacher and students, giving unannounced test to discourage rote learning, setting questions along with teaching to build question banks, constructing test items should be departmental based, multiple choice questions should have plausible answers, avoid repeating questions from past question papers, encouraging peer reviews, administering test in conducive environment, doing mixed-ability for group work, reducing the number of questions for effectiveness and efficiency, teachers should supervise group works, ensuring accuracy and reliability for assessment scores, initiating conference marking for standardized test or examination to improve on the reliability and validity, standardized questions should be used for assessment, prompt marking of exercises, giving the right items for the level of the students, effective invigilation during tests, organizing class test in small numbers, encouraging students to undertake presentation, problem posing strategy could be adopted, displaying students' results on the notice board to make students work harder, Heads of department should intensify supervision of teachers, attaching service personnel to teachers to do marking, use brain exercise to awake interest in students, keep and protect accurate records of students, educating parents and guidance on the importance of assessment, using power point to give timed tests to students, students showing workings at times when solving objective questions, guiding students to discover concepts through questioning.

Interview guide was the second research instrument used for the study. The interview guide was made up of relevant items on the questionnaire. After analysing the responses from the questionnaire, the interview was conducted to confirm the earlier claims by the respondents of their understanding regarding SBA and grounded theory was used to let theme arise from the data to increase the chances of uncovering new and unexpected themes, rather than make use of preconceived codes or overlay a set of criteria on the data (Strauss & Corbin, 1990).

There were twelve teachers interviewed as well as their Heads of Department using semi-structured interview. Although they refused to have the interview taped, they were nonetheless very frank on the issues discussed.

During the interview, it was discovered that all the schools in the Cape Coast Metropolis (with the exception of two schools) waited till the end of the term before discussing how the students performed in the various subjects. In some schools, teachers were obliged to enter continuous assessment scores at the end of the term along-side with the examination scores, while in some other schools; teachers were expected to enter students' scores once or twice during the term on the broad sheet or the computer, as the case may be.

Excerpts of some of the interviews conducted are presented as follows:

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Asked how they conduct their assessment, one of the respondents said:

> You mean C.A? You do it at your own convenience: What is important is that at the end of the term, you have 30% scores ready to be added to the 70% scores from the end of term examination. "The time is not just there.

This response falls under the theme 'wrong understanding of SBA'

Another respondent stated "You cannot afford to waste time giving tests every now and then, where is the time to mark them? I need to teach well and cover the syllabus before they write WASSCE…"

Nearly all the interviewees, at one point or the other, were of the view that time factor is one of the challenges facing assessment in schools; this confirmed the earlier results from the questionnaire where some respondents stated time related factors as some of the challenges confronting SBA. (see Table 2). This suggests that teachers see assessment as a separate activity from teaching and as such are not committed to it.

Furthermore, when the respondents were asked of their practice of SBA, one simply said "forget that, nobody is talking about that here". Another said "…SBA is just the name or title, assessment is assessment, I don't think there is any difference". This means that many teachers are unfamiliar with SBA, despite the fact that CRDD expected every school to have embarked on its implementation since 2008, many schools are still far behind.

Some teachers did not see assessment as part of the teaching activity for which they were paid hence they expected some kind of incentives or rewards in addition. For instance, one said "…honestly I am tired of the whole thing. Year in year out, new policies but nobody keeps the future of the teachers at heart". Another said "…nobody cares whether you are killing yourself for the school or not, all they want are results". Yet another teacher retorted "…if you are to follow the ideals of continuous assessment, it presents big responsibilities to you but this school does not give privileges commensurate with the responsibilities..."

DISCUSSION

Under the external (or terminal) examination system, a student's fate in a course of study depended on his or her performance in a single examination given at the end of the course. The system relied mainly on cramming, long term memory, and material that could be conveniently tested within a few hours (Anamuah-Mensah & Bartels, 1998). The rationale behind using SBA as a component score is that it may make it possible to better capture all that a student has achieved in several years of study in a programme, rather than using a one-shot test lasting between one to three hours. It is thought that by assessing students continuously throughout a programme (by teachers), a better picture of the student's achievement would emerge (Amedahe, 2000). Besides, it has been argued, for example that external examinations have generated intense competition, forcing pupils and schools to adopt fraudulent practices in order to win the "rat race". Competitive examinations may affect cooperation. One cannot be on top unless there are people at the bottom (Ampiah, Asare-Inkoom, Ntow & Sokpe, 2011). Thus, the wrong perception of SBA by the teachers in this study confirms Anamuah-Mensah and Bartels (op cit) earlier observations regarding

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teachers' understanding of assessment. Again, as Fletcher (2001) rightly points out, teachers miss the opportunity to see teacher assessment as an opportunity to assess aspects of the curriculum that is not assessed by external examination bodies due to lack of time. The mathematics teachers in the Cape Coast Metropolis are no exception. The results also indicated that some respondents (4%) assessed students termly. Assessing students termly is highly against the principles of SBA practices (CRDD, 2010). Expertise and familiarity with a particular activity develops through constant practice and commitment.

Finding marking difficult as claimed by the respondents (52%) is not surprising because, Kahnerman and Frederick (2002) agrued that a person develops expertise and familiarities with a particular activity through constant practice and commitment. Thus proficiency in marking demands commitment from the teachers. Indeed, if teachers find marking of SBA difficult, then they are not likely to conduct SBA in the first place. This finding explains one of the main reasons why many mathematics teachers do not perceive SBA in a positive light.

An investigation into student assessment procedures in public junior secondary schools in 11 districts in Ghana revealed that teachers did not have adequate training in the management of assessment practices (CRDD, 1999). The report indicated that 55% of the teachers interviewed felt they were not confident in the testing and measurement practices because they did not have any training in testing and measurement. Etsey (2003) corroborated that report in a study of teacher trainees in 24 Teacher Training Colleges (now Colleges of Education) when he recommended making courses in the management of assessment practices a priority in the first-two years in the training of teacher trainees in the then Teacher Training Colleges in the country. According to Aidoo-Taylor (1993), due to a great deal of record-keeping and frequent measurement of student performance, assessment demands more dedication and professionalism from teachers, and the adjustment may be painful for some teachers. Teachers would have to construct tests, and other forms of testing instruments, mostly on their own. This explains why many teachers have difficulty in test construction and time related problems. Difficulty in test construction and marking are all signals to the fact that teachers were only trained to teach but not to assess (test) their students (Gullickson, 1986; Gullickson & Ellwein, 1985 and Marso & Pigge, 1989). Schafer and Lissitz (1987), in their study stated that teachers were found not to have been well prepared to deliver as classroom assessors. They indicated that their knowledge base in the fundamentals of testing, for example, terminology, test construction principles, and test use, was very limited. In Ghana, Amedahe (1989) in a study of the assessment practices of secondary school teachers in 18 secondary schools in the Central Region found that teachers lacked the skills and principles of test construction. The limited skills in testing practices and in the management of assessment practices were due to their failure to receive training in assessment practices. According to Akyeampong (as cited in Anhwere, 2009), the system of assessment practices in the Teacher Training Colleges had virtually remained the same throughout teacher training reforms. No statements of standards had ever been developed to guide the teaching, learning and assessment practices in the teacher training colleges, until the introduction of the current Diploma in Basic Education Programme.

The inputting of fake results by some of the teachers in this study confirms the issues, as raised by Bartels (2003), that due to suspicions about teacher-assessment, some nations (for example Nigeria and Gambia) which practise continuous assessment would prefer to use it as a component of final grade as is done in Ghana instead of relying solely on SBA. Bartels further stated that continuous assessment may be weighed against external examinations to

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form final score or grade, the weighing shows the extent of public confidence in teacher assessment. Thus, for example, for two institutions A and B, using proportions 40: 60 and 60: 40 respectively, we infer that public confidence in teacher-assessment is greater in institution B (which uses 60: 40).

Finally, the major finding in this study is that teachers are not familiar with the SBA. The Tables clearly point to this and the interview data in addition to providing explanation for the results attests to the fact that many of the teachers are ignorant of SBA.

Implication to Research and Practice

1. Training programmes on SBA for teachers will be needed to enable teachers have a better understanding of SBA and at the same time see assessment as an integral part of teaching and learning.

2. Teachers should be encouraged to follow the laid down procedures in administering SBA in their schools.

3. There should be frequent in-service training for practicing teachers on assessment and the training should be hands-on practical not only lectures.

4. Heads of Department and Heads of Schools should provide leadership in assessment in ensuring that teachers implement what they learn from workshops by regularly checking teachers' records of the students. Heads of Department should vet the test items constructed by the teachers as a duty following acceptable norms.

5. Heads of schools should motivate their teachers to integrate assessment into teaching and learning.

6. School management may seek motivational packages from recognised groups such as alumni and Parents Teachers Association.

7. Students should be counseled to accept assessment as learning.

8. National Teachers Council (NTC) to include the training of teachers as part of continuous development programme.

9. This study should serve as basis for similar studies in different jurisdictions so as to make its finding more encompassing.

CONCLUSIONS

Students' test scores are yet to be seen by majority of the mathematics teachers as a means for identifying the strength and weaknesses of the students and for remedial teaching. Majority of the respondents interviewed still practise the old 'continuous assessment' because they do not understand SBA guidelines. In any case, it is worth pointing out that most teachers do acknowledge the importance of in-service training in their professional development. This is a positive observation and one to recommend to the appropriate authorities to ensure that SBA is given the attention and priority it deserves, otherwise the

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poor understanding of the SBA process emanating from lack of training of the senior high school mathematics teachers will continue to be a hindrance to SBA' accomplishment.

Future research

If the study of assessment practices of mathematics teachers with regards to SBA is to be complete, then there is the need to research on assessment practices in the areas of the use of School-Based Assessment guidelines, construction of test items, administration, scoring and use of test scores of teacher-made test as well as the current issues in assessment practices.

REFERENCES

Adamolekun, J. (1985). Effective Test Construction: A case for the junior Senior Secondary School Mathematics Curricular. *Journal of the School of Pure Sciences, (13),* 197-224.

Aidoo-Taylor, N. (1993). Practical assessment in the school system. *Journal of the Institute of Education, 2 (2),* 67-74.

Amedahe, F. K. (2000). Issues in Combining Continuous Assessment Scores with External Examination Scores for certification at the Basic and Secondary School Levels. *Journal of Educational Management, 3,* 110-127.

Amedahe, F. K. (1989). *Testing practices in secondary schools in the Central Region of Ghana*. Unpublished Master's thesis, University of Cape Coast.

Amadahe, F. K. and Etsey, Y. K. A. (2003). *Assessment criteria, feedback and evaluation.* Unpublished paper presented at the University of Cape Coast, Ghana.

Ampiah, J. G., Asare-Inkoom, A., and Ntow, F. D. (2011). Senior Secondary School Students' Perception of their Core Mathematics Classroom Environment. *Journal of Science and Mathematics, 5(1),* 1-10.

Anamuah-Mensah, J. A., and Bartels, E. K. (1998). The relationship between Continuous Assessment and End of Semester Examinations as practised at the University of Cape Coast: *Journal of the Institute of Education, 4(2).*

Anhwere, Y. M. (2009). *Assessment Practices of Teacher Training College Tutors in Ghana.* Department of Educational Foundations of the Faculty of Education, University of Cape Coast. (Unpublished M. Phil. Thesis).

Awoniyi, F. C. and Fletcher, J. A. (2013). Senior high school mathematics teachers' use of School-Based Assessment guidelines and test scores in the Cape Coast Metropolis of Ghana. *Journal of Educational Development and practice, 4 (1), 19-40.*

Bartels, E. K. (2003). The practice of continuous assessment in teacher training colleges in Ghana. *Journal of Educational Development and Practice, 1(1),* 59-72.

Bell, J. (2005).*Doing your research project: A guide for first time researchers in education, health and social science (4th ed.).* Maidenhead: Open University Press.

Cameron, R. (2009). 'A sequential mixed model research design: design, analytical and display issues', *International Journal of Multiple Research Approaches, 3(2),* 140-152.

Cohen, L., Manion, L., and Morrison, K. (2006). *Research methods in education.* London: Routledge Falmer.

Cohen, M., Manion, L., and Morrison, K. (2000). *Questionnaires in Research Methods in Education*. London: Routledge Falmer.

ISSN 2055-0219(Print), ISSN 2055-0227(online)

CRDD, (2010). *Teaching syllabus for senior high school mathematics*. Curriculum Research and Development Division, Ghana Education Service. Accra.

CRDD, (2007). *Teaching syllabus for senior high school mathematics*. Curriculum Research and Development Division, Ghana Education Service. Accra.

CRDD, (1999). *Investigation into Student Assessment Procedures in Public Junior Secondary Schools in Ghana*. Curriculum Research and Development Division, Ghana Education Service. Accra:

Ebel, R. L. and Frisbie, D. A. (1991). *Essentials of Educational Measurement*. Englewood Cliffs, New Jersey. Prentices Hall.

Etsey, Y. K. A. (2012): *Notes on educational measurement and evaluation*. (Unpublished lecture notes). University of Cape Coast, Ghana.

Etsey, Y. K. A. (2008). Notes on educational measurement and evaluation (unpublished lecture notes). University of Cape Coast, Ghana.

Etsey, Y. K. A. (2003). Pre-service teachers' knowledge of continuous assessment techniques in Ghana. *Journal of Educational Development and Practice, 1 (1),* 1-18

Fletcher, J.A. (2001). Mathematics Education and Continuous Assessment in Ghanaian Senior Secondary Schools: Continuous Assessment of What? *Mathematics Connection, Vol. 2*. Department of Educational Foundation, University of Cape Coast.

Fontana, A. and Frey, J. H. (2008). 'The Interview: From neutral stand to political involvement', in N.K. Denzin and Y.S. Lincoln (eds.). *Collecting and Interpreting Qualitative Materials*. London: Sage Publication.

Gullickson, A. R. (1986). Teacher education and teacher-perceived needs in educational measurement and evaluation. *Journal of Educational Measurement*, 23, 347-354.

Gullickson, A. R. and Ellwein, M. C. (1985). Post hoc analysis of teacher-made tests: The goodness-of-fit between prescription and practice: *Educational Measurement: Issue and Practice. 4(1),* 15-18.

Hargreaves, A., Lorna, E. and Schmidt, E. (2009). *Perspectives on Alternative Assessment Reform American Educational Research Journal*, 39(1). American Educational Research Association Stable URL: http://www.jstor.org/stable/3202471

Kahneman, D. and Frederick, S. (2002). *Representativeness revisited: Attribute substitution in intuitive judgement.* Cambridge University Press.

Marso, R. N. and Pigge, F. L. (1989, April). *The status of the classroom teachers' test construction proficiencies: Assessment by teacher, principals, and supervisors validated by analyses of actual teacher-made tests*. Paper presented at the annual meeting of the National Council on Measurement in Education. San Francisco.

Mereku, D. K., Nabie, M. J., Appiah, J. and Awanta, E. K. (2011). *Report on the workshop on use of child friendly pedagogy in teaching JHS mathematics*. Accra: Plan International Ghana.

Ottevanger, W., Akker, J. V. D., and De Feiter, L. (2007). *Developing science, mathematics, and ICT education in sub-saharan africa : Patterns and promising practices*. Washington, D.C.: World Bank Africa Region Human Development Department.

Pallant, J. F. (2005). SPSS survival manual: *'A step by step guide to data analysis using SPSS version 12*. Two Penn Plaza, NY, S.S.A. (2nd ed.). Open University Press.

Schafer, W. D. and Lissitz, R. W. (1987). Measurement training for school personnel: Recommendations and reality. *Journal of Teacher Education, 38 (3),* 57-63

Stillman, G. (2001). *The impact of school-based assessment on the implementation of a modelling/applications-based curriculum*: an Australian example. *Teaching Mathematics and Its Applications, 20*(3), 101-107.

ISSN 2055-0219(Print), ISSN 2055-0227(online)

Strauss, A. and Corbin, J. (1990). *Basic of Qualitative Research. Grounded Theory Procedures and Techniques*. Newbury Park: CA Sage.

Tunstall, P. and Gipps, C. (1995). *Teacher feedback to young children informative assessment.* Paper presented at the International Association for Educational Assessment Conference.

Wuddah, A. A. (1997). Incorporating teacher assessment in the final grade. WAEC Monthly Seminar Papers: 1996 series. Accra: WAEC Research Division.

ISSN 2055-0219(Print), ISSN 2055-0227(online)