PERCEPTION AND PRACTICES OF FORMATIVE USE OF TEACHER MADE TESTS IN TANZANIAN PRIMARY SCHOOLS

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I confirm that the work submitted is my own and that appropriate credit has been given where reference has been made to the work of others. This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

Dedication

First, to my parents,

Yusuph (1942-2010) and Eunice for the formative upbringing and inculcation of enthusiasm to education achievement.

Second, to my children,

Songo and Kabate, the boys, their on and off questioning and empathetic comments about my studies partly boosted my resilience.

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Abstract

This thesis is about the outcomes of an intervention that employed a collaborative approach to implement for supporting primary teachers to adopt formative assessment for classroom teaching and learning in a Tanzanian education context. Taking into account of recent work on teacher learning about teacher change and the Tanzanian cultural context, the investigation employed a collaborative approach in implementing the intervention for adoption of formative assessment. The continued outcry on decline in quality of classroom teaching and learning and poor performance in national examinations constituted the first motive for undertaking the study on formative assessment. The investigation on formative assessment was also a response to the 2005 Tanzania's adoption of competence based curriculum that espouses a constructivist view of learning. The main research question that informed the study was what happens when Tanzanian primary teachers adopt more formative assessment approach for classroom teaching and learning? Methodologically, the study employed a grounded theory approach. Interviews, focus group discussions, documentary sources and classroom observation were used to obtain the data for the main research question. A purposeful sample was employed to obtain a group of ten primary teachers to implement the intervention for adoption of formative assessment for a period of 11 months.

The findings of the study showed that adopting formative assessment for Tanzanian teachers was beneficial to the teachers in supporting their teaching and pupil learning. On the other hand, the adoption of formative assessment posed challenges to teachers mainly because of the cultural view about learning and assessment, roles of teachers and pupils in a classroom context. However, the study also demonstrates the effectiveness of collaborative approach for supporting teachers in changing their classroom practices towards more formative approach of assessment.

The findings were discussed in terms of the benefits, challenges and implications for teacher support in adopting formative assessment in the light of the existing literature and the Tanzania cultural and material contexts. Recommendation for policy practice in teacher support process for adopting formative assessment for classroom teaching and learning for Tanzania and other educational contexts are provided. The need to roll out the intervention in the wider context of Tanzania's schools has also been recommended.

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CHAPTER 1: BACKGROUND

1.1 Introduction

This chapter presents the antecedents and an overview of the existing competence-based curriculum (CBC) for Tanzania primary schools. The first section (1.2) provides an overview of curriculum reforms between post-independence and the adoption of the CBC. Section 1.3 illuminates the cultural perspective of education in Tanzania. Besides, section 1.4 explains the main constructivism pedagogical principles that are espoused in the Tanzania's CBC. Furthermore, section 1.5 presents the assessment principles that are espoused in line with constructivist pedagogy under the CBC. Additionally, section 1.6 provides an overview of assessment in pre-service and in-service training for Tanzania primary teachers. Section 1.7 explains the status of Tanzania primary education. Section seven (1.8) gives an overview of the status of formative assessment in Tanzania. Section 1.9 concludes the chapter with a summary of the chapter, highlighting also the rationale of the study from context point of view.

1.2 Overview of curriculum reforms in Tanzania

Since its independence in 1961, Tanzania has been undertaking both major and minor curriculum reforms on its primary education. Traditionally, the focus of curriculum reforms on any scale has been on pedagogical aspects in terms of teaching and learning methods and revision of subject contents. Changes in teaching methods have been based on imported pedagogical practices which are developed mainly from the Western countries. The initial post-independence curriculum reform was done by United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1962. It was recommended that modifications on subject contents and methods of teaching be based on the results of controlled experiments, pilot studies and field demonstrations (UNESCO, 1963). Interim reforms in pedagogy entailed adapting improvements in the teaching of language, science and

mathematics subjects which were developed abroad. Typical cases of such reform projects include the School Mathematics of East Africa (SMEA), a part of the Southampton Mathematics Project of the UK, or the Entebbe Mathematics Project by the Education Service Institute/Education Development Centre of the US. Comprehensive curriculum reform occurred after the first five-year development plan at post-independence when Nyerere, the first President of the United Republic of Tanzania, through the Arusha Declaration, articulated the principles of Education for Self-Reliance (ESR) to inform and guide the education system in 1967. Pedagogically, the ESR envisaged two aspects about teaching and learning in schools: 'learning by doing' and 'linking theories and practice' which were similar to Dewey's view of experience-based form of learning. In his ESR paper, Nyerere (1968, pp. 65-66) illustrates:

> "On a school farm pupils can learn by doing. The important place of hoe and other simple tools can be demonstrated…The possibilities of proper grazing practices, and of terracing and soil conservation can all be taught theoretically, at the same time as they are put into practice; the students will then understand what they are doing and why, and will be able to analyse any failures and consider possibilities for greater improvement."

The above extract implies that learning by doing as was envisaged in the ESR entailed teachers to create or provide opportunities which could intellectually or cognitively engage pupils, and help them learn as they participated in relevant practical learning activities which reflected the theoretical or abstract aspects of the lessons. In regard to assessment, the ESR included two corresponding reforms for assessment practices in schools. Firstly, Continuous Assessment (CA) which constituted 50% of the pupils' grades in final national examinations was introduced. The CA scores consisted of pupils' scores in classroom exercises, school term tests and project work (National Examinations Council of Tanzania [NECTA], 1991; 2004). Secondly, assessment of character and attitude towards work was introduced which involved teacher judging and grading pupils personal attributes, namely, reliability, cooperation, leadership, initiative and

objectivity disposition on A, B, C, D, and E scale (Omari, 2011). The author adds that at primary schools, there was a speculation that being unfavorably evaluated by teacher would deny an admission into secondary school, regardless of the academic performance in the primary school leaving examination. Nonetheless, these two assessment initiatives associated with the ESR curriculum reform had a direct connection to pedagogical practices in terms of supporting or facilitating teaching and learning in classrooms. Moreover, both 50% contribution of teacher assessment, and teacher assessment of pupil personality technically and practically did not provide opportunities to understand strengths and weaknesses in pupils' understanding of the subject contents. Therefore, it can be inferred that, the teacher assessment for primary school under the ESR policy entirely constituted and served the summative purpose of assessment in day to day classroom teaching and learning and in school, thus, adding to or exacerbating the already high stakes of the national examinations, as will be covered in more detail in the next section.

During the 1980s Tanzania adopted the structural adjustment programme following the failure of socialism and self-reliance policy because of the poor economic condition in the country, and pressure from donor countries and agencies (Mbilinyi, 1999). Between the 1980s and the 2000s before adopting the competence-based curriculum in 2005 subsequent curriculum reforms for primary education, mainly have focused on revision of contents and combination of subjects to be taught at particular class levels; switching between single and multi-mode textbooks for primary education. For example, between 1993 and 2004 history, geography and civics were combined into and separated from the single social studies subject twice in curriculum reforms which involved reducing the number of subjects and topics for primary education (Ministry of Education and Culture [MoEC], 2005a; 2005b). Pedagogically, there have been sporadic experimentation and adaptation of teaching and learning of subjects mainly initiated and supported from developed countries. In terms of assessment, debates and

adjustment evolved around the use of CA in determining pupils' grades in final examinations rather than on how assessment can support the teaching and learning in classrooms.

However, following a continued outcry over a decline in the quality of education in the country and influence from developed countries after the failure of the ESR principles, in 2005 Tanzania adapted a second major curriculum reform which involved shifting from content based to CBC. Therefore, across all Tanzania curriculum reforms from independence to the inception of CBC in 2005, there had been no explicit change in assessment intended for or focused on directly supporting teacher teaching and pupil learning. When changes in assessment were done, they ended up being focused on examinations and assessment of personal character of the pupils. As will be seen in section 1.4, this can also explain why a review of revised curriculum materials and training package for supporting teachers to adapt changes in teaching and learning in the previous curriculum reforms, generally, showed no focus on changes on assessment for supporting classroom teaching and learning. The practice of excluding or giving less weight on changes in assessment following the adoption of new teaching and learning methods, partly, reflects the cultural perspective of learning, teaching, assessment, or education in general that prevails among policy makers, academics and the general public before and after independence in the country (Section 1.3).

1.3 Cultural perspective of education in Tanzania

From independence to date, both individually and collectively Tanzanians have in practice thought of education as a way out of poverty (Nyerere, 1968; Omari 1995; Ishengoma, 2011). Despite the ESR policy envisaging a break in the pervasive academic elitism during the period between 1967 and 1980, the level of education remains the main determinant of social and psychological status of individuals, families and ethnic groups in the country.

The political and economic conditions in 1990s which resulted from adopting structural adjustment increased the demand for education. In politics for example, academic requirements to contest for certain political posts have been raised. Economically, entry into the labour market has become competitive in which chances to obtain a job mainly depend on the post-primary and secondary education and training. For example, for over a decade now job applications in public and private sectors have set grade point average (GPA) targets under which job seekers need to apply. In the education sector itself, while there has been a rapid increase in the number of colleges and other institutions offering post-secondary education and training, selection for admission and government loans predominantly depends on performance in national examination results (Boniface, 2008; Ishengoma, 2011). Taken together, these material and cultural conditions are likely to influence directly and indirectly the existing people's views and practices about teaching, learning and assessment in schools. More specifically, assessment is likely to be conceived as a measure rather than part of the teaching and learning processes.

In schools, the academic ability or intelligence is conceived as a fixed entity with common grouping and corresponding labelling of pupils into categories of 'able or bright children', 'the less able children' or slow learners. Teachers group and label their pupils on the basis of scores or grades in written assessment (exercises and tests) or performance in national examinations. The existing structures reinforce a strong culture of norm referenced assessment to prevail in schools. For example, apart from exercises which pupils do after class, teachers are also obliged to administer monthly tests in order to check pupils' understanding of topics they have covered (MoEC, 1999; 2005a; Ministry of Education and Vocational Training [MoEVT], 2006c). In some schools, besides the monthly tests, teachers administer weekly tests usually on every Friday or Saturday especially where parents agree and/or afford to pay costs for typing and printing of test scripts. The marks are recorded in a pre-set matrix known by teachers as *mkeka* and pupils are

ranked according to their scores in percentages and corresponding grades of A, B, C, D and F in each subject. The monthly and/or weekly test results are displayed on classroom walls for pupils to view their names, scores, and grades in each subject, and their positioning in the class.

Clearly, these practices have high potential of creating in schools an atmosphere of competition rather than instilling a sense of collaboration, which is important for engaging pupils in constructive discussions of lessons including their assessment work for learning purpose. It is also inevitable that some pupils endure unpleasant experiences due to the rank grading approach for feedback. In one of the discussions with the participating teachers, one teacher remarked that "other children tear the results sheet displayed on their classroom walls because they don't want to be identified, or possibly because they are always on the lowest position in the performance list". Arguably, one can also say that, the existence of such assessment practices in schools is likely to instil in pupils the role of the teacher in relation to assessment and teaching, let alone the fact that teachers themselves do not obtain useful information about which lesson aspects pupils have been able or unable to learn for remedial teaching and learning.

Teachers across education levels in Tanzania are still generally considered as givers of knowledge and learners as receivers. Just to illustrate, at the university level of education, drawing on my own experience both as student and faculty, a Swahili slang *kushuka nondo* literally meaning 'to pour the materials' is a common phrase among students when describing who a good teacher is. This view of the teacher as a transmitter is prominent about school learning. Overall, a good teacher is one who tells the learners more content-based information, gives well detailed notes and who solves most of the questions in textbooks and past papers. Outside the school, for over two decades now in Tanzania, families from different socio-economic backgrounds pay for their children to attend private tuition classes. The main

motive is to boost school teaching and learning in order to do well in examinations. Majority of parents (100%), teachers (80%), and students (90%) share the view that attending tuition classes results in better academic performance (Sambo, 2001). This widely held view is not surprising because teaching and learning in tuition classes involves coaching and drilling of students for passing examinations. This is attained by solving questions in past papers, providing pamphlets with model answers for past papers and administering 'self-testing tests'.

It follows that, learning, including the extent of learning, is expected to be demonstrated in terms of the quality of scores or grades children perform in teacher-made written assessment exercise and tests at school, or outside the school in private tuition, and in final national examinations which are administered by NECTA. Teachers, pupils and their parents take pride in good scores or grades but not in the quality of work or answer in assessment tasks. Debates about the quality of education among the general public through the media ensue when poor examination results are released by NECTA.

Overall; the public glorifies examinations and rely mainly on them to judge the quality of education in the country (Omari, 2011; NECTA, 2012; 2013). A conversation with one school teacher concluded that the prevailing attitude that 'tests help to reinforce children to learn; they won't read if you just leave them; and that without tests they won't be motivated to open a book'. Teachers are of the same view as the general public about the instrumental role of assessment in relation to teaching and learning. Therefore, it is unlikely for teachers to consciously or deliberately construct, administer or use assessment results in manners that can intrinsically motivate and engage pupils in learning for knowledge construction rather than for tangible material and non-material rewards such as the assessment grades themselves.

1.4 Pedagogy in existing competence-based curriculum

The existing curriculum espouses a social constructivist pedagogical approach which requires teachers to use participatory teaching methods in classrooms that can engage pupils in learning by constructing knowledge rather than learning by rote practices such as cramming:

> "The current pedagogy views that teaching and learning should promote the ability of students to construct ideas for making meaning out of what they learn. This type of teaching and learning requires the application of the participatory methodologies during the process" (MoEC, 2005b, p. 8).

As implied in the extract above, pupils are viewed as active rather than passive participants in the teaching and learning process which in turn requires the teacher to play a facilitative role rather than imparting knowledge. Additionally, teachers are expected to engage pupils in reflective thinking and develop an understanding of the lessons by building on what they already know. The teacher's role is to support pupils to discover knowledge through participation in practical activities and dialogue discussions. These pedagogical aspects can not only be challenging because they require changes in roles, interaction and relationship between the teacher and pupils but also are likely to challenge the teacher's view of what teaching and learning entail and the manifest practices thereof. As discussed in section 1.3, this is particularly the case when prevailing views of what good teaching is are taken into consideration. This is particularly the case since constructivist teaching clearly poses significant challenges for assessment. In the next section I discuss the main themes of assessment embedded in the CBC. While the above view of teaching clearly poses significant challenges, these are only exacerbated by the changes proposed for assessment.

1.5 Assessment in the context of competence-based curriculum

Apart from the potential challenges associated with the constructivist view of teaching, the fact that changes proposed for CBC envisage teachers using assessment for supporting their own teaching and pupils' learning is unlike the previous reforms. These focused on the role of teacher assessment in contributing to pupils' marks in final grades rather than on the direct relationship or connection between assessment and teachers' teaching or pupils' learning of lessons in classrooms. After reviewing the documents for teachers' guidance on how to conduct assessment in the context of CBC, four assessment themes emerged. The first theme, which was also part of the others before the adoption of the CBC, is holistic or comprehensive assessment of pupil learning in the sense of cognitive, affective and psychomotor domains about the pupil on the one hand, and both participation and effectiveness of the teaching methods and materials that teachers use in conducting classroom and teaching sessions on the other hand:

> "When planning assessment of learners' achievement, teachers should ensure that the assessment covers all the three educational domains which are: cognitive domain, psychomotor and affective domain" (MoEC, 2005b, p. 34).

> "An assessment column indicates the kind of assessment that pupils will be subjected to. This will ensure that assessment of the pupils as well as the process of teaching and even the materials used are assessed so as to allow for improvement in future" (TIE, 2010b, p. 12).

The two quotes above emphasize the requirement for teachers to take a holistic view of assessment in the sense of pupils' understanding of subjects across levels of thoughts and other personal attributes. The two quotes also explicitly require the teachers to evaluate the learning process and materials used for teaching. Additionally, looking at the discourse used, for example, the use of phrases like 'teachers should ensure' and 'this will ensure' in the

first and second quote above implies an imposing approach to teachers in considering the changes they are expected to adapt. This aspect is illustrated in detail in Appendix 18 (theme 2 and 3) about the traditional approach to teacher support process that prevails.

The second theme suggests that teachers are expected to use different assessment methods which include exercises, tests, examinations, project work, simple questionnaires, experiments, portfolio, observation forms and checklist:

> "The teacher is advised to use variety of assessment techniques when assessing pupil performance. Creativity, participation in group work, discussions, inquiry and communication ability should also be assessed" (MoEVT, 2006b, viii).

> "It is recommended that means other than paper-and-pencil assessment are also used so that abilities which cannot be assessed easily through paper-and-pencil assessment can be assessed through the other means, e.g., interview and observation" (TIE, 2010a, p. 12).

As the two extracts above imply, apparently, there seems to be three main assumptions regarding the requirements for teachers to make use of multiple assessment methods in the context of the existing CBC. The first assumption, relates to the thinking that the use of various assessment methods can enable teachers to determine an understanding of subject contents, participation in learning activities and other qualities of the pupils such as creativity. The second assumption holds that the use of different assessment methods can enable all pupils to demonstrate what they know apparently on the ground that some pupils can better express or demonstrate what they know through oral expression while other are better at written expression. The third assumption is that the use of different methods of assessment of pupil's performance is expected to provide teachers with a degree of certainty about the information for judging pupils' learning. These assumptions behind the multiple assessment approach in the context of CBC available in policy documents seem to be shared by some academics in Tanzania (Kitta and Tilya, 2010).

However, looking further on the details of the different methods that are shown in the documents, the explanation and illustration for some of other assessment methods (e.g., scaled checklist or observation schedules) advocated in the documents, it is clear that the use of such assessment methods can only enable teachers to rate their pupils' learning as lying with particular grade boundaries rather than providing teachers with any concrete information for interpreting, making sense of strengths and weaknesses of pupils' learning and planning for remedial work as envisaged in the constructivist view of teaching and learning. Moreover, multiple assessments can be considered impractical not only because of the additional workload implied in preparing, but they are also likely to be very new, given the inadequate support for teachers to implement curriculum changes.

The third underlying theme of the proposed assessment is integration and participatory assessment. The curriculum materials for teachers' use were revised to reflect the integration of assessment in teaching and learning activities. The syllabuses and teaching manuals provided for teachers to use for each subject contain a column of corresponding assessment. Moreover, in each subject teaching manual, matrices for schemes of work and lesson plans contain descriptions and illustrations for lesson assessment work. Additionally, the frame for teacher lesson plans contains columns for teaching and learning activities and a corresponding column for assessment activities.

The fourth theme is pupil involvement in assessment as part of the participatory teaching and learning approach as espoused in the existing CBC. That is, teachers are expected to involve their pupils in assessment activities. Apparently, the main purpose for teachers to involve their pupils in assessment work is to give them a chance to comment on how well they think the lesson was conducted:

> "The teacher should bear in mind that lesson evaluation about effectiveness of the lesson which essentially depends on assessment activities during the lesson. Pupil's evaluation gives the picture on the effectiveness of teaching activities while teacher's evaluation gives a picture on effectiveness of learning activities" (TIE, 2010b, pp. 33-34).

Overall, it is clear that the aforementioned assessment requirements pose some challenges. For example, involving pupils in assessment by commenting on the teaching and learning at the end of every class implies a significant cultural change in both roles and interactions between teachers and the pupils in the classroom. Furthermore, even if teachers are willing to ask pupils to comment   on their teaching, it is unlikely that pupils can honestly comment on the weaknesses of their own teachers, given the teacher-pupil authority hierarchy in a classroom context. Consideration of the contextual and cultural perspectives of education, teaching and learning and assessment in Tanzania are likely to exacerbate the challenges associated with changes proposed for the constructivist view of teaching and learning espoused in the existing curriculum.

1.6 Assessment in pre-service and in-service teacher training programmes

While as seen in section 1.5 the official CBC view of assessment presents a range of challenges to primary school teachers, if one looks at how assessment is presented in teacher education programmes, it is clear that it does very little to help new teachers to meet these challenges. As the name of the syllabus for certificate of teacher training sounds, that is *research, measurement and evaluation* (MoEC, 2003), it is clear that the focus is mainly on summative and psychometric issues. Much of the assessment knowledge and skills relate to designing, administering and interpreting assessment information for summative purposes. On top of that, the fact that both trainees' practicum portfolios and tutors' supervision forms do not contain any item about assessment suggests that trainee teachers are not

assessed on their ability to assess. Most of the in-service training provided to teachers in schools focuses on pedagogical aspects of teaching and learning methods or strategies. The content of courses in assessment for in-service teacher training is mainly focused on how to conduct continuous assessment by constituting pupils' grades in the final national examination. Thus, there is insufficient assessment knowledge and skills provided in both pre-service and in-service teacher training to equip teachers to formatively conduct assessment in a manner that can be consistent with CBC.

1.7 Primary education

Primary education in Tanzania enrols children aged between six (6) and seven (7) years after attending two years of preschool class. The primary education curriculum consists of eleven subjects which are Mathematics, Science, Swahili, English, French, Geography, History, Civics, Personality Development and Sports, Information and Communication Technology, and Religion. Although the idea of teaching subject specialization has been mooted and attempted, in practice most primary school teachers are still generalists. The fact that most of serving teachers were trained as generalists and perennial, shortage of teachers in schools, particularly in rural areas, makes subject specialization impractical to implement. As such, the allocation of teaching subjects in schools depends on the number of teachers available and their ability, experience, and interest in teaching particular subjects.

Educational resources in most Tanzanian primary schools, and in the countryside in particular, are very meagre compared to their urban counterparts. Nevertheless, primary school classrooms in the country share more or less similar material conditions, set-up and teacher-, pupils' interaction characteristics. Classroom walls are bare, and the chalkboard in front of the classroom is the main visual display, and it is for illustration during teaching and learning, the writing of lesson notes and assessment

work for pupils to copy down in their notebooks. The children sit on desks in arranged rows and columns usually in groups of three or more, an aspect which limits pupil-to-pupil interaction during teaching and learning sessions. The average class size of 63 pupils exceeds the recommended class size of 40 pupils per class for primary schools (MoEVT, 2009). With the exception of grades one and two, teaching in primary schools uses a multi-grade approach, in the sense that teachers teach different subjects in different grades.

The usual teacher-pupil, pupil-pupil interactions as teaching and learning sessions proceed are mainly teacher dominated. Despite adopting CBC which envisages a constructivist approach for promoting meaningful and deep teaching and learning, studies consistently show persistence of rote learning in primary classrooms (Arthur, 2001; Barrett, 2008; Vavrus, 2009; Wedin, 2010; Hardman et al., 2012). In regard to teacher-made assessment, primary school teachers usually administer a written assessment exercise after teaching one or more lessons. Teachers also administer mid-term and end-of-term examinations which are used for summative purposes mainly for giving parents' reports on their children's achievement, and for determining transition of pupils to the next grade at the end of the school academic year. Sternberg (2007) informs that instruction and assessment have to be conceptualised within the cultural context in which they occur including the existing thinking and emotional aspects. The next section explains the status of formative assessment in the country.

1.8 Status of formative assessment in Tanzania's primary education

While a change in view towards a more formative assessment is key to CBC, in most of the education documents formative assessment is largely presented as a mode of assessment rather than a coherent set of procedures on how to conduct and use assessment information for supporting teaching

and learning. Besides, where formative assessment is described, there are mixed messages about what it is and how it is supposed to be done. To the best of my knowledge, there has been no   substantive study on formative assessment in line with constructivist view of learning at primary or secondary levels of education. A perusal of research records of the School of Education of the University of Dar es Salaam which has the oldest and most established postgraduate research programme in the country does not indicate any record of such a study. Most of the assessment studies that have been conducted focused on examination issues, for example how examinations impact on teaching and learning in schools and continuous assessment with no focus on formative assessment. Paradoxically, there has been only one pilot study on formative assessment which was conducted at the Muhimbili University of Health and Allied Health Sciences (MUHAS). The MUHAS study investigated whether or not the use of regular formative assessment in medical school setting could enhance the students' learning experience (Mkony et al., 2007). It found that using formative assessment led students to participate actively in learning by asking more questions, and that the overall performance of students improved under these conditions, which enhanced mutual understanding and respect between students and their teachers.

1.9 Summary of the chapter

This chapter has shown that the curriculum reforms prior to CBC emphasised changes for assessment focusing on examinations which was consistent with the traditional transmission (behaviourist) mode of teaching and learning. The chapter has also shown that, although the existing CBC envisages a constructivist approach to teaching and learning in schools, yet, the context and cultural views about teaching, learning and assessment in Tanzania largely favour the examinations. It is against this background that the current study set out to implement an intervention for teachers to adopt a more formative assessment approach in the existing Tanzanian cultural and material realities.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

On the basis of the idea that how assessment is conducted needs to reflect the main principles espoused in the learning approach that inform the curriculum and pedagogy in particular, Section 2.2 of this chapter discusses assessment in respect to learning approaches. Section 2.3 discusses the different conceptions of formative assessment in line with different learning approaches and different educational contexts across the world. Section 2.4 explains potential benefits and challenges of the formative assessment strategies and techniques that are claimed by formative assessment theorists as well as those reported in previous studies. This is followed by Section 2.5 which discusses the implications of adopting formative assessment in different educational contexts with particular reference to Tanzania. Section 2.6 provides overall summary of the formative assessment strategies and techniques. Section 2.7 provides review of the literature of South African curriculum 2005. Section 2.8 provides a conceptual framework which informed the design, and the implementation of the intervention in a Tanzania primary educational context.

2.2 Approaches to assessment in respect to learning

Approaches to assessment practices and the ways in which learning are understood have implications for curriculum and teaching (James and Pedder, 2006). It can also be argued that, because the classroom teaching and learning essentially reflect or are informed by a particular model or theory of learning, it follows that it is necessary for assessment aimed at supporting teaching and learning to be in line with the learning theory that informs the curriculum in hand. In a similar line of argument, it is argued that the conceptions of how pupils learn the subject matter have implications for how teaching and assessment are conducted (Gipps et al., 1996; Gipps, 2002). The presumption of alignment of some degree between assessment

and the ways in which the learning process and its outcomes are conceived imply that the approaches to the practice of classroom assessment have to be understood within the learning perspectives that underpin them (Gipps, 2002; James and Pedder, 2006; James, 2008). Essentially, teacher's teaching is work that involves creating conditions that promote and facilitate learning in classrooms. What teachers do to create conditions for pupils' learning, including the tasks they use, depends on their views of what constitutes learning and how it can occur. Additionally, teachers' ideas of what constitutes learning also influence what they decide to assess in determining whether students have learned what the teacher intends them to learn (O'Donnell et al., 2009).

2.2.1 Assessment in line with behaviourist view of learning

Implications for assessment here are that progress is measured through unseen timed test items taken from progressive levels in a skills hierarchy. Pupils' performance in assessment work is usually interpreted as either correct or incorrect, and poor performance is corrected or remedied by more practice in the incorrect items. In line with the behavioral view of learning, assessment is an activity undertaken after learning has been accomplished; communicate some knowledge, then test to see if the knowledge has been successfully stored by the learner; demonstrate and coach a skill, then test to see if the learner can perform the skill, and so forth (Cunningham and Duffy, 1996; James, 2008). According to behavioural approaches to learning, views about assessment in terms of promoting learners' learning of the subjects relate to or focus on the indirect contribution of assessment to pupils learning as individuals, not directly on its contribution to the learning process. The role of assessment in promoting learners' learning includes benefits of competition between pupils and the reinforcing role of grades to engage learners or to encourage them to exert more efforts towards participation in the learning (Cox and Dyson, 1971; Torrance, 1993; Stiggins et al., 2006). This view of assessment in relation to learning presupposes that both the purpose and role of assessment work in relation to teacher's

teaching and pupils learning are peripheral and indirect rather than core and direct.

Existing literature (Crooks, 1988; Gipps, 2002; Harlen and James, 2006) concur that assessment of separate components of the lesson is likely to encourage the teaching and practice of isolated lesson components. This in turn can hinder pupils' learning of problem solving and other higher order skills. Additionally, assessing or testing by identifying separate components can interfere with effective teaching and learning of the complex or higher order cognitive abilities (Frederiksen, 1984; Foos and Fisher, 1988; Resnick and Resnick, 1992). Thus assessment in line with the traditional behaviourist learning model assumes that one can specify and measure or assess all important learning objectives. Besides, it assumes that mastery of test or assessment items implies mastery of the intended skills and concepts embedded in the lesson or particular unit of subject matter (Shepard, 2000; Gipps, 2002; Stiggins et al., 2006). This corresponds to the behaviourist approaches to learning where complex understandings occur when basic or elemental prerequisites learning are mastered (James, 2008). Furthermore, there is predominance of the conception that the curriculum content is taught first and assessment comes later (Graue, 1993; Birenbaum, 1996; Dochy and McDowell, 1997; Dochy et al., 2007). Apparently, this implies viewing teaching and assessment as separate classroom activities in which assessment work for pupils comes after the teaching-learning session.

2.2.2 Assessment in line with a constructivist view of learning

Prior knowledge is considered as key for students to learn new lesson contents in the constructivist view of learning. There is also emphasis on reflection for understanding and eliminating misunderstanding to achieve meaningful or deep learning (James 2013). Alongside, assessment is conceptualised in terms of understanding in relation to conceptual structures, reflection, competence and novelty in processing strategies (Hall and Burke, 2004; James, 2013). Thus, in this view of learning, the teaching and

assessment are integrated towards the goals of deep learning, particularly the goal of closing the gap between existing and new understandings (Sadler, 1989; Black and Wiliam, 1998a; James 2013). It is therefore inevitable and not surprising that various formulations of formative assessment are associated with this particular theoretical framework (Clarke, 2003; Nicol and Macfarlane-Dick, 2006)

Classroom assessment practice which espouses a formative approach to assessment implies that teachers take decisions for teaching in respect to pupils' thinking as reflected by the responses they give. In view of the importance of prior learning as an influence on new learning (Shepard, 2000), formative assessment emerges as an important integral element of pedagogic practice. This is because classroom dialogue and open-ended assignments among other aspects of formative assessment elicit students' thinking about lessons, scaffold their understanding of knowledge structure and provide them with opportunities to apply concepts and strategies in novel learning situations (James and Pedder, 2006). Thus, a core feature of constructivist views of assessment is the idea of formative assessment which is the focus of the next section.

2.3 Conceptualising formative assessment

The etymological meaning and common usage associate the adjective formative with the verbs forming or moulding something, implicitly or explicitly aiming at achieving a desired end (Sadler, 1989). Sadler's (1989) observation implies that the discussion of formative assessment requires distinctive conceptualisation and implementation strategies for teaching and learning purposes. There are various definitions and models that explain what formative assessment is and how corresponding practices have to be carried out for the purpose of supporting teaching and learning.

In the literature formative assessment is interchangeably used with the term assessment for learning (Klenowski, 2009; Stobart, 2008) and this provides

one way of looking at what formative assessment is. For instance, Stobart (2008) conceives assessment for learning as the integration of assessment into teaching and learning in order to encourage effective teaching and deep learning. Assessment for learning is usually informal, rooted in teaching and learning, and can occur many times in every lesson (Black and Wiliam, 2005). The Third International Conference on Assessment for Learning in Dunedin, New Zealand in March 2009 defined Assessment for Learning (AfL) in terms of five elements, that is, AfL is part of everyday practice by students, teachers, and peers that seeks, reflects, upon and responds to information from dialogue, demonstration, and observation in ways that enhance ongoing learning (Klenowski, 2009). To make the definition clear the elements of AfL Klenowski (2009, p.2) further described them as follows:

- ''Everyday practice – this refers to teaching and learning, pedagogy and instruction. Emphasis in this regard is on the interactive, dialogic, contingent relationships of teaching and learning;

- By students, teachers and peers - students are deliberately listed first because only learners can learn. Assessment for learning should be student centred. All AfL practices carried out by teachers (such as giving feedback, clarifying criteria, rich questioning,) can eventually be 'given way' to students so that they take on these practices to help themselves become autonomous learners. This should be a prime objective;

- Seeks, reflects upon and responds to-these words emphasise the nature of AfL as an inquiry process involving the active search for evidence capability and understanding, making sense of such evidence and exercising judgement for wise decision making about next steps for students and teachers;

- Information from dialogue, demonstration and observation-verbal (oral and written) and nonverbal behaviours during both planned and unplanned events can be sources of evidence…;

- In a way that enhances ongoing learning-sources of evidence are formative if and only if, students and teachers use the information they provide to enhance to enhance learning".

Whereas many authors have used the term formative assessment and assessment for learning interchangeably, or as different labels for the same ideas,Black et al, (2004, p.10) differentiate the terms as follows:

> "Assessment for learning is any assessment for which the first priority in its design and practice is to serve the purpose of promoting students' learning. It thus differs from assessment designed primarily to serve the purpose of accountability, or ranking, or certifying competence. An assessment activity can help learning if it provides information that teachers and their students can use as feedback in assessing themselves, and one another and in modifying the teaching and learning activities in which they are engaged. Such assessment becomes "formative assessment" when the evidence is actually used to adapt the teaching work to meet learning needs".

From these definitions about formative assessment and assessment for learning, it is implied that the main condition or criterion for assessment to be perceived as formative is when the information or evidence gained from an assessment is used in some way to adapt or modify teaching for the purpose of improving learners' learning.

Black (1995) explains that the distinguishing characteristic of formative assessment is that the assessment information is used, by teacher and pupils, to modify their work in order to make it more effective. Similarly, Black et al. (2003) attest that it is important to consider that the critical criterion that formative assessment is a process, one in which information about learning is generated and then used to modify the teaching and learning activities of particular lesson contents in which teachers and students are focused and engaged to realise the expected achievement levels. Any assessment can be formative, and it functions formatively when it improves the decisions that teachers, individual learners or their peers take for enriching quality of teaching and learning of particular lesson

contents(Wiliam, 2011). Stobart and Gipps (1997) maintain that assessment is formative only if the results thereof inform and feed back into the teaching-learning process. Stobart and Gipps (1997) argue further that, formative assessment is conceptualised solely in terms of its role in classroom teaching and learning activities, that is, providing information to aid the students to learn and the teachers to teach the students. Besides, they argue that assessment to find what and how learners understand particular subject content is part of good teaching practice, but assessment that helps the teacher to decide what and how to teach next constitutes formative assessment. Along the same line of argument, Sadler (1989) attests that formative assessment is concerned with how judgements about the quality of student responses or performance and information thereof can be used to shape and advance learning. Sadler's (1989) conception of formative assessment presumes that the teacher generates information from assessment by inferring from students' responses to determine how well students are learning, and subsequently makes appropriate remedial instruction to move the students' learning forward. In this respect Sadler's (1989) conception rests on the feedback role of formative assessment in teaching and learning activities, an aspect which is discussed in detail in the next section.

Another way of defining formative assessment entails its distinction from assessment for summative purposes. The view of formative assessment as distinct from summative is based on the fitness of purpose and effect criteria for conceptualising assessment in respect to teaching and learning (Sadler, 1989; Gipps, 2002; Harlen et al., 1992). In this vein, Sadler (1989) attests that the primary distinction between formative and summative assessment relates to the purpose and effect, not to timing. On the basis of purpose and effect criteria of looking at assessment, it is conceivable that the same form of assessment and even the same outcomes of assessment can be used both formatively and summatively (Black and Wiliam, 1998a; William, 2010). Therefore, formative assessment is any assessment which is conducted with

the intention of providing information or evidence to support teacher's teaching and pupils' learning of subject contents. While summative assessment is any assessment which is conducted with the intention of obtaining information for providing a picture about learner achievement for decisions, such as grading the learner's achievement, reporting or certification. Thus, it can be argued that formative assessment is about decisions related to pedagogical aspects in the sense of teaching and learning, while summative assessment is for accountability purposes.

Furthermore, formative assessment is also conceptualised based on the notion of feedback which was adapted from the engineering science (Wiliam, 2010). Ramaprasad (1983) defines feedback as information about the gap between the actual level and reference level of a system parameter which is used to alter the gap in some way. Feedback is a key element in formative assessment, and is usually defined in terms of information about how successfully something has been or is being done (Sadler, 1989). In applying this model to the behavioural sciences, Black and Wiliam (1998a, p.48) identified four elements that constitute the feedback system:

- "data on the actual level of some measurable attribute;
- data on the reference level of that attribute;
- a mechanism for comparing the two levels, and generating information about the gap between the two levels;
- a mechanism by which the information can be used to alter the gap"

The view of formative assessment as feedback emphasises assessment in terms of its outcomes for teacher's teaching and pupils' learning of the lesson. Arguably, this systems view of formative assessment (Ramaprasad, 1983, Sadler, 1989; Broadfoot et al., 2002)renders conceptualising formative assessment to focus on three key assessment decisions related to teaching and learning. The decisions are phrased in terms of three questions for the teacher: (i) establishing where the learners are in their learning; (ii) establishing where they are going; and (iii) establishing what needs to be done to get them there (Wiliam, 2010). Thus, this view that any formative

assessment entails feedback, and the teacher uses the feedback to plan, conduct and use assessment outcomes to make decisions about where to focus the teaching and learning. In the day-to-day classroom teaching, the three questions for decisions about teaching and learning based on feedback aspect of formative assessment can be paraphrased to read, respectively; (i) what do assessment results indicate about what learners have understood? (ii) What more do learners need to understand? (iii) What should the teaching focus on to enable learners understand what they still do not understand?

2.4 Formative assessment implementation strategies and their implications

This section is concerned with the ways in which teachers are expected to use formative assessment to support their own teaching and pupils' learning. The literature uses different formulations in explaining the strategies for adapting formative assessment to align with teaching and learning purposes. However, the literature points out a combination of five strategies for adapting formative assessment for the purposes of supporting teacher's teaching and pupils' learning in school contexts (Clarke, 2005, Black et al., 2003; Wiliam, 2011). Notably, in some literature the terms *strategies* and *techniques* for adapting formative assessment are used interchangeably. Yet, another literature makes a distinction between *strategies* and *techniques* in their account (Wiliam, 2011). This section takes into account the literal meaning between *strategies* and *techniques*. According to Soanes and Stevenson (2003) in the Oxford Dictionary of English, the term strategy refers to a plan of action designed to achieve a long-term or overall aim whilst a technique is a way of carrying out a particular task, especially the execution or performance of an artistic work or a scientific procedure. Thus this section discusses the strategies and illustrates some of the associated techniques which theorists and practitioners advocate for adapting formative assessment for teaching and learning purposes.

2.4.1 Clarifying, sharing and understanding learning intentions and criteria for success

Clarke (2003) attests that the first active element of formative assessment in the classroom is sharing learning intentions[1] with children. Essentially, this strategy requires teachers to clarify to students, discuss with them and ensure that they understand the lesson objectives and success criteria for determining the achievement (Clarke, 2005). Explicitly, separating the learning objectives enables children to see the connections and avoids children from conceiving that particular skills or concepts to be learned can only be achieved through the working context (Clarke, 2005). Additionally, decontextualizing the learning objective simplifies the generation of success indicators about pupils' learning of the lesson (Wiliam, 2011).

The literature suggests different techniques for teachers to use the formative assessment strategy of sharing of learning objectives and success criteria for teaching and learning purposes. One of the techniques involves the teacher asking the pupils to look at samples of other pupils' work and to engage in a discussion about the strengths and weaknesses. This technique of formative assessment entails the use of work exemplars. In the literature the reason for exemplar work seems to be based on the presumption that criteria and standards are often phrased in generalised ways. So it appears that pupils accessing examples of assessed work can help to see what standards look like in practice (Sadler, 1989). Another technique involves requiring pupils to set their own assessment tasks. Thinking through an attempt to set assessment tasks in line with the agreed criteria is indeed an act of learning by itself, let alone increasing the potential of learners being engaged further about the ideas or principles embedded in the lesson (Wiliam, 2011). The third technique involves the teacher communicating assessment criteria to learners. It involves discussing them with learners using terms that they can

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[1]Learning intentions refer to skills, concepts and knowledge that constitute the 'bits' to be taught and learnt and applications of those bits (Clarke, 2003: 19)

understand, providing examples of how the criteria can be met (Broadfoot et al, 2002). Similarly, it is observed that when existing criteria are stated in the teacher's language, then it is worthwhile for teachers to spend some time to translate and explain to pupils in ways that they can easily understand (Clarke 2001; Wiliam, 2011).

There are various benefits for adapting this formative assessment strategy for teachers in terms of teaching work. In this regard Clarke (2005) argues that when learning goals are clear in terms of differentiating learning objectives from their context, there are benefits in terms of planning. In particular, teachers can adapt the context of learning particular lesson objectives to children's needs instead of just following the prescriptive content of the curriculum. For example, using the experience of UK teachers who applied this approach, Clarke (2005) points out that teachers reported going back to the national curriculum rather than relying on the Qualification and Curriculum Authority (QCA) schemes of work. Additionally, other teachers found that separating learning objective from the context helped them to become more selective at the planning stage, and made them focus more on actual skills rather than over-focusing on the context. Therefore, it seems that when teachers distinguish between learning objectives and their context, it helps teachers to identify key ideas or skills embedded in a particular lesson. Clarke (2005) states that clearly identified success criteria can be a reminder of steps (*as in a mathematical procedure*); ingredients which either must be used (instructional writing) or could help the child achieve the learning objective, but do not necessarily have to all be used (*as in using effective adjectives*).

The benefits of enacting this formative assessment strategy in terms of pupils' learning include: the children become more motivated and task-oriented if they know the learning intention of the task, and are also able to make decisions about how to go about the task (Clarke, 2001). It is established that learners are more motivated to achieve learning goals that

are specific, within their reach, and offer some degree of challenge (Schunk, 1991; Bandura, 1986). Children become enthusiastic about learning. In terms of benefits across learners' abilities, the higher achieving students are able to work with unresolved ambiguities about what they were doing, while those students seen as lower achieving can be struggling because they try to do something much more difficult for them compared to their peers (Gray and Tall, 1994). Sadler (1989) adds that students, who manage to understand the quality of learning in a manner that is roughly similar to that of teachers, become able to monitor the quality of what is being produced during the act of production itself, and have a repertoire of alternative moves or strategies from which to draw at any given point. Once children have a sufficiently clear picture of the lesson objectives and success criteria for what they are learning, it provides them with a framework for insightful reflection, self-reflection, and the basis for a formative dialogue, with either peers or teachers (Sadler, 1989; Black and Wiliam, 1998a; 1998b; Clarke, 2001).

The requirement for the teacher to share the learning intentions with learners has three implications for teachers. First, the teacher needs to thoroughly think about the lesson before teaching and be certain of what is to be defined as success criteria in terms of pupils' learning. Second, the teacher is obliged to devise an appropriate statement of these criteria in ways that are understandable, and make sense to learners. Third, the teacher has to spontaneously interpret and make appropriate timing for clarification of the learning intentions. Overall, this formative assessment strategy and the associated techniques (as illustrated), apparently, seem to presume that the curriculum in which teachers are working is elaborated in terms of explicit success criteria or standards as is the case for the UK and US educational contexts. Majority of teachers both in the UK and US education contexts conduct their teaching and assessment in the light of explicit published criteria or national standards about the levels of knowledge, skills and understanding that are to be achieved.

2.4.2 Questioning for effective classroom discussion

This formative assessment strategy requires the teacher to elicit evidence of achievement through assessment. Questioning is the main technique, although a range of others such as touch depending on the nature of the subject can be used (Wiliam, 2011). Studies about teacher questioning over the years have revealed that teachers mainly ask recall or social and managerial aspects of learning which in turn do not challenge, evoke thoughtful reflection and promote understanding of the learners (Brown and Wragg, 1993; Clarke, 2005; Black and Wiliam 1998b; Black et al., 2003). For example, the analysis of teacher questions by Brown and Wragg cited in Wiliam (2011) showed that only eight percent of the questions that teachers asked in classrooms required their students to analyse, to make inferences, or to make generalisations. In respect to formative use of questioning in a sense of supporting classroom questioning to support teachers' teaching and pupils' learning, it is argued that questioning can be considered to meet the required quality if it elicits insightful thoughts in students thinking and provides information for guiding the teacher about what to do next in terms of facilitating the students to understand what they unable to understand. Nevertheless, Wiliam (2011) informs that teachers working alone or individually can hardly generate questions that give insights into student learning, and often teachers construct questions that look like traditional test questions. Consequently, he further suggests that because questions that give window into students' thinking are hard to generate, then, teachers to collaborate in order learn from each other and generate stock of good questions for supporting their teaching and students' learning.

The use of questioning for the purpose of classroom teaching and learning discussion often takes a recitation discourse; the three-part exchange structure known as "triadic dialogue" (Lemke, 1990) in which the discussion between teacher and pupils involves teacher asking a question (initiation); teacher selecting a student to answer the question (response) and then teacher evaluating the student's answer (evaluation). This classroom pattern

of question and answer is commonly referred to as the initiation-response-evaluation (I-R-E) model (Mehan, 1979). The triadic dialogue reinforces traditional teaching approaches which in practice do not yield support to scaffold students' thinking and render responses of the students to remain brief and teacher-framed. This in turn minimise the role of the students in co-constructing the meaning by working with teacher or their peers (Chin, 2006). However, the triadic dialogue can be supportive to pupils' learning particularly where teachers can scaffold students' extension of knowledge through further supportive dialogue (Vygotsky, 1978). For example, when teachers pose a question that stimulates further productive thought, based on their evaluation of students' previous responses, teachers can guide development of students' ideas by successively building on their contributions in a reciprocal manner. Viewed in this perspective, the key point to classroom questioning through the I-R-E model would be whether or not the teacher reflects and discerns meaning from student's responses in respect to the question asked. Thus, the formative aspect relates to when meanings of students' responses and teachers' questions can be interpreted and negotiated to inform the teacher about what to do next.

Apart from how the teacher negotiates meaning from students' responses in respect to questions, there are conditions which teachers are expected to adapt for enhancing the formative use of questioning for supporting teacher's teaching and pupils' learning. Such techniques include increase in wait time, no hands up, and talking partners (Wiliam 2011; Clarke 2005). Increasing the time between the posing of the question and seeking an answer from a selected pupil or group of pupils leads to more alternative explanations being offered; children challenge and/or improve the answers of other children; responses are longer, failure to respond decreases and answers are longer (Clarke, 2005). No hands-up technique is based on the premise that it creates a climate that each and every child can be selected to answer the question, which in turn raises the level of attention and focus on the questions in terms of thinking. The other argument for no-hands-up

condition is the presumption that raising hands interrupts the pupils thinking for producing the answer. As a requirement in terms of quality of questions more open questions are better suited for the no-hands-up technique than the closed. Talking partners is a technique that involves asking children to talk to their talking partners for about a half or a minute, to determine the answer. The answers are then gathered up, with no hands up, from a number of pairs (with one child acting as the spokesperson each time) until a full definition is compiled. Embedding talking partners in question-and-answer sessions allows children to think, to articulate, and therefore to extend their learning. Furthermore, shy, less confident children have a voice, and the overconfident have to learn to listen to others. This in turn creates a more respectful, cooperative ethos and culture: fundamental to the success of assessment for learning.

2.4.3 Feedback that moves learning forward

Depending on the level at which feedback is directed; Hattie and Timperley (2007) identify four types of feedback. They include feedback about task (FT); about processing of the task (FP); about self-regulation (FR); and about the self of a person (FS). The authors recount that the FT level entails information about how well a task is being accomplished or performed, such as distinguishing correct from incorrect answers, acquiring more or different information, and building more surface knowledge. The FP level focuses more on the processes that underlie, relate and move beyond the learning task in hand. The FP level mainly relates to students' strategies for error detection which informs the individual learner about own learning and understanding. Foci of error identification may include effectiveness of or strength in use of particular learning strategy, choice of alternative strategies or seeking for help.

The FR level relates to self-regulation in the sense of self-generated thoughts, feelings, and actions about attainment of personal goals (Zimmerman, 2000) which in turn can lead to seeking, accepting, and

accommodating feedback information. There are at least six major aspects of FR level that mediate the effectiveness of feedback, which include the capability to create internal feedback and to self-assess, the willingness to invest effort into seeking and dealing with feedback information, the degree of confidence or certainty in the correctness of the response, the attributions about success or failure, and the level of proficiency at seeking help. The FS which is common in most classrooms relates to personal feedback such as verbal or written praise typically expresses positive albeit sometimes involves negative evaluative statements. The authors note that the FS level can have an impact on learning only if it leads to changes in students' effort, engagement, or feelings of efficacy in relation to the learning or to the strategies they use when attempting to understand tasks. Black and Wiliam (1998b) distinguish between directive and facilitative feedback, the first informs the students what needs to be revised. The second involves providing comments and suggestions to encourage students in their own work.

In the context of formative use of assessment as discussed in Section 2.3 above, the term feedback in this study is conceptualised as information shared orally or in written forms between the teacher and learners, or learners and their peers for purposes of supporting teacher's teaching and pupils' learning of the subject. This conception of feedback emphasises the prospective rather than the retrospective role of both teaching and learning (Wiliam, 2011). It is established that feedback becomes effective when the focus is on the nature of the task rather than the self of the individual. Task-level feedback tends to be more specific and timelier than general feedback (Topping, 2010b). This view requires feedback to focus on eliciting or discerning thoughts that underlay pupil's work in the assessment. The other view of feedback to move forward learning, considers the consequences of feedback on subsequent actions by both teachers and learners (Hattie and Timperley, 2007). That is, the teacher can use the outcomes of assessment to modify the teaching of the students on whom assessment has been

conducted, or provide evidence that can be used for modifying the teaching of other students on the same lesson. Effective feedback needs to direct attention to what is next, rather than focusing on how well or badly the student did on the work (Wiliam, 2011).

2.4.4 Peer assessment for activating learners as instructional resources for one another

In a classroom context peer assessment can be done in pairs or mutually in small groups of more than two learners (Topping, 2010a; 2010b; Wiliam, 2011). As regard classroom teaching and learning, one-to-one or small groups of learners can be structured to assess a range of learning outputs including written work such as homework or exercises; oral presentations or learner's portfolio records (Topping, 2010b). Peer assessment can also be conceived in terms of the theoretical basis that can explain its role and nature of support that develops in the interaction between learners. For example, a cognitive constructivist view of learning would imply that the peer-helper should focus on uncovering the misconceptions that inhibit the learner being helped. By contrast, the social constructivist view would entail the helper to focus on establishing what the peer learner does not understand and what needs to be developed or improved, the notion of the Zone of Proximal Development (Vygotsky, 1978). Another Vygotskysian aspect related to effectiveness of peer assessment for supporting the learning is about the nature of discourse between a peer helper and the learner who is being helped. Topping (2010b) observes that peer assessment requires appropriate communication for both helper and helped. Thus, it is likely that there would be metacognitive aspects about learning and interpersonal benefits to learners as individuals. The benefits of using peer assessment strategy to learners include promoting reflection. Overall, it is established that the interaction with the peers through peers' comments on the assessment work engages each learner in reflective thoughts which in turn can help to alter their understanding and improve the quality of work even if they do not agree with all of the peers' comments (Kennedy and

McKay, 2009; Topping, 2010a; 2010b). The rationale for peer assessment supporting students' learning relates to collegiality and relatively negotiable and insightful comments that learners exchange about each other's work than when provided by teachers or other adults. Research shows that feedback to learners from their peers are potentially more insightful and open to discussion in contrast to feedback from teachers, let alone being perceived as authoritative (Cole, 1991; Topping, 2010b; Willis, 2011). The examples of techniques for involving pupils in assessing each other's work include:

> **C3B4ME** *which implies* **See Three Before Me** Before A student is allowed to ask the teacher for help, assistance must have been sought from at least three other students (Technique 1)

> **Student reporter:** At the beginning of the lesson or at the end of the previous one, one student is appointed to give summary of the main points of the lesson or answer any questions that other students may have in the class. If s/he answers some of the questions s/he selects another student to answer the questions. Alternatively ask the reporter to construct questions to ask the class afterwards (Technique 2).

The two examples of techniques for students to assess each other's as developed and practiced in the Western context (UK) suggest that particular views about students as individuals and learners as well as assessment work in respect to teaching and learning activities must exist if applied in other contexts like that of Tanzania. In the next section I discuss self-assessment strategy in the context of formative assessment.

2.4.5 Self-assessment for activating learners as owners of their own learning

Self-assessment is a process of formative assessment during which learners reflect on the quality of their work, judge the degree to which it reflects explicitly stated goals or criteria, revise their work accordingly (Andrade and Boulay, 2003). Learners themselves can be thought of as definitive source of feedback, given their constant and instant access to their own thoughts, actions and works in the learning process or knowledge construction (Andrade, 2010). Indeed, research also shows that learners can be useful

source of task feedback via the self-assessment strategy (Black and Wiliam, 1998b; Ross et al., 1999; Andrade et al., 2008). As pointed above this formative view of self-assessment basing on the conception that learners themselves are a definitive source of feedback relates to the constructivist learning view of knowledge construction.

For the learner to conduct self-assessment they need to have a clear picture of the success criteria (Clarke, 2005; Andrade, 2010; Wiliam, 2011). In terms of enabling this, teachers can use model or exemplar work or rubrics for guidance and reflection about the quality of their work. In a report about their work with 11- to 15-year-olds in the UK, Black et al. (2004) state that one of their difficult tasks was helping students to think of their work in terms of learning goals. The possible explanation to this could be attributed to a lack of the habit of self-critique of their work. Additionally, this strategy requires that learners become owners of their own learning if they own the curricular objectives and activating students as a learning resource for one another (Wiliam, 2011). As for peer assessment, the strategy of student self-assessment also deals with whether or not learners can develop sufficient insights into their own learning and improve it. The study by Fontana and Fernandes (1994) as well as argued in Black and Wiliam (1998a) and Wiliam (2011) inform that learning of students whose teachers employed student self-assessment skills almost doubled compared to those whose teachers did not include student self-assessment skills in their teaching. The next section will look at a critique of the formative assessment strategies with regard to their implications to the Tanzanian primary classroom context and the challenges that teachers are likely to encounter in adopting them.

2.5 Implications of formative assessment strategies and associated techniques for other contexts

All of the above strategies have been developed in a fairly narrow range, and largely on Western contexts. In this section I consider what challenges they might entail for teachers in the Tanzanian context.

2.5.1 Implications for teachers on clarifying, sharing and understanding learning intentions and success criteria

As mentioned in Sub-section 2.4.1, in the 'developed' countries such as US or UK where the idea of formative assessment has been developed and practiced, the formative strategy of the teacher sharing the learning intentions with the learners is likely to be easily taken up by the teachers because the idea of precise learning intentions and success criteria is well established in their education systems. For example, in the US teachers are required to develop classroom assessments that align curriculum with state standards as a means of improving test results (Mertler, 2004). Likewise in the UK, apart from the teachers conducting their teaching and assessment in the light of explicit published curriculum standards (levels) and success criteria (or levels of achievement), it is also a statutory requirement for teachers to share (communicate) with their learners about the specific and precise learning objectives for each lesson. Clarke (2001, p. 19) reports:

> "Since the onset of the OFSTED inspections, primary teachers in England are expected to inform children of task learning objectives, and children are typically questioned during inspections to confirm that they know the purpose of a lesson. The Literacy and Numeracy strategies similarly expect teachers to share learning objectives at the beginning of the lesson".

As illustrated by the extract above about the UK primary education system, the teachers in the UK are likely to be more used or accustomed to the notion and practice of having specific and precise learning objectives as part of their lesson planning and conduct of classroom teaching and learning. Similarly, it can be argued that the published curriculum achievement levels or success criteria act as exemplars or models for teachers to emulate in formulating precise lesson objectives. Therefore, it is easier for them to take up the formative strategy of establishing and sharing the specific and precise learning intentions with their learners as part of their assessment practices for teaching and learning purposes. This is because having clearer lesson objectives is ideally part of their teaching practice. Indeed, because the

specific and precise learning objectives, essentially, involve or emanate from a relatively thorough analysis of the lesson before teaching, and because their lesson evaluation requires reflecting on learners' achievement in terms of success criteria in respect to the stated learning objectives (e.g. the OFSTED requirement in England), it can also be argued that teachers in countries like the UK, US and others with similar education systems, are accustomed to the practice of being reflective in their interpretation of assessment results.

In contrast, although primary teachers in Tanzania are required to plan their lessons by stating general and specific objectives, there is no provision or guideline that requires them to ensure that their learners know the lesson objectives and the corresponding success criteria or achievement levels. Consequently, they do not evaluate their lessons and learners' understanding in respect to particular success criteria (or achievement levels). Rather they are required to state whether or not the planned objectives have been achieved. Additionally, the school inspectorate in Tanzania, unlike similar organs in the developed countries e.g., the OFSTED in the UK, does not require or involve checking pupils' knowledge (awareness) of the learning intentions (objectives per topics) nor to check to confirm whether or not the pupils know, for instance, the purpose of particular lessons across topics. Therefore, while adapting the formative strategy of establishing and sharing with their learners the precise learning intentions could yield positive outcomes in their teaching it would also be challenging in terms of taking up new views and adapting the new practices. Moreover, introducing to teachers the idea of establishing precise learning intentions and wanting them to communicate the objectives to their pupils as part of the assessment practices might be viewed as additional work to the existing large teaching load they endure, as pointed out in the background chapter.

2.5.2 Implication of questioning for engineering effective classroom discussions

As pointed out in Sub-section 2.4.2 questioning as a strategy for formative assessment, the essence of a question (oral or in written form) is to elicit learners' thinking and promote the learning of the lesson aspects in hand. Viewing questioning in this perspective it implies that the corresponding response which the learner gives is an outcome of the learner's own interpretation and thought about the question. This view of the question and the corresponding responses clashes with the traditional view in Tanzania, and practice of judging learners' responses as correct or incorrect. At any rate, the use of questioning for formative assessment in the sense of providing evidence about what learners already know and what they need to improve imposes particular demands on the teachers. For example, apparently, during discussion of assessment work, the teacher has to be an active listener and interpreter of the pupils' response in respect of the questions they ask, or are asked by peer pupils. Similarly, it can be argued that in regard to written questions which teachers provide for pupils' assessment work. Additionally, the teacher has to actively interpret the responses in pupils' work in terms of what they represent about learners' thinking or understanding, rather than mainly judge the responses as correct or incorrect. This in turn requires a shift from the traditional practice of merely judging the learners' responses as correct, near-correct or outright incorrect. In terms of the construction of questions, teachers have to develop corresponding attributes in terms of conception and ability to formulate or ask questions which stimulates the pupils' thinking in the direction of the demands of the lesson aspects to be learnt.

Reflecting on the Tanzanian primary school's context, the above demands for adapting the questioning strategy for formative assessment can yield positive outcomes and impose challenges on teachers in adapting it for their classroom teaching and learning because of the existing classroom climate. For example, in Tanzania classroom teaching is traditionally characterised by

use of more closed (ended) questions which involve seeking more factual information rather than about learners' understanding. In addition, unlike in Western culture where the culture is one in which learners are expected to challenge views of their peers, or that of their teachers, in Tanzania that culture is not well established.

Therefore, adapting questioning as a strategy for formative assessment for Tanzania's primary school teachers will have four main implications. First, teachers will have to develop certain attributes relating to developing or asking questions that stimulate the pupils' thinking and minimise factors that may obstruct children's thinking. Secondly, the teachers have to develop relevant views and skills of discerning information from questions and responses asked and provided by pupils. For example, teachers will need to develop skills for interpreting the messages from the various pupils' responses and then come up with ideas to clarify or re-teach. Thirdly, because in Tanzanian primary school classroom context the attitude is that of judging both verbal or written responses to questions as correct or incorrect prevails, teachers will need to develop a new attitude in learners to enable them interpret and understand the reasons for their own and others' responses rather than simply judging responses as right or wrong, in order to create a classroom climate that enables insightful discussions of assessment work. Consequently, in holding classroom discussion including that of assessment work, the teachers must be prepared to try to find out the basis of the pupils' understanding on which the response is given, rather than simply saying it is right or wrong. Fourthly, using questioning as a formative strategy there is potential for pupils to learn through challenging what their peers say or by sometimes what the teacher says, with the teacher then adding information or clarifying. Yet, for the teachers adopting such a formative strategy might be problematic because the tradition (and art) of explaining further without openly contradicting or without appearing to judge the pupils responses is not well established in Tanzanian primary classrooms. Also teachers' readiness to receive pupils' views which openly contradicts

with their own views might be difficult to accommodate, and because the practice of pupils to challenge their teachers' views is not well-established in the primary classrooms, pupils may lack the readiness to critique their teachers' point of views.

2.5.3 Implications of providing feedback to move the learning forward

Research has established that in the context of formative assessment, feedback becomes effective in supporting children to learn what they are unable to learn when the information contained in the teacher's comments inform the children about two aspects, namely, what they have achieved success (or mastery) and what aspects of the lesson objectives (learning intentions) they need to improve (Sadler, 1989; Clarke, 2003; Wiliam, 2011). Providing feedback with such characteristics implies that the teacher has to know specifically and precisely the bits of the lesson which are embedded in the questions but also as argued above the teacher has to actively interpret the pupils' responses in assessment work and formulate and provide comments that pinpoint clearly what the children have been able to do and what they need to do in order to understand what they have been unable to understand as implied from their responses in the assessment work. This also has implications in terms of posing demands for teachers in terms of effort, time and knowledge of both subject content and pedagogy in a sense of how pupils learn particular subject content. Thus, it can be argued that adopting formative feedback based on interpretation of the pupils' responses will be more challenging in contexts where teachers usually possess only average knowledge of subject content, let alone teaching large classes as is the case for Tanzania. However, one can still argue that, primary school teachers in such contexts can adapt some of the formative feedbacks by providing written feedback that pinpoints the exact aspects of the lesson which the pupil seem to master and where they need to improve by foregoing other marking practices to save and optimise time and energy. Yet, the ultimate decision to substitute the practice of giving praise (affective)

comments and grades with the practice of interpreting pupils' responses and giving written comments which pinpoints what pupils have achieved and what to improve may be influenced by the existing views about assessment or marking in respect to supporting learning. For example, as pointed out in chapter one, in the Tanzania education system in general, assessment is considered as measurement of the teacher teaching and learner learning.

2.5.4 Implications of peer assessment for activating learners as instructional resources for one another

Apparently, the discussion and illustrations provided in Section 2.4.4 for peer assessment seem to suggest that adopting the associated techniques for discussing pupils' work can help the teaching and learning by enhancing the interaction between learners, elicit thoughts of individual learners about their work by receiving and reflecting on comments from other children rather than relying on teachers only. Adapting the techniques for peer assessment strategy for primary school teachers in Tanzania may have implications in terms of imposing particular demands to teachers and pupils at the classroom level and at the level of the overall education system or society. At the classroom level there are two main implications. First, given the predominant practice of judging responses as correct or incorrect in Tanzania adapting peer assessment techniques in the spirit of formative assessment requires teachers to establish particular classroom ethos in which learners will feel free to share their work with peers, receive and positively interpret challenges from their peers about their own work, and be willing to provide constructive challenges or explanations upon their peers' responses. Secondly, for such discussion to be possible teachers will need to inculcate in pupils the attitude and skill of listening and interpreting their peers' responses in terms of their learning, and underlying reasoning, recognising that they can learn from each other's strengths.

At the systemic level, the first potential challenge for adopting the various techniques associated with peer assessment strategy for Tanzania primary

teachers emanates from the fact that they are likely to consider the idea as one that contradicts the dominant view that marking is the prerogative of the teachers. For example, it can be argued that, the teachers are likely to find the idea of peer assessment at odds not only with their own view but also with the expectations of the education system including the parents, school inspectors or even their pupils, in Tanzania education system, overall, written assessment is generally interpreted (equated) to examinations or tests with examination conditions. Incidentally, this summative view of assessment is deeply ingrained in Tanzanian schools and the society at large. Thus, the idea of teachers adopting the peer assessment techniques that involve letting pupils see and discuss each other's work or the teacher providing rubrics to pupils to grade their own or peers' work might be interpreted by the teachers themselves or by the parents and school inspectors as an abdication of responsibility. The second potential systemic challenge is related to the dominant view about the ultimate goal of assessment work for pupils as being to sort out, rank and grade the pupils rather than to provide information for discovering what they seem able and unable to learn, and for adjusting the teaching accordingly. Indeed, it can be argued further that, the inherent competition culture in children associated with this summative way of looking at written assessment work and interpreting the results, may be an obstacle to the pupils' readiness or willingness to share, seek or provide help to peers.

2.5.5 Implications for self-assessment for activating learners as owners of their own learning

The techniques associated with peer assessment and giving feedback envisage the use of discussion of assessment work for purposes of enhancing the learners' engagement in learning of the lesson aspects and enhancing productive interaction and discussion for learning among learners. The techniques of self-assessment espouse stimulating learners to engage in reflecting about their own learning with reference to the lesson objectives. However, the existing views about the pupils' ability as implied by

achievement in assessment work by teachers on the one hand, and by the children themselves on the other hand, are crucial in determining the effectiveness of the techniques for self-assessment in facilitating learning. Teachers taking up the strategy of self-assessment and the associated techniques require a favourable or supportive cultural context. The dominant view of pupil ability in Tanzania is that academic ability is innate and largely fixed rather than an outcome of effort and an attribute that can evolve or grow incrementally depending on the effort.

Moreover, Wiliam's (2011) observation that requiring children to reflect upon their own achievement is likely to be emotionally stressful is particularly relevant in Tanzanian context in which assessment outcomes are mainly interpreted with pass or fail basis. At the classroom level, on the one hand, the teachers view pupils' responses as mainly correct or incorrect. On the other hand, the pupils are accustomed with a pass-failure view of assessment results. Thus, supporting teachers to encourage self-assessment in a context like this is likely to be challenging because of the dissonance between the teachers' existing views about assessment and the underlying ideas espoused in the techniques for self-assessment for supporting pupils learning. For example, the existing literature informs that adopting and implementing self-assessment in line with formative view of assessment can be problematic and challenging particularly when used alongside the traditional grading practices (Shepard, 2000; Gipps, 2002; Stiggins et al., 2006).

2.6 Summary of the formative assessment strategies

As explained in Section 2.4 it is clearly shown that strategies and the associated techniques of formative assessment can facilitate learning in a number of ways. However, essentially, they facilitate learners' learning by enhancing their engagement through eliciting learners' thinking about the lesson aspects through self-reflection and reasoning during discussion of assessment work with other learners or the teacher. As it has been explained

in Section 2.5 taking up the ideas underlying the strategies and associated techniques for formative assessment is potentially a challenging task for teachers, depending on their existing views of assessment on the one hand and learning or teaching on the other hand. As pointed out in the Background Chapter, in the Tanzania context teaching is still based on the traditional behaviourist approach and assessment is largely summative in terms of views and practices.

The ideas and the associated strategies and the techniques for using assessment in formative ways for teaching and learning purposes have largely been developed and practiced in the very different cultural contexts of e.g.: the UK and US. Therefore, the idea of formative assessment and its associated strategies or techniques need to be adapted to if they are to provide benefits for teaching and learning purposes in a different context like that of the Tanzania primary schools. This adaptation process needs to take into account the particular challenges that are unique to the Tanzania schools. In particular the intervention needed to consider how best to appropriately support the process- again using and adapting ideas from different contexts. In the next section (2.7) I provide the review of the literature on criticisms about its inception, content of South African curriculum (C2005) within competency/outcome-based framework from the Western world context to Developing world context that take place without critical consideration of the underlying principles, manifest practices in respect to contextual realities of recipient countries.

2.7 Review of literature of South African curriculum 2005

Soon after the election in 1994 South Africa embarked on review and revision of its curriculum (Jansen, 1998; Chisholm et al., 2000). The review and revision entailed radical and broad changes of the curriculum including its policy and administrative structures, the philosophy, curriculum contents, pedagogy and assessment system (Jansen, 2001; Chisholm, 2004; Mouton et

al., 2012). Specifically, the 1994 post-election review and revision of the curriculum involved series of three reforms which included: removing the contents of the syllabi that were considered offensive, racist and outdated; introducing formative and continuous assessment into schools in the attempt to integrate education and training and; the post-apartheid National Department of Education (DoE) launched Curriculum 2005 (C2005) based on the principles of outcome-based education (OBE) in 1997 (Jansen, 1998; Taylor and Vinjevold, 1999; Wilmot, 2003; Spreen and Vally, 2010; Kanjee and Sayed, 2013).

The literature on criticisms of South African C2005 focuses on a range of aspects. However, for the purpose of establishing lessons to support the rationale and approach for the present intervention study in Tanzania, the review of C2005 will focus on criticisms related to the notion of borrowing curriculum policy (Section 2.7.1); philosophical assumptions that informed the C2005 (Section 2.7.2); discrepancy in the pedagogical and assessment requirements and associated demands to teachers (Section 2.7.3); teacher involvement in the change process and support for implementation (Section 2.7.4); and contextual realities which include qualification and prior experience of teachers, material and cultural characteristics of classroom, schools and society aspects that characterise the South African public realm (Section 2.7.5); teacher perception about C2005 and the support process (Section 2.7.6).The review ends with a commentary about the criticism related to C2005 in South Africa on how it constitutes a case to support rationale for the collaborative approach that was adopted in carrying out the present intervention study in Tanzania (Section 2.7.7).

2.7.1 Criticisms based on borrowing approach of curriculum policy

In the international arena and literature about curriculum reforms, the adoption of C2005 under OBE principles into South African education is another typical example of a response to globalisation and borrowing policy

approach of developing countries of curriculum developed and practiced in developed world (Christie, 1997).The C2005 within the framework of OBE originates in the competency education model that was developed and practiced in Australia, New Zealand, Canada, UK and some states in the US (Christie, 1997; Jansen, 1998; Cross et al., 2002; Taruvinga and Cross, 2012). The view and justification for South Africa to review its education and curriculum by adopting education ideas and principles from other parts of world was included in its White Paper on Education and Training for South Africa. DoE (1995, p.28) argued that:

> "South Africa is able to gain from world-wide experience over several decades in the development of innovative methods of education, including the use of guided self-study, and the appropriate use of a variety of media, which give practical expression to open learning principles".

The extract above apparently seems to suggest two aspects in regard to rationale for curriculum change through policy borrowing approach which South Africa took. Firstly, that South Africa as part of the world society (global village) could reform its education and curriculum by incorporating particular ideas that have been tried and practiced for a reasonable period of time in other parts of the world and build on the experience or lessons of practice thereof. Secondly, the extract seems to imply that, the ideas and practices to be adopted were better compared to existing ones. The second aspect relates to the point of how adoption through policy borrowing was carried out for C2005. Christie informs that the adoption of C2005 involved both re-articulating of old concepts and introducing new ones (1997, p. 56). The other literature Killen (2006) and Mouton et al. (2012) further inform that, the adoption of the C2005 entailed abandoning entirely existing practices and replacing them with principles and practices associated with OBE some of which have failed even in some of the developed countries.

2.7.2 Criticisms based on philosophical assumptions

Looking at literature and South African policy statements, it suffice to say that, the philosophical assumptions that informed the inception of C2005 were complex in a sense that it consisted broad of conceptual aspects about the nature and ways in which teaching and assessment would be carried out to support school learners at implementation level in classrooms. Nair (2003) communicates that the inception of C2005 was based on competency based and masterly learning approaches. These two approaches have different central foci about teaching, learning and assessment. Further, the author argues that, on the one hand, the essence of competency-based learning is to equip learners with knowledge and skills for fulfilling various roles in their lives after completing studies. On the other hand, the notion of mastery learning focuses on enhancing the quality of teacher's teaching, the quality of understanding of the learners by maximising the time for teaching and learning particular lesson contents. Christie (1997) informs that at the beginning of the formulation of C2005 for South Africa, competency was broadly conceived as ability of the learners to apply skills to performing tasks, include conceptual understanding of the task, and transfer the skills and understanding to other contexts. Notably, in the policy statements these broad conceptions in which C2005 was formulated were broadly stated in ways that would not be easy or possible for classroom teacher to read and understand, and translate them into practices. Subsequently, grounding of the C2005 on OBE principles was also built around the broad notion of learners' outcome[2] as the key determinant of education quality (DoE, 1995).

Additionally, three design features characterised the C2005 at the time of its formulation. They included (i) it was outcomes-based (ii) integration of

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[2] Outcomes refer to end product of a learning process. In outcome-based education, learners work towards agreed, desired outcomes within a particular context. These state clearly what the learners should be able to demonstrate. Outcomes are of two types: critical and specific outcomes. Critical outcomes are broad, generic, cross curricular outcomes. Specific outcomes refer to what learners are capable of knowing and doing at the of a learning experience. A learner's skill, knowledge, attitude or values may demonstrate the achievement of an outcome or a set of outcomes

education and training (iii) it espoused a learner-centred pedagogy (Mouton et al., 2012; Cross, et al., 2002). DoE (1995, p.15) notes:

> "An integrated approach implies a view of learning which rejects a rigid division between "academic" and "applied", "theory" and "practice", "knowledge" and "skills", "head" and "hand"

Looking at the three design features, it is clear that consultation and discussions needed to focus on articulating the conceptual aspects in each of the defining features. Mainly with the intention to come out and produce coherent conceptual framework from which operational definitions and guidelines would be drawn with reference to their relevancy and feasibility to South African contextual aspects, say, in terms of teachers' qualification, workload and cultural aspects in classrooms, schools and society at large. However, critics argue that this was not the case. Rensburg (2001) contends that curriculum conversations tended to focus on curriculum implementation, and largely excluded discussion of theoretical underpinnings of curriculum change. Christie (1997) informs that, overall, the 1995 South African White Paper on education and training obstructed debates of all issues that appeared complex and potentially contesting let alone displacing them to a promised commission, working group or investigation.

The lack of focus on conceptual aspects can explain the observation that some of the South African training material contained aspects that reflected the behavioural pedagogical aspects which the learner centred part of C2005 envisaged redressing (Mayer Committee, 1992; Christie, 1997; Christie, 2006). It can be argued further that the lack of thorough articulation of theoretical concepts, which underpinned C2005, in teacher support documents, both in quantity and quality terms, did not facilitate teachers to understand and develop the hoped-for classroom practices. Critics note that the documents for teacher use were many more than necessary, the language and contents were complex and apparently ambiguous for teachers to internalise (Jansen, 1998; Christie, 2006). In particular Jansen (1998, p.323) notes:

"A teacher attempting to make sense of OBE will not only have to come to terms with more than 50 different concepts and labels but also keep track of the changes in meaning and priorities afforded to these different labels over time…the language of OBE and its associated structures are simply too complex and inaccessible for most teachers to give these policies meaning through their classroom practices".

Pedagogically, lack of clarity also evolved in terms of the roles of the teacher and that of learners in classroom context. According to the learner centered approach which was espoused in C2005, the teachers were expected and required to shift from the role of explicit teaching to facilitation; they had to use exploratory and collaborative approaches in carrying out classroom activities (Chisholm et al., 2000). Nevertheless, the big number of learning objectives undermined the expectation of teachers enacting collaborative approaches to classroom learning let alone the fact that the emphasis on outcomes and items of knowledge reinforced didactic teaching and constrained the range of responses which learners could give when taking part in classroom activities (Spreen and Vally, 2010). Consequently, the lack of articulation of conceptual aspects rendered other critics to conclude that, the changes at classroom level partly reflected changing labels rather than actual roles of the teachers and learners.

2.7.3 Discrepancy in pedagogy and assessment of C2005

The C2005 in South Africa also presents an example in which the formulation of pedagogical aspects was not considered along with the corresponding assessment requirements. There was a lack of parallel consideration and timing of the discussions, formulations and implementation of pedagogical aspects and assessment of C2005. For example, no assessment policy was developed alongside the revision of the National Curriculum statements, thus, during the release and implementation of the Revised National Curriculum Statements (RNCSs) in 2004, as DoE (2009) informs, the teachers were just asked to continue using the old assessment policy for the 'new

curriculum', C2005. Yet, incremental changes that were made later on assessment policy inadvertently created a range of misunderstanding in respect of actual assessment practices teachers were expected to develop and enact.

In particular, three issues featured in regard to inconsistency between assessment in South African education system and learner-centred pedagogical requirements that were espoused in the C2005. Firstly, in South Africa results in public examination and international assessments are the main performance indicators of schools, and schools with the highest numbers of passes are reported in the public media (Umalusi, 2009; Umalusi, 2010). Consequently, teaching for examination may deny learners the opportunity to access the breadth of knowledge espoused in the C2005 (Botha, 2002). Secondly, it is likely to influence their examination preparation and effort but also their learning strategies and relationship among peers in classrooms or schools. For example, craving to prepare and pass public examinations in turn could inhibit a culture of collaboration amongst learners that is supportive to experiential and cooperative learning to evolve in classrooms and schools in general. Third, due to the backwash effect of Continuous Assessment (CASS) and examination system, teachers took outcomes to be the ends of education which in turn became the focus of their classroom teaching and assessment. Jansen (1998) accounts that the little time spent on less engaging discussions in the Learning Area Committees in South Africa about the reorganisation of the assessment system meant that the traditional examinations would substantially continue influencing the nature of OBE-directed teaching and learning, reinforcing the curriculum status quo.

2.7.4 Criticisms based on teacher involvement and support

In regard to teacher involvement and support for adoption of C2005, there was a lack of representatives from formal schooling sector and teachers in

particular in the consultation processes that lead to the initial formulation of the C2005. According to Rensburg (2001) on the whole, the formulation of C2005 followed the traditional top-down approach characterised by limited teachers' participation in the conceptualization and design of the curriculum. Jansen (1998) informs that only a small number of elite teachers took part in the Learning Area Committees, and other structures in which OBE evolved. Thus, a significant majority of the teachers basically neither lacked access to information on OBE nor understood the OBE requirements. This was partly the case because there were no continued consultations between teachers and educators particularly curriculum formulators nor a mechanism that was in place for dialogue among teachers as well as with curriculum formulators (Chisholm, et al., 2000).Thus, at systemic level, teacher involvement in regard to initiation and formulations that led to changes related to C2005 emulated the traditional approaches of top-down in which the teachers were less involved and mainly played the role of implementers (Christie, 1997; Jansen, 1998).

The consultative process involved a range representative of the state, unions, capital, political and community groups and the interest groups from the schooling sector in particular did not focus on pedagogical and assessment aspects in respect of school and classroom realities; rather, they were concerned with matters mainly related with access, school ownership and governance (Christie, 1997; Chisholm et al., 2000). Arguably, the actual absence of representatives of teachers in the consultative process had two implications in regard to pedagogy and assessment of C2005. First, conceptual aspects and their connection related to pedagogy and assessment did not constitute the main part of the agenda during formulation of the C2005. Second, deliberations about pedagogical and assessment aspects of C2005 such as integration of education and training lacked contribution from the teachers as the actual and ultimate implementers at school and classroom levels.

Besides the lack of consultation and involvement of teachers in the formulation of C2005, subsequently, there was no systematic and on-going platform through which teachers could obtain opportunity to conceptualize and make sense of OBE as embedded in the C2005. While the majority of teachers had some access to information on OBE and understanding of OBE, the official support was uneven, fragmented and, for many teachers, simply non-existent (Jansen, 1998; Spreen and Vally, 2010). Jansen (1998) adds that, despite the calls of the teachers for more time and training to understand OBE and the associated terms, implementation commenced in absence of sustained intervention to support teachers at classroom level.

The training approaches for supporting teachers to adopt C2005 were general. The DoE (2009) observed that the training that was associated with the RNCSs was general and superficial in two senses. First, it did not specify novelty of the RNCSs for teachers to take. Second, it did not provide subject specific support to teachers. Furthermore, the training sessions were conducted in ways that did not reflect or emulate a learner-centered approach. Spreen and Vally (2010) report that follow up studies about training for supporting teachers to understand and implement C2005 showed that, the training sessions did not involve activities that would engage teachers in reflections but rather modelled and were dominated by choral recitation between facilitator and teacher participants. Further, the training sessions and activities did not involve providing teachers with opportunities to engage to learn and develop meaningful understanding. Thus, it is arguable that, the process of training teachers did not mirror the teaching approaches nor provide examples, upon which they could reflect, develop and practice the very teaching and learning strategies they were expected to enact in classrooms.

Further the lack of a culture of collegiality and collaboration among teachers is generally not part of South African teacher population, which implied that continued discussion and insightful learning about the antecedents and what

C2005 asked of the teachers was apparently missing (Spreen, 2001, Vally and Spreen 2006; Vally and Spreen, 2009). Additionally, teachers found that teacher trainers lacked focus on skills and aspects that they needed support to understanding, and develop and try out in real classroom contexts (DoE, 2009).

2.7.5 Criticisms based on contextual realities

South African context was different in many ways from that of developed countries in which OBE was developed and practiced. For example, developed countries such as Australia, UK and US have favourable teacher-learner ratios, a high degree of professional education and qualified teachers, well-resourced classrooms and critical-thinking teachers (MacDonald, 1990). Follow up studies about the implementation of C2005 in schools show that teachers in schools encountered different material and structural barriers to carry out classroom teaching activities in line with learner- centred pedagogical aspects. The common noticeable barriers include class size due to shortage of teachers and insufficient classrooms; lack of teaching and learning materials; and lack of parental involvement (Nelson Mandela Foundation, 2005; Kunene, 2009). Additionally, the pedagogy and assessment associated with C2005 demanded teachers to use more time and energy in the preparation of lessons and a lot of paperwork. These in turn increased workload of the teachers and consequently added more work load to the already overburdened teachers (Chisholm et al., 2005; DoE, 2009). Following release of NCSs, DoE (2009, pp. 25-26) puts:

> "Teachers are required to engage in three levels of planning, constructing, a learning programme; work schedule; and lesson plan. Alongside this, teachers are required to have, a related school assessment plan; a teacher assessment plan; a teacher portfolio; CASS marks and mark schedules; and learner portfolios".

Clearly, the number of forms and details that teachers were required to prepare and complete implied that, the teachers had to spend more time and energy that could be spent on actual classroom teaching. In response to the

recognition of the burden on teachers the post-2005 revisions focused on reducing part of the administrative tasks (e.g. reducing the number of assessment reports and learner portfolios to one). OBE in South Africa was understood as technology in the sense that the jargon, complexity and design features of the C2005 could only be understood by 'experts' and not ordinary classroom teachers (Jansen and Christie, 1999: Chisholm et al., 2003; Gower, 2009). Teachers particularly in rural schools still carried out classroom teaching in ways which reflected authoritarian teacher-centeredness and which did not enhance autonomy or 'critical thinking' among learners just as prior to adoption of C2005 (Nelson Mandela Foundation, 2005). This suggests that teachers did not alter their relationship and role in line with learner-centred teaching approach. The reason for the lack of change could be attributed to how teachers and the South African society in rural schools interpreted the requirements related to the relationship and role of the teacher and learners in contrast to their existing values and norms, and expectations about teacher-pupil relationship in classroom contexts. This aspect is dealt detail in the next section on teacher perceptions.

2.7.6 Teacher perception about C2005 and the support process

What teachers believe (their conceptions) makes a difference to the pedagogical strategies they might use in their classrooms (Fives and Buehl, 2012; Thompson, 1992). This is also the case for aspects related to assessment techniques and practices (Cizek et al., 1995; Kahn, 2000). The social relations that were associated with learner-centred approach were interpreted as imposing too many human rights to children in schools and classrooms which undermined the authority of teachers. Teachers felt that their authority over school children was undermined with consequential growth of misbehaviours (DoE, 2009, p. 26). Teachers were expected and asked not to depend on a single textbook, but rather asked to consult a range of textbooks to produce their own learning materials. This role of teachers as producers was interpreted by teachers as being asked to do roles

and responsibilities which they lacked expertise in and perceived not to be part of their job. Besides, it was also seen as adding more work, depriving them of their time for actual classroom teaching, and marking of learners' assessment work (DoE, 2009).

2.7.7 Commentary on the criticisms of South Africa's C2005

What I take from the South African experience is the need to involve teachers in articulating the new conceptions so that they gain a full understanding of what is expected of them but in terms which they understand and can work with. I therefore decided to opt for a collaborative approach in carrying the present intervention study. The next section explains the conceptual framework that was espoused in carrying the intervention in Tanzania.

2.8 Conceptual framework of the study

A Conceptual framework can be defined as a grid of interconnected concepts that can provide a comprehensive understanding of a phenomenon (Jabareen, 2009). In this section I will explain the main concepts that I adopted in developing the content and approach for implementing the intervention study which aimed at supporting primary teachers in Tanzania to develop more formative assessment practices for teaching and learning purposes. I will explain each concept and where possible explain how a particular concept has been adopted for previous studies in areas of assessment and teacher change. Also, I will highlight the extent to which the Tanzanian context represented a pragmatic rationale for adopting particular concepts.

2.8.1 The notion of learning progression

The idea of learning progressions reflects regularity in the development of learners as they learn a certain and defined piece of subject contents or body of knowledge which the teacher or any other designated authority expects them to develop an understanding about it (Heritage at al., 2009; Wilson,

2009; Bennett, 2011). In respect to the notion of learning progressions, the learners' understanding of the lesson or any piece of subject contents is conceptualised as a range of competence from learner to proficient levels of understanding in which ordered and qualitative levels of sophisticated understanding can be gauged (Wilson, 2005; Wilson and Black, 2007; Bennett, 2011). With regard to assessment for teaching and learning purposes, the learning progressions provide a yardstick for gauging quality of pupils' work and interpreting their levels of understanding (Steedle and Shavelson, 2009). At classroom level, the learning progressions constitute ways in which ideas of learners develop in a particular lesson or domain and pedagogically can serve as tools for supporting teachers to develop formative assessment practices (Wilson and Black, 2007). In practice, learning progressions have been used as a basis for curriculum and assessment design (Corcoran et al., 2009; Wilson, 2009; Furtak, 2012). In recent years, the notion of learning progression has been adopted for various purposes, such as frameworks for assessment development, guides for curriculum design, and scaffolds for teaching practices (Corcoran et al., 2009; Alonzo et al., 2012; Furtak, 2012). The ideas represented in learning progressions can help teachers to identify and make inferences about evidence collected of student thinking, the necessary antecedents to changing teaching to help students to improve their learning (Furtak, 2012).

Critics of using the notion of learning progression include Shavelson and Kurpius (2012) who warns that learning progressions, by their very nature, suggest orderly and perhaps linear processes of learning. On the other hand, other critics argue that learning progressions are unable to capture multiple trajectories or pathways for learning (National Research Council, 2012). In a similar vein, Corcoran et al. (2009) assert that there is not yet substantive evidence for making firm claims that learning progressions improve teaching and learning and that attempts to develop and use their potentiality poses some challenges.

Corcoran et al. (2009) argued that learning progressions can provide a basis for developing system of instructional approaches that can specify ways of responding pedagogically to both improvements and problems that individual learners or groups of learner's experience in learning. The National Research Council (2012) in the US adds that because learning progressions can cover across different levels of learning across years or grade levels, thus, they can help teachers to consider how topics are presented at each grade level so that they build on prior understanding and can support increasingly sophisticated learning.   On the basis of the view that learning progressions represent ways learner ideas develop in a conceptual domain, it can be argued that the notion of learning progressions is ideally suitable for supporting teachers to conduct assessment in more formative ways for teaching and learning purposes. When teachers internalise and adopt the idea of learning progressions for planning their lessons, they will become more able to identify the ideas which learners are likely to have in common and obtain a picture of the complexity of pupils' reasoning or thinking on a particular lesson aspect.

Given the preceding demands of formative assessment (Section 2.5), one can conclude that, in order to conduct it effectively, the teacher must have deep knowledge not only of the content, but also of the common learners' ideas about the content. Similarly, van Es and Sherin (2008) point out that in-depth content knowledge is the foundation of noticing ideas of the learners. It is established that formative assessment is a complex, sophisticated and skilled task dependent on teachers' content knowledge (Sadler, 1998; Cowie and Bell, 1999). Thus, it can be argued that learning progressions constitute a mental picture of a set of ideas in a particular lesson or subject content (e.g., in mathematics addition by carrying). In the present study the concept of learning progression was adopted to provide the teachers with a mental map for organising subject contents for implementing the elements of the intervention that were related to

construction and interpretation of assessment work for teaching and learning purposes.

Looking at both number ranges in mathematics across seven years of primary education (grade 1 to grade 7) and content on the topic of environment for Geography subject (MoEVT, 2005; MoEVT, 2006b) it shows that a developmental perspective of learning progression is espoused in the curriculum design. Given this precedence, one might expect to find that Tanzanian primary teachers have a sense of interpreting and organising lessons and exercises for assessment within particular sets of coherent ideas as implied in the way the curriculum and subject syllabuses are structured. I therefore adopted the notion of learning progression as a coherent set of key concepts and skills that can constitute a framework for deciding on the content of the lesson and questions for assessment exercises, as well as for interpreting the reasoning behind pupils' written responses in order to provide the basis for discussion among intervention teachers (Smith et al., 2006).

In a similar vein, Bredeson (2003) observes that learning opportunities that engage teachers' creative and reflective activities have the greatest potential to influence their practice. Access to real learners and real experiences of teaching is essential. Experience of some kind is a necessary component for teacher learning in a sense of conceiving assessment from different view point. This entails a change in belief-thinking (cognition) and the practice about assessment. Teacher classroom practices partly depend on the beliefs that they have developed on the basis of their prior experiences as persons, learners or teachers. That is teacher experiential knowledge as learners and teachers influence ways in which they conduct classroom teaching (Malderez and Wedell, 2007). Additionally, the authors argue that, intervention that hope to lead to change needs to start from where the teachers are, and provide opportunities to reflect on their existing beliefs and the extent to which what is new is consistent or inconsistent with their existing

understanding and practices. The support process needs to provide teachers with opportunities that enable them to learn in integrated, relevant, personally meaningful ways (Malderez and Wedell, 2007), that shows the relevance between what the intervention offers and their own experiences (Hobson et al., 2008). In order to start from teachers existing beliefs, it is necessary to get out before you put in (Wedell, 2009). In terms of supporting teachers to adopt new practices, the support process needed to use strategies that could enable them to articulate their own thoughts before telling them what I wanted them to do. Such articulation is not something that most teachers are used to and hence the atmosphere in which the intervention took place was also important.

2.8.2 Collaboration for teacher learning

In the literature there is an increasing awareness of the potentially strong role that teacher collaboration can contribute to teacher learning for purposes of adopting new practices (Westheimer, 2008; Levine and Marcus, 2010). Familiarity with the existing practice and context and high-quality team meetings can be a powerful context for teacher learning (Doppenberg et al., 2012). Little (2002) observes that existing research establishes that conditions for improving teaching and learning are strengthened when teachers collectively question ineffective teaching routines, examine new conceptions of teaching and learning, find generative means of acknowledging and responding to difference and conflict, and engage actively in supporting professional growth.

Apart from collaboration offering opportunities for the teachers to thoughtfully participate and engage in reflective activities about their existing views or practices, the affective aspects of teachers also matter for the collaboration to effectively facilitate teacher learning or adopting the expected changes. In addition, four aspects of human needs are important for mutual support to characterise a collaboration context for teacher support (Malderez and Wedell, 2007). They include (1) an accepting and non-

judgemental attitude (2) the building of trust and positive relationship (3) everyone in the group (or both in a pair) knowing about and understanding each other's perspective and experiences (4) acceptance that everyone has a perspective to offer. Nevertheless, the past or prevailing cultural upbringing in homes and schools and society in general provides the teacher facilitators with learning experiences that may provide inadequate examples of how to provide mutual, free and psychologically safe environment for collaboration (Malderez and Wedell, 2007). Respectively, in Tanzania like other African countries in which norm reference assessment practices are prevalent, and also where craving for certificates is high, it is therefore likely for the collaboration process for teacher learning to be impeded by competition rather than cooperation among participating teachers (Dore, 1976; 1997).

Apart from the personal experiences of both teacher facilitators and the teachers, the task to establish the mutual, free and psychologically safe environment for collaboration are likely to be more challenging when collaboration is for supporting teacher learning for assessment changes. Campione (1996) argues that assessment change is the thorny part of the teaching job. In similar vein Broadfoot (1990, p.647) summarises:

> "When the word assessment is mentioned, most people in education conjure up thoughts of examinations, tests, and marks; of selection and rejection; the pleasure of success and pain of failure. For pupils is the arbiter; the hurdle that must be jumped; the judgement that must be endured if future rewards are desired. For teachers assessment is the key to control and motivation".

The existing view and tendency to equivalently consider assessment as examination are still prevalent in Tanzania in particular and Africa in general as summarised in the Broadfoot's assertion above. Indeed, as it was pointed out in Chapter One almost all the discussions about assessment in the media, public and academic, focus on and reflect examinations. This existing cultural view about assessment which merit to be considered not only opting for a more collaboration in supporting teacher learning for adopting formative assessment practices for teaching and learning. The atmospheres

of the intervention matter because the teachers are rarely have the chance of working together. Consequently, they are not accustomed to being asked or subjected to articulate their beliefs about assessment and their teaching practices in general (Wedell, 2009).

Teachers need help in learning to use assessment in new ways of teaching and learning in a curriculum that espouses a constructivist view of learning (Shepard, 2000). In particular, given that new ideas about the role of assessment are likely to be at odds with prevailing beliefs, teachers will need support to reflect on their own beliefs and those of others (learners, parents and policy makers). In Chapter Four, I provide an account of the process that I undertook in supporting a group of ten primary teachers to take up the idea of formative assessment and develop corresponding views and practices for supporting their classroom teaching and learning.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

As explained in the conceptual framework (Section 2.8), this study uses a collaborative approach in designing and implementing the intervention for the adoption of formative assessment in the Tanzanian primary school context, the details of which are presented in Chapter Four. This methodology chapter presents the aim of the study, research questions, research paradigm and approach. It also gives an account of the study participants, methods and procedures that were used to collect and analyse the data for pre- and post-intervention findings. The chapter concludes by explaining the research's trustworthiness and ethical considerations.

3.2 Study aim and research questions

The aim of the intervention was to explore what happens when teachers try to use the existing assessment exercises formatively, focusing on aspects related to construction, administration, marking and using the assessment results for teaching and learning purposes in Tanzanian primary classrooms. In order to design contents of the intervention, and to develop an approach for supporting teachers to take part in and implement the intervention, it was necessary to:

- Carry out a content analysis of the official Tanzanian education documents
- Review literature on formative assessment and teacher change
- Carry out a pilot study which involved discussing the initial draft of intervention content with a group of teachers
- Conduct pre-intervention activities before introducing teachers to the intervention contents for discussion, and subsequently taking part in the implementation

There were three initial broad research questions, namely:

1. Do teachers' perceptions of the construction, administration, marking and use of testing results through exercises reflect formative use?

2. Do teachers' practices about the construction, administration, marking and use of testing results through exercises reflect formative use?

3. What happens when teachers try to more formatively construct, administer, mark and use assessment results for teaching and learning purposes?

The first and second research questions guided the pre-intervention research which involved conducting focus groups, individual interviews, and observing their lesson records and classes (Section 3.5). Overall, the teachers' perceptions and practices were mainly summative (Chapter Five). On the basis of this observation, the third research question was modified and divided into four sub-questions in accordance with the four main parts of the assessment process which constituted the foci of the intervention. The sub-questions were as follows:

1. What happens when Tanzanian primary teachers try to construct exercises more formatively?

2. What happens when Tanzanian primary teachers try to administer exercises more formatively?

3. What happens when Tanzanian primary teachers try to mark exercises more formatively?

4. What happens when Tanzanian primary teachers try to use the results of exercises more formatively?

3.3 Research stance and approach

This section on paradigm sets the theoretical framework within which the study was construed. It includes methods and strategies to carry out the study in terms of data collection, analysis, and interpretation of findings. According to Creswell (2009), a research paradigm constitutes the system of beliefs and assumptions about knowledge and what can be known (the

ontology), the relationship between the researcher and what can be known (epistemology), and how the research sets about investigating whatever its focus is (methodology). The present study was a qualitative study that employed a grounded theory research approach. In principle, grounded theory has two analytical commitments, namely constant comparisons and theoretical sampling (Glaser and Strauss, 1967; Charmaz, 2006). However, I primarily adopted the aspect of constant comparison rather than the theoretical sampling dimension of a grounded theory approach, mainly because I found the aspect more applicable at different stages of carrying out the present study.

A study conducted within the grounded theory research approach uses different sources of data such as interviews, fieldwork observations, documentations, or other forms of textual analysis at different stages of the study (Robson, 2002; Charmaz, 2006). Comparison helps the researcher to uncover the differences and similarities in the full range of data in order to enhance the understanding of the research problem under investigation (Pidgeon, 1996; Strauss and Corbin, 1998; Walker and Myrick,2006). Further, Pidgeon (1996) inform data analysis proceeds as soon as sufficient material is collected to work on rather than waiting until a pre-defined set of data has been obtained. This feature informs the researcher on next stage of the study which includes seeking more information while analysing data. Strauss and Corbin (1998) in similar vein to Pidgeon (1996) note that the interpretation of data by the researcher can be enhanced when presented to the participants in the study, or others within a similar social and interactional context. For example, in conducting the present study, I involved the participants in discovering if the interpretations I drew from the interviews, focus group discussions and group meetings, relatively reflected their expressions and views. I also interviewed the curriculum developers as key informants rather than relying on the understanding that I developed in reviewing Tanzania's education documents about the implications of teacher practices of assessment for classroom teaching and learning.

3.4 Research participants and their characteristics

3.4.1 The research site

This study was conducted in Mwanza, one of the administrative regions in Tanzania. Two main reasons were considered for selecting Mwanza for the research site. First, the region consists of primary school characteristics which are typical of Tanzania as a whole. For instance, a significant proportion of its primary teacher population (87.1%) is of Grade IIIA teachers, which is close to the national figure of 84.8% (MoEVT, 2010). Therefore, in terms of teacher quality, the region was an appropriate representative of the country's primary teaching force. Secondly, at the time of conducting the study, the region was among those that were well-served by transport and communication services (such as network coverage for mobile phones), compared to many other regions in the country. Reliable communication through mobile phones and internet services was important for me as the researcher in order to keep in contact with teachers and contacts among the teachers themselves for support or follow-up purposes during the implementation of the intervention.

3.4.2 Selection of schools

Four government-owned primary schools were involved in this study. One of the motivations for conducting this study was to try the idea of formative assessment in the context of a developing country. Besides, the design of the intervention was partly informed by the review of the education documents which all government school's use. Therefore, involving government-owned schools provided an appropriate context for implementation of the intervention. Additionally, given that the Tanzanian education system is centralised, opting for government-owned schools was convenient in terms of gaining access to the teachers and pupils that participated in the study. The selection of the four schools involved considering the teacher-pupil ratio as obtained from the Mwanza Municipal Academic Office. The four schools were selected from two wards in which

the majority of the schools had teacher-pupil ratio close to that of the regional and national figure. Wards and schools, whose teacher-pupil ratios were significantly higher or lower than that of the region or nation, were not considered because they would not provide a setting that was representative of the Tanzanian primary school's context in which the intervention was to be implemented. The characteristics of school teachers in respect to criteria for intervention teachers were discussed with head teachers in deciding whether or not a particular school was appropriate for taking part in the intervention.

3.4.3 Selection of teachers and rationale

Overall, a set of three main criteria were considered and used to select the teachers to implement the intervention. They included grade level, teaching subject, experience of teaching in line with the collaborative approach that was envisaged for implementing the intervention (Sections 2.8.2), and practical considerations. In terms of grade level and teaching subject, teachers who were teaching Mathematics and Geography in Grade 3 and Grade 5 were selected. Teachers who were teaching Grade 3 and Grade 5 represented teachers who were teaching lower and higher classes respectively. Grade 3 was chosen for the lower classes because Geography teaching starts in Grade 3 (MoEVT, 2006b). Additionally, both Grades 1 and 2 were considered to have younger children with undeveloped reading and writing skills, aspects that would interrupt the concentration of teachers in implementing the intervention in classrooms. Grade 5 was chosen as the older class because both Grade 4 and 7 were candidate classes, and opting for Grade 6 would mean a greater class interval with Grade 3.

Since the implementation of the intervention would involve a collaborative approach between teachers, it was also considered that it would be much easier and more collaborative for teachers teaching the same subject and class level, say, Grade 3 Geography or Mathematics teachers, to perform topic analysis for the formative construction exercise, because they would

use the same syllabus to work on a particular topic or sub-topic. Additionally, teaching children of the same class level or topic was likely to bring similar experience in terms of, say, problems that children meet in learning particular subject content (for example, addition by carrying for Mathematics, or cardinal points for Geography).

Table 3.1: Intervention schools and teachers

Ward code	School code	Teacher code	Teaching experience (years)	Teaching subject and grade level of intervention teachers	
				Subject	Grade
Ward1	1SW	T1	13	Mathematics	3
		T8	10	Geography	3
	2BL	T3	8	Mathematics	3
		T4	11	Mathematics	5
Ward 2	3BT	T6	23	Mathematics	5
		T7	14	Geography	3
		T9	16	Geography	5
	4SI	T2	11	Mathematics	3
		T5	12	Mathematics	5
		T10	14	Geography	5

Besides class level and teaching subject, teaching experience was also another criterion used to select the teachers to implement the intervention. The importance of experience in enriching teachers' knowledge is acknowledged in existing literature. For instance, in line with Munby et al. (2001) it is argued that being in the teaching profession after pre-service training for a particular period of time provides teachers with the opportunity to learn and use instructional strategies and ideas in the context of their own experience, including classroom assessment practices. Being aware of this, teaching experience of eight years or more was used in order to recruit teachers who had been in the teaching profession since 2005 when the CBC (which espoused the constructivist view of learning) was introduced in Tanzanian Primary Education. Furthermore, because the intervention espoused the collaborative approach, which included considering teachers' points of view and experiences, therefore, experienced teachers would be more appropriate than inexperienced teachers in terms of their knowledge of pupils' problems and the existing curriculum.

3.4.4 Recruitment procedures of intervention teachers

The actual recruitment of teachers to implement the intervention involved a sequence of three activities. First, distributing copies of the research information sheet which asked any teacher whose subjects[3] included Mathematics and Geography in schools that would meet the requirements for implementing the intervention (Section 3.4.2). Thus, the ten teachers who implemented the intervention first participated in focus group discussions together with other teachers who taught Mathematics and Geography in other grades. Secondly, the teachers who taught Mathematics and Geography in Grades 3 and 5 were interviewed individually. This involved an informal discussion about the study and the information sheet for intervention teachers, and discussing the anticipated date for an informal meeting for all teachers before training to discuss the intervention content. Thirdly, on the day of the meeting, the teachers had the opportunity to ask questions about the content of the intervention and the information that was contained in the information sheet for intervention teachers.

3.4.5 Research assistant and his role in the study

As stated in Section 2.8.2 the study involved a collaborative approach in which teachers would be supported for a particular period of time, and then be left on their own to implement the intervention. Additionally, the overall plan of the study required that I conduct a preliminary analysis of the pre-intervention data, and to subsequently develop instruments for final data collection while in Leeds. Therefore, a research assistant was required to facilitate the logistics and coordinate feedback between myself and the participating teachers. I recruited Mr. Gadi (pseudonym), a tutor at Sokasa (pseudonym) Teacher Training College, and former primary teacher. The initial training of the research assistant took place when I was waiting for research clearance at regional level in Mwanza. The training involved

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[3]Teaching subject here indicates any teacher who was currently and/or has taught Mathematics and Geography in the last four years in order to obtain teachers who have taught the two subjects in the existing CBC

discussing the contents for formative assessment, and the collaborative approach that was envisaged for implementing the intervention which, overall, involved a series of three informal meetings:

- First, the research assistant was given copies of the intervention package and research information sheets for teachers, and was asked to read and make sense of the contents;

- Secondly, a discussion took place about the understanding he had developed about the contents of the intervention and implications for implementation. For example, how the intervention required the teachers to conduct the assessment for teaching and learning purposes in contrast to usual or existing practices;

- Thirdly, discussion took place on the key concerns of the pilot teachers about the intervention and his role as a research assistant.

Further training of the research assistant took place during initial whole group meetings with the teachers. For example, in order for him to become engaged in the understanding of the underlying ideas of the intervention and implementation process, besides taking notes about the proceedings of the discussion, it was made clear that he could ask questions or give his opinion in the same way as the participating teachers. Moreover, after each of the group meetings with the teachers, I discussed with him the concerns raised in these meetings, as well as those of the teachers, regarding the underlying ideas of the intervention. The role of the research assistant included administering the teacher questionnaire in some of the non-intervention schools, and taking notes in the group meetings. In liaison with the contact intervention teachers, the research assistant conducted the first of the four combined group meetings which the intervention teachers carried out by visiting each of the four participating schools for the purposes of peer classroom observation, sharing experiences of implementation, and providing support to each other, as well as further discussions of the intervention requirements (Section 4.5).

3.5 Methods for pre-intervention data

Four methods were used to obtain information for establishing teachers' existing practices and perceptions of assessment in respect to classroom teaching and learning purposes. The methods involved focus group discussions, individual interviews, documentary sources, and classroom observation. The schedules for the focus group discussions, individual interviews, and observation for pre-intervention data collection were mainly informed by the review of literature on formative assessment requirements, review of Tanzanian education documents, and the pilot consultation with policy makers and non-intervention teachers (Section 4.2), as well as supervisors' comments in supervision meetings.

3.5.1 Focus group discussion

Overall, the foci of the focus group discussion were four; namely, construction, administration, marking, and feedback through assessment exercises which also corresponded to the four parts of the intervention (Appendix 1). The pre-intervention discussion focused on understanding the teachers' existing perceptions and practices of assessment for teaching and learning purposes in the context of the existing school curriculum. The discussion involved asking first open and general questions, which were followed up with probes in line with Tomlinson's (1989) hierarchical strategy of interviewing. Discussion of each of the four assessment themes or components was initiated by posing questions in which follow-up questions, employing the technique of hierarchical focused interviewing, was employed. However, the discussions also involved seeking the teachers' understanding and practices of key ideas (for example, child centred approach, prior knowledge) and teaching methods (for example, participatory teaching methods) that were advocated in the existing CBC. The aim was also to seek the teachers' interpretations of the key concepts that I established from the Tanzanian educational documents about the constructivist view of learning within the existing CBC, and how they translated this into classroom

practices in terms of teaching and assessment. This was important for establishing the position of teachers in regard to understanding the curriculum and how they translated it into practice for ascertaining the support strategies.

Two approaches were used to recruit teachers to participate in pre-intervention focus group discussions. First, teachers were given the research information sheet in advance to read (Appendices 12, 13 and 14), Secondly, I personally approached the teachers, requesting that they participate either in focus group discussions or individual interviews at participating schools. Although teaching subject specialisation was emphasised (MoEC, 1995; MoEC, 2005a), however, the reality in schools was that primary school teachers were generalists and taught different subjects, therefore, the criterion for inclusion in the focus groups was broadly decided to be any teacher who had taught, or was teaching, Mathematics and Geography.

The number of teachers who participated in focus groups for pre-intervention data ranged between four and six. The decision to use focus groups was based on three main grounds. First, the interaction in group discussion could yield more naturalistic processes of communication such as storytelling, arguing, joking, persuasion, challenging and disagreement, which were considered essential in providing insights into teachers' existing practices and views of assessment for teaching and learning purposes (Forrester, 2010). Secondly, it was also considered that teachers would feel freer to express their views and practices about assessment, in respect to teaching and learning purposes, in a focus group discussion. Krueger (1994) informs that focus group discussion enhances openness in discussion which is essential in accessing attitudes and experiences of participants. Thirdly, focus groups require trained and experienced moderators or interviewers (Krueger, 1994). I consider myself a research trainee and my prior experience and insight about focus group discussion for data collection is satisfactory. I served as a research assistant in a study by Mkumbo (2008) whose data collection partly

involved holding focus groups with primary teachers, pupils and parents, and taking part in his study had provided me with some on-site experience that was vital in planning decisions. Additionally, conducting the focus groups during the pilot study (Section 4.2.4.1 and 4.2.4.2) involved overlapping activities of collecting data, and analysing them helped me to improve my skills and strategies of asking the main questions and probes and responding to the participants' comments.

3.5.1.1 Incorporated prompt assessment cases

The prompt assessment cases (PAC) reflected situations or realities that teachers usually encounter in their day-to-day classroom assessment in schools in marking the assessment exercises (Appendix 2 section E). The items of the PAC were developed from the experiences of observing the marking contents of pupils' work in the 'pilot' group of teachers, as well as from looking at the marking contents of the intervention teachers. Thus, the purpose of including real-life cases was to elicit the teachers to describe their actual perception and practices about exercises which they conducted as part of classroom teaching and learning activities (Oppenheim, 2003). Some literature, however, discredits the use of case-based items for prompting participants to give actual responses in terms of their perceptions or practices. For example, Jones (1996) posits that what participants report when subjected to a model or role play simulation situation can sometimes not accurately reflect the realities of their daily lives. Nevertheless, because the cases were developed from teachers' responses after having conducted informal interviews and observing some of their lesson records, they were considered as reflective of the usual teacher assessment upon which the views and practices of the teachers could be explored or understood. Furthermore, the cases were organised in line with the logical steps which teachers are expected to take when conducting classroom testing. The discussion of the PAC involved asking each teacher to give their interpretation when such cases occur as part of their teaching.

3.5.2 Individual interviews

In the same way as the focus group discussion, individual interviews with teachers were also conducted in line with the hierarchical focusing interview strategy (Tomlinson, 1989). At the pre-intervention phase individual interviews were conducted to intervention and non-intervention teachers using a schedule that was prepared in advance (Appendix 3). Individual interviews to intervention teachers were conducted for follow-up purposes. It aimed at seeking further clarification about the information obtained from responses during focus group discussion, contents in their lesson records, pupils' work and where information on particular aspects differed from one source to another. The interviews also involved seeking the teachers' understanding and practices of key ideas (for example, child-centred approach, prior knowledge) and teaching methods (for example, participatory teaching methods) that were advocated in the existing CBC. This aimed to obtain individual teachers' interpretation of the key concepts that I established in the Tanzanian educational documents about the constructivist view of learning within the existing CBC, establishing how they translated into classroom practices in terms of teaching and assessment.

Thus, obtaining more information about intervention teachers' stand in regard to their understanding of the curriculum and how they translated it into practice for ascertaining the support strategies. As mentioned in Chapter Four (Section 4.3.1), during the pre-intervention phase, I also conducted open discussions with other (non-intervention) teachers in order to capture a picture of the teachers' views and practices about assessment in respect of the teaching and learning process. Furthermore, because I expected to stay in the participating schools for a reasonable period of time (about a year), I considered that talking to other teachers could help me become more familiar with participating schools, the study context, and as a researcher being personally known to other teachers as well.

3.5.3 Documentary sources

Documentary sources for pre-intervention included three categories of documents; namely, teaching materials, teacher lesson records, and pupils' exercise books (Appendix 4). Teachers' lesson records were observed in order to learn the extent to which the contents of the assessment exercises were consistent with the lesson contents taught before taking part in the implementation. The exercises which the teachers had recently administered, as well as previous ones on similar subject contents (topics), were observed in order to establish the overall quality of assessment. Alongside the textbooks, subject syllabuses and the exercises that were found in pupils' books were observed, and interviews for follow-up purposes were conducted. For example, after looking at the teacher lesson record, the follow-up interviews focused on the connection between content of the exercises and lesson objectives which the teachers had conducted. Similarly, information about teacher lesson evaluation was sought from the teachers' lesson records and follow-up interviews were conducted. A sample of regularly attending pupils' exercise books from each teacher was also sought and looked at in order to obtain information about the content of teachers' marking. Also, follow-up interviews were held with each teacher in order to obtain further clarification about the content and rationale for their marking. However, it is noteworthy that some of the documents were accessed when the teachers had already started implementing the intervention.

3.5.4 Classroom observation

The classroom observation involved taking notes in research notebook and audio records of remedial class discussions. The foci for classroom observations were informed by piloting of the intervention (Section 4.2.4.2). Classroom observations involved writing notes into the researcher's notebook and taking audio records of the talk between the teacher and pupils during remedial class discussions. The written notes and audio recordings aimed to obtain information about what happens in remedial class sessions that

teachers conducted after they had marked pupils' exercise books. They included gathering information about content of teacher feedback, how teachers provided feedback to their pupils, how they used information observed during marking of pupils' exercise books to conduct remedial class discussions. The written notes included ways and patterns in which the teachers engaged the pupils in discussing results of assessment work, nature of pupils who took part in discussing and working out the questions that most or some pupils were unable to attempt, attempted but provided incorrect responses (errors). Additionally, written notes included features of interest about teacher body language. For example, the gestures and facial expressions that were associated with the teacher's talk to pupils who had provided incorrect responses, those who made mistakes, and provided correct responses during remedial class discussions. Further, written notes included details about actions, gestures and facial expressions of the pupils and their peers when they made mistakes or provided correct responses during remedial class discussions. The audio records were for capturing nature of discourse such as words and voice tone that constituted the talk between the teacher and pupils during remedial class discussions.

3.6 Methods for post-intervention data

3.6.1 Interview

At post intervention each teacher was interviewed twice. The focus of the first interview was to identify elements of the intervention that each teacher managed to implement, and the ways in which they were implemented (Appendix 5). Additionally, the first interview focused on understanding the experience (or outcomes) that each teacher encountered, say, in implementing particular elements of the intervention. After each of the first interviews, I played back and listened to the audio record of each interview in order to gain more of an understanding of the teachers' reports, and to identify gaps in the information that I needed to ask again or seek further clarification on. The review of the first interviews with the teachers was

supplemented by perusing their respective lesson records (research notebooks) and a sample of exercise books of pupils who regularly attended school. The second interview with each of the teachers focused on particular aspects, for example, aspects which I found that were not thoroughly covered in the first interviews, specific changes that were adapted by the individual teacher, benefits or difficulties encountered or any other aspect that I found needed further clarification. The second interviews partly involved presenting to the teacher my interpretation and understanding of some of the aspects that the teachers reported in the first interviews. However, the teachers whose classes I observed were interviewed three times. The third interview was conducted after classroom observation and focused on aspects of error analysis of marked exercises and feedback given during classroom teaching and learning sessions.

3.6.2 Documentary sources

The teacher research books and the sample of pupils' exercise books were used as the main documentary sources for obtaining information relating to the quality of the exercises (Appendix 6). The aim of looking at a sample of the administered exercises was to establish the actual effect of the intervention in the classroom. In addition, the last two group meetings that the teachers conducted on their own were used to extract information related to formative construction of the exercises. The parts of the video records of the last two group meetings (when the teachers presented and commented on each other's experiences) were used as documentary sources to obtain information about teachers' understanding and their experience of implementing intervention elements that related to construction and quality of exercises and use of CPPA for classroom teaching (Section 4.5). The audio-visual records of the last meetings were partly opted as documentary information because the teachers had already implemented the intervention over the last seven months, and this was considered reasonably sufficient time and practice. Also their presentations and comments on each other were more reflective of their understanding of the interventions and

corresponding practices. Furthermore, feedback forms which involved email correspondence between the researcher and teachers were also considered as documentary information.

3.6.3 Classroom observation

Classroom observations were conducted specifically for discovering how the teachers used the assessment results from the marked assessment exercises in supporting the pupils to learn parts of the lesson which they did not understand. Additionally, the classroom observations were for obtaining further insights gained from the interview and lesson records data about the use of collaborative pupil peer assessment (Appendix 7). Each of the teachers was observed at post-intervention data collection in January and February 2012. However, four teachers (T1, T2, T3 and T6) were observed for in-depth case analysis (Table 3.2).

Table 3.2: Selection criteria of teachers for post-intervention classroom observation

Teacher characteristics	Selection criteria	Number of observations
T1: Recruited for Grade 3 Mathematics	i. In the year 2012, he taught IV class former Grade III class in 2011; ii. Had initial difficulties in encouraging the low ability and less confident pupils; iii. His research notebook was among the much detailed; iv. He reported positive changes to his pupils' participation in classroom teaching and pupil peer collaboration in administration of the exercise	Three times:
T2: Recruited for Grade3 Mathematics	i. In the year 2012, he taught Grade IV former Grade III in 2011; ii. His research notebook was the most detailed one of all the teachers iii. He was available at school throughout the implementation period. iv. More successful in use of CPPA	Three times:
T3: Recruited for Grade 3 Mathematics	i. In the year 2012, she taught Grade IV former Grade III Mathematics; ii. Reported difficulties in collaborative pupil peer marking but reported some amendments in administration of exercise. iii. She was observed by two peer teachers iv. She also observed other peer teachers	Two times
T6: Recruited for Grade 5 Mathematics	i. In the year 2012, he taught Grade V ii. He was available at school throughout the implementation period iii. More successful in the use of CPPA	Two times

The foci of the observation schedule were practically informed by my classroom observations during initial implementation in May 2011; the researcher-teacher co-classroom observations which were conducted for training teachers to carry out peer classroom in July and early August 2011; review of audio-records of the group meetings which the teachers held in absence of the researcher between September and November 2011.

It is not what one says but how one says it that conveys information to listeners (Jones, 1996). It is also against this view, the observation of intervention teachers' classes focused on classroom talk and the associated body language expressions in using the assessment information from the marked exercises for teaching and learning purposes.

- Tone and frequencies of 'formative' and 'summative' phrases in giving feedback and using the CPPA
- Facial expression and gestures

I conducted the classroom observations with awareness that my presence in the class as an observer could create a reaction among the observed teachers and pupils (Jones, 1996; Lee, 2000; Wedell and Malderez, 2013). Thus, I conducted the classroom observation when sitting in the corner behind the class, wrote notes in my research notebook, and throughout the observation I remained impartial in the sense of not portraying any reactive responses, including not portraying facial expressions to the teacher or pupils that could cause undue attention or obstruction to the class discussion.

The classroom observation focused on how teachers implemented the CPPA strategies they reported to have developed (Chapter Six), determining the associated challenges of peer assessment in a Tanzanian classroom context, how the teachers managed to deal with some of the challenges as discussed through group discussions. The post intervention classroom observation was for the researcher to obtain more of an understanding about the challenges

of implementing CPPA in classrooms on the basis of their experience and views of implementing the intervention.

However, the information from classroom observation at post-intervention for each of the four teachers was corroborated with information from the two audio-recorded classrooms and group meetings, which the teachers conducted on their own in the absence of the researcher and the research assistant. The post observation interview focused on aspects observed during the classroom teaching session, particularly in regard to the administration of the exercise, and error analysis and feedback given for classroom teaching and learning.

3.6.4 Focus groups

After conducting individual interviews and some classroom observations, I conducted two focus groups on the basis of teaching subjects to identify experiences depending on the nature of the subjects that the teachers implemented in the intervention. The purpose of the focus group discussion was to triangulate the observations that the teachers reported about the construction of exercises, and what I observed in their research notebooks. The teachers were asked to individually prepare in advance in order to make it a useful experience for everyone (Appendix 8). They were also asked to take their textbook, syllabus, and research notebook on the day of the focus groups.On the day of focus group each of the teachers was asked to (1) state the lesson and list its parts,(2) write the set of questions for the exercise for the stated lesson contents, and (3) list the respective specific objectives for the lesson. Afterwards each teacher presented their work while other members commented specifically on three areas, namely, whether the key aspects of the lesson were covered, the extent to which the questions for the exercise matched or captured the key aspects of the lesson, the quality of the questions of the exercise to gauge learning the key aspects, or stimulating further a learning discussion of the targeted lesson aspects.

Afterwards the discussion focused on reflecting how the intervention contents suited the classroom teaching and learning of the particular subject.

3.7 Data organisation and analysis

As stated in Section 3.2, the main research question of this intervention study was what happens when teachers try to more formatively construct, administer, mark, and use assessment results for teaching and learning purposes, and that it involved a group of ten teachers to implement the intervention through a collaborative approach, whereby, overlapping series of activities and data collection strategies were involved, in which one stage informed the next. Therefore, the organisation and analysis of data during and after fieldwork involved three main criteria, which included the time (when) at which the data was collected, the data sources-form, and participants involved. In terms of time criterion for data organisation, the data were organised into four main categories. First, I created a main folder and labelled it 'pre-intervention data' which included folders for audio records (and transcripts) of focus group discussions, follow up interviews, group discussion of the intervention group meetings, and associated preliminary/fieldwork analysis and a folder for reflective notes from the observation of teachers' lesson records, and pupils' work. Secondly, I created the main folder labelled 'intervention' in which I stored/saved a folder for audio (and transcripts) and an associated hardcopy file folder for documentary sources that were obtained during the initial discussion of the intervention contents and subsequent proceedings of implementation. Third was the folder and associate hardcopy file folder about the proceeding of the intervention. The fourth main category was the folder with files for post intervention data collected during fieldwork in February 2012 and those received later.

In regard to participants' criterion for data organisation, I recorded and considered the data to be at either individual or group level. At the individual level, I considered data given or collected from, or about, one particular

teacher. At the group level, I considered them in terms of the subjects and/or grades they were teaching (Section 3.4.3) or the context in which the data was collected (say in separate group meetings of Mathematics or Geography; combined group meetings of both Mathematics and Geography teachers).

Pertaining to data source-form criterion, the data could be considered and organised into three categories. First, the data was organised in the form of audio records which consisted of individual interviews, focus group discussions, and discussion in group meetings (concerning the intervention) during and after the implementation. Second was data in the form of written texts which included (i) photocopies of teacher's research notebooks which contained lesson records and their experiences of implementation, written work presentation in group meetings, their written comments feedback forms(ii) notes and reflective notes in my researcher's notebook from the interviews, focus group discussion, and group meetings that I held with participants. Third, the video records of four combined group meetings which teachers carried out in the absence of the researcher (Section 4.5). Additionally, the insights obtained through fieldwork analysis, the report submitted, and supervisor's comments were also organised in time sequence. Therefore, using the time, participant and data source criteria, it was possible to use chronological sequencing and produce any intermittent data organisation and analysis, and address any of the sub-research questions. For example, it was possible to create the folder for interviews, focus groups, and group meetings of Mathematics and Geography teachers separately; combined (whole) group meetings of Mathematics and Geography teachers before, during, and after the intervention.

3.7.1 Data sets for analysis of pre and post intervention findings

In terms of time factor, the data for pre-intervention findings (Chapter Five) involved two categories: (i) data from focus groups interviews, follow up

interviews, documentary records before discussion of the intervention package, and (ii) extracts of information from some of the group conversations that were held for discussing the intervention contents and some interviews, lesson and class observations that were conducted as follow-ups after the teachers had begun implementing the intervention. Similarly, the collection of teacher lesson records also included documentary sources that were collected before and after the commencement of the intervention implementation.

Similarly, in terms of time factor, the analysis of post intervention findings (Chapters Six and Seven) included two sets of data: (i) the data sets obtained through individual interviews, documentary sources, focus group discussion, and classroom observation (Section 3.6), and (ii) some of the video recorded group meetings which teachers held as part of the follow-up and to support each other (Section 4.5). As it can be seen in this account, overall, it can be summed up that data sets for both pre-intervention and post-intervention findings entailed audio records, video records, and documentary forms of data. The next section presents analysis of data by sources.

3.7.2 Transcription, translation and analysis of audio records

In transcribing the interviews, I used a chronological approach in the sense that the transcription followed the sequence in which they were conducted. For example, pre-intervention interviews were transcribed first followed by the transcription of the follow-up interviews. Transcribing the data involved listening to the audio records and typing up the words and sentences as spoken and reported by the participants. All four focus groups and follow-up interviews were transcribed in Swahili and then translated into English. Charts with three columns were used to present the transcripts. The first column consisted of the Swahili version, while the respective English version of the transcript appeared in column two. Column three of the chart was for my (researcher's) remarks which included writing in any comment (s) that

came to mind as I continued listening, transcribing and translating the audio records. From the transcription, I created four main themes of intervention; planning or construction of assessment work, administration, marking, and the use of assessment results. These themes formed the initial themes for producing the drafts of individual teacher portraits on the basis of transcripts.

The coding of transcripts to obtain the findings for each intervention teacher involved three main steps:

> 1st Font colours were used to mark the initial themes of the transcripts [orange for construction of exercise, green for administration of exercises, purple for marking, blue for lesson evaluation and feedback given to pupils, and red for other];
>
> 2nd A list of abbreviations were used to code the sub-themes that emerged in each of the initial themes, which informed the interviews and foci of the intervention;
>
> 3rd Italicising, underlining, emboldening and a combination of those were used to highlight the deeper level of implications of the meanings that were in the transcripts or highlighted points of significance.

I began by looking at each teacher's transcripts and coded the themes that were emerging in each of the four foci of the assessment process. Having, completed one teacher portrait, I presented to my supervisors and received feedback comments. I then moved to the second teacher, then the third, and so on until all six Mathematics teachers were completed. The drafts of individual teacher portraits were complemented by data from the observation of teacher lesson records, classes, and their pupils' work (exercise books). A similar procedure was followed for the Geography intervention teachers.

It is noteworthy that in undertaking this coding process, it was not entirely driven by the data, but rather by my experience, knowledge, and understanding and the notes that I had made that had been written

immediately after focus group discussions or group discussions with the intervention teachers. My reflective notes also helped in arriving at the codes. This included the context in which interview or focus group responses were reported, for example, the body language or facial expressions which the teacher displayed while giving a particular response. Additionally, I perused the reports that I compiled and submitted about implementation progress, and received feedback from my supervisors at different stages (May 2011, and July and October, 2012). This was to help me recall and incorporate the insights that I drew from (preliminary) data analysis during fieldwork.

3.7.3 Analysis of video-clips

The four video clips provided both text and visual data. Intervention teachers had implemented the intervention for a reasonable period, and therefore their understanding about the intervention requirements and outcomes they had experienced from the implementation process could be considered more stable. From the recordings of video clips, I extracted and coded sections where the teachers interacted with each other. The coding that I used sought to obtain information of how the group meetings fulfilled the immediate needs and desires of the teachers in respect to requirements of the intervention.

The transcription, translation, and analysis of video clips followed the following steps:

1st Translating video records in verbatim

2nd Identifying or separating observer's narrations about what they observed from comments made by other peers or the observed comments;

3rd Identifying/distinguishing the comments of the observer, other (peers) teachers from the observed teachers

4th As the researcher I took position of an observer and a commenter in order to follow-up and interpret narration and comments in relation to the intervention. The observation and interpretations I made were

supplemented with a telephone call to the observer, observed teacher, and commenter, before and during fieldwork in February 2012.

3.7.4 Data analysis procedures for teacher narratives

The insights that I had drawn by working with the teachers and on the data at different points in time formed the starting points for identifying the themes for the challenges and data sets for illustrative cases. However, the actual analysis for the challenges involved four steps in a cyclical manner rather than in a linear sequence. They include first looking at the participation of the teacher in the beginning, during, and at the end of the intervention. This involved looking at each data set that I had in order to build a portrait for each of the selected three teachers; T1, T3 and T6 (Chapter Seven). Thus, I identified two sets of data to look at, for each individual teacher: (i) the data sets that were collected in an individual context. These included individual interviews, teacher lesson records, teacher's research notebooks, and extracts in the researcher's notebook that I wrote at different points during implementation; (ii) the tracked information of each teacher in a group context which they reported or exhibited any concern or difficulty in group meetings.

Secondly, considering and interpreting concerns or difficulties each teacher reported or exhibited across the four main parts of the assessment process, depending on the respective intervention requirements. This step was conducted alongside considering and interpreting the challenges in terms of before, during, and after classroom teaching sessions. Third was to identify the particular challenges that were reported, exhibited or evident from each excerpt pertaining to a particular teacher while noting other features, such as the context in which it was reported. Fourth, in order to avoid imposing parts of the assessment process as the only or rigid framework for looking, identifying and interpreting the challenges in each of teacher's data sets and portraits, I remained open by posing one analytical question; 'are there other forms of challenges that the data sets reveal that are not directly related to

parts of the assessment process on which the intervention was based?' This included looking into the data at moments when teachers interpreted particular intervention requirements contrary to the intention of the intervention. For example, teachers' reporting particular outcomes as advantages while it was not, and vice versa, after presenting, discussing and receiving feedback from peers or from the researcher. This also related to initiatives which teachers tried but which were inconsistent to the intervention requirements.

The above account of the procedures that I followed in order to build a profile of narratives that describes and illustrates the challenges that intervention teachers faced in implementing the intervention are in line with Thomas (2011) as adopted from Bruner (1991). Thomas (2011) asserts that the use of narrative in case analysis involves making sense of the whole phenomenon by retaining the dimensions that preserve and provide an account of the whole phenomenon. I adopted five features of Thomas and Bruner in conducting the narrative analysis and interpretation of the three individual cases of intervention teachers to illustrate the challenges which they encountered. The adopted features included:-

- Particularity in terms of focusing on the uniqueness of a situation, and seeking to understand it on its own and its significance. This entailed engaging in retrospective thought to identify the challenges that were critical during implementation of the intervention, for instance, this entailed reflecting on and going through the data sets on assessment aspect that kept reoccurring in teachers' accounts [for example, the use of grades]
- Diachroneity in the narrative analysis in a sense that I was also keen to notice the changes that occurred on a particular intervention requirement and discern the experience that could help to understand the reasons or conditions for the changes
- Context sensitivity - I considered this, for example, in terms of the situation in which a particular challenge was reported, exhibited or

displayed [for example, in a classroom when teaching, in focus groups with peer intervention teachers when reporting in the presence or absence of the researcher (in defending a point, arguing in favour or against), in a researcher's journal, in an interview with the intervention teacher];

- Intentional statement involved interpreting both oral and body language expressions as cues in order to arrive at an interpretation that reflects what the intervention teacher said, did, reported, but also how they thought and felt in order to discern the underlying beliefs, intentions, desires, and values about a particular intervention requirement [T6's body language expressing his disagreement about pupil peer marking in line with the intervention requirement.]

- Analytical questioning and emerging outcomes helped me remain open to any insights that emerged, both relevant and irrelevant to the research questions.

3.8 Research trustworthiness

Qualitative researchers use different criteria to ensure rigour and ascertain the trust and worthiness of research studies. Many of qualitative researchers adhere to Guba's four criteria of research trustworthiness, namely, credibility, transferability, dependability and confirmability (Shenton, 2004). Credibility involves the researcher to demonstrate that a true picture of the phenomenon under investigation is being presented. The data analysis and presentation involved full description of the context in which the data was generated in the findings chapters and through appendices altogether support the study to meet credibility criterion. Transferability relates to providing sufficient detail of the context of the fieldwork for a reader to be able to decide whether the prevailing environment is similar to another situation with which they are familiar, and whether the findings can justifiably be applied to the other setting. Dependability is about the possibility for future researchers to repeat the study.

Confirmability is concerned with demonstrating the extent to which the findings emerge from the data and not from the researcher's predispositions. In this regard the briefings that I presented gave to the intervention teachers and their comments back to me through oral conversation and comments in the feedback forms during and after intervention and the Supervisors' comments on the preliminary data analysis and reports that I submitted in supervision meetings at different stages implementation, altogether can be considered as reasonable confirmability aspects of the study. Moreover, in this study, triangulation is the main strategy used to ascertain the research's trustworthiness from data collection through data analysis, upon which Guba's four criteria can be ascertained.

3.8.1 Research clearance for the study

The research ethical clearance was first obtained from the AREA Faculty Research Ethics Committee, University of Leeds (Appendix 9), after obtaining the approval letter from the AREA Faculty Research Ethics Committee to conduct the study. Upon reaching Tanzania, and since I was a member of staff at the University of Dar es Salaam (UDSM), I had to obtain research clearance from the Office of the Vice Chancellor of the UDSM. Therefore, I presented the letter from the AREA Faculty Research Ethics Committee to seek permission to conduct the study in Tanzania. The Office of the Vice Chancellor of UDSM granted me the research clearance letter that I presented to the Regional Education Office and Regional Administrative Office in Mwanza (Appendix 10). The Office of Mwanza Regional Administrative Secretary provided me with a letter to present to the Administrative Secretary in Nyamagana District for further permission to access the schools from the District Education Officer (Appendix 11). The District Education Officer gave me letters of introduction for the head teachers of the sampled schools, in order to permit me to conduct the study in their respective schools.

3.8.2 Informed consent and protection of participants

Essentially, informed consent ethical requirement involves two main aspects, namely, being informed and giving consent (Homan, 1991; 2001). According to Homan (1991), being informed means that all pertinent aspects of what is to occur and what might occur in the conduct of the study must be disclosed to the participants, and the participants should be able to comprehend the information being communicated to them. Consent, on the other hand, implies the participant has the ability to make a rational and mature judgement or decision in agreeing to participate in the respective study. Additionally, the agreement to participate in the study needs to be decided in voluntary conditions that are free from any form of coercion and undue influence. At the heart of informed consent include the requirements for researcher to be open and honest, and provide the participants with freewill choice and voluntary participation in the research (De Vaus, 2002; Patton, 2002; Cohen et al., 2011). Upon meeting the teachers in schools, besides distributing the research sheets which were involved in obtaining ethical clearance from the University of Leeds (Appendices, 12, 13 and 14), I also orally clarified to the teachers about the research aims and how they were expected to take part in the study, and that they were free to decide whether to participate or not, and that at any time they were free to withdraw from participating in the study without any consequence. Also, as explained in the proceedings of implementing the intervention, the informed consent to share experiences of implementing the intervention elements was exercised and assured at two levels; between the teacher's and researcher's level, and between the researcher and the whole intervention group level.

In regard to privacy of participants as part of ethical issues, Cohen et al. (2011) note that at any stage of the research study, the privacy of participants is vulnerable to violation. In this view, therefore, confidentiality was ensured during the data collection and analysis and writing of the findings. Pseudonyms and codes constituting letters and numbers were used instead of actual names of the schools and teachers.

CHAPTER 4: DESCRIPTION OF THE INTERVENTION

4.1 Introduction

This chapter describes the intervention package in terms of the content for formative assessment, as well as the strategies and activities that took place at different phases and stages of implementing the intervention. As explained in Chapter Three, Section 3.3, the study adopted a grounded theory approach in the sense that formative assessment content, and the strategies and activities for implementing the intervention, were not entirely pre-planned. That is, the actual contents and implementation of the intervention at any particular stage depended on four aspects: (1) the original pre-planned content for formative assessment, strategies, and activities for supporting teachers for implementation; (2) the outcomes of discussing these with the teachers; (3) the outcomes that emerged when the teachers implemented particular content for formative assessment; and (4) the outcomes of using particular strategies and activities for supporting the teachers to implement the contents for formative assessment. The intervention was carried out in four main phases, each with different stages and activities (Appendix 15).

4.2 Phase One: Preparation and development of the intervention package

Phase one of preparing and developing the intervention package involved two main stages. The first stage involved preparing and developing the initial draft of the intervention through a literature review on formative assessment and teacher development, a review of Tanzanian policy documents, and an interview of Tanzania's educational policy makers. The second stage involved the researcher working with a group of 12 pilot Tanzanian teachers in order to discuss the contents of the intervention, and requiring that they try-out the implementation of the intervention, giving feedback before meeting the actual teachers who would participate in the intervention.

4.2.1 Stage 1: Developing the initial draft of the intervention package

Three activities in an overlapping series were performed to prepare and develop the first draft of the intervention. This section explains the ways in which the activities were carried out when preparing and developing the first draft of the intervention. The section further presents how the insights of each activity contributed to the development of the draft contents for the intervention. Specifically, the activities included (1) review and insights from the review of Western literature on formative assessment; (2) review and insights from Tanzania's education policy documents and; 3) talking to educational policy makers in Tanzania. These three main activities were conducted between January and July 2010.

4.2.1.1 Review and insights from Western literature on formative assessment

As presented in the Literature Sections 2.5 and 2.6, besides noticing the potential demands and challenges for Tanzanian primary teachers to adopt formative assessment strategies and techniques for classroom teaching and learning purposes, the literature review also provided insights for planning and implementing the intervention in two ways: firstly, the review of the literature on formative assessment particularly in the Western educational contexts provided me as the researcher with insights on key concepts and principles for formative assessment that were in turn used to identify the key concepts that were embraced in the existing Tanzanian CBC. These concepts were used as a starting point for the planning and implementation of the intervention. Table 4-1 provides a summary of six concepts and principles that were extracted from the literature and used to initially consider the feasibility of the Tanzanian CBC for implementing the intervention. Secondly, insights from the literature review and review of the Tanzanian educational documents (Section 4.2.1.2) were used to produce drafts of assessment contents for the intervention that could be implemented in a Tanzanian primary education context. Appendix 16 provides a summary of the draft for

the intervention on the basis of insights from the literature review on principles and strategies of formative assessment, and a review of the Tanzanian educational documents and consultative activities with non-intervention teachers and curriculum developers as policy makers.

Table 4.1: Appraisal of Tanzanian CBC in the light of key concepts and principles for formative assessment and teacher support for change

Key concepts and principles for FA	Search of concepts and principles in the Tanzanian CBC for adoption	Researcher's adoption as informed by the review of the Tanzanian educational documents and talk to policy makers
1. Lesson domain (Chase, 1978; Cangelosi, 1990; Hughes and Salvia, 1990; Black and Wiliam, 1998a; Koretz, 2008; Wiliam, 2011)	Competence	Noticed the misconceptions and overlaps between definitions of competence from a cognitive view of learning and a vocational view of learning. The intervention adopted the definition of competence from a cognitive view of learning
2. Assessment and learning integration (Broadfoot, 1996; Broadfoot et al., 2011; Gipps, 2002)	The notion that assessment is part and parcel of teaching and learning activities	Noticed the misconception and overlaps in the use of the terms formative, summative, and continuous assessment for expressing the notion of assessment into teaching and learning. Noticed the presence of assessment column in the subject syllabus, scheme of work and lesson plan frameworks, the timing of assessment in the flow of class work.
3. Learning gap (Sadler, 1989; Black and Wiliam, 1998a; Kline, 2000)	NIL	Adopted the notion of learning progression because of hierarchically structured curriculum/subject contents between grades as a starting point.
4. Theoretical grounding for formative assessment in relation to leaner's learning (Crooks, 1988; Ramaprasad, 1983; Wiliam and Thompson, 2007): - i. Establishing where learners are in their learning; ii. Establishing where they are going; iii. Establishing what needs to be done	NIL	Adopted the notion of pupil's prior knowledge as a starting point. Also, the hierarchically structure of Tanzanian primary curriculum across Grades One and Seven as a starting point.
5. Success criteria for formative assessment (Clarke, 2001, Wiliam, 2011)	NIL	Adopted the notions of 'general' and 'specific objectives' for planning, marking of exercises and interpretation and use of assessment results in a formative assessment
6. Formative assessment for complex learning or deep learning (Sadler, 1989; Broadfoot et al., 1992; Gipps, 2002)	The notions of: 1. Higher cognitive learning 2. Constructivist view of learning	Noticed use of table of specification in assessment construction and meaningful learning in contrast to rote learning as starting point

4.2.1.2 Review and insights from Tanzania's education policy documents

A review of Tanzanian educational documents was undertaken in order to explicate what policy documents say and expect teachers to do in order to conduct assessment for classroom teaching and learning purposes, in line with the CBC. A supervisor's introduction letter was used to access, negotiate, and request to interview policy makers and obtain documents for review. A range of documents were reviewed (Appendix 17). For example, consultation and selection of documents for review across various levels: Ministry level and its constituent institutes, school level documents, and teacher level. Section 1.5in Chapter One presented emerging themes about assessment in the context of the existing CBC. Table 4-2 presents a summary of technical terms that had been used to describe assessment and pedagogy in line with the existing CBC that were also shared by the public (for example, the media), and academics in Tanzania. Appendix 18 provides a summary of insights in terms of themes from the documentary review about teacher support.

Table 4.2: Terms for assessment and pedagogy: Tanzanian CBC

Terms that describe the pedagogy for CBC	Number	Terms that describe the assessment for CBC
Competence based learning	1	Competence based assessment
Constructivists view of learning	2	Constructivist assessment
Learner-centred versus teacher-centred	3	Learner-centred assessment
	4	Participatory assessment

Participatory teaching methods
   a. Involving the learner
   b. Group work
   c. Oral and answer session
	5	Assessment and learning integration
		  • Oral questioning assessment
		  • Group work assessment

	6	Types of assessment:
		  • Formative assessment
		  • Summative assessment
		  • Diagnostic assessment
		  • Placement assessment

	7	Formative assessment
Teacher as a facilitator and not a giver of knowledge	8	Assessment for learning
	9	Summative assessment
Pupil prior knowledge	10	Continuous assessment • New framework for continuous assessment for primary schools
	11	Assessment column in each subject syllabus
	12	Presence of the assessment column across the five stages of lesson in the lesson plan book

	13	Presence of lesson evaluation in the lesson plan book which is divided into:
		  • Teacher's evaluation space ___
		  • Pupil's evaluation space ____

4.2.1.3 Insights from policy makers

Three curriculum developers were interviewed for clarification. One of these was also involved in the second round of consultative activities with non-intervention teachers (Section 4.2.4.2). The aims of interviewing the curriculum developers included in order to obtain: (1) conceptions related to assessment as well as to the pedagogical aspects of the CBC, (2) clarification including identifying the key concepts and principles that defined the existing CBC given the many terms that constituted the rhetoric of CBC (3) clarification from a policy point of view on the structure and contents that were provided to guide the teachers to conduct assessment in line with the existing CBC. For example, the implication of concepts numbered 11, 12 and

13 in Table 4-2 that I had identified in teacher educational documents[4] for day-to-day teaching purposes.

Table 4.3: Consultative interviews with policy makers

Category of policy maker	Title	Interview date
Policy-maker one	Director of Research, Information and Publication for the Tanzania Institute of Education	Interviewed once in April 2010
Policy-maker two	Senior Curriculum Developer for Geography	Interviewed once in April 2010
Policy-maker three	Senior Curriculum Developer for Mathematics	Interviewed twice, April 2010 and March 2011

As a result of reviewing formative assessment literature, teacher support processes, and looking at Tanzanian education documents as well as talking to policy makers, I developed an intervention plan. Besides this I arrived at possible components for the interventions across the assessment process in respect to particular insights from formative assessment strategies and Tanzanian education documents.

4.2.2 Stage 2: Piloting with non-intervention teachers in the UK and Tanzania

Consultative activities with non-intervention teachers at University of Leeds in the UK and Dar es Salaam in Tanzania were carried out. The non-intervention teachers who were involved in discussing and giving feedback on the intervention included (1) an Anglophone African postgraduate student at the University of Leeds - a former primary teacher in his country; and (2) a group of 12 Tanzanian primary teachers. The consultative activities with non-intervention teachers[5] took place between August 2010 and early March

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[4] Teacher educational documents included the subject syllabus, schemes of work, and lesson plan book that were published and which contained changes in content and structure between teaching, learning and assessment activities compared to the old curriculum before the adoption of the CBC.

[5] Non-intervention teachers herein refers to teachers who were involved in consultative activities for the purposes of discussing and trying-out some assessment contents for intervention and provide feedback. The non-intervention teachers include (i) postgraduate student at Leeds University (ii) the two groups of teachers who participated in the first and second consultative activities in Dar es Salaam Region, Tanzania, first in October/November 2010 and second in February/March 2011 before meeting the teachers who implemented the intervention in another region, Mwanza, Tanzania

2011. This section describes how I worked with the two groups of non-intervention teachers as part of preparing and developing the assessment contents and strategies for implementation.

4.2.3 Piloting the intervention in the UK before leaving for Tanzania

In August 2010, I asked one postgraduate student, who was also a teacher in his Anglophone African country, to complete a prompt teacher questionnaire[6] (PTQ) and give feedback. It was considered that in her feedback she would be more reflective of the Tanzanian situation because African countries, particularly those which had been through a similar colonial administration, have similar educational systems including educational assessment practices. On the day of returning the PTQ, I asked her to provide feedback on its quality in terms of clarity, length, and relevance of items for classroom assessment practices to an average primary school teacher in her own country. The feedback was used to refine a draft of the PTQ that was used to work with non-intervention teachers in Tanzania (Appendix 2 section E). Secondly, I asked the same postgraduate student to read a page of the requirements for formative assessment that I intended to discuss with the pre-intervention teachers in terms of constructing, administering, marking, and using assessment results. In this second task I asked her to read the requirement and give feedback by commenting on which requirement an average primary teacher in her own country could or could not implement, and what could be the possible reasons. The outcomes of this activity were discussed in the supervision meeting, and initial assessment contents and strategies were refined before consultative

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[6] A prompt teacher questionnaire is a questionnaire which constituted long and detailed items on assessment across the four parts of assessment as it was construed for intervention. It was administered for seeking out teachers' existing views on assessment in respect to classroom teaching. It also intended to probe and prompt the teachers' assessment conceptions and practices through cases that sought teacher interpretation. Moreover, part of its administration involved discussions and feedback from teachers about its length, contents and ability to prompt teachers' 'actual' views and practices including the backwash effect of thinking about assessment in respect to teaching and learning purposes

activities with non-intervention teachers in Tanzania. Overall, the outcomes at this stage in terms of preparation and developing the intervention package were: -

i. tools for data collection which included (1) PTQ (2) Interview schedule (3) Observation schedule for marked exercises (4) Focus group discussion – foci and prompts across the assessment process

ii. a plan of approaching the teachers which envisaged starting by exploring teachers' existing conceptions and practice before discussing the assessment contents for the intervention

iii. assessment contents for the intervention

iv. list of key concepts that were espoused in the CBC for discussing with the teachers.

4.2.4 Piloting intervention in Tanzania

A pilot study with non-intervention teachers in Tanzania was carried out in Dar es Salaam City twice: firstly, between October and early November, 2010, and secondly in March 2011. The aim was to obtain an insight for preparing and developing the intervention package. Overall, there were three main purposes:

a. To try out the research tools that were expected to be used for data collection for teachers

b. To try out the procedures and strategies that were envisaged for a collaborative approach to implement the intervention. This included, for example:

- Trying-out and anticipating the possibility of recruiting teachers to implement the intervention by using a strategy of first asking them to complete a PTQ, and then discussing their responses in a group meeting

- Trying-out a strategy of involving the teachers in discussing the conceptual issues that were related to assessment and existing curriculum in general as a starting point

- Trying-out the effectiveness of the expected strategies for engaging teachers to explain their actual beliefs and practices about assessment in respect to teaching and learning purposes
- Trying-out the expected strategy of using typical cases and activities drawn from the literature on assessment to prompt the teachers to reveal their existing or actual practices or views about assessment
- Trying-out the effectiveness of the expected strategies for engaging teachers to internalise the thinking behind the assessment contents that were envisaged for the intervention
- Providing the researcher with experience of attempting to engage teachers to adopt views and develop corresponding practices that would be relatively different from their existing practices

c. To seek the views of teachers about the assessment contents for the intervention, and their suggestions on their feasibility for implementation in a Tanzanian primary education context

4.2.4.1 First consultative activities with non-intervention teachers in Tanzania: October – November 2010

Working with non-intervention teachers between October and November 2010 involved a sequence of four main activities; (1) administration, discussion, and feedback on the PTQ; (2) focus group session to obtain their existing views and practices in regard to the four aspects of assessment: construction, administration, marking and feedback giving or use of assessment results; (3) observing and seeking comments in their lesson records and pupils' exercise books; and (4) receiving comments from the teachers on intervention contents and the feasibility of implementing it in the Tanzanian primary school context. A total of twelve teachers were consulted. Ten teachers completed and gave feedback on the PTQ, participated in focus

group discussion, and agreed to observe and discuss their lesson records. The other two teachers (school head and academic teacher) were interviewed individually. Afterwards, nine of the ten teachers participated in discussing and giving comments on the assessment contents and requirements that were envisaged in the intervention for adoption.

The first activity involved administering, discussing and obtaining feedback on the PTQ. In November 2011, ten teachers participated in the discussion which was held in one classroom. The ten teachers completed and were involved in discussing the PTQ. Only teachers who were teaching Mathematics, Geography and English in lower grades, I and II, and higher grades V and VI were invited to participate. It was agreed that teachers would complete the PTQ either in English or Kiswahili. As mentioned in subtheme 2 theme 1 (Appendix 18), being aware of the translation issues in the curriculum documents, I decided first to administer an English version of the PTQ for two reasons (1) the teachers' discussion of the items of the PTQ would help to obtain first-hand translation of some of the assessment terms, and so help to refine the Swahili version of the PTQ for use in the intervention. During the discussion for feedback on the PTQ, their comments and associated body language expressions were informative in terms of revealing their assessment conceptions and practices in relation to classroom teaching and learning. Additionally, I found that the assessment information that the PTQ sought also challenged the teachers as professionals and individuals. For example, one teacher who appeared amused by the PTQ commented:

> 'about questions, in my view, I see that these questions can be answered but at the same time these questions interrogate, correct and challenge you as a teacher … For example, what do you do for a child who gets all the questions wrong? In this question, if you merely **clash** the child without being bothered on what to help him/her, thereby, the question reminds me that I have to do something to help even if the child gets all questions wrong …. Personally, this reminds me that I am supposed to ask myself in terms of, like, how I taught, or is it because of negligence or the environment of the child? … To be honest I found the questionnaire teaching me.'

It also personally challenged me as a researcher, particularly to consider and espouse the collaborative approach for supporting the teachers to change from their summative view to a formative view of assessment. Nevertheless, the open discussion for feedback on the PTQ helped me to obtain the interest of the teachers to take part in the next activity. Re-reading the comments from the teachers in the PTQ as well as going through the audio records of the discussion enabled me to modify the list of items for the teachers to prepare in advance of the meeting.

The second activity involved holding a focus group discussion (FGD) with the teachers who had completed the PTQ. The discussion focused on the construction, administration, marking and feedback given of the assessment process, which was also the focus of the intervention. The FGD was initiated by asking each teacher to list on a piece of paper the key issues which they considered pertinent in constructing, administering, marking and providing feedback to pupils through assessment exercises. Then each of the four open/general questions was followed up with probes in line with Tomlinson's (1989) hierarchical focused interview. The FGD also focused on asking teachers how they understood the operational meaning of the phrases constructing an assessment exercise, administering assessment exercises, marking assessment exercises and giving feedback through assessment exercises and how they viewed the relationship between assessment and evaluation, and assessment exercises as opposed to homework and examinations.

Having heard their comments on the four components of assessment, I perused their pupils' marked exercise books to observe contents of teacher marking, and asked for their clarification. Initially, I intended to use a prepared checklist schedule to record the marking contents of each teacher. However, after going through the marked exercise books for one teacher, I realised that the prepared checklist schedule could not work. This was

because I found much variation in the content of teacher marking compared to the structured checklist schedule that I had prepared in advance. Additionally, I also noticed other aspects about marking that were more relevant to note, but which had not been included in the checklist schedule. For example, teachers provided written comments mainly based on the number of questions which pupils answered correctly and the range of scores awarded. Instead, I focused on asking the teachers what they meant by the comments they provided as part of marking their pupils' work in exercises, and I made notes about teacher marking in my research notebook. The conversation of each teacher's clarification was audio-recorded with a voice recorder.

Thus, the third activity involved observing and discussing contents in teacher lesson records. The observation of teachers' lesson records involved identifying written comments in their lesson plan books, pupils' marked exercise books, and asking the teacher to clarify what these implied in terms of their teaching and their pupils' learning. Additionally, teachers were also asked to comment on how the size and content of the exercises related to their lesson objectives. This discussion involved perusing the exercise book of pupils who regularly attended school for one half school term for each teacher in order to establish consistent or emerging themes or patterns in the contents and marking of the exercises. Studying these exercise books formed the basis for further discussion of the nature of the comments and the regular comments used and their   implication for supporting the teacher's teaching and pupil's learning. All ten teachers mentioned that the 'specific objective' of the lesson was the basis for the exercises that they had administered to their pupils. However, I noted that teachers could not consistently pinpoint which parts of the lessons their exercises were based on, and that there was some inconsistency between the contents of the exercises and lessons. I also noted inconsistencies in teachers' marking. For example, similar praise comments used for different ranges of marks within and between sets of exercises, or different symbols for marking responses which pupils got incorrect.

The fourth activity involved discussing the draft and feasibility of the intervention. The presentation of the draft of the intervention to the teachers involved a series of four sessions; (1) the researcher explained orally the key ideas and requirements on each of the four components of the assessment process, namely, *construction*, *administration*, *marking*, and *feedback giving,* (2) the researcher illustrated the procedure of undertaking a formative construction of an exercise on a flip chart paper, (3) the researcher demonstrated how to interpret the implications of pupils' responses as part of the formative marking and evaluation of exercises. During the three activities the teachers listened, noted the requirements for formative assessment, asked for clarification, and practiced some (construction and marking) of the assessment requirements, (4) the teachers gave comments on the feasibility of implementing the ideas and requirements for formative assessment that were embraced in the intervention by:-

   i.   Stating the potential benefits in terms of supporting teaching and learning that an average Tanzanian primary school teacher could get by implementing the intervention.

   ii.   On the basis of their knowledge and experience, Tanzanian primary school teachers explained the difficulties, concerns, and challenges of implementing some of the assessment ideas/requirements espoused in the intervention.

The feedback from the teachers was used to modify the draft of the intervention package. Although the intervention appeared demanding and challenging for the teachers, they were also enthusiastic and interested. They also reported that some of the elements were implementable. As part of the closure of the meeting, it was agreed that in the next academic year, that is 2011, when the intervention was expected to be implemented, the teachers could implement any of the aspects that they found interesting, useful, and doable, and if possible, teachers could be contacted again, either as groups or individually, for further discussion and feedback on the

intervention, depending on further comments from my supervisors and the outcomes of the upgrade.

The outcomes further informed the preparation and planning of the intervention in the following aspects:

i. Modification of the research tools for pre-intervention with the intervention teachers.

ii. Ground rules for conducting the group discussion for the purposes of enabling each of the teachers to reveal their experiences of implementation.

iii. Strategies for conducting the group discussion for the purpose of enabling each of the teachers to reveal their conceptions and practices of assessment for teaching and learning purposes.

iv. A second draft of the assessment content for the intervention.

Section 4.3.2.2 explains the second consultative activity, conducted in March 2011, before meeting the intervention teachers.

4.2.4.2 Second consultation with non-intervention teachers in Tanzania, March 2011

The second consultative activity with non-intervention teachers in Tanzania was conducted in March 2011. A total of seven participants were involved, one a curriculum developer and six primary teachers. The curriculum developer from TIE was one of the three policy makers who were interviewed in April 2010 as key informants. The first reason for selecting the curriculum developer was that he participated in leading in-service teacher training (for both primary and secondary schools),in terms of conducting seminars/workshops, introducing the new teaching, and assessment approaches in line with the existing CBC. Secondly, he was among the two curriculum developers whom I interviewed and shared ideas with about my study in 2010, and I considered that inviting him to attend the group discussion with teachers would provide him with first-hand information of the teachers to understand the content of the intervention, and provide me with

comments on its feasibility on the basis of his experience of supporting teachers in schools. Three of the teachers had participated in the first consultative activities in October and November 2010, and the other three had not. The latter were invited to obtain a fresh-eye on the feasibility of the second draft of the assessment contents for implementation. The three teachers who participated in the first consultative activities in October and November 2010 were invited for three purposes, namely to provide me with:-

i. Feedback on any of the assessment contents for the intervention that they had implemented between January and February 2011.

ii. Feedback on the second time on the assessment contents for the intervention. For example, feedback in terms of whether they found that the second draft of the intervention addressed part of the comments they suggested in the first consultative group discussion.

iii. Subsequently, I asked two of them (one for Mathematics and one for Geography) to allow me to observe them trying out implementing collaborative pupil peer assessment for formative administration of the exercises in their classrooms, and then to discuss the experience of implementation.

Discussing the modified intervention involved holding one focus group discussion about the draft of the intervention and classroom observations with two teachers. The manner of presentation and discussion with the teachers about the contents of the intervention and its feasibility was relatively similar to the first consultative discussion held in October and November 2010. On the other hand, the curriculum developer participated as an active listener and observer by noting down any aspects that he could find of interest in my presentation and discussion with the teachers. At the end of the group meeting when the teachers left, we discussed the observations that he had made, particularly about the assessment contents of the intervention and their feasibility from his point of view.

In regard to classroom observation, each of the two teachers was observed twice in a period of two weeks. After the classroom observation, post classroom observation interviews were held which involved the teachers reporting on their experience of implementation. The interviews also involved and discussed what I had observed, and asked for comments or clarification from the teachers. Specifically, in terms of insights of the implementation of the intervention with the intervention teachers, this first-on-site classroom implementation of the collaborative pupil peer assessment (CPPA), and follow-up enriched the preparation and development of the intervention in many ways. For example, this helped me to:

- Devise a structure and initial content for classroom observation of implementation of the CPPA on the basis of first-hand experience

- Develop thoughts for strategies to discuss with the intervention teachers on how to introduce CPPA in their classes with minimum undesirable effects to pupils

- Develop strategies to engage the intervention teachers in anticipating and suggesting how the undesirable effects of introducing CPPA could be minimised

4.2.5 Outcomes of working with non-intervention teachers

As a result of the above activities, I learnt the following specific lessons and made some further changes in plan, content, and strategies for supporting intervention teachers to adopt the formative assessment approach for teaching and learning. They included:

- In terms of the study participants, the initial plan was to work with Mathematics and English teachers of the four core subjects (namely Mathematics, English, Swahili, and Science) for primary education in Tanzania. However, through the discussion with the English teachers, it became apparent that involving English would be too demanding in terms of the key skills and competencies because most of the teachers were generally insecure. Therefore, in addition to other reasons

(Section 3.4.3), I opted to include Mathematics and Geography for core and general subjects taught in primary schools, respectively.

- In regard to the content of the intervention, I learnt that the content of the intervention should focus on key ideas, processes and their connection to one another for the teachers to internalise and make sense of, rather than providing them with a list of practices to adopt. For example, concerning the marking of pupils' responses in exercises, I decided to focus on the interpretation of pupils' responses in order to establish evidence of the strengths and weaknesses of the pupils' understanding of the subject contents, rather than asking the teachers to replace the existing practice of providing affective comments or grades with written comments. I also decided to focus the intervention requirement for the marking of the exercises on interpreting pupils' responses in order to obtain evidence or information about strengths and weaknesses in pupils understanding for remedial teaching, and I dropped the initial requirement of marking by providing written comments to pupils on what or how to improve their work. It also provided me with an insight into the intervention aspects that could be challenging for the intervention teachers to implement (for example, providing written comments when marking pupils' assessment work). Conversely, the discussions on the aspects of the existing CBC helped me to understand the teachers' interpretation and understanding of the CBC expectations. Thus, the discussion with the pilot teachers enabled me develop a tentative list of key ideas that were envisaged in the existing CBC (for example, participatory learning approach, prior learning, etc.) as a starting point of intervention implementation.

- Strategies for supporting teachers to understand the intervention objectives. I also learnt that teachers can be enthusiastic about a particular 'new' idea but develop practices that are incongruent with

the 'new' idea. This insight was helpful in planning how to introduce and ascertain whether or not teachers' practices reflected the intervention intentions. For example, in the actual implementation of the intervention, supporting teachers to plan formative exercises, the discussion focused on whether or not the content of the exercises and lesson parts (objectives) matched each other. Additionally, I also learnt that the manner of introducing 'new' ideas, including how the teachers could interpret and react, matters. Therefore, the discussion on intervention implementation focused on the meaning of key ideas first, and then moved on to the implications for practice, rather than focusing on a discussion on practices to be adopted.

- I also developed an understanding that teachers used particular buzzwords in their own language to refer to the particular ideas that are introduced in schools for them to implement. I noticed further that the teachers used the buzzwords as mental maps to refer and/or define the main conceptions and practice, some of which were and some were not in line with the expectations of the CBC. The implications of this observation for actual implementation included discussing the misconception first, identifying which of the misconceptions were essential and directly related to intervention, then, using the discussion of the misconception as a starting or entry point and connecting the actual conception and operational meaning to the intervention requirements. I developed a sense that in the actual implementation of the intervention, I would need to acknowledge and work on the existing cultural, structural, and material conditions, all of which were important in the process of designing and implementing the intervention. For example, I learnt that there were aspects to which the pilot teachers were resistant, and they were likely to emerge in the actual implementation of the intervention.

- Moreover, I found that the pilot teachers acknowledged and commented more positively on the aspect of being asked to give their views on the intervention as a way of considering its feasibility. One teacher in the pilot discussion commented:

> 'Although I find adopting some parts of this approach for assessment difficult…ehh, the teachers will face some difficulties at the beginning. But your approach of discussing with them will help them understand…the other thing I see, is whether they will like what we have done here. I mean what we have discussed among ourselves…that is very good' (Pilot teacher, November, 2010).

- The understanding of assessment in relation to classroom teaching and learning that I gained from talks with curriculum developers and from documentary reviews was in line with that of Stake (2005) who suggests that, qualitative researchers can speak to individuals who experienced the activity in order to enhance their understanding of the phenomenon under investigation. The next section explains the contact and recruitment of teachers who implemented the intervention.

4.3 Contact and meeting intervention teachers

4.3.1 Insights of visits to schools

Overall, I developed an understanding that the intervention teachers were both enthusiastic and concerned about the aims of the intervention and how it would be conducted. There are three main observations that I made from talking with head teachers and class teachers.

Firstly, teachers seemed to consider that assessment is the teachers' territory, i.e., assessment as an aspect that each teacher is expected to know compared to teaching methods:

> 'Is there a teacher who needs to be 'taught' new ways of using assessment, you are saying, even how to mark the exercises, how come that a person is a teacher then?' (Non-intervention teachers during introduction).

Secondly, teachers also appeared to have been fed-up with frequent changes that were frequently introduced in the schools for them to implement:

> 'We are still struggling with 'mhamo wa ruwaza' (paradigm shift), again you are bringing up another approach. How are we going to accommodate this new approach?' (Head teacher in intervention school).

> 'It reaches to an extent that, whenever we see someone wanting to introduce new things, we get anxious. You just say, there comes another one, with a NEW thing, every time a NEW thing. Also, you now, you are also coming up with another approach. How is this going to fit in with what teachers are already doing now?' (Head teacher of intervention school).

Thirdly, the role of the teachers in research activities in schools, as subjects of the research with no input or contribution to make, is to how it will be carried out:

> 'We are used to most researchers who also visit us. They give us their papers, we answer their questions, and that is simple, everything is done' (Non-intervention teacher).

> 'Ooh, don't tell me, this research can take about a year, what will you be investigating for all that period?' We are used to few days of research (Head teacher of intervention school).

The above observations implied that the support for intervention teachers to understand and implement the intervention would involve more activities, group meetings and would take more time than originally anticipated. Section 4.3.2 explains motivation of the teachers to take part in the intervention.

4.3.2 Motivation of the teachers to take part in the intervention

While it is not easy to directly assert the exact factors that motivated the intervention teachers to decide to participate in the intervention, three main factors could be attributed to their motivation to take part in the study. The initial declaration that the intervention envisaged planning and conducting assessment in line with a view to learning consistent with the existing CBC, it can be argued that, most likely the potential teachers saw a point in taking part in the study because, in the first place, they were already struggling with implementing the existing CBC. Besides, as implied in Section 6.3.1, overall, the teachers were generally dissatisfied with the traditional top-down approach for introducing curriculum change in schools. Therefore, the initial declaration that the intervention would involve the use of a collaborative approach could have created interest and a sense that their views and experiences about the research topic were valued and recognized, and could partly be considered in the contents and ways of implementing the intervention. In that regard, one teacher had this comment to make:

> 'It is better that you have come. We will tell you, and go and tell the TIE people that some of their things do not work. They have to consult us, we are the people in the field.'

Thus, the sense of respect and recognition of the teachers' points of view and experiences may also have contributed to their inner drive to take part in implementing the intervention. Additionally, the promise and assurance that consultation with head teachers would take place on any adjustments that could emerge in regard to planning and conducting classroom teaching during implementation probably provided confidence in teachers to participate in the study, as well as support from the school administration for the adjustments in adopting the intervention. Moreover, the strategy of holding open discussions with teachers, staying in schools, and the declaration about the collaborative nature which included discussing their

interpretation, understanding, and practices of the existing CBC, partly reinforced the potential teachers to see the relevance of the research topic in their day-to-day classroom teaching and learning activities. This might have contributed to their motivation to take part in the study.

4.4 Phase Two: Discussion of the intervention, implementation, and support

This phase involved two stages. Stage One involved a discussion of the intervention, follow-up, and support activities that were conducted with individual teachers and through discussions in group meetings. Stage Two involved a review of the assessment contents and implementation strategies for the intervention.

4.4.1 Stage 1: Discussion of intervention, outcomes, and commencement of implementation

The discussion of the contents of the intervention involved firstly holding one group meeting which combined all intervention teachers, then further discussion of the intervention requirements were conducted through subject-based group meetings. The discussion on assessment contents and strategies for implementation with intervention teachers was conducted in similar way to pilot teachers (Section 4.2.4.1) and focused on planning, administering, marking, and using assessment results from exercises in line with requirements for formative assessment. The discussion also took into account the teachers' conceptions and practices of assessment.

The main outcomes of discussion of the intervention in the first group meeting and decisions for implementing the intervention included:

    a. List of concerns from intervention teachers about the assessment contents and strategies for implementation and a plan to address them

    b. Agreement on a gradual and coherent plan of implementing the assessment contents of the intervention package

i. Construction of exercises and interpretation of pupils' responses

ii. Solicitation of pupils' opinions on CPPA before the actual enactment

c. Agreement on plans for more discussion of aspects (themes) that emerged in the first group meeting. They included:

i. Connection to the CBC concepts and principles of the assessment contents and strategies for implementation that were espoused in the intervention

ii. Flow of class work and lesson schedule in connection to the implementation of the intervention

iii. Question and answer, and 'oral' assessment strategy

iv. Consideration of language and translation issues

4.4.1.1 Concerns of intervention teachers

Comments from the intervention teachers on the feasibility of adopting the formative assessment approach for teaching and learning purposes included:

1. Concerns related to (a) 'authority', and (b) the teachers' role and how they related to their pupils in different aspects of assessment for teaching and learning purposes, compared to what the intervention asked them to do.

2. Concerns related to the interpretation of the intervention requirements in contrast to their existing views and practices. For example, regarding construction - they felt it was too demanding and needed a lot of research into various references.

3. Concerns related to seeing part of the intervention were not consistent with what they personally expected/perceived about particular practices of conducting assessment for teaching and learning purposes (for example, CPPA).

My response to the concerns which the intervention teachers expressed about the intervention included (a) acknowledging the various concerns

which intervention teachers expressed about feasibility of the intervention in their contexts, (b) consultation with head teachers, and giving the teachers feedback on some of their concerns. For example, agreeing with head teachers that participants would not need to submit the weekly lesson plans at least for the first month of implementation (at the beginning of the implementation), (c) asking the teachers to think about which aspects they could try out without compromising the requirements of the authorities, (d) asking the teachers to think what the reactions could be of the (i) parents, (ii) head teachers, (iii) school inspectors, and what response they could provide if one of the concerned personalities raised issues that they anticipated, (e) asking them of any past experience/incidence that related to their concerns about the pupils, parents, head teachers, and school inspectors in particular. The aim of asking the teachers to cite examples of incidences and how they responded was to see how they professionally responded to similar cases.

As a result of above, I realised that it could be necessary to remain open and the need for further discussion as the intervention proceeded. These took place in parallel with the intervention implementation. The main themes are provided below:

4.4.1.2   Themes for further discussion and strategies

Overall, there were four main themes that were discussed in subsequent group meetings. The themes were (i)key concepts and principles related to CBC (ii) assessment integration into the flow of class work (iii) consideration of language and translation issues (iv) teachers talking to pupils about CPPA. The discussions were conducted alongside the initial implementation of the intervention.

Theme i: key concepts and principles related to CBC

Discussions with intervention teachers involved providing them with a list of CBC's concepts and principles and asked them to provide evidence on how they used them in their day-to-day classroom teaching, learning and assessment. Intervention teachers were asked to:

> Firstly, explain their interpretation of the concepts and principles and how they were implemented in classroom teaching and learning.

> Secondly, explain the ways (if any) in which the concepts and principles were related to assessment for teaching and learning purposes in the context of the existing CBC.

> Thirdly, explain the ways (if any) in which the teachers currently carried out the assessment processes of constructing, administering, marking, and feedback giving of results through exercises.

Asking the teachers first how they actually translated the key notions embraced in the CBC in classroom teaching and learning before asking how they translated them in assessment activities was based on three reasons. Firstly, I had already understood that the teachers considered teaching and assessment as two separate activities. Secondly, I established which concepts were translated into classroom teaching and learning activities but not assessment activities. Thirdly, I had to double-check the understanding that I had drawn from documentary analysis, interviews with curriculum developers, as well as interviews and focus group discussions with teachers.

The other activity that was part of discussing the CBC's concepts and principals involved sorting out the concepts and principles related to teaching and assessment into 'macro[7]' and 'micro' levels. The teachers'

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7 Macro-level concepts or principles herein refer to the terms which were used interchangeably to explain what the CBC entails as policy and expected practices in actual teaching, learning, and assessment activities. Discussion of macro level concepts resulted in themes which produced follow-up discussion. The follow-up discussion involved micro

misconceptions of the CBC's concepts and principles were first discussed, and operational meanings of the terms which were relevant to the implementation of the intervention were agreed.

Theme ii: Assessment integration into the flow of class work

Discussion on the integration of assessment into teaching and learning, aimed at obtaining the teachers' understanding about the implications of the assessment column in each subject syllabus, scheme of work and lesson plan. This was discussed through pointing out that in the context of the existing curriculum, 'assessment has to be integrated into teaching and learning'. The discussion focused on the implications of the assessment component (column) in each subject syllabus, scheme of work, and lesson plan, as well as teachers' and pupils' lesson evaluation. It was discussed that adopting the flow of classwork as prescribed in the lesson plan schedule as expected in the existing curriculum was repetitive and unrealistic. And it was agreed that therefore the flow of classwork would be considered as consisting of three main parts: introduction, presentation and summary. The researcher argued that the other activities could essentially be part of any of the three stages of classroom teaching and learning.

The curriculum required teachers 'to continually assess' at all five stages of conducting the lesson. In response to this requirement, teachers considered 'simply' asking questions orally to check what the pupils had grasped as the only implication of integrating assessment into the flow of class work. The intervention teachers reported two main uses of the oral question and answer session at the beginning of the lesson and the end of the lesson. Firstly, evaluate the lesson. Secondly, make pupils attentive in class, or as an alternative to oral questions, sometimes the teacher wrote questions on the chalkboard and asked few pupils to answer them. The problems with this

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level concepts which were essentially targeting concrete activities in regard to teaching, learning and assessment within the constructivists view of learning on which the CBC was founded

approach may include: given the large class size, only a few pupils had the chance to ask or respond to questions, and the oral questions were ad hoc.

The notion of judging pupils' understanding on the basis of a representative sample to answer some oral questions violates the principle of learner-centered teaching in the sense that strengths and weaknesses in the understanding of individual pupils were not addressed. An outcome of the discussion was that teachers agreed to try out the strategies for involving more pupils, which was consistent with the intervention. The next section summarises the manner in which the teachers were involved in addressing some of the language and translation issues on some of the assessment terms, between the English and Swahili languages.

Theme iii: Consideration of language and translation issues

As reported in Section 4.2.1.2 and shown in Appendix 18, there were problems relating to how some of the technical terms were expressed in English when translated into Swahili, which was consistently observed in the documentary review, talk with the policy makers, and pilot teachers. Therefore, upon meeting the intervention teachers, three main strategies were used to deal with misconceptions that could be due to translation issues. The strategies included (i) Minimising the direct use of technical terms; (ii) code switching between English and Swahili for phrase and articulation of some technical terms, and; (ii) involving the intervention teachers to discuss and decide on the appropriate Swahili words to be used in order to develop the assessment concepts and practices that the intervention hoped to achieve. In addition, a further activity was suggested; which involved teachers talking to their pupils (theme iv).

Theme iv: Teachers talking to pupils about CPPA

Intervention teachers were asked to seek their pupils' views on how they interpreted 'incorrect' responses in their marked exercises, and new approaches of administering exercises (CPPA). This was accomplished as a

strategy for enabling teachers to test their perceptions about what their pupils thought about the implication of giving incorrect answers when exercises were marked. This activity also aimed at identifying what intervention teachers should ask their pupils to do in adopting the 'error analysis' and 'CPPA', which were part of implementing the intervention. The reasons for doing this activity included:

- The tendency of intervention teachers generally attributed to an inability to learn, mainly due to 'global' factors, such as a lack of materials or parental support at home, and most of their responses implied they held an innate view of pupils' ability to learn.

- Like the pilot teachers, the intervention teachers also showed an attitude of 'wanting to disregard' the opinions of the pupils in introducing and trying out a new classroom practice.

- To make it a starting point of making pupils aware of the intervention.

In respect to the above reasons and objectives, the intervention teachers were firstly asked to answer each question which they planned to ask the learners. They were then asked to find out what the pupils' thinking was and whether or not the pupils' responses reflected the thoughts of the intervention teachers. The teachers reported back about this in the interviews that were conducted with each teacher as the intervention proceeded. The outcomes of this activity included:

- Identifying similarities and differences in perception of incorrect responses in exercises between pupils and intervention teachers.

- Getting intervention teachers to reflect upon their thoughts about implications of incorrect responses and those of their pupils.

- Minimising the social distance between intervention teachers and their pupils.

- Raising the awareness of, and engaging pupils in, the new assessment approach.

4.4.2 Stage 2: Review of the intervention, further support for implementation in July and first week August 2011

This was conducted when schools opened for the second term in early July 2011. Overall, the intervention teachers had covered the following aspects in terms of implementing the intervention:

- Deciding on which curriculum concepts to focus on for purposes of implementing the intervention, for example, pupil prior knowledge, and new knowledge as reflected in the construction aspects of the exercises.
- They understood what carrying out the intervention package meant in practice.
- They started implementing CPPA.
- They started interpreting the pupils' responses in order to draw out the implications in terms of weaknesses and strengths in pupils' understanding.

In regard to assessment contents for the intervention, adopting CPPA and giving feedback on the marked exercises to pupils in actual classroom teaching and learning, the following aspects emerged as challenging to most of the intervention teachers:

- Creating a classroom climate that encouraged the discussion of assessment results.
- Adopting a formative dialogue (the talk and body language expressions) when discussing the assessment results of the marked exercises.
- Interpreting and picking up from the pupils' responses to extend the discussion for enhancing the pupils' understanding.
- Dealing with particular groups of pupils: for example, less outgoing pupils.
- Adapting to girls' and boys' cultural identities.

Such issues and experiences of implementation were discussed through further group meetings with the researcher, and moreover, intervention teachers were trained to observe each other's class and give feedback in a mutual and collaborative manner. Section 4.4.2.1 describes how training for collaborative peer classroom observation was carried out.

4.4.2.1 Collaborative peer classroom observation

Collaborative peer classroom observation was another strategy that was used for supporting the teachers to implement the intervention. The peer classroom observation was for the intervention teachers to support each other, particularly in relation to the contents of exercises and use of assessment information during classroom sessions. Teachers were trained on how to observe each other's classes and to hold discussion in a collaborative manner for supporting each other in implementing the intervention. Two days were used for training the teachers, and at the end of training, a list of aspects for classroom observation was produced.

On the first day I, the researcher, with one teacher as a co-observer observed two teachers separately, and afterwards discussed the outcomes of classroom observation in a whole group meeting. Firstly, I explained what was observed from the teachers implementing the elements of the intervention in the class. The teacher whom I had observed was then asked to comment on my observation by confirming, disagreeing, or giving clarification on whether or not my explanation was in line with what they meant or intended. Next, the co-observer presented his observation and the observed teacher commented on this. The outcomes of the second-class observation were also discussed in the same way. After this, the teachers and I discussed the two initial classroom observations to obtain a list of which areas to focus on. A tentative list was produced. The teachers then observed each other in their respective schools and met for a plenary discussion.

On the second day of the whole-group meeting, each pair of teachers explained what they had observed while other teachers gave comments, drawing on the list from the first two class observations discussed on the first day.After the presentations and discussion, the initial list of foci for implementation of CPPA and conditions for peer classroom observation was discussed and the final draft was agreed. It was also agreed that the same approach would be used for conducting and discussing the results of peer classroom observation between teachers as well as reporting in whole group meetings. Furthermore, it was agreed that the whole-group meetings would be conducted by rotating in each of the four participating schools in which visiting members would have the opportunity to observe host peer teachers, followed by whole-group meetings. In the first week of August 2011 I left the intervention teachers to continue implementing the intervention on their own. Section 4.4.2.2 describes consultations I made with administration of participating schools for teachers to implement the intervention and support each other in implementing the intervention.

4.4.2.2 Consultation with school administration

As part of supporting the teachers in implementing the intervention, I consulted head teachers at different stages of the implementation. The first consultation was at the beginning of the intervention in May 2011, which involved two requests: (1) for the teachers to be allocated the same subjects and/or classes for consistency and stability of participating teachers and pupils; and (2) for the teachers to be allowed to use research notebooks instead of the usual lesson-plan record books. I made this second request, because the usual (existing) lesson-plan books would not meet the intervention requirements for the lesson plans[8] that were envisaged for the formative construction of assessment, in order to avoid putting too much demand on teachers to duplicate lesson recoding and for documentary data collection strategy (Section 3.6.2 and 4.4.2.3). The second consultation was

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[8]Lesson plan here refers to the subject content that the teacher expects pupils to learn and corresponding exercises

in August 2011, when it was time for me to return to Leeds while the teachers continued to implement the intervention. The discussion with each of the head teachers, apart from showing my appreciation for their cooperation, included four aspects of the implementation of the intervention: (i) I informed them that teachers had been cooperative and interested in implementing the intervention; (ii) as per the collaboration approach for implementation, the teachers and I agreed that they would visit each other's schools for peer classroom observation and participate in whole-group discussions; (iii) the school visits would be coordinated by the contact teachers in liaison with the research assistant; and (iv) that the contact teachers in each school would inform the respective administration in advance about the peer school visits.

4.4.2.3   Teachers' research notebooks

The intervention teachers were provided with research notebooks and asked to use them for recording the contents of their lessons, the exercises, and their experiences in implementing particular aspects of the intervention. In terms of recording their experiences of implementation, the teachers were asked to use hints (for example, a sentence, phrase, or any illustrative artefact) provided that it could make sense to a particular teacher and be meaningful enough to provide the basis for discussion with me, the researcher, or when self-reporting or sharing experiences of implementing the intervention in group meetings with peer teachers. Furthermore, in order to record more realistic experiences, I asked the teachers to avoid the temptation to manipulate their actual experiences. For example, reporting more about 'benefits' or 'successes' and deliberately excluding or reporting less about the 'difficulties' or 'failures', for reasons such as trying to impress me as the researcher or peer teachers, or not wanting to admit to being unable to implement particular elements of the intervention. This was in particularly aimed at minimising the influence of 'social desirability' in teachers' self-reporting (Cohen et al, 2011; Jones, 1996). I asked the

teachers to avoid trying to impress me because when I was working with the pilot teachers, and during the initial follow-up discussions at the beginning of implementation, I noted that some of the teachers apologised for not implementing particular aspects of the intervention, but on the other hand, some reported to have implemented it, while follow-up discussions or through other methods it became apparent that they had not actually done so. In response to these observations, I asked, and it was agreed, that each teacher had to implement what was practical and convenient to them and be free to mention the parts of the intervention that they had not been able to implement. Moreover, they were asked to be as realistic as possible in recording and/or reporting their experiences of implementation, which also aimed at creating a sense and atmosphere of feeling safe and being free to share their experiences, and provided mutual support to each other (Malderez and Wedell, 2007).

4.4.2.4 Feedback and follow up for teachers

In order to support the teachers to understand the contents of the intervention and its implications in terms of practices and meaning, I initially used the strategy of providing them with blank forms and asking them to use their own words to outline the key ideas for the implementation of the intervention. For example, after the first group meeting in May 2011, I provided each teacher with forms for them to complete using their own words about what they regarded to be the key factors to consider in the construction, administration, and marking of exercises for supporting teaching and learning. The aim was to help the teachers reflect on and further internalise the contents of the intervention and its expected practices. Another aim was to determine whether or not their interpretation and understanding were in line with the foci of the intervention. Consequently, reading the forms they completed enabled me to discover gaps and misconceptions for discussion in the following meetings. It also helped me to identify the specific teachers who needed specific follow-up. I also provided

participating teachers with blank forms to complete after the whole-group meeting in July 2011, whose main objectives were to discuss the experiences of implementing the intervention, and to make further decisions after the initial trial which occurred between May and June 2011. The reason for using blank forms again at that stage was to encourage them to reflect on the agreed changes based on their own experiences, but also to provide the researcher with an opportunity to see whether a relatively common understanding about the actual implementation was established among the teachers.

The strategy of writing a summary copy outlining what had been agreed upon in the group meetings was also used, with the understandings that I had developed from them (for example teachers' concerns, or changes about a particular aspect of the intervention) for the teachers to read and/or comment on. I used this strategy when I returned to Leeds, and the teachers continued to implement the intervention in Tanzania between mid-August and November 2011. Through emailing the research assistant, I sent two feedback messages, who in liaison with the contact teachers[9], coordinated the whole-group meetings. Firstly, I wrote to brief them about the progress of implementing the intervention, which included highlighting the aspects they had managed to adapt; acknowledged the appropriate strategies the teachers were adapting in order to implement the intervention; and pointed out aspects that needed further improvement. The second and last pieces of feedback were sent after I had received two video records of the four whole-group meetings, which they conducted in my absence. This strategy of exchanging feedback with the teachers enabled me as researcher to stay in touch with the participating teachers and keep myself abreast of the progress of implementation for following up and developing the research

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[9] Contact teacher refers to one teacher who was selected from amongst the participating teachers from each of the four schools to play the role of coordinator, which included liaising with the researcher, the research assistant or school administration in order to arrange group meetings, feedback or other communication to peer teachers.

instruments for final data collection between mid-January and February 2012.

4.5 Phase Three: Teachers implementing the intervention in the absence of the researcher

The information for this section was extracted from the teachers' research journals and video-audio records for the four whole-group meetings which the teachers conducted between August and November 2011. The intervention teachers, as part of the collaborative approach, conducted class observations of and discussions with peers in the same schools at least once a week, and those in other participating schools. Some of the peer class observations and teacher discussion were presented and discussed in the four whole-group meetings that were held. Table 4.4 provides a descriptive summary of the four whole group meetings which the intervention teachers conducted. With the exception of the whole group meeting that was conducted on 3rdSeptember 2011, the other three group meetings were facilitated by one intervention teacher (T6) who was selected by peers.

Table 4.4: Summary activities of whole group meetings of intervention teachers

Date of meeting	Meeting place	Main activities
3rdSeptember, 2011	School 1SW	1. Intervention teachers in School 1SW were observed by peer teachers from other schools on 2nd September, 2011 and the outcomes formed part of the discussion in this group meeting; 2. discussed feedback messages from the researcher
22ndSeptember, 2011	School 2BL	1. Intervention teachers in School 2BL were observed by peer teachers from other schools and the outcomes formed part of the discussion in this group meeting; 2. Presented and discussed individual's and each other's experiences of intervention implementation
13th October, 2011	School 3BT	1. Intervention teachers in School 3BT were observed by peer teachers from other schools and the outcomes formed part of the discussion in this group meeting; 2. Received and discussed feedback messages from the researcher
30th November, 2011	School 4IS	1. Intervention teachers in School 4IS were observed by peer teachers from other schools and the outcomes formed part of the discussion in this group meeting 2. Discussed overall experiences intervention implementation 3. Plan for areas to focus on for implementation of the intervention in the next school year

As it can be seen in Appendix 23, the group meetings benefited the intervention teachers as individuals as well as a whole group in developing their formative assessment approach. At an individual level, the combined group meetings provided an opportunity to report and discuss the experiences of implementing a particular aspect of assessment in line with the intervention of peer intervention teachers. It was also an opportunity to receive comments from peers on whether the reported experience or initiative was in line with the intervention. At group level, the intervention teachers used group meetings to reflect on whether or not their experience of implementation as a group was in line with the formative view of assessment that was espoused in the intervention. The intervention teachers took different roles in the group meetings. They included expressing the concerns or difficulties that they encountered; reporting about beneficial aspect; arguing a point in respect to intervention requirement; arguing a point not in respect to the intervention requirements; reminding peer teachers to reflect and focus the discussion of matters arising in respect to the intervention requirements.

Through following up by observing their audio-video records, I found that the teachers challenged each other in regard to remaining focused on the aims of the intervention, relevancy of feedback they gave and received from each other, issues relating to their mastery of subject knowledge, and difficulties which they meet in teaching particular parts of the lesson. As explained in Chapter Three the records of the four meetings were partly used to develop the instruments and activities that were used at the end of the implementation, as conducted in February 2012. Section 4.6 presents the final activities of intervention.

4.6 Phase Four: End of implementation cum evaluation of intervention

Overall, three sets of activities were conducted to explore the outcomes of implementing the intervention. They included: (i) activities for establishing

where teachers were then in terms of formative assessment practices and conceptions that they had developed; (ii) activities for obtaining further insight about the positive outcomes and challenges which the intervention teachers reported/exhibited and faced at different stages of implementing the intervention; (iii) activities for intervention teachers to demonstrate positive outcomes and challenges.

The first category of activities involved in establishing the formative aspects that the teachers were implementing included analysing teachers' reports, interviews, observing their lesson records, pupils' work, and classroom observations (Section 3.6 in Chapter Three).

The second included activities to identify gains that the teachers exhibited or the challenges which they encountered in implementing the intervention. These were obtained through:

- Interview discussions with individual teachers on particular aspects (for example T1 challenge in involving the less outgoing pupils in a formative talk; T2 and T3 about pupil enthusiasm issues; T6 about the use of Grades),
- FGDs discussing the challenges that each teacher appeared to face and how they dealt with them.

The third included activities for testing the reported gains including a peer review of the construction of exercises, and a peer review of teacher interpretation of pupils' responses which were conducted to corroborate the gains which the teachers had reported about planning lessons and relevant assessment exercises in their subject-based group meetings. The peer review about the construction of exercises entailed teacher presentations in subject-group meetings conducted after individual interviews and classroom observations to identify experiences of implementing the intervention. The group discussions also aimed at triangulating the formative aspects related to the construction of exercises as observed through lesson records and reports

in interviews. The teachers were asked to individually prepare in advance in order to make it a useful experience for everyone, and were also asked to bring their textbook, syllabus, and research notebook on the day of the focus group. Each of the teachers was asked to (i) state their lesson and list its parts, (ii) write a set of questions (exercise) for the stated lesson contents, and (iii) list the respective specific objectives for each lesson. Afterwards, each teacher presented their work while other members commented specifically on three things, namely, whether relevant aspects of the lesson were considered, the extent to which the questions for the exercise matched or captured the key aspects of the lesson, the quality of the questions to gauge the learning of key aspects, or stimulate further discussion and learning of the targeted lesson aspects.

4.6.1 Synopsis of teacher support strategies

This section provides a reflective account of what I experienced and learned about in supporting the intervention teachers to adopt the formative assessment approach for classroom teaching and learning purposes. My personal reflection focuses on the stages of supporting the teachers as it emerged, and as accounted in the above description.

There were three rounds of support for the intervention teachers. The first focused on identifying the teachers' 'actual' or existing views and practices on assessment in relation to teaching and learning purposes, internalising the principles of assessment that were espoused in the intervention, developing indicators for achievement, identifying possible challenges arising from implementing the intervention content (formative assessment strategies and techniques) and devising strategies to avoid or minimise their impact on intervention implementation. At this stage the challenges were a mixture of actual and perceived. The challenges for the intervention teachers emerged in various forms such as, (i) concerns about the response of the parents, policy makers, school administration and pupils, (ii) the time demands, and (iii) the professional demands which the intervention posed.

The second round of teacher support focused on dealing with unforeseen outcomes of implementing the intervention, conducting different parts of the assessment process in line with the thinking that was espoused in the intervention, substituting the 'old' content with the 'new' content, that was adopted as the implementation unfolded. Here the challenge for the teachers included balancing achievement and emerging demands as new conditions for implementation unfolded. For example, teachers' celebrating achievement but after discussion with peers, or the researcher finding that what they did was not in line with the thinking of the intervention, or teachers adopting aspects of the intervention that they found of interest but holding on to other old practices that limited the impact of new practices. From the above account this can be designated as the period between late April and May 2011.

The third round of teacher support involved enabling and sustaining amicable relationships and rapport among intervention teachers. Despite the initial and continued reminders that the teachers should adopt a positive approach to whatever peers might say, yet, the observation of the video records and follow-up interviews with some of the teachers showed that they encountered moments of feeling challenged in the process of receiving feedback from peers. As can be seen, the intervention was a very complex process and Chapter Five presents the findings related to teachers' starting points before the intervention commenced.

CHAPTER 5: TEACHERS' PRE-INTERVENTION ASSESSMENT PRACTICES AND PERCEPTION

5.1 Introduction

This chapter presents the practices and perceptions of teachers before they implemented the intervention. The presentation is organised into two main sections in which Section One (5.2) presents the general assessment policy for teaching and learning purposes in the four participating schools. Section Two (5.3) presents the pre-intervention teachers' practices and perceptions across aspects of construction, administration, marking, and the use of assessment information for teaching and learning purposes.

5.2 General school assessment policy for teaching and learning

The review of the Tanzanian education documents (Section 4.2.1.2) overall showed that there was no specific written policy on assessment for classroom teaching and learning purposes for primary schools. Similarly, in each of the participating schools there was no statement or written notice in the staffroom, nor explicit guidelines for teachers, on how to conduct assessment for teaching and learning purposes. However, through the perusal of government provisions for school use and interviews with teachers, I found that certain patterns of assessment practices for teaching and learning purposes in schools were well established. Teachers generally observe the patterns they are expected to adhere to, which, in turn, can be considered as the existing assessment policy. At the beginning of each academic year, teachers administer exercises[10] which are provided in textbooks to revise topics of the previous year before they start teaching the topics of the new academic year. The first parts of most textbooks for each grade consist of sets of exercises for revising the topics that were covered in

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[10] Exercise refers to a set of questions which a teacher administers to pupils for assessment work in respect to a particular lesson.

the previous years. Correspondingly, the teachers' lesson records[11] and pupils' exercise books showed that teaching at the beginning of an academic year starts with a revision of the previous lesson aspects through administration of the exercises which were copied from the textbooks.

> 'We usually start teaching by giving revision exercises which are in textbooks to assess what pupils still remember or know about the topics they learnt in the previous year' (T2, Follow up interview, April 2011).

As implied in the above quote, the purpose of revision through the administration of exercises is to determine the pupils' prior knowledge, and discover if there are misconceptions about previous lessons. However, an observation of the contents of the exercises for revision work showed that they consisted of questions which required pupils to compute and reproduce factual information of the lesson aspects covered in the previous year. This meant that exercises for revision work did not assess and provide the teachers with information about the strengths and weaknesses of pupils' understanding of the key knowledge and concepts for subject content (topics) in the new academic year. Although each mathematics textbook contained exercises for revision, the revision of the previous year did not, in any way, assess the previous year's concepts that were needed to support learning in the current academic year.

The other general practice relating to the assessment was that teachers tailored their teaching around the questions on the exercises that were provided in the textbooks. After teaching one or more lessons the teachers mainly copied or made slight changes to the content of the ready-made exercises in the textbooks to obtain a set of look-alike questions for assessing their pupils. Indeed, the contents of the exercises provided in the textbooks matched the teachers' lesson notes and pupils' work. This implied that the teachers aligned their planning and conduct of classroom teaching and assessment to exercises that were provided in the textbooks. The

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[11] Lesson records include the scheme of work, lesson plans, and lesson notes for classroom teaching.

following quote extracted from pre-intervention group discussions supports further these findings:

> 'As you have mentioned, it is true that notes or worked examples for illustration in textbooks are similar, the exercises are also similar to them. To me this is good. Inspectors also check how well pupils are performing in the exercises. When inspectors find most pupils get most questions wrong in marked exercises, you will be asked why. So, when I prepare to teach, we also consider what the exercise is about' (T5, April 2011).

I also observed that teachers were pre-occupied with marking the pupils' exercises that they had administered in class. For example, I noticed that in all participating schools, teachers marked pupils' work in staff rooms during break time. Sometimes after classes they spent one hour or more marking in order to be able to return the pupils' exercise books on time, before the next classes. Throughout all the visits I made in the schools to meet participating teachers, when the visits involved staying in the staffrooms, I found that teachers were either surrounded by piles of pupils' exercise books for marking, or were busy actually doing the marking. After class it was usual to see class monitors assisting their teachers carrying piles of exercise books to the staffroom for marking.

5.3 Teachers' pre-intervention practices and perception

5.3.1 Practices and perceptions related to construction of exercises

Interviews with teachers and observation of their lesson records and pupils' exercise books showed that teachers mainly copied or slightly altered questions that were provided in the textbooks for exercises to assess and judge the extent to which pupils understood the lessons.

> 'After teaching (explaining) I usually give one or two examples for pupils to do and then check in the textbook which question I can use for exercise for them to do it' (T6, Follow up interview, April 2011).

> 'Sometimes I change questions in the textbook, for example, if I used two plus two for working examples I can give similar questions like three plus four or two plus five. My aim here will be to not repeat the same questions in the exercise for my pupils' (T2, Focus group, April 2011).

'Apart from changing I also include questions about other sub-topics to see if they remember previous lessons, like the lesson that were covered in previous years, months or school term' (T1, Focus group, April 2011).

'In my case I usually don't change, because there are enough exercises in the textbooks for choosing questions particularly in higher grades which I teach. So I simply choose an exercise from the textbook' (T5, Focus group, April 2011).

From the extracts above, it is clear that the main aim of altering questions from the textbook for pupils' assessment work is to simply obtain questions that were different in content from those used for working examples or original questions found in the textbook (for example, T2). Although all participating teachers said that they constructed exercises for assessment work in line with specific objectives of the lessons, teachers' lesson records showed that each of the lessons consisted of only one generally stated 'specific' objective which paraphrased the sub-topic in hand.

Furthermore, follow up discussions with teachers on the contents of the exercises and lessons which they had conducted in class on the day of interview, showed that each of the teachers explained that in general the exercises related to the lessons they had taught, and the specific objective of the lesson or the topic/subtopic they were teaching at that time. The extracts below illustrate this.

'Since I know the topic or subtopic, I just choose the questions in the textbook for exercises provided that they differ from each other but are related to the subtopic at hand' (T1, Mathematics focus group, July 2011).

'The specific objective of the lesson is the key thing I consider in selecting questions from the textbook for giving pupils for exercise, after all, for each sub-topic there are exercises given in the textbook for testing the pupils' (T5, Mathematics Focus group, July 2011).

'When I prepare the exercise, I have in mind the specific objective of the lesson. Before teaching I must know the specific objective for the lesson that i want to teach and pupils learn about' (T2, Mathematics focus group, July 2011).

The above account, as supported by the extracts, shows that teachers cursorily prepared the exercises after teaching the lessons. In addition, the fact that when probed even further about the specific lesson aspects on which their exercises were based, teachers could not clearly explain the connection between the contents of their exercises and lessons by stating the key concepts, principles, facts, and their relationship that were assessed by each question in the exercise. As seen in most teachers' sets of specific objectives, their statements of specific objectives did not explicitly specify nor imply the conceptual aspects, even when they were about new lessons.

This had two implications for the teachers. Firstly, the teachers lacked the skills to analyse the subject contents to plan well thought out lessons and corresponding assessment work to support their own teaching and pupils' learning. Secondly, the teachers considered that the role of assessment had more to do with determining whether the pupils remembered previous lessons. The second implication is supported by the fact that some teachers (for example, T1 and T3) included questions in the exercise that assessed lesson aspects that were not relevant for the lessons in hand, but rather assessed pupils' memory of previous subject contents instead.

Additionally, interviews with teachers and observation of their lesson plan records showed that constructing the exercises without a thorough consideration of the respective lesson aspects was partly due to the habit of deciding on questions for the exercises after teaching.

> 'I also use some of the questions in textbook as examples when teaching. When it is time for exercise, I just use the questions in the textbook, I mean after teaching I check and note questions in the textbook for exercise' (T1, Follow up interview, May 2011).

The observation of each teachers' lesson records also showed that they did not include questions prepared in advance before teaching, rather they only showed a comment that 'pupils will do an exercise' at the end of the lesson. In regard to teachers' perceptions, this implies that, the practice of not

preparing the assessment at the time of lesson planning was evidence that teachers perceived teaching and assessment as two separate activities.

Some teachers also mentioned that constructing exercises for assessing pupils from the exercises provided in the textbooks was undertaken in order to comply with what the curriculum (school inspectors and curriculum documents) expected of them in conducting assessments. The following extracts during discussion of intervention in May 2011 illustrate this:

> 'Inspectors check whether the pupils are given enough exercises from textbooks and whether teachers mark the pupils' exercise books. Even when I include my own question, I have to include questions from authorised textbooks otherwise you can be in trouble' (T4).

> 'The specific objectives about a topic or sub-topic are stated in the syllabus and I plan the lesson for teaching and the exercise after teaching accordingly, I am expected to follow the standards' (T5).

> 'Our teaching and assessment have to align with the specific objective of the lesson, the specific objective is the main guide for my work as emphasised in the syllabus' (T2).

In the same group discussion of the intervention, teachers gave other factors which they used to consider when constructing and deciding about quality of exercises for pupils' assessment work, including the grade level of their pupils and the amount of time required to mark their pupils' work.

> 'For higher grades we set ten or more questions for one exercise because pupils in higher grades are supposed to have more work because of their age level and the topics are long and need more questions' (T6).

> 'In case of higher grades where we give more exercises for more practice, if an exercise in the textbook has many questions, I can give half of the questions for the exercise in the morning session and do the rest for the afternoon session or tell pupils to do it on their own without it being marked' (T5).

The extracts above suggest that the general practice of providing many questions for assessment exercises in higher classes was based on the view that more exercises would help pupils review the lesson content which they had covered. However, perusal of the contents of exercises showed that

most of the questions did not assess pupils' understanding of the concepts related to the lesson. This implies that even conducting many exercises for pupils in higher grades, as from the teachers' point of view, would contribute greatly to rote learning rather than deep learning. It could also imply that, there is a loss of teacher's and pupils' time that could be spent on teaching and learning activities.

Moreover, teachers also constructed assessment work for pupils with the general view that a 'certain' number of questions for exercises would be 'too much' or 'too little' in terms of keeping pupils busy; or else their pupils would consider the lesson as well as the teacher as not serious. For example, T5 stated, 'If you give two or three questions for an exercise, it is likely that even your pupils will see that you are not serious'. This view was also shared by other teachers. When I asked T3 if she would set an exercise composed of two or three questions to her grade three Mathematics class, she commented that:

> 'If you give only a few questions, like two or three only for the exercise, that is not enough. All pupils can also see that is a too small or light assignment to constitute a serious exercise for them to do' (T3).

Apart from generally considering a 'few' questions as inappropriate for pupils' learning, other teachers attributed their practice for more questions in relation to the requirements for pupils to learn Mathematics. That is, other teachers constructed exercises with a certain number of questions on the belief that at least a certain number of questions for exercise is considered as standard. For Mathematics in particular, the teachers were of the view that at least ten questions are the standard number for pupils' exercise.

> 'Ten questions is good for the pupils' exercise in Mathematics. You can give less or more than ten depending on factors such as class size and the time for marking' (T5).

> 'In Mathematics a teacher is supposed to give an exercise of 5 to 10 questions, any number between 5 and 10 is OK. If the number of questions is below five then that number is not sufficient even for pupils in lower classes' (T1).

This view of setting lengthy exercises for pupil assessment was supported by the minimum of five questions for each exercise that I observed which the teachers had administered to their pupils. For example, looking at some of T2's pupils' exercise books, which he had administered in the year 2009, it is clear that the notion of setting lengthy or further exercises for improving pupils' learning was evident. In some days T2 administered more than 20 questions for one lesson (period) taught in a day. The next section presents the teachers' pre-intervention practices in relation to the administration of exercises.

5.3.2 Practices and perception related to administration of exercises

This section presents the teachers' pre-intervention practices in terms of when the teachers provided exercises in the flow of class work (lessons) and how teachers engaged the pupils in conducting and discussing assessment work for teaching and learning purposes.

As mentioned in Section 5.3.1 above, the teachers administered exercises for pupils' assessment work after teaching at the end of the class. Observation of the teachers' lesson plan records[12] showed that pupils' undertaking the provided exercises was the last activity, and little time, mostly between five and ten minutes, was allotted for this in the flow of class work. Additionally, during the follow up classroom observations of participating teachers, it was common to find pupils' previous lesson exercises still being copied from the chalkboard, or carried out during the next lessons, and thereby interfering with teaching and learning in the next class. On the teachers' part, before entering the class for observation, I encountered several occasions of hearing a teacher reminding pupils to complete their work. It was also common to see the teacher finishing writing their questions on the

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[12] The three columns of the lesson plan schedule in which teachers completed their plans of their daily lessons in terms of teacher's activities, pupils' activities and assessment.

chalkboard for the pupils' assessment while another waited to enter the classroom.

> 'After explaining about new knowledge [13] I choose one, two, or three children to do example questions on the chalkboard by leading others and afterwards I take some questions from the textbook and write them on chalkboard, or I just instruct the pupils which questions in the textbook they should answer' (T5).

> 'Having returned the exercise books to the pupils I involve them in doing corrections. For example, I can ask those who did not get the questions correct one or three to put hands up, and then I can do the correction by myself or ask a pupil to do it for the class on the chalkboard' (T2).

The extracts above suggest that when pupils go wrong there is no remedial work except the corrections done on the chalkboard. Therefore, it was likely that problems about learning particular lesson aspects were carried over into future learning. For example, although pupils' work in the exercise books indicated that there were cases where pupils performed poorly by answering most of the questions incorrectly, there was no record of corresponding assessment work after and/or to support remedial construction.

In regard to allowing pupils to collaborate to complete the assessment work, overall, most of the teachers reported that they did not allow pupils to work on exercises collaboratively, but rather they instructed pupils to work individually. The three extracts below illustrate the teachers' rationale to the individual pupil approach of carrying out the exercise work.

> 'As a teacher, I teach the lesson, I explain, work on examples on the chalkboard, how comes should I allow a child to be helped! The exercise is what shows the **ability** of a **child**. In fact, we are supposed to supervise children to see that each one works alone' (T2).

> 'We were also students in schools, now some of us are old teachers. In principle, the exercise helps the teacher to know if what I have taught has been understood by the children. We don't allow them also to **copy work** from each other. The exercise is for showing **ability** of the child. The exercise indicates performance of best pupil and slow learners' (T6).

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13 New knowledge means what the teacher intends to teach in the class which s/he considers that the pupils don't know.

'I can allow children to help each other only when making corrections of the exercise that they have already marked. If you allow children, they will stop listening during teaching because they **know they can copy work** from their **friends'** (T1).

The three quotes above share one common feature that the teachers preferred not to allow pupils to collaborate on, because they wanted each pupil to demonstrate their understanding of the lesson content as represented in the exercise. This view is supportive and it can be argued that it is a formative view of assessment. However, on the other hand, looking at parts or explaining the above quotes by increasing the tone and supporting body language in terms of gestures and facial expressions (bolded parts) in some of the teachers' expressions is also apparent. It also showed that the teachers' pre-intervention practice of not allowing the pupils to collaborate on the exercises was based on the innate view of the child's academic ability. Similarly, although it is positive for teachers to disallow their pupils to work on exercises by simply copying from each other's work, the parts and tone of teachers' expressions also implied that the teachers considered pupil collaboration as a 'malpractice' aspect of assessment. This will be explained further in the teacher practice in marking the pupils' exercise work.

As indicated in the first part of T1's extract above, all the teachers reported that they involved the pupils in discussing the assessment results of marked exercises. Indeed, parts of the teachers' lesson records showed comments for conducting remedial class discussion of marked exercises. However, when asked further to explain how they conducted the remedial class discussions, all of the teachers' responses indicated a pattern of a teacher working on the incorrect questions on the chalkboard which involved the teacher working on the questions and selecting some pupils to attempt to answer questions on the chalkboard. T5's quote below illustrates.

'We are aware of that now that we use a participatory approach in classes. So we ask few pupils to make sure they answer the questions. This includes even when making corrections of the exercises'.

Although the teachers reported on engaging the pupils in discussing assessment results during remedial teaching, follow up classroom observations showed that very few pupils had the opportunity to participate in terms of asking questions or responding to teachers' or peers' questions. The reasons included large class sizes and the classroom culture of chorus answers. The next section is about teacher's pre-intervention marking practices.

5.3.3 Practices and perception of marking pupils' assessment work

Interviews with teachers, and the observation of their pupils' exercise books, showed that teachers' marking feedback to the pupils involved giving overall scores to indicate the extent of performance and appraising comments, such as 'good' and 'very good' for the purpose of rewarding and motivating the pupils. It was surprising to notice that all teachers considered that 'low' scores and 'high' scores in exercises equally played a motivational role for pupils to work hard in order to improve their performance.

> 'When a child gets low marks, like one or two out of ten of the questions in the exercise, they will work hard so that they get good grades like their peers who score high. So giving grades is important' (T3).

> 'All marks help to motivate children to learn. If they find they have performed better it encourages them to study harder. Even for those who get low marks, it makes them to work hard' (T2).

The teachers perceived that low score in exercises encouraged, rather than discouraged pupils' morale to work hard in their studies. This notion was exacerbated by teacher's apparent perceptions that motivation (rather than reinforcement) can be either positive or negative. This went hand in hand with teachers' practices of instructing children who performed poorly in the exercises to stand up in front of the class to explain why they scored poorly. It was clear that teachers lacked an awareness that such habits could technically work as a punishment (and not a 'negative reinforcement' as they

seemed to assume), which could result in an unpleasant emotional experience for pupils, and thereby negatively affect their learning or interest in the subject.

Furthermore, through looking at marked work in pupils' exercise books, there were inconsistencies in the symbols that the various teachers used in order to mark the incorrect responses in pupils' work. For example, it was common for teachers to insert a question mark, cross out, or put dots on pupils' incorrect responses. In a follow up interview, when asked about the implications of the variations in the use of symbols for incorrect pupil responses, T2 replied that:

> 'I just use any symbol to indicate that the work is not right, sometimes I can put a question mark. This tells the child that something is not right. You just decide by yourself which of the symbols that we all know'.

Although pupils were not interviewed about their interpretation of the symbols included in their work, it is clear that the inconsistency in the symbols that the teachers used in marking, could affect pupils' interpretations about the meaning of the mistakes in their work, let alone the fact that it may not provide clear information (guidance) to pupils for improving their work. The next section presents the teachers' pre-intervention practices of lesson evaluation and use of assessment results (information) thereof.

5.3.4 Practices and perception related to lesson evaluation and use of assessment results for teaching

Teachers mainly relied on scores to infer the effectiveness and success of their own teaching and pupils' learning about the lesson. For example, when asked what interpretation she made about pupil understanding during or after marking pupils' work, T3 reported as follows:

> 'In my case I carry out lesson evaluation about the pupils' understanding while marking their work. When marking I see how many pupils scored question one correct, how many got all the questions correct, and how many of them don't understand at all'.

Although the examining of assessment work in pupils' exercise books indicated that there were cases where pupils answered most of the questions incorrectly, there was no exercise administered afterwards for remedial instruction. This suggests that the teachers did not analyse the pupils' work in the exercises to discern the strengths and weaknesses to inform their lesson planning and produce corresponding assessment work for remedial teaching to support pupils to learn and understand the lesson aspects which they appeared unable to understand.

Similarly, the teacher's written comments about the success of the lesson mainly included acknowledging how good the teaching method was and a remark to change the teaching strategy in the next remedial lesson. As can be seen in the extract below, T3's written comments, and her comments in pupil's evaluation and teacher's evaluation reflected a quantitative evaluation of the lesson, based on her estimation (Appendix 19 extract B part B2). In terms of formative assessment, the teachers did not take the time to interpret the pupils' responses in terms of what the mistakes could tell them about the learner's understanding and reasoning about the aspects of the lesson.

While teachers embraced the idea that lesson evaluation was about examining what the pupils have or have not been able, their comments did not suggest the specific lesson aspects that pupils understood, and which ones they did not understand (and the underlying factors). This suggests that teachers did not evaluate the lesson by inspecting and interpreting pupils' work, rather their evaluations were based on estimation, in order to get a rough idea of whether or not pupils have learned the lesson.

In the interviews and focus group discussions teachers attributed pupils' failures[14] in assessment work to a number of aspects that were not directly related to specific lesson parts. They included a lack of being attentive in class, a lack of ability to carry out Mathematics computation for some pupils, a lack of interest in Mathematics, or a general negative attitude to studying Mathematics. In two different focus group discussions, T6 commented:

> 'Some pupils cannot do Mathematics, they fail, to be honest, no one can explain how this happens, it is just natural some pupils do poorly in most of the exercises. Some children lack the ability to do Mathematics. It just happens' (Focus group discussion, April 2011).

> 'This subject (Mathematics) is just natural that, it is usual to find some children lack the ability or interest to do Mathematics. It just happens some children don't have' (Focus group discussion, May 2011)

As implied in the extracts above, T6 attributes some pupils' incorrect work mainly to their intellectual ability and interest, and other personal attributes in the subject. This implied that teachers perceived academic ability as a fixed entity, attributed learning to fixed intelligence, and inferred success in assessment work to this fixed intelligence endowment rather than learning through interaction and effort as embedded in the participatory teaching and learning under a constructivist paradigm which they claimed to embrace and adopt. The next chapter presents the post intervention assessment practices and perceptions of the teachers.

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[14] Teachers were asked, on the basis of their experience and understanding, why some pupils get some questions incorrect in the exercises.

CHAPTER 6: POST INTERVENTION TEACHERS' ASSESSMENT PRACTICES AND PERCEPTIONS

6.1 Introduction

Chapter Five indicated that overall, the teachers' existing practices and perceptions in regard to construction, administration, marking, and use of assessment results were generally summative, and reflected the traditional view of learning rather than the constructivist view, which is espoused in the existing CBC. This Chapter Six reports on the formative assessment practices and perceptions which the intervention teachers exhibited as a result of taking part in the intervention and how they supported teaching and learning of lessons. Consistent to the four sub-research questions that were posed in the Methodology Chapter (Section 3.2), the first section (6.2) presents the assessment practices and perceptions and how they support teaching and learning in respect to the four aspects of the assessment process which constituted the intervention, namely, construction of assessment exercise, administration of assessment exercise, marking of assessment exercise, and the use of assessment results. The second (6.3) presents the intervention teachers' views on the training process and support of the intervention.

6.2 Teachers' post formative practices and perceptions

6.2.1 Teachers' formative construction of exercises

This section presents the findings relating to the first sub-research question, "What happens when Tanzanian primary teachers try to construct exercises more formatively?" Interviews with teachers and observations of their lesson records and pupils' exercise books indicated a consistency between assessment and the teaching and learning objectives, which occurred after developing three formative aspects for the construction of exercises.

First, the teachers prepared the lesson contents and the assessment work together at the same time, and well in advance of teaching, so that they could construct proper links between teaching and learning, and assessment. The extracts from whole group meeting in August 2011 below illustrate this:

> 'If I know that tomorrow, or in the coming few hours, I have a class I take time to prepare what to teach and respectively set questions for the exercise before class' (T1$_a$).

> '…it becomes clearer in the sense that I can know the connection of lesson aspects for teaching and for children to learn and which questions I will use for exercise in a single or double period' (T1$_b$).

> '…analysing aspects of lessons for preparing a corresponding exercise gives us the picture to select few and suitable questions instead of striving to do all of the questions as we saw for others' (T4).

> 'Outlining the specific aspects for a lesson gives you the map for things to discuss in the class and for making the exercise' (T6).

> 'I choose questions for exercises depending on the aspects of the lesson I want to teach. Indeed, I choose the questions after knowing the areas to focus on in the lesson' (T5).

The above extracts imply that the act of teachers to prepare the exercise on the basis of clearly identified lesson aspects helps them to reflect on what to teach and assess the pupils(for example,T6). Furthermore, the extracts above also suggest that parallel planning of the aspects for the lesson and exercise before teaching provided the teachers with insights and opportunities to prepare appropriate assessment work for teaching and learning in classes (for example, T4, T1$_b$). In line with the extracts cited above, some parts of teachers' lesson records (T2, T4 and T6) showed two sets of questions: One set of questions was, for example, to illustrate a point during teaching. The other set of questions was for the exercise for pupils to work on individually which was followed by a plenary discussion about the assessment work before or after the teacher's marking. Moreover, further inspection of the contents of the two sets of questions which, the teachers prepared were complementary to each other. Below is one of T2's sets of exercise on the lesson about writing Tanzanian shillings in words:

Questions for work examples: Write in words	Questions for the exercise: Write in numbers
. 4,250/= . 250/= 103/= . 10,250/=	Five thousand and six shillings Three thousand and eighteen shillings

Secondly, the teachers constructed exercises by including questions that assessed pupils' previous knowledge which was relevant to the teaching and learning of the lessons at hand. Observation of teachers' lesson records and pupils' exercise books indicated that some exercises assessed particular pupils' prior knowledge or understanding of the topics that were covered in previous lessons, or grades that were relevant to the teaching of the current lessons. Additionally, during discussion in the follow-up group meetings, the teachers could also draw inferences about the quality of the exercises prepared by their peers and some of the comments involved, suggesting some relevant lesson aspects that were covered in previous grades which could be included as part of remedial teaching. As illustrated in the extracts below this practice suggests that teachers developed some new conceptions on what assessment is, and its role in their own teaching and pupils' learning.

'Personally, I have got the idea that, as I prepare the exercise for class... it's good to link it, the exercise with previous lessons when setting questions, so that previous knowledge, I mean that, testing previous knowledge helps to build new knowledge' (T4, Mathematics focus group discussion, February 2012).

'We have discovered that planning of lessons has to involve considering some aspects of previous lesson that are relevant to the current lesson. For example, I found, to teach certain multiplication calculations, I need to consider what my children already know about additions. This means the exercise on multiplication can include some questions on additions' (T2, Mathematics focus group discussion, February 2012).

'For me as T2 says, actually, I can write the questions on addition first and then questions on multiplication in the list of my exercise. Do you know what! This will help me to explain to children that, master addition first then multiplication will be easier' (T1, Mathematics focus group discussion, February 2012).

Essentially, the extracts above suggest that teachers developed a sense that the act of pupils undertaking the exercise for assessment constitutes a learning activity rather than a mere opportunity to demonstrate what they have been able or unable to learn in the lesson. Additionally, the teachers stopped the pre-intervention practice of relying only on textbooks to obtain assessment work for their pupils but included their own questions in the exercises. This was because they found that most of the exercises in the textbooks did not include the questions that assessed the previous knowledge of the pupils, which could be relevant for the teaching and learning of particular subject contents.

The above extracts also show that teachers developed the conception that it was relevant to include particular previous lesson aspects in the exercise so that when pupils attempted them as part of the assessment work, it would help them to learn the lesson aspects at hand. For example, some of the teachers' exercises (for example, T1 above), listed first the questions which assessed the pupils' previous knowledge in relation to the current lesson. Follow up interviews showed that teachers expected that this could help pupils to recall and bring forth their previous understanding of concepts which were relevant to the learning of the current lesson.

Third, teachers prepared exercises that were relevant to the lesson aspects in hand by combining questions from textbooks with their own questions. Concurrent to the extracts below, teachers' post-intervention lesson plan records and pupils' books showed that exercises covered the more essential aspects of the lessons for pupils to learn. The exercises were not merely copied from the authorised textbooks as had been the case previously. Indeed, the post-intervention lesson records and pupils' exercise books showed some exercises that were entirely the teachers' own developed questions for assessing particular lesson aspects.

> 'Nowadays, for most exercises that I prepare I add or modify some of the questions because I discovered that not all questions can be suitable for assessment work for lessons that I prepare for my classes' (T1, Follow up interview, February 2012).

'I choose questions from the textbook which I think can assess what I target. I can find some questions in the textbook satisfactory, or modify others or add my own questions depending on the lesson objectives. Nowadays, I don't just instruct pupils to do the exercise which is available in the textbook' (T3, Follow up interview, February 2012)

'…unlike in the past when teaching even where you find there are more than twenty questions you strive to finish them all. Preparing the exercise before class enables us to identify, for example, that question one to five are the same in format or content. In that case there is no need to do all of them. So you just consider content of the questions one after another' (T6, Follow up interview, February 2012).

Thus, the content and sequence of questions in the exercises for pupils' assessment work was more focused on their relevance to learning of the lessons in hand. Overall, this is also suggestive that teachers developed the conception that assessment is a central part of teaching and learning rather than just a means to check the effectiveness of teaching and learning. The next section presents formative aspects which teachers exhibited in administering the exercises for supporting their teaching and pupils' learning in their classes during post-intervention.

6.2.2 Teachers' formative administration of exercises

This section presents findings related to the second sub-research question which read "what happens when Tanzanian primary teachers try to administer exercises more formatively?" Post-intervention follow-up through interviews, reports and comments in group meetings; as well as observation of their lesson records and classes showed that teachers developed three apparent formative aspects for administration of exercises for teaching and learning purposes. They include, 1) integration of assessment exercise in the flow of teaching and learning activities, 2) adapting collaborative pupil peer assessment (CPPA) strategies for discussing the assessment exercise for classroom teaching and learning, and 3) establishing classroom norms for discussing the assessment exercise for classroom teaching and learning.

6.2.2.1 Integrating exercises in teaching and learning activities

At post-intervention, all teachers integrated exercises into their classroom teaching by allocating and using more time for pupils to complete the exercises and participate in the class discussion of assessment work. Generally, the teachers administered the exercises for pupils to complete halfway through the lessons. For example, on average, T2's lesson records indicated an allocation of 15 to 20 minutes for his pupils to complete the exercises or participate in the subsequent plenary class discussion of their work. Apparently, teachers placed assessment within the body of the lesson and in the flow of class work as part of their teaching and learning activities because they found it convenient. T4's extract below illustrates.

> '...because some children are slow, that more time will be sufficient for pupils to work on my three or four questions, give their answers...even the teacher for the next class cannot get problems. As you know, there is only one chalkboard,' (T4, Follow up interview, February 2012).

T4's extract illustrates that administering the exercises at times other than after or the end of teaching was convenient for teachers in terms of their pupils getting enough time to attempt the exercises without interfering with other classes. Consequently, that could address the systemic or school level established patterns in the administration of exercises, which unwittingly impeded their formative use as observed in the pre-intervention. These gains associated with integrating assessment work into the flow and actual teaching partly contributed towards the teachers being able to adapt various strategies for collaborative pupils peer assessment in order to generate discussion of assessment work to better support teaching and learning. This aspect is covered in the next section.

6.2.2.2 Collaborative pupil peer assessment strategies for teaching and learning purposes

All teachers adapted various strategies to conduct collaborative discussion of assessment work in order to support teaching and learning. Overall, the strategies which teachers adapted for collaborative pupil peer assessment (CPPA) involved a pattern of letting pupils do the exercise, exchange their exercise books, having between one to three pupils working on the chalkboard, then other pupils discussing what is written on the chalkboard by looking not at their own work, but at someone else's work. However, the teachers differed on how they conducted CPPA depending on their classroom realities and their individual experience (outcomes) in terms of what they found beneficial to their own teaching and pupils' learning. Below is an account of each teacher's conduct of the CPPA.

T1's CPPA strategy for class discussion of the marked exercise involved writing a sample of pupils' responses on the chalkboard, consisting of pairs of correct and incorrect work on a particular question; then, letting pupils discuss, in their seats, and explain their strengths and weaknesses in the correct and incorrect work, respectively. Alternatively, T1 wrote the questions which pupils got wrong and appointed two or three pupils to attempt them while the rest of the pupils discussed in their seats. Afterwards the pupils commented on the strengths and weaknesses of their peers' work on the chalkboard by comparing it with their own answers. During classroom observation I also observed T1 requiring two or three pupils to work on the chalkboard at a time and then the rest of the pupils comment on the work by explaining which is correct or incorrect and the reasons for their answers.

T2's CPPA strategy for the discussion of assessment work before marking essentially involved a pattern of letting pupils do the exercise, exchange their exercise books, getting one child to work on the chalkboard, then other pupils discuss what is written on the chalkboard by looking not at their own work but at another pupil's work. Discussion of the assessment work

involved the use of pupil pencil marking[15]. I also observed pupils marking their peers' work in the class, and noticed grey shades of pencil marking in the pupils' exercise books besides the ball pen marking, an indication that pupils were involved in marking their peers' work. T2 engaged pupils to mark their peers' work when the exercise related to a new lesson, preferably at the beginning of a topic or subtopic. This was because the exercise enabled him to engage his pupils more in learning and to identify early and work out those lesson aspects which they found difficult. Discussion of assessment work after teacher marking also involved the use of a formative score chart[16] to summarise information about pupils' achievement and nature of weaknesses or problems observed in their work. Information from the chart was used to initiate and guide, or focus the remedial discussion of assessment work by pointing out the nature of the weakness or problem. T2 found the formative score chart useful to engage pupils to learn more about conceptual issues and particular rules that were related to aspects of the lesson in hand. In T2's classes I observed pupils referring to key conceptual issues or rules about the lesson when correcting their peers' work on the chalkboard. For example, in one of the classes I observed one pupil correcting his peer by saying that:

> 'Antonia (pseudonym) got it incorrect because he has violated the rule of subtraction, he has not borrowed one ten to make the units 13 before subtracting with eight' (classroom observation, February 2012).

The pupil pencil marking and 'formative' score chart aided T2 to efficiently identify where most of his pupils had more problems about the lesson and where to focus the discussion in the class.

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[15]Pupil pencil marking entailed pupils to use pencils to tick correct or underline incorrect parts in their peers' work (worked solutions or answers) for each question that were being worked out by the pupils in collaboration with their teacher on the chalkboard.

[16] Formative score chart is a table in which first column consisted of a serial number of questions and respective number of pupils who got the question incorrect, the second consisted of an outline of the nature of errors or causes of the errors.

T3'sCPPA strategy involved a pattern of letting pupils attempt the exercises individually, then asking them to swap their books and discuss each other's responses, and then collecting the exercise books for marking.

> 'For me, I don't let pupils mark their peers' written work, ...having done one question or two, I ask them to exchange exercise books with their nearest peers on desks without marking, at that point I can instruct them to turn to each other to compare their peers' work...afterwards I collect their exercise books for marking' (T3, Interview before class observation, February 2012).

On one hand, the extract above implies that T3 would let her pupils attempt the exercise individually if she planned the class discussion to take place before marking. On the otherhand, as shown in the extract below, she would let the pupils collaborate in groups (pairs) on their seats if the exercise was about remedial work (correction), after she has marked the pupils' books.

> 'Today I did not instruct them to do this individually before we started discussing, because this was about making corrections which also targeted the difficult aspects that I noticed when I was marking the exercise I gave them on Monday' (T3, interview after class observation, February 2012).

T3 adapted these CPPA strategies instead of her pre-intervention strategy of walking around in class for the purpose of supervising pupils to do the exercises. T3 worked in this way because she found it more practical, convenient, and time saving in order to attend to many pupils at a time, given the large class she had. In addition, the discussion through CPPA provided her with another opportunity to identify more about the nature of the difficulties which pupils faced in understanding particular lesson aspects, as implied by their responses in the assessment exercise:

> 'This strategy (CPPA) makes the teaching easier and saves time, not like my previous strategy of always walking around during which I faced difficult moments when different pupils want me to go to their desk to help...I can now know problems on the spot in the class...mm... and correct some of them just there in the class' (T3, interview before class observation, February 2012).

T4's CPPA strategy focused on alternating between the pupils who knew or got the questions right against those who got the answers wrong. Pupils completed the exercise, and were asked to swap their books in order to

check on each other's work and discuss while seated. Some pupils were asked to attempt the questions under discussion on the chalkboard. The pupils who got the questions correct explained first how they got them correct, and then turned to their peers' work to explain by discerning in which aspects peers were incorrect, and how they could get the questions correct. As illustrated in the extract below, apparently, two reasons made T4 adopt the strategy of first letting pupils who completed the work correctly explain it to their peers. Firstly, he found that some difficult aspects were easily explained by the pupils instead of him being responsible for the whole work. Secondly, from their explanation about the correct answer, it enabled him to identify some weakness in their understanding of the respective lesson aspects.

> 'Even if one's answer is correct, by asking them to explain to others whose answers are not correct, you can also know whether they also understand well or not. This has been useful indeed to me' (T4).

T5 adapted a CPPA strategy similar to T4 but T5 did this the other way round. He adapted a pattern of letting the moderate or less able children first explain or do the questions on the chalkboard before the more able peer children, or he himself, gave clarification.

> 'I preferred starting first with those with low ability in order to know more about the errors which can be corrected when I come to point out children who understand well and can correct before I intervene to clarify or emphasise an idea' (T5, Individual interview, February 2012).

> 'To identify weakness, I preferred choosing first the less able ones so that when the one who knows comes, it becomes easy for me to plug the gaps. It even happened that the highly abled children can explain even better than I would have imagined, explained it straight away' (T5, Focus group, February 2012).

The extracts above suggest that T5 adopted the strategy of first letting those children who seemed not to understand try to explain their answers first, before the other children who seemed to understand explained, or before T5 himself intervened to clarify or emphasise a point or an idea. This pattern provided him with more insight about the specific weaknesses in pupils' work, as well as implications of how pupils learned and opportunities for the

more able pupils to clarify to their peers about the difficult aspects of the lesson.

T6's CPPA strategy involved the use of seat columns and rows in the class where there was a more challenging aspect which he noticed in pupils' work, as well as which occurred during class discussion. The use of class columns and rows for CPPA involved a pattern of T6 writing the question on the chalkboard, and then selecting one pupil from one row in each of the three columns, in order to obtain three pupils to work on one particular question on the chalkboard. When the three pupils were working on the chalkboard, the rest of the pupils also worked in pairs on the same question in their seats. Then the three answers (work) on the chalkboard were discussed one after another with in-group row members commenting on the correctness, or any weaknesses, before pupils from the other columns would comment.

In the follow up class observation, I also observed T6 instructing the pupils to discuss, compare and contrast each other's work in order to discern the similarities or differences in the procedure used to work on the questions and answers in their work. The pupils discussed by looking at each other's work in order to recognise how each worked on the questions differently or in similar way. On such occasions, T6's pupils also coached each other where they found mistakes in their peers' work, or asked T6 for clarification.

> 'I have also discovered that if this method is used for a long time the children stand a greater chance of performing very well because you instantly discover each child's problem. It helps to understand who is weak in a particular aspect. For me I find that follows up the results of each child, one by one' (T6, Individual interview, February 2012).

According to T6 the CPPA provided pupils with a second chance to practice and demonstrate their understanding of the lesson aspects embedded in the assessment work. T6 was keen to discover the extent to which the pupils were aware of the main steps to go through in working particular questions and how well they could explain the steps for solving a question; whether or

not pupils used or applied relevant aspects of what they had already learned in previous lessons or classes to solve the questions before them. A typical example is multiplication tables or the concept of the lowest common multiple which T6 perceived as central in solving addition in fractions.

The above account and illustrations, overall, show that the teachers adapted the various strategies for CPPA because they found it more practical, convenient, and time saving to attend to many pupils at one time, given the large classes they had. In addition, the discussion through the CPPA strategies that they adapted enabled the teachers to some extent to identify or recognise some aspects of the lessons which were difficult for pupils to learn. Furthermore, weakness in pupils' work could be identified and discussed. Moreover, the pupils were engaged in a relatively organised and insightful discussion about lessons. In this way pupils get a chance to learn from their peers' work through conversation.

6.2.2.3   Developed norms and confidence in classroom discussion

In adopting their CPPA strategies the intervention teachers who were teaching the lower grades (T1, T2 and T3) exhibited particular norms for class discussion of the assessment work. For example, at post intervention, I noticed that T3 albeit with some difficulties showed some improvement in her talk and gestures in guiding the pupils to collaboratively discuss assessment work. At post-intervention, unlike at pre-intervention, I found that T3's class talk involved some moments of picking up the pupils' responses, including errors, and asking other pupils to elaborate further or show errors in their peers' answers, posing follow-up questions, recognising individual pupil's attempts and efforts, before pinpointing what was right and what was wrong about the answer. My classroom observation indicated that T3's incidences of skipping pupils' wrong answers and proceeding to search for correct answers from their peers that were more prevalent at pre-intervention, were minimised. However, since T3 not only focussed on calling

the more confident and outgoing pupils, and because of her large class, she also faced challenges of getting the less confident and outgoing pupils to contribute. This aspect is covered in more detail in Chapter Seven.

T1 and T2, who were also teaching lower classes, reported enhanced confidence in pupils' participation in classroom teaching and learning activities.

> 'Those who are seated can also participate by asking peers how to do it correctly, and can ask a question or put their hand up to answer any of the questions, they have really improved on that' (T1).

> 'For example, when I ask them to comment on their peers' answers I find more children can put up their hands and explain confidently; unlike in the beginning. In fact, now their ability to express themselves has increased, unlike in the beginning, when their ability to express themselves or dare to answer or ask a question was limited more, even if one knows the answer daring to put a hand up to answer was limited but now many children can stand up or put up a hand more confidently to ask or give explanation' (T2, Follow up interview after class observation, February, 2012).

In T2's post-intervention remedial discussion, I observed pupils' showing each other their work with moments of comparing their answers; unlike at pre-intervention where I observed pupils were only keen to ask peers' scores and moments of pupils denying or refusing to show each other their work.

> 'I see they have the courage, even the ones who say that they do not know, he knows that he has the right to do something, to do something, look at the work of a peer, ask questions, that he can, he can say something instead of sitting quietly, which is part of the participation (T2's comment in video group meeting, November, 2011)

Similarly, during the post-intervention classroom observations in T2's class, I saw children were confidently and enthusiastically showing each other their work during the discussion of their marked work and the few minutes after class, unlike in the pre-intervention phase when I observed pupils that were more passive and quiet learners, some of them were busy covering their work not to letting others see it.

6.2.3 Teachers' marking for generating information for classroom teaching

This section presents findings related to the third research sub-question which read 'what happens when Tanzanian primary teachers try to mark exercises more formatively?' The section describes the nature of information that teachers generated after adopting new strategies for marking their pupils' work. Overall, teachers stopped simply marking the pupils' assessment work as right or wrong, unlike at pre-intervention. Instead they also inspected, considered, and interpreted what the errors in assessment work could tell them about pupils' thinking and understanding of particular lesson aspects, as well as discerning other underlying problems. Below is T3's extract that was obtained through a follow-up (post class) interview in February 2012 on the exercise she had administered to her Grade Three children. The letters 'P' in the extracts below illustrate a set of potential problems or difficulties that her pupils had in learning the subtraction operation, which T3 discovered when analysing and interpreting errors in their assessment work.

> '...For example, in today's exercise there, I noticed four problems...pupils have problems arranging the digits, the units [ones] have to be placed in the one's position and ten in the ten's position but instead have mixed...'[P1].

> '...the other big problem is reverse of digits, for example 2 being taken as 5...then 45 – 12 was taken as 45 – 15 to obtain 30 [instead of 33]...'[P2].

> '...there's also this problem of forcing a small minuend to be subtrahend and the large subtrahend to be the minuend...the pupil forces, for example, for 82 minus 16, he or she [the pupil] takes this subtrahend 6 [as the minuend] and subtract by minuend 2 [as the subtrahend] to be obtain the answer 74... Others [pupils] cannot do borrowing leftwards when doing column subtraction, what they do is to take the small digit from the large digits...'[P3]

> '... the other problem is confusion about certain digits, for example, seven [7] as one[1] to obtain for example in this case of 40 minus seven some [pupils] got the answer 39 instead of 33...'[P4]

> '....yeah...the other problem is about one child, Coletha [pseudonym]...mm I found she has written different questions and she got all correct...I cannot explain this, I need to follow up it up with this child...'[P5].

The information in the extracts above suggests that T3's marking of the pupils' assessment works by analysing and interpreting pupils' responses which provided her with three information items. These are the information on pupils' problems related to copying or confusion about digits (P2 and P4 respectively), problems related to pupils' inability to comprehend basic concepts or principles about the lesson in hand (P1 and P3) and 'unusual pupils' responses'[17]' which necessitated individual follow-up (P5).

With the exception of unusual work or responses in pupils' work other participating teachers identified patterns of errors and drew implications about pupils' learning or understanding of the lesson after adopting the marking approach which entailed interpreting pupils' responses. The extract by T2 below illustrates further.

> 'In preparing the exercise for the next teaching I prepared only four questions which involved addition by carrying which were as follows, question one 327+491; question two 181+791; question three 651+352; and question four 260+343. When composing the exercise I will focus on these numbers with zero place value and those which look alike in shape[18] or pronunciation[19], such as 606, 609, 906, 909, 309, 404, and 408…..
> I will also add other questions which are very similar, for example I can include questions like 209 to 259 in order to see if they are still reading twenty-nine and twenty-five and nine which is essentially because of the inability to identify the place values for hundreds, tens and units in a given number value' (Researcher's notes from class observation and follow up interview, February 2012).

The insights that teachers obtained made them more interested in following up the implications of responses that pupils provided in their assessment

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[17]Some pupils mistakenly heard, read and copied down information about questions for the exercise, and subsequently produced work and responses (answers) which did not match with the actual questions that were asked by the teacher, the intervention teachers used to call such work or responses (answers) in pupils' work as "unusual responses"

[18] Six (6) and nine (9) look alike when turned upside down, or the other way round, and their pronunciation in Swahili language *sita* for six and *tisa* for nine sound a bit similar

[19] In Swahili language the pronunciation and wording of eight (*nane*) and four (*nne*) sound and look a bit similar

work. Initially, teachers focused on mistakes but later they also focused even on correct answers. This occurred when teachers provided pupils with opportunities to explain their answers to their peers during a group discussion of assessment work, using the various strategies for CPPA as described above. T3's extracts below illustrate this point.

> 'When the child whose work is correct begins to explain how they got the answer correct before other pupils, it enables me to discern weakness in the correct answers as well if any or how they did' (T3, group meeting, January, 2012).

> 'I sometimes find weakness in understanding in pupils' whose answers are correct during discussion when asking them to explain to others who did not get them correct. As they explain to their peers, I can also know how well they also understand particular aspects of the lesson' (T3, group meeting, January, 2012).

The discussion above suggests that by adopting the marking approach which involved the interpretation of pupils' work to discern the degree of pupils' learning, the teachers could generate information about the effectiveness of their teaching and identify areas or lesson aspects that needed further teaching.

Initially the intervention envisaged that teacher marking would involve teachers providing written comments on pupils' work on the basis of observed errors for purposes of helping pupils to think through and improve their learning. Teachers could not do this because it was not practically possible given the large class size. Instead, they circled or underlined mistakes in pupils' work which was helpful in two ways. First, the circled parts of pupils' work were helpful for pupils to notice what the mistakes were, and think through them again by asking their peers. Second, the circled or underlined parts of pupils' responses were used for easy reference during remedial discussion in the class, which was guided by the teacher.

> 'When I continued to circle work of the pupils in exercises, I realised that pupils became used to the meaning of the circle in their work. That is the specific aspects had errors, so they needed to consult peers and be prepared for discussion during remedial session' (T1).

> 'My pupils are now aware that the parts I underline in marking their answers are used for group discussion. I find some of them discussing with their peers before the remedial discussion. I think it indicates to them to discuss with each other some of the weaknesses in their work before class' (T2).

The two extracts above imply the methods that teachers used for the purposes of indicating where pupils needed to improve their work, and supporting the remedial discussion of the marked work. Moreover, consistency in circling or underlining parts of pupils' responses facilitated pupils to discuss their work further.

6.2.4 Use of assessment information for teacher's teaching and pupils' learning

This section presents the findings related to the fourth sub-research question which stated "what happens when Tanzanian primary teachers try to use results of written assessment more formatively?" The section is concerned with ways in which teachers used the assessment information after marking their pupils' responses for teaching and learning purposes. There are three ways in which the teachers used the assessment information drawn from the marked work. They included gaining a sense of the overall success of the lesson, planning for the next lesson, and using the assessment information to support remedial teaching.

6.2.4.1   Gaining a sense of the overall success of the lesson

Overall, the teachers' post intervention comments about *pupil evaluation* were about making specific inferences about what their pupils were able and unable to understand, rather than about pupils' affective experience and quantitative estimation of how well the lesson was understood (Section 5.3.4), as was the case before the intervention. On the other hand, the teachers' comments about *teacher evaluation* were about making statements on what they would do for remedial work or the next teaching, in respect to what their pupils appeared to have difficulties with or were unable to learn.

Below is an example of T3's post-intervention comments about her lesson evaluation after teaching and marking the assessment exercise about addition by carrying between 1 and 60.

> *Pupil evaluation*:
>> Pupils have been able to arrange ones and tens in the correct position, and the majority could add digits correctly within the specified range 0 – 60, but only a few could do the carrying correctly.

> *Teacher evaluation*:
>> In the next lesson I will concentrate on teaching them addition by carrying first before other activities.

As it can be seen in the two sets of T3's comments, the contents of the comments for lesson evaluation included specific aspects that the pupils were able to do, and what she would involve in the remedial or next teaching.

In the lesson records of other teachers, I observed some lists of hints or points about difficulties which their pupils seemed to encounter, in particular lessons and possible areas of emphasis or clarification for remedial or future teaching, as T5's extract below illustrates further:

> 'For some errors I just explain to them in short on what to take a note, while for other aspects I find it is appropriate to clarify them more in other future next lessons' (T5).

Similarly, in the discussion viewed on the video records of the group meetings (Section 4.5) as well as in the subject based groups in February 2012 (Section 3.6.4), I also observed instances of teachers asking each other or making comments to colleagues on implications for pupils' understanding or remedial teaching in line with the errors observed in the pupils' work. On one hand, this might suggest that they developed the conception that lesson evaluation is an interpretation activity for generating relevant or appropriate information for supporting teaching and learning. On the other hand, it implies that teachers developed the conception that pupils' responses, including those in assessment work, represented certain thinking and learning of some kind, and when interpreted could provide plausible cues about what or why pupils were unable to learn or understand certain lesson aspects. For example, in the follow-up interviews T1 commented that:

'I now consider that for any mistake in exercises there is an obstacle I have to ask, why indeed through error analysis I discovered that a pupil has something to start with and the child always has a particular meaning and when given the opportunity to explain you will always find that there is a particular meaning for answering in that way even if it is not correct' (Follow up interview, February 2012).

Alternatively, it might imply a change in teachers' views of learning or how teachers conceptualise or attribute weakness in pupils' work, and what it implies in terms of learning.

6.2.4.2   Planning for the next lesson

This sub-section explains ways in which teachers used the assessment information to prepare for their next teaching on the basis of the marking, through drawing implications about what pupils seemed able and unable to learn or understand, and the plausible causes for their inability to learn as explained above. For example, T4 used the assessment information to plan the next teaching in two ways. First to revise her teaching approach for the next lesson or to use another teaching strategy to reteach in line with the observed obstacles that had seemed to inhibit pupils' learning of aspects of the lesson in hand. Secondly, T4 set other or corresponding assessment work to support the teaching and learning of the observed difficult areas.

'..the problems of reversing and improper arrangement digits [tens and ones] in their respective tens and ones places, are easy to clarify to pupils, after all these errors occurred in few of the children...the difficult one is this about take away' (T4).

'...I will start by explaining to them the two other problems, then, I will repeat explaining to them by using the technique [use crutches and striking through to aid memory in subtraction] which T6 explained to me... The concept that I will emphasise [to pupils] is to check whether the minuend is smaller or bigger... where it is not possible to subtract straight away because the minuend is smaller than subtrahend, then one must do take away by striking through while indicating the crutch digits' (T4).

6.2.4.3   Planning for remedial teaching

This entailed considering major aspects for concern. This aspect was also exhibited by other participating teachers, albeit with slight variations as T5's and T1's extracts illustrate.

> 'For each major error that I identify I talk about in the class…For some errors I just explain to them in short on what to take note, while for other aspects I find it appropriate to clarify them more in other future coming lesson' (T5).

> 'As I proceed by looking at pupils' work by interpreting what their responses mean, sometimes, I find cases that I need to keep on discussing more in other lessons in some of the next topics or subtopics' (T1).

The two extracts above illustrate the use of assessment information for planning the lesson aspects that could best be included and taught in the future or new lessons, rather than in the next remedial discussion of the assessment work.

6.3 Teachers' views on the training process and certain aspects of the intervention

Section 6.2 above has explained the more formative assessment practices that the teachers developed as a result of the intervention, and have demonstrated the ways in which these practices supported teaching and learning. This section explains the views of the teachers about particular aspects of the support process that were part of the implementation process. Overall, the teachers' comments on the training process revealed three main factors which they felt were positive about the manner in which the training enabled them to adopt the intervention elements to facilitate more their teaching and pupils' learning. The factors included the initial open discussions, peer teacher lesson observation, and discussion and continued follow up-support.

6.3.1 Teachers' views about the initial open discussion

As explained in Chapter Four regarding the intervention, the training process for participating teachers started by presenting them with a reflective account of my understanding about their practices and conceptions about the construction, administration, marking of assessment work and lesson evaluation. These areas were established from the initial interviews and observations of their lesson records and classes, and partly from the review of education documents for primary school use in Tanzania. After they had commented on my understanding, I presented the components of the intervention by pointing out the specific aspects (elements) that I hoped they would do differently, and the reasons for those changes. In presenting each element of the intervention, I provided teachers with opportunities to give their opinions by pointing out which aspects seemed new or were different in contrast to their usual practice or understanding. In addition, teachers gave opinions in regard to how a particular change could be beneficial, explained potential challenges or difficulties for implementation, and suggested alternatives based on their own experiences of teaching, and their classroom realities and school requirements. A track of comments before, during, and post-intervention suggest that the initial open discussions were welcomed and had positive effects on participating teachers as explained and substantiated by the selected extracts below.

First, the majority of participating teachers felt that the initial open discussions provided them with opportunities to think about, internalise the underlying meaning and determine the implications for practice about the intervention elements.

> 'The discussions at the beginning with you on what we were doing before and what you wanted us to do were useful to us because we were able to ask and receive clarification about the underlying concepts (meaning) in this approach' (T2).

> 'At the beginning I thought that it's difficult but through sharing ideas by giving our comments and your explanation enlightened further how to implement components of the intervention in my class' (T3).

'There was a chance to discuss the elements and reach a consensus on what to do, from beginning to the follow up. So everyone understands what it is all about instead of imposing on us against what we were used, that was a very good in sense that you got our ideas first before introducing us to the new concept that you brought to us' (T3).

'The thing that I was very happy with was that at the beginning we could ask for clarification where we did not understand. I think you remember the aim was to get a clear understanding of these things. We asked you a lot on anything that appeared unclear to us. Thereby, the aim was to see how this new approach relates with what we already knew. For example, you remember I asked you several times about error analysis. Like was it to be done during lesson preparation or during and after class? But later on I realised that you get the error analysis when marking pupils' work and spontaneously when teaching, depending on what you intended to teach or see in pupils' work' (T6).

Second, the intervention teachers found that the initial open discussions helped them to grasp the actual expectations and requirements for the new assessment practices that were envisaged in the intervention with a relatively clear understanding, which in turn helped them to progress.

'To be honest, at the beginning we were not very clear about your expectations and requirements. But after discussing your exact target and requirements we managed to make progress. Indeed, were it not for the initial discussion for clarification of expectations about this assessment approach, we would have committed a lot of blunders and not developed our standard to where we are now' (T4).

'This approach has not been like about shifting from the old to the new curriculum, where only Heads of schools were trained for training us. In fact, the training was just like briefing us with what paradigm shift entailed. There was no open discussion and no follow up as we have been doing in this research' (T2).

Third, some intervention teachers found that the initial open discussions provided them with opportunities to reflect on how the underlying meaning and implications for practice of the new assessment approach related or contrasted to their own existing conceptions and practices developed through pre-service training and their teaching experience.

'The other thing why we asked a lot of questions was because we wanted to get a reality of what you were thinking about because at that time [initially] it seemed to be a concept only which had to be translated into

practice…because we had our own concept [understanding] that we were taught in colleges, and we have been teaching in schools for quite a long time, but then you brought a new concept which we had to apply. So before applying it, we first had to prove whether what you were saying was practically possible on site' (T6).

'There was a chance to discuss the elements and reach a consensus on what to do, from the beginning to the follow up level. So, everyone understands what it is all about instead of imposing on us against what we were used that was a very good in sense that you got our ideas first before introducing us to the new concept that you brought to us' (T3).

Fourth, intervention teachers also found that that initial open discussions also provided them with opportunities to discuss the practicalities of implementing some of the intervention elements in their existing teaching realities, such as large class sizes, big teaching loads, and time constraints.

'I was happy because we had the chance to discuss the elements of the research against our real situations, such as the large classes that we have in our schools' (T2).

Fifth, some intervention teachers found that the initial open discussions helped them to develop an interest, motivation, and commitment in order to take part in implementing the intervention elements.

'First of all, I commend you very much for that [initial open discussions], indeed, that is what encouraged the majority of us to listen to you and try your suggestions. Because without that it would not be wise to just tell me what to do, if I am not interested in it, then it will not work'. (T5).

The above extracts imply that the manner in which the initial open discussions were conducted helped participating teachers to develop interest, motivation, and commitment because they felt involved and respected in considering the meaning and possibilities to implement the new ideas, rather than having them imposed on them.

'First, I never knew about you before, by listening to me first, thereby you paved a way for me to want to work with you and be part of the research. Otherwise, you could not easily win my interest to participate and maybe I could not do it with the same commitment' (T5).

'I have been happy with this first discussion today…you know the problem is that curriculum people, the TIE they don't involve teachers in making changes. But we are the centre for curriculum changes in schools because we are the people in the field. They should also listen to us like the way you are doing. Although some aspects seem difficult to do but I think this programme is going to succeed' (T2).

'First of all, I commend you very much for that [initial open discussions], indeed, that is what encouraged the majority of us to listen to you and try your suggestions. Because without that it would not be wise to just tell me what to do. What if I am not interested in it? Then that will not work...That is why we have been saying that those advocating for 'paradigm shift' should have started by consulting with us first, even for the changes in the examinations and so on. If teachers are consulted to give their opinion about what they want to change, we become more willing to accept the changes made' (T5).

'The teacher is the key facilitator for any change in the class.…So I recommend teachers to be actively involved for changes to take place. This is because we are the actual people on the site' (T1).

The above extracts show that the intervention teachers felt respected, both as individuals and professionals, at two levels. The first level is by virtue of their position as key agents for the realisation of curriculum changes in schools (T5 and T2). As T2 commented at the end of the first day group meeting, "but we are the centre for curriculum changes in schools because we are the people in the field!" The second level was that of respect, which teachers felt was related to the manner in which the discussion was conducted. That is, teachers' opinions were discussed in their own right, not judgementally, in respect or in contrast to ideas envisaged in the intervention, an aspect that enhanced confidence and a sense of freedom among participants to give their opinions and to continue trying out the intervention elements as implied in T4's extracts below.

'Whatever a participant gave, it was considered with due respect. A participant was not criticised to help build passion, understanding; and a person to realistically improve their practice'.

…I liked the patience of being listened to, even when a participant has made a mistake or when a participant says or did something contradictory to the intervention elements, criticism was always presented constructively.

…in discussions a participant's opinions and ideas were considered with due respect which developed confidence in us and to continue working on the elements of the intervention'.

6.3.2 Teachers' views about peer lesson observation and discussion

This section reports on the views of intervention teachers about peer lesson observation and discussion in terms of how they found it was useful for them, as individuals and as a group, to implement the intervention elements. Like the initial open discussion, teachers' comments about peer observation which was conducted in the manner explained in Chapter Four played three main roles to enable participating teachers to adapt the assessment intervention elements for supporting their teaching and pupils' learning. First, intervention teachers found that observing each other's class, and afterwards holding a discussion, offered opportunities for them to see and adopt their peers' strategies for enacting the intervention elements.

> 'Peer classroom observation was good for me because I could see how a colleague used particular assessment elements, and deployed other strategies to engage children from the outset throughout the lesson which was the target' (T4).

Apart from enabling participating teachers to consider and adopt peers' strategies of implementing the intervention elements, the post-lesson discussions provided participating teachers with real or actual experiences to discuss and enlighten each other with about certain aspects that they found unclear or difficult to implement.

> 'Through group discussion after peer classroom observation, we teachers corrected each other and that is when we were getting the actual knowledge and experience about this approach' (T6).
>
> 'Face to face meetings about class/lesson between ourselves helped to determine whether each other's understanding and actual use of assessment work were correct according to the aims of the intervention which included the extent of engaging children in learning' (T4).
>
> 'School visits for peer lesson observation helped us to learn more about this assessment approach. For example, in the post-class discussion I could ask

a colleague reasons for using a particular implementation strategy that I notice in their class or lesson records. So, through the discussion we enlightened each other more about this approach' (T1).

Second, some intervention teachers found that peer observation offered them an opportunity to be corrected and reflect whether their understanding and/or practices corresponded with the expected aims of the intervention.

'Peer classroom observation helped us a lot because individuals could see how a peer is doing things. So peer classroom observation helped us to learn more about the intervention elements, depending on how we expected to change on different areas of assessment' (T3).

'Also in my view I found peer observation was good because when I wanted to try a more challenging element, I invited a colleague to assess me in class, and later through peers' comments in group discussion is when I realised in which aspect I was not correct and what I should have done to pitch the lesson using intervention targets' (T4).

'Peer classroom observation enlightened me more about this assessment approach for teaching when participants had the opportunity to explain how I had to improve on a particular aspect. So being corrected at some points helped me a lot to understand and take a way forward … Eeh for example, I could prepare the lesson and assessment work, but after class observation, in the discussion a colleague could come with a different view about any aspect, say about collaborative pupil peer assessment and then a discussion would arise about the best possible practice to do, rather than just practising without being challenged. As a result, everything was made clearer through the critiques and in fact it added to my understanding and knowledge' (T5).

Third, some intervention teachers reported that peer observation helped to deal with the unforeseen outcomes or difficulties that seemed to inhibit implementing particular intervention elements as envisaged in the intervention.

'Aah, that was also good because for some aspects it happened that after trying there were unexpected outcomes. So we had to discuss and decide provided that we were still in the right direction of intervention. I also liked this approach……For example; pupil peer pencil marking appeared problematic, also in group feedback about what we said about behaviour issues during class discussion of assessment work. We could modify some elements or drop out what appeared not successful' (T5).

6.3.3 Teachers' view about continuous follow up-support

Other intervention teachers credited the training process in terms of the continuous follow-up and support that was provided. This included the school follow-ups and group meetings that were held during the initial implementation of the intervention between April and July, as well as the feedback that I gave them through email correspondence and Skype calls about the progress of implementation when they continued implementing the intervention, when I was in Leeds between August and November 2011. The extracts below suggest that the feedback which the participating teachers received at different points (stages) of implementation helped them to remain focused on the intervention and understand it better.

> 'You communicated with us including feedback to guide us where we fell short in terms of using the assessment elements. You gave us useful guidelines to improve our practice…This helped to add knowledge and it was encouraging' (T4).

> '…when they introduced the new curriculum, they did not come and discuss it with us, and there was no follow-up, as we have been doing in this case [intervention]. There were no presentations where we could correct each other on particular areas' (T2).

> 'I think that the continuous communication in group meetings with the email messages, that feedback we received from you helped us to focus on intervention elements and improve further indeed' (T3).

The further guidance offered in turn encouraged them to adopt the intervention elements for their teaching and pupils' learning (e.g., T4 and T2). Additionally, teachers acknowledged the support of their school administration. Some participating teachers felt that their school administration provided them with the freedom to try out the intervention elements.

> 'Cooperation by heads of schools and participant teachers was another good thing I noticed. For example, my school head gave us permission to work in line with the research requirements though he liked to be updated about our progress' (T1).

'In my case the Head of school has been very interested in this approach…she told me, if possible, to take through my class to higher grades using this approach' (T2).

The above discussion implies that the structure and associated conditions of teacher collaboration largely supported teachers to implement the intervention elements, albeit to different levels of success. The next Chapter Seven discusses the nature of challenges that teachers faced and met in implementing the intervention. The challenges I encountered in supporting teachers to implement the intervention are included in Chapter Nine (Section 9.7) as part of my final reflection.

CHAPTER 7: CHALLENGES FACED BY INTERVENTION TEACHERS

7.1 Introduction

Chapter Six presented the post-intervention findings about the formative aspects of assessment which the intervention teachers developed, and positive outcomes in regard to teaching and learning of lessons. This Chapter presents the main challenges which the intervention teachers faced and met in adopting the formative assessment approach for classroom teaching and learning purposes. This chapter uses narrative cases of three intervention teachers (T1, T3 and T6), based on data extracted from field notes, teachers' research notebooks, classroom observation, interviews, and discussions of intervention teachers in group meetings that were audio and video recorded. The three teachers were chosen based on two criteria. First, the durations of their teaching experience in which T6, T1 and T3 represented highly, moderate and less experienced teachers, respectively. Second, typical for providing description and illustration of the significant challenges that the intervention teachers faced in learning and implementing the intervention which in turn reflect the views and habits they had based on their teaching experiences. The presentation of each narrative case begins with a brief description about each teacher's characteristics which includes a briefing of their general personality, the classes they were teaching, and their participation and overall success in adopting the intervention requirements. This is followed by a description of particular challenges in terms of concerns, difficulties or problems that emerged in the course of implementing some of the intervention requirements. The presentation of each narrative case ends with a summary on the challenges for each of the three intervention teachers.

7.2 T6 Narrative case study

T6 was the most experienced of all the intervention teachers, with 23 years teaching experience. He implemented the intervention in Mathematics for pupils in Grade Five. In terms of teacher personality, T6 was the most

confident in conducting his class and in expressing his points of view in group meetings right from the beginning of the study until end of the implementation. In regard to adopting the intervention requirements overall, T6 was among the intervention teachers who gained reasonable success in a range of areas of the intervention. Yet, throughout the implementation period, in different contexts such as in interviews and combined group meetings, T6 consistently expressed and exhibited particular concerns and difficulties related to marking, its role and contents.

T6's concerns during pre-intervention discussions (April and May 2011)

The intervention requirement which entailed asking pupils to swap their work in exercises and discuss each other's responses was received with explicit resistance by all of the teachers. Apart from the obvious facial expressions and whispered disagreements among them, as well as grunting sounds as a sign of being surprised, T6 was the first teacher to explain his concern about the CPPA requirement of the intervention.

> 'If I may ask you 'teacher' where have you seen pupils marking their peers' work…when you were in school, did you ever mark any of your peers' exercise book? If you do that, then you will have failed to do the teaching. That is unethical! …in marking that is where the teaching professionalism rests' (Focus group meeting, May 2011).

The extract above shows that T6's initial concern about the intervention requirement on marking was mainly about allowing and involving pupils in the marking part of the assessment process. T6 seems to be concerned about pupils performing the role of marking, which is essentially the teacher's role. As it was seen in most of the conversations between T6 and other intervention teachers at the beginning of the intervention, the use of the term 'marking' recurred in their expressions about their concerns of adopting the CPPA. In one of the focus group discussions, T6 commented:

> 'why I say we should not abandon the tick, because from what I know, 'teacher', my understanding about ticks, I know the tick is important to a pupil. When the pupil gets the tick, it motivates them, so, if we mark without telling them good or very good, don't you see that this will be a

great change that can affect efforts of pupils to learn?' (Focus group meeting, May 2011).

T6 demonstrates that he already uses the outcomes of marking pupils' work, firstly to gain some idea of the overall performance of the class, and secondly to provide support for those who have not scored highly. Furthermore, T6 allows his pupils to mark their own work, but additionally he also marks it himself. He does not lose what he sees as his professional responsibility, and performs the final marking himself, using the outcomes to help his pupils. Allowing the pupils to give feedback as a result of them marking each other, rather than himself, conflicts with what he sees as his professional responsibility. Besides, he is concerned that his pupils will recognise this and will make a poor evaluation of him. Because of this, he wishes to continue having the final marking responsibility. He also justifies his view by saying that it is important to the pupils that they know where they stand in his estimation. The two extracts below illustrate:

> 'The scores help the teacher to understand the pupils' understanding of the lesson, depending on pupils' achievement in the exercise. For example, when most of the pupils score half of the questions in the exercise, it indicates an average level of pupils' understanding of the lesson,' (Focus group meeting, May 2011).

> 'There are two things which I can do for children who do not do well in the exercise, I may find another time to help them or when you start next, another topic you may talk a little about or revise in order to bring them to the desired level' (Focus group meeting, May 2011).

Nevertheless, after the discussion in the first group meeting, it was agreed to continue marking by including overall marks, tick pupils' responses that were correct, and underline or circle the incorrect[20] responses (Section 6.2.3). As explained in theme IV (Section 4.4.1.2) in Chapter Four, it was also agreed that the intervention teachers would introduce the CPPA to learners by firstly asking for their views on the reasons that made them give incorrect answers

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[20] Intervention teachers were asked to stop using the symbol 'X' for marking the pupils' responses in exercises that were incorrect, but instead they were asked to underline or circle the specific parts of the pupils' responses that were incorrect, which implied a particular weakness in pupils' understanding.

on some of the questions in the assessment exercises. In one of the subsequent group meetings, it was also agreed to use a formative score chart[21]. T6 was the first intervention teacher to volunteer to begin implementing and provide his feedback to me, the researcher, and in the group meetings. The next part presents T6's initial concerns and difficulties of introducing and adopting the CPPA for formative marking and discussion of assessment results to his class.

T6's experience of initial implementation of the CPPA intervention requirement

T6 also encountered difficulties, to start with, of involving all pupils in swapping their exercise books in order to discuss each other's responses, because some declined to swap their work due to a feeling of embarrassment of any incorrect responses in their work.

> 'It also includes pupils to decline to swap their exercise books for peer marking. Usually, they give excuses such as they don't have pens, their exercise books are lost, and they do not complete the exercises which the teacher provides. This includes a majority of pupils who obtain low marks in the exercise of a lesson', (Focus group meeting, May 2011).

> 'Lazy pupils do not like their poor, weak results to be known by others in the class. Lazy pupils who work slowly even at the end of the lesson will always have not yet finished writing the exercises for correction, they don't submit their exercise books' (Focus group meeting, May 2011).

Because some pupils resisted raising their hands, T6 opted to obtain a summary of pupils who answered the questions correctly. However, omitting the indication of the possible problems for each question meant that the content of 'formative score chart' still served the summative role of interpreting assessment results, rather than the intended purpose of gaining

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[21] In the initial discussion and follow-up meeting about the intervention requirements for formative marking in May 2011, it was agreed that one strategy for summarising outcomes of error analysis would be to draw a chart with three rows, in which the first one for the serial number of each question in each exercise, the second for the number of pupils who did not get the questions correct, and the third for indicating the difficulties (weaknesses) as derived from the interpretation of pupils' incorrect responses. The chart was named and agreed as a formative score chart. This strategy was adopted by two teachers only, namely, T2 and T6.

a summary of problems by questions which the pupils exhibited in their responses in the exercises for remedial work, as it was espoused in the intervention for lesson evaluation. Below is T6's comment during the one-to-one follow up interview.

> 'for me, until when we closed the school this term I was not simply taking the exercise books, I was swapping the exercise books. I draw the chart on the chalkboard, in order to confirm, I take a roll call, if they are sixty, just in the class after they have discussed each other's responses, then I ask them, who (how many) got ten over ten and so on and so on, I take their number, SO I WAS GETTING THE PICTURE RIGHT IN THERE of problems and for which pupils' (Follow up interview, July 2011).

The above quote suggests that T6 had a positive view about the formative score chart in terms of his teaching, in terms of administrative and obtaining the quantitative evaluation of the lesson on the basis of results in terms of pupils' correct scores. However, he still exhibits difficulties in adopting the qualitative aspect of marking which was central to CPPA intervention requirement. After discussions with T6 in one-to-one and combined meetings, T6 made progress in involving the pupils in CPPA as was reported in Section 6.2.2.2. However, T6 still exhibited some difficulties and concerns even after fully adopting CPPA requirements for the intervention. I present these in the next part.

T6's concerns after fully adopting the CPPA intervention requirement

By the end of November 2011, T6 had fully adopted the CPPA, however, in his interpretation and implementation of the CPPA requirement of the intervention, he still exhibited difficulties with the notion of grading in relation to pupil's learning [see underlined parts in the extract below]

> 'On my side, another thing which I have discovered, I have discovered that this approach is good, getting all questions correct, a hundred percent will be very rare. It is good to administer questions about the lesson which you teach on that day, but the previous approach, of giving exercise from the textbook, the children know in advance which exercise the teacher will give tomorrow. They could be helped by parents or their relatives at home. They used to come in class, get

questions correct sometimes because they were helped in advance at home. Do you know what I mean? This method of giving exercises and they work together in the class is good, because they will go and ask for parts which they have not mastered in the class after first attempting in the class. It is difficult to get a hundred percent. So the child can learn from the 'community' I mean the community will help in learning of the child. <u>Therefore, it is not possible for the child to get a hundred percent because of support from elsewhere'</u>. (Focus group meeting, video clip 8241, November 2011).

In the extract above, in which T6 reported his experience in implementing the CPPA intervention requirement, he apparently expresses two concerns that are interlinked, namely, getting or not getting 100% and when and where help comes from are interlinked. Previously, through knowing the questions that were to be set in advance, his pupils would get help from their family at home without knowing what the questions were all about. Thus, their work was not their own, and they really did not merit 100% for the work. But now, the questions are not known in advance, and are more closely targeted on what had been taught. Thus, after the work has been taught and pupils have helped each other in class, the pupils can get help at home and learn more effectively from that help because of what has taken place before, even though they still cannot merit a score of 100%. Thus, whilst there is concern about not being able to merit 100%, the learning is much improved and involves the whole community, something which fits with the cultural norms of the society.

Furthermore, although T6 interpreted and saw a possibility of pupil performance being likely to improve in their final (national) examinations if there was continuation and full adoption of the intervention, he was still concerned about pupils of low ability obtaining low marks in their exercises [see underlined parts in the extract below].

'I have also discovered that if this method is used for a long time the children stand a greater chance to perform very well because you instantly discover each child's problem. It helps to understand who is weak in a particular part of the lesson…For me, I compare this with a quiz because a quiz means when a person administers a quiz it means he/she follows up the results of each person one by one…This practice is really good. …. <u>The</u>

only disadvantage I see for this practice is that pupils with low ability, they will always have poor performance in exercises!' (Follow up interview, February 2012).

7.2.1 Summary of T6's challenges

Clearly from the above description, for T6 it was a challenge to let go of what he saw as his professional responsibility of carrying out the marking of the pupils' work and using the marks as he deemed fit. Nevertheless, he went along with CPPA, amending it to match the response of his pupils. Whilst he sees benefits, learning from the community on the basis of knowledge already gained, there are still concerns, perhaps linked to a summative view of assessment about pupils not scoring 100% and those continuing to score low marks. T6 also faced the challenge to entirely rely on a qualitative approach to interpreting pupils' responses in assessment work in order to make judgement about pupils' success and overall lesson evaluation without considering and involving the quantitative aspects. The next section presents T1's narrative case on the challenges related to creating supportive classroom interaction for discussing assessment work in line with the intervention requirements.

7.3 T1 narrative case study

T1 has 13 years teaching experience. His class was the smallest compared to other intervention teachers. He was one of the most confident teachers when teaching in his class, and when taking part in group meetings. In terms of personality, he was generally an approachable teacher to pupils and to the other teachers in group meetings. In regard to implementing the intervention requirements, he was also one of the most successful teachers in the requirements relating to formative construction of exercises, carrying out error analysis for marking of pupils' work for subsequent remedial discussion in the class. However, despite his reasonably confident and approachable

personality, in the class he exhibited and reported some particular difficulties in socialising with the pupils and creating a free classroom environment for discussion of assessment work in line with the CPPA intervention requirements. Additionally, he exhibited and expressed particular difficulties and concerns in regard to strategies for socialising and encouraging low ability and less outgoing pupils to take part in class discussions in line with the CPPA intervention requirements.

T1 in May and July 2011

As mentioned earlier in Chapter Four, all intervention teachers were asked to introduce CPPA intervention requirements in their classes, tolerating reactions from pupils that would imply resisting or finding uncomfortable with any classroom practice associated with the introduction of the CPPA. In regard to pupils' reactions on the introduction of the CPPA for discussing assessment work in class, the follow up interview in May 2011 (Appendix25-part A) revealed that T1 firstly faced difficulties with obtaining a willingness of pupils to share and discuss each other's assessment work for the remedial class (T1's Comment 8).

> 'for example, you will see this when you come in my class. Asking pupils to share their work is an issue. I think, some don't want peers to see their answers in exercises. You know, when we return the exercise books, after marking, for some children even touching their exercise book is an issue…eeh'. (T1's Comment 8).

Secondly, he also struggled to familiarise the children in a mutual way as was discussed and agreed in the group meetings (T1's Comment 2).

> 'honestly before I explain other observation that I have made, explaining to children softly (politely) in the way you said, as we agreed in the meeting, I found somehow difficult. Although we said not to force pupils who don't want to share their work with peers. Honestly, I found struggling like what T3 said in the last meeting' (Follow up interview, T1's Comment 2).

> 'children are feeling embarrassed to show and share to peers their work that contain much errors during remedial discussion. I see some children are shy, then, I have to think on what to do to sort out this issue' (T3's comment in group meeting)

Thirdly, he also appeared to hold a view that some of the children's resistance to share their assessment work occurred because children were naturally resistant (T1's Comment 4).

> 'you know when you tell children softly, sometimes they are slow to follow. Other children are just stubborn, this is normal. Pupils are sometimes naturally stubborn especially when they are in a group' (T1's comment 4).

Apart from the three aspects above, follow up classroom observation and post-class interview revealed other issues that were causing T1 to face difficulties in obtaining a willingness of his pupils to discuss each other's responses. One reason may have been that T1 partly used the remedial class to comment on the pupils work. The extract illustrates:

> 'In the last lesson we started learning subtraction by borrowing, isn't it? Class: YES: T1: you have also seen the results in your exercise books, a certain number, some of you did well, but some of you did not…mmh, some of you made minor mistakes, ok, before we discuss, for those who got all questions CORRECT, who can remind us of the key points for subtraction by borrowing?' (Follow up classroom observation, July 2011).

As shown in the extract above, although T1 managed to introduce the remedial class discussion by pointing out the weaknesses that he had observed in pupils' work, his opening comments consisted of a mixture of words and tone of voice which suggested that his feedback and the subsequent remedial class was the time to identify which pupils scored well and which did not, rather than a session for pupils to express and demonstrate from each other's work in order to learn what they did not understand.

Similarly, there were issues with how he carried out his remedial class and how pupils responded during this class in line with the CPPA intervention requirements. For example, in the remedial class, T1 asked two pupils, one male and one female, as volunteers to work individually on the chalkboard on one question which he had identified in advance that most pupils did not get correct in the exercise. When the two volunteers finished writing their

work on the chalkboard, T1 first asked the class to comment on which of the two volunteers was correct, after the class has pointed out both the correct and incorrect work, then T1 asked the male pupil (Dotto-pseudonym) to explain his answer (the incorrect one) from the right to the left-hand side. Below is an extract of the class discussion:

> T1   Between the two who has done well?
> Dotto - explained his answer.
> T1:   Which is on our right side?
> Dotto: It is seventeen.
> T1:   Is he right?
> Class: He is **WRONG**,
> T1:   Which part is he wrong?
> Class: He is wrong in subtracting.
> Dotto - sits down but appears to be uncomfortable,
> T1:   Who can correct Dotto? Who can write correctly? **YES** Monde!
> Monde: We have borrowed ten added to seven, we got seventeen, eeh we borrowed ten and not seventeen.
> T1:   Yes very good, give **PRAISE** to Monde
> Class: clap hands
> T1:   OK, Dotto, have you seen your mistake?
> Dotto: *yes*

The extract above suggests that the wording and tone of voice (manner) indicates that T1 asks other pupils to pass judgement before directly pointing out the strengths and weaknesses in the pupil who has worked on the chalkboard. As discussed and agreed as part of conducting the discussion of the assessment work, T1 could have either asked pupils to point out part of the strengths in pupils' work or asked the pupils to start by pointing out strengths before the weaknesses. It was considered that asking pupils (as a class or as individuals) to respond to peers' responses by pinpointing strengths then moving on to weaknesses in the pupils' response could remove the judgemental aspect in the remedial class and encourage participation as well as enhancing the effectiveness of the remedial discussion in supporting pupils' learning of the parts of the lessons that pupils were unable to understand. Although T1 managed to adopt this pattern to a moderate level, T1 reported that it was difficult to adopt and orient his pupils to adopt this pattern of commenting on their peers' responses.

'it happens, pupils are used to the old way, and for us teachers, also, it occurs both pupils and teachers 'slips', this 'formula' is somehow difficult, it needs to stick in mind and pupils also to understand, there is some difficulty, you can find, a pupil can mention only the strength part in a peers' response, but when you ask them about the weak part, although it can be obvious they can simply keep quite...' (Post-class observation interview, July 2011).

The above extract shows that T1 and his pupils are facing difficulties in adjusting and sustaining this pattern for discussing peers' assessment work. The underlying reason for this difficulty to T1 seems to be his tendency to slip back into his old ways because he was not accustomed to the pattern. Conversely, part of the difficulty seemed to be because pupils did not fully understand how to comment on their peers' assessment work as T1 had asked them. This implies that more time was needed for change in the 'culture' of classroom talk that was consistent to CPPA, to both T1 and his pupils to occur and become automated.

Nevertheless, in response to these difficulties T1 used some of the main strategies, agreed amongst the intervention teachers, to encourage dealing with the aforementioned difficulties:

- Engaging pupils on their interpretation of the meaning of being a pupil in relation to peers and their teacher;
- Discussion on what it meant to be in a classroom and that learning included discussing each other's responses in assessment work;
- Encouraging pupils to respect each other's responses and interpret implications of peers' responses in terms of understanding parts of lessons rather than only saying - it is 'right' or 'wrong'.

The use of the above strategies helped to improve the willingness of his pupils to share and discuss each other's assessment work in line with his pattern of CPPA. Despite the improved participation of his pupils in discussing assessment work, T1 continued to experience and report that some pupils[22] continued to be reluctant and unwilling to take part in class

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22 Low ability and less outgoing pupils.

discussions. In response to this, I conducted further follow up observation in T1's class (Appendix 25-part B), and afterwards we discussed the outcomes of my classroom observation (Appendix 25 part C).

The extract below suggests that T1 recognises that the CPPA requirement of the intervention demands him to engage pupils of different abilities in discussing each other's assessment work. However, he finds it too demanding to reach the capable and the less capable at the same time.

> 'In this system a teacher is supposed to listen to pupils, discuss with them and agree. For example, about administration (giving) an exercise that is planned to be done at the beginning of the period, pupils who are slow to understand can ask to be taught first then another exercise can be done later, which is opposite for fast learners, the difficulty here is that you find you spend a lot of time discussing the same question if it means each side will make its defence mechanism'.

Akin to other intervention teachers, T1 acknowledged the importance of a 'friendly' approach for encouraging less outgoing pupils. However, he found that it required behaving in ways that were in conflict with his personality and professionalism in terms of interacting with his pupils in a teaching and learning classroom context. Furthermore, the difficulty that T1 found in adopting a more personal 'informal' approach which would involve all his pupils was also revealed when he was observed by a peer teacher (T6) who commented in the group meeting on 13th October 2011:

> 'This method is not easy if the class is slow (low ability)…eeh, if the teacher is not enthusiastic to his/her class, it is difficult for all pupils to take part in the discussion of assessment outcomes effectively in classes' (T6's feedback presentation in the group meeting on 13th October 2011).

Similarly, the difficulty to involve the lower ability and less outgoing pupils, according to the CPPA intervention requirement, also appeared in T1's written feedback.

T1 during February 2012

The following extract from T1's written comments about engaging pupils in line with CPPA intervention requirement illustrates further his difficulty.

> 'Encouraging pupils during corrections of exercise to achieve good teaching, this is also a difficulty that I have encountered in this approach, especially for those pupils with low ability, a feature of fear, shame, lack of confidence to speak and not to participate in the discussion. In our approach, when you make corrections, it touches everyone, especially with these characteristics. So I become unable to reach the mall, especially when I consider that I have already taught and I consider this (correction) just as revision. This is the part which is giving me difficulties' (T1's post intervention feedback form, 2012).

The extract above shows that T1 acknowledges his own difficulties with engaging all pupils to discuss in class and how to carry this out, and as a consequence, he feels he is not reaching and involving all his pupils as the intervention expects.

7.3.1 Summary of T1's challenges

T1 began to socialise the pupils to take part in the CPPA to discuss assessment work, mainly for teaching and learning purposes. The next stage was to try to create and sustain a free and safe environment for pupils as individuals, and as a whole class, in order to benefit and learn more from each other during a discussion of assessment work of individual pupils in the class. Moving on to socialising the less outgoing pupils required T1 to adjust his communication and ways of interacting with his pupils, some of which he found were not consistent to his professional and personal view. From the evidence presented, T1 was challenged to initiate and sustain a classroom discussion about the mistakes which his pupils had made. The challenge stems from two sources. First, previously such sessions have been conducted in such a way so as to put pupils on the spot in front of their peers. They are therefore, understandably, reluctant to contribute to discussion in class in case it happens to them. Secondly, even when T1 managed to raise discussion, he and his pupils all too easily slipped back to their old ways. In terms of specific category of pupils in the class, T1 also faced the challenge

of engaging pupils of low ability, as well as those that were less outgoing. This was not only because of their personal attributes to take part in the discussion with the rest of the class, but also because of T1's inability to use other strategies that could encourage more participation from the low ability and less outgoing pupils, since he found these were inconsistent with his personal and professional expectations of interacting with his pupils.

Looking at T1's challenges in terms of the degree of change which he was trying to introduce in line with the intervention requirements, two aspects are evident as from T1's narrative. Firstly, the pupils considered and treated assessment work and the results as a private and personal part of class work, therefore, the pupils were generally hesitant to share and take part in discussions that involved their assessment work and/or that of their peers. Secondly, T1 recognised and acknowledged this pupils' point of view and their sensitivity about assessment work, unlike other parts of the class work that did not involve assessment. This in turn resulted in a need for T1 to orient and socialise the pupils to consider and treat the assessment work, as well as the results, as not an entirely private and personal part of their class work. This necessitated T1 to develop a new view amongst his pupils about assessment work and results, and their implications in regard to pupils as individuals and as learners. This was achieved by discussing with the pupils and agreeing in a mutual way as the intervention required, rather than simply instructing them what to do, which was challenging for T1. This was because he was used to the usual way of introducing change in the class, mainly by asking the pupils what to do. Additionally, his view of himself as an authority figure to the class also affected him when implementing a mutual approach for adopting new ways to interact with his pupils during class discussion of assessment work. In particular, T1 found a mutual way of familiarising the pupils with new ways of interacting with each other and with himself which was not only difficult to implement but also in conflict with his views and expectations of class behaviour.

7.4 T3 narrative case study

T3 had 8 years teaching experience and was among the intervention teachers who succeeded reasonably well in adopting error analysis for the formative marking of pupils' responses in the exercises. She used her CPPA strategy of pupils discussing in pairs in their seats, with some of them working on the chalkboard to carry out remedial class teaching in a relatively systematic and coherent manner, which could help them to understand how their responses in the exercises indicated that they had problems (Section 6.2.2.2). Yet, classroom observation and follow up interviews showed that she exhibited difficulties in making instant, spontaneous, insightful, and comprehensive interpretations of the responses, which were produced orally and wrote on the chalkboard. Alongside this she also exhibited difficulties in adopting words and phrases related to formative dialogue that could make the remedial classes more insightful in line with what the intervention hoped to achieve as discussed in group meetings[23].

T3's initial difficulties and concerns in respect to CPPA (May - August 2011)

Follow up classroom observations of remedial classes revealed that there were moments in which T3 did not instantly, spontaneously, insightfully, and comprehensively notice and interpret the implications of some of the features in pupils' responses. These aspects caused her to look more carefully at being able to deal with the specific or the actual strengths and weaknesses in her pupils' understanding, when carrying out remedial classes in line with CPPA. Below are descriptions of two parts of formative assessment conversation extracted from field notes in one of T3's remedial classes that she carried out in line with the CPPA. The remedial discussion was based on

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[23]Through initial follow up and discussions in group meetings, it was agreed that intervention teachers had to try to abandon the use of words, phrases, voice tone, and facial or gesture expressions which implied seeking or judging pupils' contributions during remedial classes, and rather talk (ask questions, respond to pupils' responses) in ways that could be eliciting and inviting peers' contributions.

an exercise on the lesson about writing Tanzanian shillings in words and numbers:

> *Formative assessment Part 1*:
> During remedial teaching based on the exercise about writing word problems in number form, T3 asked pupils to write Nine Thousand Tanzania shillings on a chalkboard. One pupil volunteered and correctly wrote the number '9000 Tshs' but when T3 asked the class if there was another pupil with different answers, four pupils put up their hands and enthusiastically moved to the chalkboard and wrote their answers which they considered were different from the answer of their peer. The answers of the other four pupils included 9,000; 9ooo; 9000; and 9000/= respectively. After that, T3 while facing the class, commented that, all pupils were correct, and asked the class a leading question by saying that 'Is that ok class, eerh?' This question was accompanied with her facial and gesture expressions which also implied she was seeking for a confirmatory response from the class. The class answered 'YES'. Then T3 continued leading the class discussion by working on other examples in respect of other problems that she had noticed in the exercise.
>
> *Formative assessment Part 2:*
> …At another point during the same remedial class discussion, in discussing another question which also required pupils to write Nine Thousands and Seventy Eight in number, one pupil wrote P78 on chalkboard. Then T3 asked the class if the answer was correct, the pupils answered in a chorus, 'NO'. She asked another pupil who could write the correct answer. One pupil wrote the correct answer (number 9078). Then T3 without clarifying or asking other pupils to comment on their peer's response (P78) simply asked for another pupil to write correctly. One pupil whispered, "it is like letter P", Then T3 in puzzle facial expression asked the class like which letter… (Follow up classroom observation, May 2011).

On the one hand, as can be seen in the first formative assessment moment, it could be interpreted that the difference in responses of the four pupils were related to the use of comma sign (9,000, 9000), size of zeros against nine (9ooo), and the use of the abbreviation and sign that there are no cents (T.shs and /=) for Tanzanian shillings. On the other hand, in the conversation of the second formative assessment moment, the pupil wrote the number 9 the wrong way around, so that it looked like P. At this moment in time it could also be interpreted that the pupil's error of writing P instead 9 could be attributed to the pupil having confusion about the shape and appearance of the letter P and number 9. Thus, it can be considered that, T3's judgement of the pupils' responses that they were all correct in the first

moment, and that pupil P78's response was not correct in the second moment, respectively, suggests that she did not comprehensively interpret the features of the responses to discern the pupils' thinking (understanding) in respect to the conceptual lesson aspect under discussion. Additionally, T3's facial expression of being surprised following the pupil's utterance "like letter P" had two implications. Firstly, it suggested that she lacked insightfulness in interpreting features and implications of pupils' responses, and the spontaneity of accommodating their insights during class discussion through CPPA. Secondly, she needed to adjust her body language, particularly in terms of voice tone, facial expression, and use of words and phrases that could be more appropriate for formative classroom talk[24]. In the next part, I present the difficulties and concerns that T3 faced when she had fully adopted the CPPA between September 2011 and February 2012.

T3's difficulties and concerns about classroom talk in respect to CPPA (September 2011 – February 2012)

Between September 2011 and February 2012, I also noticed two main aspects of her classroom talk that I found minimised the depth of discussion to support the pupils' understanding of lesson parts that were embedded in the assessment work during remedial classes. They included (1) moments in which T3 asked questions repeatedly, and (2) raised or lowered her voice tone as a main strategy to elicit the class or particular pupils to think more deeply about the lesson parts under discussion, provide responses to questions or comment on their peers' responses. These were typical of her pre-intervention way of carrying out class discussion as exemplified in Appendix 26 (see parts with bolded upper and lower cases).

In response to the above habits that were noticed, as part of adopting the CPPA for discussing the assessment work, two areas were further discussed

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[24] Through follow-up classroom observation I noticed that T3 and other two intervention teachers (T1 and T4) displayed facial expressions, gestures and used words (phrases) and voice tone which did not encourage pupils to speak more about their own or their peers' responses during discussion of assessment work through CPPA.

and agreed. They included, firstly, T3 minimising the habit of raising and lowering her voice tone as the main strategy of eliciting pupils to think more, and provide responses. Secondly, T3 should encourage pupils to do more than reply with just 'Yes' and 'No' answers, and instead explain by pointing out features of strengths and weaknesses in their peers' responses .

She made some progress in adopting formative talk in terms of words, phrases, voice tone and body language, and helped her pupils get used to the practice of taking part in remedial classes by focusing on specific features of strengths and weaknesses in each other's responses. Yet, T3 exhibited and admitted to difficulties in re-orienting her pupils to minimise the habit of simply saying 'Yes' or 'No' when she was observed and interviewed in February 2012.

> 'You find children are used to taking part in the class discussion by providing whole-class responses, yes, no, correct, or not correct. It is true that they have changed and they are following this new approach for class discussion, but that condition of chorus is somehow still there. Eeh, I think it needs more time to change completely….Again, when pupils become used to explaining features in their peers' answers, it is very taxing to the teacher to deal with different explanations from the pupils at a time in our large classes. Children are good, becoming better at spotting features in their peers' answers. This is good although sometimes I find overwhelming or feel like moving slowly to cover the lessons' (Post class interview, February 2012).

The second part of the above extract also shows that T3 found it more demanding and time consuming to respond to many problems which pupils pointed out and wanted help with, and at the same time move the lesson at a pace which she thought appropriate. In the next section I explain in more detail T3's concerns about time in carrying out class discussions in line with CPPA and other intervention requirements.

T3's concerns about time in respect to implementation of the intervention

Overall, T3 expressed concerns about time at different stages of the intervention. At the beginning of the intervention, like other teachers, her concerns about time spread across different parts of the assessment process. In regard to formative construction of the exercises, her concern was on the demand for more time to analyse each lesson and produce a list of questions for the exercise that corresponded to each lesson before class.

> 'Starting with the introduction, I mean, I see that time is absolutely not enough**, time is not enough 'teacher'**, look I have to do the introduction, teach, give exercises, then do corrections, I am finding time is not enough, so how are we going to divide time, that is where the difficulty is, it becomes tough, I get some difficulty on that…' (Subject based focus group discussion, May 2011).

T3 also found planning questions for assessment work that corresponded to the lesson in terms of its parts and connection between each other, demanded more to accomplish.

> 'Time is an issue in which the teacher is required to prepare well and understand precisely what s/he is going to do because this approach to some extent requires the teacher to be certain on how you are going to start teaching and which type of questions for exercise and how you are going to do…you know, at primary school level, preparing for lessons is not so much serious as it is supposed in this approach. Some of us know that here at the primary level, preparation for teaching children is not that precise, but this approach is like the secondary level. It requires precision on different sections. You have to prepare the lesson and exercises accurately, mark, interpret, plan again, and then teach by conducting discussions for corrections (remedial), check if you have succeeded or not and so forth…' (whole group discussion, July 2011).

The above extract shows that T3 initially faced time constraints in adopting the intervention requirements for the formative construction of assessment exercises in advance, as per the intervention requirement. That is developing assessment work that reflects the individual and connection of the parts of lesson at hand and the respective exercises well in advance before class was challenging in terms of time needed at the beginning of the intervention.

As the implementation progressed, T3 developed more of an understanding and further skills for the formative construction of exercises. Her concern about time constraints increased in terms of the amount of time allowed for discussing pupils' problems that emerged in discussing assessment work through the CPPA strategies which her class adopted, and the pace to move the lesson. The extract below illustrates:

> 'I find like they are delaying me. After all it is a session for correction. Given that I have already taught and this is just revision or making corrections, I expect them not to ask too much, because they already know something, that is, I sometimes feel like I am delaying. I know now, in this approach discussion for a correction is a serious part of the class work' (Follow up interview, August, 2011).

T3's extract above shows that she considered the correction (remedial class session) as a light part of the class compared to what the intervention asked her to do. This view of correction as the light part of class work was also noticeable among non-intervention teachers in her school and in other participating schools. For example, in some of the follow-up visits to her school, it was common for me to hear conversations between teachers which included statements such as:

- "ooh today, I am not teaching, I was doing corrections"….
- "I have asked pupils to do corrections while I am preparing for next lesson"…
- "Today was not tiring because I was doing corrections"…

The other concern about time was also partly because T3 did not consider the session for 'remedial class discussion' a significant part of her teaching. This was evident in part of T3's responses when explaining her concerns in regard to discussing assessment work in line with CPPA intervention requirements with other teachers in group meetings.

> 'Given that I have already taught and this is just revisions or making corrections, revisions...I feel like I am delaying, after all it is correction, you know in this approach discussion for corrections is a serious part of the class work' (Focus group meeting, November, 2011).

7.4.1 Summary of T3's challenges

According to the descriptions and illustrations above about T3's concerns and difficulties at different stages of implementing the remedial class, it is clear that she faced a number of challenges. Firstly, she found it challenging to establish and sustain class discussion, encourage her pupils to discuss assessment in ways that focused on features of their work, make the discussion open to every pupil, and focus on strengths and weaknesses of pupils responses. Secondly, shifting from the language and patterns of didactic classroom talk, which T3 and her pupils were used to, was challenging to enact, automate and sustain. Thirdly, it was a challenge to carry out classroom talks to discuss assessment work in line with the CPPA requirements of the intervention, since this also required T3 to change and adjust both her talk and body language expressions. This in turn demanded T3 to adjust part of her personal and teaching approaches, in ways in which her pupils responded to each other's, or her own, questions and comments in general.

7.5 Summary of the chapter

On the basis of the description of the three narrative cases (T6, T1 and T3), it is evident that the intervention requirement and its adoption posed three categories of challenges to the intervention teachers. They included challenges that directly resulted from the context, mainly because of the teachers' existing professional and cultural beliefs about the role of the teacher and learner in the assessment process and in classroom contexts. Also found were challenges to fundamental beliefs about assessment in respect to teaching and learning, as well as the views of pupils as learners and individuals, and there were further challenges in terms of classroom practice. The main challenges that arose related to socialising pupils to create a classroom that was supportive to pupils with different characteristics. Teachers adjusting their teaching approaches, which included

adopting new ways of carrying out class discussion, adopting more supportive roles to pupils of different characteristics also constituted challenges that related to classroom practice. Implications of these challenges, in terms of similarities or differences from previous studies, and in terms of the teacher support process, are discussed in Chapter Eight.

CHAPTER 8: DISCUSSION OF THE FINDINGS

8.1 Introduction

The main research question of this study was what happens when Tanzania primary teachers construct, conduct and use results of written assessment more formatively? The post intervention findings in chapter six were presented along with the four sub questions which were: (1) What happens when Tanzanian teachers try to construct exercises more formatively? (2) What happens when Tanzanian teachers try to administer exercises more formatively? (3) What happens when Tanzanian teachers try to mark exercises more formatively? (4) What happens when Tanzanian teachers try to use results of exercises more formatively? As presented in chapters Six and Seven, it was clear that, on one hand; the intervention enabled the intervention teachers to develop practices and perceptions that were beneficial to both teacher teaching and pupil learning. On the other hand, the findings show that, planning, conducting, marking and using assessment results in more formative ways required the intervention teachers to adjust their existing individual and professional views and habits. Adjusting their views and habits in line with the formative assessment principles that were espoused in the intervention and the existing cultural and material realities that exist in Tanzania posed challenges to teachers and their pupils as well. In section 8.2 I discuss the benefits which teachers encountered in regard to pupils' learning as a result of implementing the intervention. In section 8.3 I discuss the challenges which the intervention posed to teachers. In section 8.4 I discuss the implications of these challenges for the kinds of support that needs to be provided for teachers if they are to achieve similar outcomes both in other parts of Tanzania and in other similar educational contexts.

8.2 Benefits the intervention yielded to teachers

Both theorists and previous studies suggest that formative assessment brings benefits to teachers and pupils in terms of supporting teaching and learning. This section discusses the extent to which the benefits which intervention teachers exhibited are partly similar and partly different from those established in the existing literature. The discussion also makes an attempt to explain the reasons for difference in formative assessment benefits that intervention teachers exhibited in contrast to those exhibited by teachers elsewhere (mainly in Western countries) with reference to differences in cultural and contextual realities of Tanzania's education and that of other countries.

8.2.1 Change in perception of assessment in respect to pupil learning

Post intervention findings showed that, intervention teachers developed a view that deficiencies or differences in pupils' understanding are mainly because of the thinking they use in learning the subject contents rather the differences in inherent ability to learn, general attitude and motivation to learn or parental support of the children as it was the case at pre-intervention stage. The intervention teachers developed this perception through insights which they derived about how children think and learn about particular lesson aspects after engaging in a formative assessment practice of interpreting the pupils' responses to discern their underlying thinking. This view that, pupils' inability to understand was not mainly because of inherent deficiency, was also developed by teachers who participated in other previous studies on formative assessment (Black et al., 2003; Black et al., 2006; Organisation for Economic Co-operation and Development [OECD], 2005; Kennedy and McKay, 2009). For example, teachers who participated in the King's Medway Oxfordshire Formative Assessment Project (KMOFAP) adopted the optimistic view of seeing their students as potentially capable of improving if appropriate help and support study in contrast to seeing their students having fixed level of abilities that

mainly determined their success in learning (Black et al., 2003). The intervention teachers in the present study clearly recognised, realised and acknowledged that their pre-intervention approach of not paying attention to interpreting the pupils' responses in assessment exercises denied them insights both the problems their pupils faced in understanding lessons and into how they could better help them to learn the subject content.

> 'I have found that, this approach has showed me that, we, were not (partially) teaching Mathematics to our children. If we had using this approach before, we could have helped our children a lot to learn Mathematics. Really, their answers in exercises tell a lot about what they understood lessons, you can easily help them by interpreting their answers in exercises' (T6).

However, the findings of the present study differ from other studies in regard to the role of pupils' 'correct' and 'incorrect' responses in enabling teachers to get insights into what they understand and so extend the discussion for remedies (Black et al., 2003; Herman et al., 2010; Herppich et al., 2014). For example, teachers in the KMOFAP study by Black et al. (2003) also felt that misconceptions can be more important than correct answers, because they provide opportunities to extend learning both for learners who exhibit the misconceptions and others who may, as well, have the same misconceptions. Although the intervention teachers acknowledge and indeed got more insights by focusing on pupils' errors in assessment exercise as in other studies (Black et al., 2003), through classroom discussion of assessment using (CPPA), they also realised that some or part of the pupils' correct responses when interpreted revealed further inadequacies that needed more clarification. This went hand in hand with no longer attributing inadequacies in correct answers mainly to 'malpractice' (copying from peers' work) as was the case at pre-intervention. The reason for the intervention teachers getting more insights from pupils' correct responses and perceiving these as more important, could be because of didactic classroom discourse which is deeply established in Tanzania. Therefore, it is likely that the 'correct' responses of Tanzania pupils may have been relatively more superficial than those of

pupils in Western classrooms where more participatory and engaging classroom practices (talk) prevail.

Additionally, the intervention teachers implemented the intervention for only 11 months, and this was not long enough to allow pupils to establish the habit of more well thought and thorough responses. Therefore, it can be argued that, the intervention teachers continued to see deficiencies even in the correct responses compared to teachers in other contexts who implemented formative assessment for a relatively longer time.

Moreover, the 'unusual responses' in pupils' work as judged by T3 and T1 (Section 6.2.3), shows that the intervention teachers also learnt that the 'unusual responses' in pupils' assessment work were partly a result of poor visibility rather than inadequate understanding or 'malpractice'. Thus, the formative assessment practice of interpreting pupils' responses and following up made intervention teachers develop more awareness about their pupils' problems and how the classroom material realities (e.g., pupil seating arrangement and chalkboard visibility) affected learning, and that these realities were also reflected in pupils' work in the assessment exercise. T5 once commented that:

> 'In fact, this programme (intervention) brings us close to our pupils. Discovering that we have pupils with needs in our class! Now, am keen at answers of the children in exercises. Some of their answers can tell a lot!'

From the above account, it is clear that, the intervention teachers changed their perception partly because of their greater understanding of the implications of pupils' responses for their thinking, and individual learning needs as established in other studies. Additionally, the teachers' perceptions changed through questioning their former summative view particularly the general summative attitude of treating 'unusual pupils' response' in assessment exercise as due to pupil 'malpractice'. This change in perception about assessment in respect to learning and pupils as learners facilitated the intervention teachers' understanding of how pupils learn and some of the

factors that come into play in pupil learning as discussed in the next section (8.2.2) below.

8.2.2 Enhancement of teacher knowledge

Intervention teachers recognised that, pupil's responses are partly an outcome of the child's thinking and partly due to other external factors such as visibility of what is on the chalkboard because of classroom layout and facilities. Additionally, intervention teachers began to realise that, learning is a combination of the pupils' thinking about the current subject content and their understanding developed in previous learning both in and out of the classroom. This reconceptualisation of learning is evidenced by intervention teachers' increasing ability to interpret pupil responses in terms of their lack of thorough understanding of particular previous subject content (s). They also became able to plan appropriate lessons and assessment exercises with questions related to the content of prior learning (Section 6.2.1). These post intervention practices suggest that, adopting formative assessment enabled intervention teachers to develop a deeper conceptualisation of the notion of 'pupil prior learning' more congruent to the constructivist pedagogy espoused in the existing CBC for Tanzanian primary education.

Participants in KMOFAP (Black et al., 2003) also thought of their teaching in terms of facilitating students' needs, rather than feeling that they have to get through the curriculum at all costs. The intervention teachers increasingly viewed the purpose of both teaching and assessment in a similar way as evidenced by their post-intervention practice of revising lessons on the basis of the implications of the pupils' responses in the assessment exercise. This finding is similar to findings in other studies (Berry, 2011; Harrison, 2013). This altered conception was associated with the new meaning of 'lesson planning/plan' which intervention teachers come to develop. As mentioned in post intervention findings (Section 6.2.1) the intervention teachers reported that their planning became less routine and far more based upon thinking

about their purposes for teaching and assessment of pupils. Most of the teachers differentiated their pre-intervention planning which took place largely to fulfil administrative requirements from their post-intervention practice in which they planned with the intention that the preparations of lessons and assessment exercise should support pupils learning and help teachers to see whether pupils had actually managed to learn. This will be discussed more in section 8.2.5

Although the subject content knowledge of the intervention teachers was not established at the beginning of the intervention, the findings of the present study provide evidence that the intervention teachers gained subject content knowledge in the sense of deeper conceptualisation of the teaching subjects as they implemented the intervention. In particular, the intervention teachers gained knowledge in two ways. That is, through the process of thinking about the reasons behind responses of their pupils (Section 6.2.3) as well as through the contributions of peers in the group meetings (Appendix 21). This finding departs from some of the existing literature (e.g., Schneider and Randel, 2010), which suggests that formative assessment does not lead to increase in teacher knowledge. This difference can be explained partly in terms of how teacher knowledge is conceptualised. In the present study, it can be considered that the intervention teachers gained content knowledge in a sense of deeper conceptualisation of the subject content (Gipps, 2002; Malderez and Wedell 2007; Wiliam, 2011). The conclusion that formative assessment does not necessarily lead to increased teacher content knowledge is drawn mainly from studies conducted in Western contexts where both entry requirements for teaching profession and training for teaching are comparatively higher and more rigorous than in Tanzania (Chapter One). The findings of the present study provide evidence that, formative assessment can lead to increased teacher knowledge, particularly in third world countries in which most primary teachers possess limited knowledge about content and pedagogy of their teaching subjects (Osaki and Agu, 2002; Komba and Nkumbi, 2008; Hardman et al., 2012; Roberts et

al., 2015). This suggests that adopting formative assessment may, if teachers are supported in ways similar to those in this intervention, help to enhance the quality of teacher knowledge and pedagogical competence in the primary educational contexts that are similar to Tanzania.

8.2.3 Planning in respect to pupil learning needs rather than merely planning activities

In terms of actual lesson plans, the post intervention lesson plans of the intervention teachers were more realistic and specific in terms of covering the subject contents to be taught and assessed, unlike the pre-intervention lessons and exercises which were mainly copied from textbooks. Additionally, as explained in post intervention findings, in the post lesson interviews the intervention teachers could explain the reasons for including particular content in lessons and exercises in respect to their relevance to pupil learning. Furthermore, contents of the post intervention exercises included the lesson parts that pupils usually struggle to learn. This post intervention improvement in quality of planning contents of lesson and exercises was in contrast to the pre-intervention planning of exercises during which the intervention teachers included 'other questions' that were not relevant to lessons but mainly for purpose of determining whether the pupils remembered lesson contents from previous classes. This change implies that the teachers developed a view of assessment as an integral part of teaching activity for supporting rather than measuring the pupil's learning. The findings of the present study are similar to previous studies (Clarke, 2005; OECD, 2005; MacPhail and Halbert, 2010), where through error analysis of pupils' responses, the intervention teachers were able to build profiles of the main weakness in children's work and pitch their planning of lessons and assessment exercise to capture aspects of pupils' difficulties   in different subject topics.

8.2.4 Effective feedback for better support of pupil learning

Tanzanian primary schools consist of large classes, therefore, the intervention initially envisaged that the intervention teachers would provide written comments as part of marking and stop giving affective comments and scores (grades). It was anticipated that this would enable them to save time and effort while providing feedback which showed the aspects of work the pupils needed to improve in order to guide them to learn what they appeared unable to learn. However, because of teachers' reluctance to stop giving marks (grades) and ticks as shown in Chapter Seven (T6's narrative) and because of the large class size, written feedback was eventually dropped. Nevertheless, all intervention teachers developed a pattern of providing feedback to the class after marking which entailed two features:

- Underlining or circling instead of crossing with intentions to indicate where the weakness is and where pupils could work on them.
- Marking symbols with the intention to reinforce discussion between pupils but also formed the basis for discussion during remedial plenary.

In terms of feedback through marking the intervention teachers developed symbols (circles or underlining) linked to specific parts of the pupils' responses that needed improvement and allotted abbreviations that directed pupils to talk to their peers, some of which were referred to during remedial discussion in classes (Section 6.2.3). Additionally, the findings in post intervention sections have shown that, the intervention teachers also developed a pattern of providing oral feedback which entailed briefing and working on problem areas in connected sequences that build on one another, unlike at pre-intervention when intervention teachers focused on mere correction of errors in the assessment exercise. The intervention teachers' post intervention oral feedback after analysing pupils' responses and using the results for class discussion aligns with Sadler's (1989) formative view of giving feedback for purposes of supporting pupils to learn. Sadler asserts

that ways in which feedback is provided, in terms of its nature, contextualisation, and timing, matter in supporting learners to learn the subject contents that they appear unable to understand. The intervention teachers seem to have made fundamental achievements in the content and timing of giving and using feedback from the marked assessment exercise for supporting classroom teaching and learning. However, adopting both formative discourse and the body language expression that could augment and support the oral feedback pattern during class discussion of assessment work was challenging. As will be covered in more detail in section 8.3.3, large class size, the teacher as the 'authority figure' in a class, and use of 'summative' discourse in discussing assessment results hindered the effectiveness of the pattern of giving feedback that teacher had developed.

8.2.5 Improved quality of teacher questioning for classroom teaching and learning

In considering classroom questioning as a critical aspect of formative assessment for enabling the active involvement of the learners in the learning, the existing literature (Gipps et al., 1996; Clarke, 2005; Wiliam, 2011; Ruiz-Primo, 2011) coincide that the way the teacher formulates, and executes the questions and provides supportive classroom climate for discussion are key in determining the effectiveness of formative assessment in supporting classroom teaching and learning. In terms of formulating the questions, overall, the post intervention findings showed that in contrast to pre-intervention practice, the intervention teachers prepared assessment exercise that were more relevant for learning, including aspects that they knew pupils struggle to learn and aspects covered in previous lessons but relevant for the lessons in hand. Apart from improvement in relevance of assessment exercise, the classroom discussions through use of CPPA strategies and classroom talk, showed that the intervention teachers improved in terms of asking questions and probing in a manner that elicit pupils' thinking during remedial class discussions compared to their pre-intervention. The observed improvement in quality of intervention teachers

questioning is similar to other previous studies on formative assessment (OECD 2005; Black et al., 2003). For example, OECD (2005) report that in Italy where most teachers use cooperative learning techniques emphasising group work, teachers like all the intervention teachers, also used learner partners in working on problems resulting from assessment work or general class plenary. Similarly, teachers who participated in the KMOFAP study used a strategy of clearly stating to students that when they expressed their own ideas, it helped them and their peers to reflect on and understand the subject contents at hand. The findings of the present study are similar to other studies in a sense that, requirement for the intervention teachers to set ground rules concurred with findings in other studies. As in the stated previous studies the intervention teachers improved questioning in terms of setting ground rules for each pupil to freely participate in class discussion of assessment work and general plenary. However, the findings of the present study differ from previous studies in two aspects. Firstly, the intervention teachers did not use objects as part of questioning strategy for classroom discussion as the case for teachers in other formative assessment studies. Secondly, the oral questioning of the intervention teachers during whole class discussions of assessment results through the adopted CPPA was minimised by occurrence of 'summative' intonation, word utterances, and body language expressions' (T3's narrative in Chapter Seven).

These minimised the more effectiveness of the formative aspects of pupils giving reasons for their own or peers' responses or the teachers interpreting the pupils' responses and pitching the lesson to extending pupil understanding which the intervention teachers had developed. Three main factors can explain why the intervention teachers behaved differently to those reported from research in Western education contexts. One of the reasons is because of the greater preponderance of traditional didactic teaching approach in Tanzania compared to teachers in Western educational contexts (Stambach, 1994; Malmberg et al., 2001; Vavrus, 2009). The traditional didactic teaching characterised by I-R-E question patterns (Barret,

2008) and whole-class response limited the intervention teachers' ability to sustain formative classroom talk throughout class discussions (Section 8.3.2). The other two reasons include the fact that the intervention teachers taught large classes. Thirdly, the intervention teachers implemented formative assessment for a relatively short period (11 months), which was not long enough for them and their pupils to develop, adjust and shift from the culturally embedded 'summative' to more 'formative' classroom talk. Nevertheless, improvement in teacher questioning can partly explain the improvement in handling pupils' responses which the intervention teachers also gained as discussed in the next section (8.2.6)

8.2.6 Teacher handling and interpreting of pupils' responses

Both the demands of the question for pupils and the way in which the teacher interprets and handles the responses which it elicits from them constitute two critical aspects for the possibility of teacher to enact formative assessment at classroom level (Black, 2007). Results in this study showed that, intervention teachers were able to interpret pupils' written responses in assessment exercises and generate information for planning and conducting the remedial class discussion (Section 6.2.3). As observed in other studies (OECD, 2005; Clarke 2005), the intervention teachers demonstrated improved quality in questioning during classroom discussion. For example, as explained in post intervention findings on use of CPPA strategies, the majority of the intervention teachers stopped the habit of judging the pupils' responses as right or wrong during classroom discussion and the rest did so far less frequently than previously.

On the other hand, as explained in Chapter Six (e.g., T2's class) there was improvement in the quality of pupils' responses because pupils could either give reasons for their own responses or could point out the reason for supporting or disagreeing with the responses of their peers. During classroom discussion, in terms of handling pupils' responses, Black (2007) attests that, the formative role of the teacher is to listen and to respond

constructively in respect to what emerges. More critical task is that, the teacher has to respond to what emerges as pupils' ideas, collect and make sense about them, summarise the ideas, and then challengethe pupils with further and insightful questions for more discussions about the lesson at hand (Gipps et al., 1996; Alexander 2004; Black 2007; Furtak et al., 2014). In regard to this, although the intervention teachers exhibited a sense of interpreting their pupils' written responses in assessment exercise in order to generate and use the information in planning and conducting classroom discussion, they exhibited difficulty in picking up from pupils' responses and guiding the classroom discussion. One reason was little ability at-and little prior experience of interpreting inadequacy in pupils' responses in terms of discrepancies between the language that the pupils' used to explain their understanding and the formal language understood or expected by the teacher (Wiliam, 2011). The other reason was related to large class size which hindered the teacher from obtaining responses from a significant number or all of the pupils. Nevertheless, intervention implementation apparently supported more active involvement of pupils in the classroom learning activities (Section 8.2.6.1).

8.2.6.1 Active involvement of pupils in learning activities

Post intervention findings showed that, the intervention teachers actively engaged their pupils in learning by using CPPA strategies and introduced 'new' conditions for whole class discussion. Intervention teachers also developed a habit of asking the pupils to give reasons for their own responses or their peers' responses rather than merely judging as right or wrong. The findings of the present study also concur with findings in other studies in terms of peer assessment helping teachers to discern misunderstanding and to encourage learners to correct their work with or without peer partners (OECD 2005). As explained in post intervention findings, in order to promote insightful conversations and a safe and free classroom climate for each pupil to participate in discussion of assessment

results, the intervention teachers introduced two main conditions for whole class discussions:

- All contributions to be treated with respect.
- Pupils to give elaboration (e.g., reasons) when giving their responses, supporting or refuting their peers' responses.

Thus as explained in post intervention and further illustrated in use of the CPPA strategies that Intervention teachers adapted helped to improve the discussion within the parameters of the I-R-E pattern which is practically possible in Tanzania primary classrooms (Barret, 2008; Vavrus, 2009). Comparatively, like teachers who participated in other studies on formative assessment, implementing formative assessment strategies enabled and necessitated the intervention teachers to set ground rules for class discussions (Black et al., 2003; OECD, 2005; Brookhart et al., 2010). However, the intervention teachers did not incorporate use of support materials such as traffic light cards in discussing the assessment results, or general class plenaries as was the case in other studies on formative assessment in the Western context. The reasons include impracticality due to large class size, and that the short implementation time made it difficult for them to develop competence and confidence in this area as advocated by formative assessment theorists (Wiliam, 2011; Clarke, 2005). Nevertheless, the achievement of T6 in using the class column strategy for CPPA, which was in line with the traditional sitting arrangement of pupils in Tanzanian primary and secondary classrooms, suggests that, if a similar method of teacher-support and more time are devoted to developing appropriate formative assessment skills, teachers can develop more CPPA strategies which include integrating the existing (local) material, structural and cultural realities for engaging the pupils more in classroom teaching and learning activities.

Implementing the formative assessment enabled the intervention teachers to reach out to each and every pupil to take part in class discussions with their

pupil partner on their seats through class-column-row strategy (as it was the case for T6); or alternating between boys and girls (as it was the case for all teachers teaching lower classes). Thus, adapting the CPPA also enabled the intervention teachers to deploy more specific strategies for promoting participation of pupils with different characteristics (particularly self-esteem) and backgrounds (particularly socio-economic status). For the intervention teachers to adopt CPPA, they needed to develop different classroom conditions in which the pupils would feel encouraged and free to make contributions when discussing the assessment results for remedial teaching and during other parts of classroom discussion.

8.2.7 Enhanced teacher motivation to work with children

At the pre-intervention state teachers expressed a high level of demotivation which they attributed to contextual factors both tangible and less tangible. As mentioned in Chapter Four, I acknowledged and empathised with the motivating and demotivating factors with which they had to cope, but also informed the intervention teachers that, I designed the intervention package with some awareness of their contextual realities and asked them to collaborate to implement in the light of the existing context. Despite the continued existence of the existing (motivating and demotivating) situation, the teachers agreed to pay attention to pupils' responses and were motivated to continue to do so, as evidenced by the discussion so far. This can be explained by their recognition that, their experiences of implementing the intervention boosted their confidence not only in conducting teaching and learning in classes, but also in explaining the quality of their assessment to peer teachers and 'authority figures'. The two extracts below by T2 and T5 illustrate the enhanced confidence in discussing and explaining the quality of their assessment that they had conducted as part of implementing the intervention when they were observed by school inspectors who visited their schools.

'When the school inspectors came, I was more confident to explain about the work I give to children for exercises than I used before. I discussed with one of the school inspectors about the number and content of exercise including how I currently mark the pupil's work. He was so impressed in our approach of interpreting the responses of children in exercises to identify what children understand and problems they are facing. This approach makes you (teacher) to be confident and gain more interest in working with children. Now, I have no problem [fear] school inspectors, can come any time, I will be able to explain. Really, I feel always prepared' (T2).

'School inspectors also came to our school last year when you had left. I was also inspected in the class and the assessment work. This time I felt I was more prepared and confident to talk to the inspectors. In fact, that is what happened, he was impressed with our approach for planning the assessment and how I used them to identify whether or not pupils have understood or plan revision work' (T5).

The fact that the teachers saw children able to express themselves was by it-self-rewarding. Teaching is a human and personal activity where teachers get a sense of interest in children as they experience more children taking part in the learning in terms of daring to say something (Wiliam, 2011; Harrison, 2013). In a similar vein, the study by Hallam et al. (2004) observed that the practical in-service effect of formative assessment is that students keep learning and remain confident that they can continue to learn at productive levels if they keep trying to learn. Furthermore, the same study by Hallam et al. (2004) observed that strong positive consensus among teachers (n=72) regarding enhanced involvement, motivation and confidence in their learners. The intervention teachers reported a feeling of being motivated because of the concrete experience and the insight that every child could learn to some degree after adopting CPPA strategies. Therefore, it can be argued that, taking part in implementing the intervention provided the intervention teachers with the view that every child can learn   as T1 extract illustrates:

'Although we have seen that children who do not know well how to read and write need a special support, it is obvious that, every child can learn including the slow learners. I have seen this and others have been saying that, it gives more energy to a teacher when you find that the slow learners also can produce better work to a greater extent than expected. This makes any teacher to feel good because at least every child can, gets something from the lesson. And this is proved when you talk to them, you will always find that they have understood something, not that they miss the whole

lesson. That is why for every answer now of a child, I know it has a meaning to a child' (T1).

As implied in T1's extract above, previous studies have consistently reported that, overall, adoption of formative assessment leads to improved learning to all learners and comparatively benefits the learners of 'low academic ability' more (Sadler, 1989; Black and William 1998a). Envisaging that the adoption of the intervention could benefit the pupils in terms of passing their final examination was another factor that made the participating teachers report their increased motivation to work with the children when implementing the intervention. The intervention teachers reporting a feeling of enhanced motivation because of the perception that, the formative approach could contribute to performance of their pupils in a final national examination. This is consistent to the literature on teacher change, for example, Wedell (2009) attests that if people in a change context (including teachers) see consistency between the practices underlying proposed changes and those that are perceived to help learners pass high-stakes exams, they are more likely to adopt them.

8.3 Challenges the intervention posed to teachers

8.3.1 Challenges related to promoting a safe classroom climate

As illustrated in Chapter Seven (T1's narrative) classroom observation showed that, the intervention teachers faced a challenge in making a safe climate in the classroom which would encourage low ability and less confident children to speak out. This challenge is similar to other studies (Black et al., 2003; OECD, 2005; Harrison and Howard, 2009). However, as explained in T3's narrative also faced the challenge of handling the high ability and more outgoing pupils who traditionally competed to give the answer. However, the problem decreased over time and was less evident towards the end of the intervention, perhaps because teachers' gained

proficiency in asking questions in a manner that required pupils to think before they give responses. The intervention teachers also faced a challenge because of their own expectations. This was seen for example, in the initial follow up classroom observation of teachers implementing the intervention where teachers and children could laugh when their peers gave 'wrong answer' to an apparently 'simple' question. During initial classroom observation, I also noticed and teachers in the follow up interviews admitted that, boys could laugh (jokingly) at mistakes that girls made but not the other way round. Furthermore, I noticed girls were more likely to struggle to stand up to give an answer because of their clothing style and general shyness. Similarly, pupils who apparently came from poor families, struggled to answer, and at certain times peers looked at them in dismissive and supercilious ways. In a Tanzanian classroom culture where habit of children mocking peers' 'wrong' responses is a usual practice there was a need to focus on the affective aspects if formative practices were to be successfully introduced.

The need to socialise the children for purposes of creating a safe classroom climate has also been reported by teachers who participated formative assessment in the Western education context (Torrance and Pryor, 2001; Harrison and Howard, 2009; Harrison, 2013). However, the findings of the present study differ from the Western context in a sense that some of the classroom behaviours, for example, those based on gender differences are embedded and deep rooted in the cultural norms that still exist in a wider Tanzania society. Therefore, adopting formative assessment was challenging partly because the intervention teachers had to deal with characteristics of individual children and how children relate to each other, introducing ways of interacting that were inconsistent with the existing expectations of the pupils. Additionally, the intervention teachers had to alter their own view of appropriate classroom behaviours, and devise strategies to rectify and equally promote a safe and free classroom for all pupils. Apart from the strategy of alternating between male and female pupils during plenary of the

marked assessment exercise as explained in adoption of CPPA strategies, the intervention teachers also employed three other main strategies to enhance a safe classroom climate for formative assessment:

- Engaging pupils on their interpretation on the meaning of being a pupil in relation to peers and their teacher.
- Discussing on what it means to be in a classroom and that learning includes discussing the peers' responses
- Encouraging the pupils to respect each other's responses and interpret what peers' response in terms of understanding imply rather than only say it is 'right' or 'wrong'.

The difference between Tanzania and Western contexts in terms of the challenge of promoting safe and free climate for effective formative use of assessment can be attributed to both cultural contexts and the general education policy. For example, as revealed in Chapters One, Four and Five, the innate view of children's ability is dominant in schools, classroom and general public contexts. In addition, other general cultural expectations about ability in mathematics between boys and girls raised challenges for promoting a safe classroom climate which would promote more formative use of assessment results during classroom teaching and learning. For example, the teachers' perceived need to maintain their culturally expected teacher-authority figure made it difficult to try some of the strategies for encouraging less confident children. This is discussed more in the next section (8.3.2).

8.3.2 Challenges related to engaging pupils in learning through pupil peer assessment strategy

For various reasons to do with deep seated cultural norms regarding teacher and learner roles, some of the aspects of the intervention for formative assessment were particularly complex to implement in the Tanzanian setting. For example, the intervention teachers were expected to be authority figures and this made it hard to implement several formative assessment strategies to support less confident pupils. The Tanzanian view of teacher as the authority figure was more evident with the intervention teachers who were

teaching young children in Grade Three, who did not seem to use the more intimate strategies (e.g., moving close to and patting the shoulder or back of less confident children in order to encourage them to speak out (give answers) during CPPA and general class discussions) that might be expected in the Western context (Clarke 2005; Clark, 2011; Popham, 2011). Similarly, as reported in Chapter Five (Section 5.3.3) about pre-intervention marking, the intervention teachers considered marking part of assessment not only as the teachers' duty as expressed in policy documents (MoEC, 1999; MoEC, 2005a**),** but also a symbolic expression of being a teacher. Indeed, the intervention teachers remained adamant about retaining giving scores in marking the assessment exercise not only due to the belief that, both low and high grades motivated the pupils to learn, but also on the ground that the grading indicated that the marking of the assessment exercise is authenticated by the teacher (T6's narrative).

Also, as the findings particularly in T2's class, showed that, while some pupils were initially excited at being allowed to mark each other's work, others resisted since they expected and/or wanted their work to be marked by the teachers. Although I did not personally conduct follow up interviews with the children but relied on classroom observations and teachers reports these revealed 'enthusiasm' and 'resistance' reactions that pupils expressed through utterances and body language expressions. The pupil 'resistance' reactions that, I observed in the classroom observation during initial implementation of CPPA, concur with the deeply embedded view of the teacher as the sole authority to execute the assessment role. For example, utterances such as "I am not giving you my exercise book, why should I?, you are not a teacher!" and similar body language expressions (reactions) such as some pupils merely shrugging their shoulders or nodding heads, suggest that, they were reluctant to swap exercise books with peers when they were initially asked. The pupil's 'resistance' reactions here concur with the existing literature that pupils can play a conservative influence and be very resistant to participate in any classroom activities that are primarily

perceived as the teacher's job (Clarke, 2001; Wiliam 2011). Moreover, as will be discussed in more detail below, the resistance reactions also suggest that the intervention element of CPPA posed emotional challenges to the intervention teachers and pupils.

In contrast, the 'enthusiasm reactions' that pupils expressed through utterances such as "today is nice, I am your teacher today" and happy facial expressions, suggested that pupils were happy to have a chance to look at their peers' work and/or vicariously enjoyed taking the position of a teacher. Their enthusiasm seemed to emanate from the opportunity to engage in marking role which they knew was the prerogative of the teacher. For example, although T2, like other intervention teachers, explained to the pupils that the purpose of looking at each other's work and putting a tick or crosses, respectively, was to identify strengths and discuss weaknesses in their peers' work. The opposite seemed to happen. Follow up classroom observations and teacher reports in the initial group meetings show that, it seems the pupils initially focused mainly on the act of marking in terms of putting ticks and crosses in their peer' work rather than looking more carefully at each other's work. Further analysis of the follow up class observations and teacher reports and interpretations of the pupils' reactions, showed that, the pupil reactions were partly because some teachers confused them by using 'summative' terms such as 'to mark' rather than by introducing and asking the pupils to swap their books for CPPA, in order to 'look at each other's work and discuss the strengths and weaknesses'. This suggests that where teachers implementing peer assessment strategy for formative assessment in educational contexts where assessment is mainly perceived as the territory of the teacher (Gipps, 2002; Koretz 2008; Carless 2011) they first need to know how to explain the assessment changes to learners. Secondly, need to be supported to develop appropriate formative discourse.

8.3.3 Challenge related to teacher handling and interpreting pupils' responses

Post intervention findings in Chapter Six showed that the intervention teachers exhibited clear new patterns of feedback-giving that involved discussing the results of marked pupils' work when they had previously focused only on correcting the incorrect answer. However, looking at some of the teacher-pupil dialogue used during remedial discussion of marked exercises suggest that, overall, teachers found it difficult to adopt a holistic change in terms of minimising their 'summative' language (e.g., T3's narrative) as illustrated in Chapter Seven. This challenge has been identified elsewhere with many teachers taking more than one year to engage and subsequently enact the idea of classroom dialogue because it requires substantial adjustments in the manner and patterns of teaching. Black and Wiliam (2006) inform that insightful classroom dialogue is the least likely aspect of formative assessment to be implemented successfully. In the Tanzania context, this difficulty is largely related to language used. Firstly, there is the difference between the official language of education and the language which the pupils use to communicate or express their ideas or understanding. Secondly there is the deeply ingrained pattern of Tanzania classroom dialogue in which, not only the content of the teacher talks but also the way in which the teacher speaks to stimulate and respond to pupils' responses need to change if it is to become more formative.

Both patterns of classroom interaction and discourse between the teacher and pupils in Tanzania are common with other sub-Saharan Africa countries. Indeed, studies that have investigated classrooms show that classroom discourse is characterised by length recitations made up of teacher explanation and questions, and brief answers by individual pupils or the whole class (Arthur, 2001: O-saki and Agu 2002, Abd-Kadir and Hardman, 2007; Barrett, 2007, Vavrus, 2009; Wedin, 2010). Although the adoption to formative assessment and CPPA in particular improved the quality of classroom talk in terms of the teachers being able to pick up from pupils'

responses and extend the discussion for pupils to clear their misconceptions. The T3's narrative in plenary discussion of assessment results showed that more adoption of formative assessment by teachers requires more time to change their linguistic profile and body language expression for more adoption of formative classroom discussion. The next section (8.3.4) discusses time as one of challenging aspect for adoption of formative assessment.

8.3.4 Challenge of time in relation to adopting formative assessment

Because planning and enacting formative assessment in class need to be thoughtful and careful, among others initial investment of time is indeed high. However, when it takes off and particularly when teachers obtain a holistic view of formative assessment across the assessment process, it can be extremely fruitful. As illustrated T3's narrative in Chapter Seven (Section 7.4), it can be argued that, the concerns of intervention teachers about time shifted from time constraint for preparing the lesson and assessment work to creating more time to carrying out actual class discussion and providing remedial work for specific pupils. At the beginning the teachers considered adopting formative assessment as adding another activity to their existing teaching load and saw the new practice as added practice rather than a practice that could be integrated into their existing practice. Also, when they initially perceived that the new practice involves thorough thoughtfulness and carefulness, they felt they would not be able to accomplish it. The initial concerns about time of the intervention are consistent to South Africa's teachers experience in adopting assessment and teaching requirements that were associated with C2005 (DoE, 2009; Spreen and Vally, 2010). South Africa's teachers found lacking time to implement assessment and teaching in ways C2005 asked or expected them. Nevertheless, as illustrated in T3's narrative, the intervention teachers unlike the South Africa's teachers, their concern of time shifted from time for lesson plan to time for carrying the actual classroom discussion. The possible reason as explained in Chapter

Four, the support process for implementation of the intervention entailed active involvement, continued follow up and training sessions modelled ways in which they were expected to carry out class discussions. These aspects for support process were lacking in South Africa's teacher support for adoption of the C2005 (DoE, 2009; Spreen and Vally, 2010). This suggests that the support for teachers needs to include opportunities for discussion and practice, and arrive at a relatively common understanding and shared meaning of the change and negotiation as to what a context-appropriate rate and route for the adoption of new practices might look like. The next section (8.4) discusses the implications for supporting teachers to adopt formative assessment for teaching and learning purposes.

8.4 Implications for supporting teachers to adopt formative assessment for teaching and learning

The existing literature on support for teachers to adopt formative assessment and teacher change in general (Guskey, 2002; Black et al., 2003; Wedell, 2009; Schneider and Randel 2010), overall, point at particular aspects to incorporate in the support process for teachers to adapt the formative assessment principles for classroom teaching and learning purposes. They partly include, 1) coherence (2) mutual support (3) need for active learning and (4) need for time. In this section I discuss how implementation of the intervention to support the intervention teachers reflected and differed from such principles because of the cultural context of education, learning and assessment in Tanzania.

8.4.1 Need for coherence in teacher support

The support process for teachers to adapt the formative assessment needs to align with the curriculum requirements, and the support for the intervention teachers also did this in terms of requiring them to reflect on the key notions of the existing CBC (Section 4.4.1.2). However, I found that this was not enough, in the Tanzanian context, where it was necessary to ask teachers to explain and where possible to give examples about the key

concepts of the existing CBC to understand how teachers conceptualise these in their day-to-day language and translate them into their planning and carrying out teaching and assessment in classrooms. Thus, coherence requires considering not only the official descriptions but also and more importantly how teachers understand them and act on them in their practices. Pre-interviews and observation of lesson records revealed that although the intervention teachers embraced the key principles of existing CBC, their actual meanings and practices still mainly reflected the traditional behaviourist approach. This implies that the support for formative assessment in educational contexts in which the traditional behaviourist view of learning is deeply established as is the case Tanzania, needs to go beyond just aligning support with existing curriculum as argued in Western educational contexts (Black et al., 2003: OECD, 2005; Schneider and Randel, 2010; Bennett, 2011). The support process needs to incorporate a humanistic approach perhaps following a two-stage procedure. First, the ideas underlying the new approaches have to be explained in a manner that will make sense to the existing 'cultural understanding' of the recipients point of views. Second the teachers need to be helped to understand how they can realistically use ideas consistent with the new approaches in their own material context.

8.4.2 Need for sustaining mutual support in the teacher collaboration

As shown in Chapter Four about synopsis of teacher support strategies (Section 4.6.1) the demands for adopting formative assessment are not simply teacher changing their cultural view of learning, their role, and their classroom practices. The aspect of mutual respect for each other's views in peer collaboration is critical in enabling them to challenge their existing views and practices, and to begin to adapting their assessment practices to become more consistent with formative assessment. The whole group discussions which the teachers carried out on their own indicate that, the intervention teachers benefited from whole group discussion in a number of ways. In the

group discussions the teachers received feedback from peers on whether or not their practices were consistent to the intervention objectives. These in turn helped the intervention teachers to understanding the idea and develop corresponding practices, and also provided the group with opportunities to critically adapt the strategy to their contexts rather than just   mimicking what the intervention content or the researcher said. The feedback messages from the researcher played a role in guiding and encouraging the teachers' to interpret the intervention elements (Wedell, 2009). Similarly, in other studies, the aspect of respect is acknowledged (Black et al., 2004; OECD, 2005). However, as shown in Chapter Six (Section 6.3.1) in terms of the mutual support for the intervention teachers, the element of being respected seemed critical among intervention teachers to take part and persevere the implementation.

Conversely, it can be argued that, the aspect of respect was more critical in enabling intervention teachers to adapt the formative assessment principles to the extent they did. Mutual respect in the discussions that characterised the collaboration of the intervention, in particular, reflected traditional behaviours in which in daily life within families and communities of Tanzanians, where there is always room for discussion. This contrasted with most of the large-scale in-service teacher support programmes from the government in times of curriculum changes which use a hierarchical approach to support teachers. The government approach is inconsistent with the traditional ways of decision making for Tanzanians at family and communal levels. The collaborative approach for supporting the teachers to adopt the formative assessment approach in ways that matched or was consistent with the traditional way of reaching decisions which, meant that the teachers to a reasonable extent accepted the intervention and were willing to try out and sustain the intervention. The collaborative approach, thus, helped to avoid potential resistance from the teachers, and this was further assisted by how the collaboration was structured, with the elder and more experienced teacher (T6) in overall charge of the group.

8.4.3 Need for active teacher learning strategies for adoption of formative assessment principles

The success in adapting formative assessment for classroom teaching and learning that the intervention teachers achieved as discussed in Section 8.2 and the challenges the intervention teachers encountered in implementing the intervention (Section 8.3), overall, suggest that, supporting teachers by engaging them in active learning to reflect on their existing practices and views as suggested in the literature seems to be appropriate (Black and Wiliam, 1998a; Wiliam, 2011; Leong et al., 2014). This is particularly, so, in contexts where teachers have limited subject content and professional competence, and where the classroom teaching approach is mainly still of a traditional didactic mode. Active learning for teachers refers to opportunities for teachers to engage in the content and subject matter through various mechanisms such as discussion and interactions with colleagues, hands-on practice, and working with students. These types of learning activities are thought to increase teachers' engagement with the content and help them process the material and subject matter at a deeper level than if they were just passive recipients of information (Schneider and Randel, 2010: 266). Specifically, developing skills in formative classroom assessment and to improve the implementation of formative classroom assessment, teachers need to have hands-on experiences rather than just an increased knowledge of the formative classroom assessment principles (Wiliam, 2011). Schneider and Randel (2010) add that providing teachers with multiple opportunities to develop and administer different types of assessments both formally and informally may be a vital component to improving formative classroom assessment practice.

One important aspect of active learning in professional development is the opportunity to review student work (Garet et al., 2001). It stands to reason, therefore, that effective professional development in formative classroom assessment must train and encourage teachers to actively review student work and to have students review their own work and the work of their peers

(Schneider and Randel, 2010). The intervention also provided the intervention teachers with repeated and supported cycles of practice and feedback to develop confidence in new practices. The peer teacher observations and discussions in whole group meetings provided opportunities for the teachers to practice and feedback for internalising the ideas, trying out the ideas, developing confidence in implementation and dealing with unforeseen eventualities, through mutual support (Wedell, 2009).

The other way in which active strategies seem to have been important for supporting the teachers to understand the changes that formative assessment entailed was through the researcher providing constant follow up and being reliable and available for consultation.

> 'You were there [available], you were listening to us and discussed together the outcomes that included difficulties, challenges from us and from our pupils, really this is what we miss for other changes that we asked to do in our schools' (T2).

Consistent with the teachers' views about support, Wedell (2009) argues that the individuals involved in supporting the teachers to implement the change need to remain alert and open to available feedback from inside the classroom. In the context of the present intervention study, remaining open and available to discuss with intervention teachers the outcomes of implementing the intervention. I was able to do this from a distance through Skype and telephone calls but also personally through attendance at group meetings when I was keen to interpret the teachers' developing understanding of the intervention requirements. Another supportive point was the way in which the collaboration was led, which to some extent mirrored the manner in which decisions in Tanzanian society at community level beyond the family level are made. In that it sought consensus at public gatherings. This contrast with the government top-down approach of introducing curriculum change to the teachers for classroom teaching and learning which is not consistent to the general expectations about decision making that involve teachers as individuals who constitute a community

group (Avalos, 2011). In a similar vein, Henrich et al. (2005) maintain that because of the adaptive nature of human learning, individuals carry the preferences and beliefs that they have acquired in the real world into the decision-making situation. Therefore, it can be argued that, the cultural contexts of Tanzanian society in terms of values and norms related to decision making at community level need to be considered by policy makers in designing and implementing change related to assessment for teacher's teaching and pupils' learning.

8.4.4 Need for time in formative assessment support

In regard to time factor for supporting teachers to adopt formative assessment, the findings of the present study are similar to other studies on formative assessment and other literature on teacher support in some ways (Guskey, 2002; Malderez and Wedell, 2007; Harrison, 2013). For example, more time is needed for teacher support process to develop a more formative approach to assessment because it requires changes to teachers' approaches and behaviours (Lee and Wiliam, 2005; Schneider and Randel, 2010; Bennett 2011). Specifically, the teachers need more time to reflect upon on their teaching experience of adapting particular formative assessment strategies and on making them appropriate to their own individual and professional and classroom realities (Black et al., 2003; Bennett, 2011). The time requirement for teachers to adapt formative assessment strategies is greater when ways or extent to which teachers integrate the formative assessment in a classroom teaching and learning context is considered. For example, in terms of supporting professional development for supporting the teachers to adapt formative assessment, the support process needs to focus on helping teachers to identify and stop or minimise their summative practices and substitute them with the more formative aspects. They needed to understand that they need not worry about time in terms of considering the need to learn and adopt the formative assessment as an addition to the existing assessment ('summative') practices. Instead, the intervention enabled them to see that by replacing

summative by formative assessment practices they could make time to continue trying out the particular formative assessment of their choice.

8.5 Chapter summary

In this chapter the discussion has shown that in the intervention context the adoption of aspects of formative assessment for classroom teaching had substantial potential to improve the quality of teachers' teaching and pupils' learning. Similarly, the discussion has shown that the main challenges that the teachers experienced in adopting formative assessment principles related to integrating formative assessment into actual classroom teaching and learning, rather than to the planning and marking parts of assessment process. The discussion also has demonstrated that the challenges related to affective aspects of both teacher and pupil behaviour are critical perhaps even more than the material and class size aspects. In terms of supporting the teacher change process, the discussion also demonstrates that willingness to respect teachers and to provide sustained support are critical aspects for adoption of formative assessment in Tanzanian educational context. The next chapter presents the main conclusions and recommendations on the basis of the findings that have been discussed in this chapter.

CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

This chapter provides an overview of the study, a summary of the findings, and the contributions of the study. Subsequently it states the limitations of the study and gives suggestions for further research. It then provides a final reflection of what I have gained from the research process.

9.2 Overview of the study

The study involved developing and implementing an intervention for supporting Tanzanian primary school teachers to adapt more formative assessment practices for teaching and learning purposes. This intervention study was conducted in the Tanzanian primary education context in which the existing CBC adopted a constructivist approach to teaching and learning. Although the idea of formative assessment is not explicitly declared in the CBC, the constructivist view of learning that is adopted in the existing CBC suggests that teachers need to change their assessment approaches. Evidence from Western educational contexts suggests that formative assessment provides an ideal mode of assessment in a curriculum that espouses a constructivist view of learning. Yet, considering both teaching and assessment in line with constructivism for the Tanzanian teachers is potentially challenging, not only in terms of teachers adapting the new conceptualisations but also for adjusting their classroom practices. Furthermore, the analysis of the Tanzanian education documents has shown that, overall, the traditional top-down approach was used to support the teachers to adapt the curriculum.

As a teacher trainer in Tanzania, I identified the use of assessment exercises with more focus on supporting classroom teaching and learning as an important issue in primary schools. As the Tanzanian primary curriculum attempts to shift from the traditional behaviourist mode and embrace the constructivist view of learning, the support for teachers to use assessment

more formatively needs to be made a prominent focus in teacher support. Additionally, a bottom-up approach which envisages a collaborative approach to change was thought appropriate because of the potential challenges for teachers in adjusting assessment practices in line with a constructivist view of learning. I thus chose a collaborative approach for supporting teachers, which began by considering their existing conceptions and practices, since I felt that this would offer a higher possibility for enabling the teachers to adapt to the new ideas and practices.

Ten primary teachers from four schools implemented the intervention for developing more formative assessment practices. A package for formative assessment was developed and piloted before the teachers in the main study implemented it. In order to enable data collection and analysis in order to answer the main research question of the study (What happens when Tanzanian primary teachers adopt more formative assessment?), the study was guided by four sub-questions: -

1. What happens when Tanzanian primary teachers try to construct exercises more formatively?
2. What happens when Tanzanian primary teachers try to administer exercises more formatively?
3. What happens when Tanzanian primary teachers try to mark more exercises formatively?
4. What happens when Tanzanian primary teachers try to use the results of exercises more formatively?

Data were collected before and after the implementation of the intervention through a hierarchical focused interview approach for individual interviews and focus groups, documentary sources, and classroom observation.

9.3 Summary of the findings

The findings of the present study are congruent with current understandings in the research on formative assessment, which suggests that it provides an alternative approach for supporting teachers to improve the quality of teaching and pupil learning (Black et al., 2003: Clarke, 2005). While many scholars have indicated that formative assessment is considered an important tool for improving pupil learning; very few studies have focused on the potential benefits and challenges for classroom teaching and learning in developing world contexts (Perry, 2013). Indeed, as stated in the background chapter, in Tanzania in particular, my online search of Tanzania universities that offer education programmes did not reveal any study on formative assessment, apart from one pilot study (Mkony et al., 2007).

Generally, the present study showed that a well-designed formative assessment-oriented intervention can support teachers in terms of enhancing their conceptions and practices about subject content, pedagogical practices and pupil learning of the subject content. In addition, the study has shown that, a collaborative approach is potentially appropriate for helping teachers to adapt formative assessment in the Tanzanian cultural context.

The findings also showed that the teachers considered that adapting assessment practices enabled them to have better knowledge of their pupils as individuals, and to understand the difficulties they encounter in learning particular subject contents. It encouraged them to work more with their pupils, enhancing their participation in lessons, improving relations between pupils, and enabling the teachers to reach out to different pupils for answers which in turn helps to support the pupils to learn more than they would otherwise do.

Furthermore, all the teachers found that the collaborative approach was enabling, and helped them to adapt to the new formative assessment practices. This study thus contributes to the understandings of potential for

the introduction of formative assessment practices, and suggests that such an approach should be considered for any future in-service programmes, including support for adopting curriculum changes.

In conclusion, implementing the intervention enabled Tanzania primary teachers to develop practices and perceptions about assessment that were beneficial to both teacher teaching and pupil learning. However, planning, conducting, and using assessment results in more formative ways required the teachers to adjust their existing individual and professional views and habits. Adjusting their views and habits in line with the formative assessment principles that were supported in the intervention posed challenges to the teachers as well as their pupils, given the existing cultural and material realities in Tanzania.

9.4 Contributions and implications of the study

This study makes contributions and implications in the following areas: the context, trainer training for formative assessment, improving teacher development through development of formative assessment, and rolling out the teacher support process of this intervention in Tanzania.

9.4.1 Formative assessment in the Tanzanian context

As indicated in Chapter Eight, except for a pilot study, there are no known empirical studies in Tanzania on formative assessment practices of teachers. So, this study contributes to the field of assessment for teaching and learning in general. Besides, literature on teaching and learning describes Tanzanian primary school teachers as didactic. As reported in the discussion chapter, during the pre-intervention project teachers' used 'I-R-E' question patterns and whole-class response strategies. Interestingly, the findings from the post-intervention project and classroom observation show that teachers used formative assessment in their classroom. Even with the large class size they generated strategies that allowed their engagement in formative assessment practices. This study thus adds to the limited existing literature

on the potential for the introduction of formative assessment in non-Western contexts, and highlights some of the likely challenges that any such initiative would need to be prepared to address.

Furthermore, the process adopted for investigating the classroom assessment among Tanzanian teachers was distinctive. For example, different data collection strategies were used for an in-depth understanding of the teachers' assessment practices. The research called for changes in the existing classroom assessment practices of the teachers. The literature on change highlights the importance of involving people who are to implement change in designing, implementing and evaluating the change initiative. This study provides evidence of how formative assessment was successfully implemented in a context where teachers valued convention by involving them in the change process. The teachers acknowledged the uniqueness of the research process. The successful outcome of the intervention suggests that the principles underpinning its design might be appropriate for teacher development initiatives in similar contexts.

9.4.2 Towards trainer training for formative assessment

The findings of the present study have implications for the Tanzanian government and international development agencies, as they direct efforts and resources to teachers' professional development by focussing not only on teaching methods but also on incorporating the development of formative assessment as one key area and strategy for improving the quality of teachers, and teaching and learning in schools.

If the Tanzanian Government wishes to direct resources towards developing teachers' awareness/use of formative assessment - they first need to ensure that appropriate training can be provided. This implies a need to begin with trainer training. This would enable trainers to prepare assessment materials that communicate messages to the teachers in a 'formative rhetoric', and

improve existing assessment materials for teachers that direct teachers to plan, conduct, and use assessment in a formative sense.

9.4.3 Towards improving teacher development

The discussion on the benefits that teachers gained by implementing the intervention for formative assessment also showed that the participating primary school teachers enhanced their conceptual understanding of the subject content and their understanding of learners as individuals, and how they learn particular subject contents. Therefore, this study makes a contribution to the understanding of the extent to which the adoption of formative assessment can contribute to improving teacher quality. The finding shows that formative assessment can improve the quality of teaching and learning even in resource-limited contexts like Tanzania. A wider introduction of formative assessment practices can be a means of improving teacher quality in contexts where teachers' subject and pedagogical knowledge is limited. The study also shows some of the factors that will need to be considered if a wider introduction of formative assessment is to be considered, for example, the influence of existing social norms and values on how teachers and learners think.

9.4.4 Towards rolling out the teacher support process of this intervention in Tanzania

If there is to be a wider attempt to help teachers understand how to become more formative in their assessment, the study gives a sense and provides one model of the type(s) and quantity of support that will be necessary to provide. In particular, this intervention study illuminates how a collaborative approach to support teachers to adopt new ways of assessing or teaching, and consideration of the teachers' context needs to include their existing views and practices compared to the anticipated changes. On the basis of this intervention study, it has been reasonably demonstrated that the support process needs to be bottom-up rather than top-down in the sense of interpreting teachers' existing views and practices in the light of those

envisaged in the new approach. This has implications for those who engage in supporting the teachers (teacher trainers). On the basis of the implementation process and the challenges that I as researcher and intervention teachers faced and met, means the teachers need a clear mechanism to support them to achieve the required changes. Thus, teacher trainers need to understand that for teachers to change they need to be provided with mechanisms and activities in ways that can assist them to focus, articulate, reflect, and interpret appropriately the underlying ideas, in order to develop consistent practices in the light of the hoped changes and their existing contexts. Additionally, teacher trainers need to acknowledge that such complex changes take time and that support for teachers must provide ongoing opportunities to reflect, try out, obtain feedback, and perhaps, learn from each other.

9.5 Limitations of the study

Analysis of the discourse between teachers and pupils and their peers was not conducted because of resource and time constraints. This could have illuminated   the effectiveness of formative assessment for supporting classroom teaching and learning more fully and also, provided more of an insight into potential challenges at classroom level. Other limitations include:

1. The present study did not analyse the differences in the path and stages in developing formative assessment practices that each teacher adopted, because of the limited time that was available for implementing the intervention.

2. Although the present study employed a collaborative approach for the teachers in implementing the intervention for formative assessment, no analysis of the process by which teachers developed mutual support for collaborative implementation of the intervention was conducted.

3. The study was conducted in four primary schools in Tanzania with ten teachers. Analysis of the findings of this study was based on six Mathematics teachers. Admittedly, this was a small-scale study, which means it cannot be statistically generalised. However, this study has provided a detailed account of teachers' formative assessment practices. Therefore, if teachers in similar contexts identify with the findings and change their didactic assessment practices to formative assessment, then, naturalistic generalisation (Stake, 2009) has occurred.

9.6 Recommendations for further research and rolling out

From the discussion of the findings and the above limitations that were identified in the design and implementation of the present study, some suggestions can be made for future research in regard to supporting teachers to develop more formative assessment for classroom teaching and learning in Tanzania and other similar educational contexts.

1. Analysis of the findings of this study was based on six Mathematics teachers. As such, further research needs to be conducted in order to determine the potential for broader adaptation of formative assessment in enhancing teaching and pupil learning in other subjects that are taught in Tanzanian primary schools, taking into consideration that Tanzania primary teachers are generalists.

2. Further research can be carried out to investigate a variety of activities that were not covered in this study, particularly the affective aspects for both teachers and pupils of adapting formative assessment for classroom teaching and learning purposes.

3. Future research should also consider exploring more about the teachers' experiences of adjusting their views and practices as individuals and professionals, depending on their expectations as influenced by the existing cultural aspects of the classrooms and society in general. For instance, what factors, apart from the nature of the children each teacher taught, might have caused teachers to

develop different CPPA strategies? Further understanding of the personal demands of change from the teachers' point of view could be of potential use for teacher trainers in designing and implementing programmes for supporting the teachers to adapt more formative assessment.

4. Future research should also consider exploring more about the pupils' experiences in adjusting their views and relationships with peers or teachers, and how they experience changes in classroom norms which are part of adapting formative assessment for teaching and learning.

5. Future research can focus on re-designing and re-researching to obtain refined and replicable interventions for formative assessment that can be adapted in the wider context of Tanzanian school education.

6. Based on the findings from this intervention study, in particular the insights on the kind of reforms that are necessary and manners of introducing them, it is recommended that the programme of formative assessment has to be rolled out throughout the Tanzanian primary education system by relatively emulating how the present intervention study was carried out.

9.7 Final reflections: Looking back and forward

As a result of working on this study, I learnt that teachers can be enthusiastic about a particular new idea but develop practices that are incongruent with the new idea. This insight was helpful in planning how to introduce and provide follow-up for supporting the teachers in developing practices in line with the intervention objectives. Furthermore, I also learnt that if one wishes to support teachers' concerns and challenges when asked to adopt new ideas, one needs to recognise that these range along a continuum from visible factors (for example, material resources) to more invisible aspects (for example, self-esteem). However, in implementing this intervention study, I found that if the invisible factors are considered in the teacher support process, it helps to minimise the negative effect of the

visible factors on teachers' willingness to consider changes in their classroom practice.

I developed a sense that in undertaking the intervention and aiming to change teachers' practices I needed to acknowledge and work within the existing cultural, structural, and material conditions, all of which were important in the process of designing and executing the implementation. Undertaking the present study amid a relatively new curriculum was challenging but also gratifying. For example, the new curriculum provided an opportunity for researching how classroom teachers were implementing it. Researching the classroom assessment of the intervention teachers helped me to understand the teachers' attitudes towards making changes to their classroom practices in general. Similarly, the discussions on the aspects to which teachers were resistant helped me to understand that the process of supporting the teachers to change classroom practices is not a straight forward phenomenon as policy makers tend to assume, but rather it is a complex process.

Moreover, undertaking the present study has provided me with insights about the challenges of conducting an intervention study using qualitative research inquiry in terms of the challenges related to collection and analysis of data. Although, this study was not designed or intended to look into the affective aspects, my personal experience and some evidence from the data that was obtained through this study, convinced me that the process of supporting change involves moments of positive and negative emotional reactions on the part of the teachers, the pupils, and presumably those involved in the support process. If I were to conduct such research again, it would focus more on the human factors, particularly how emotions mediate the teacher support process as they adjust their existing views and practices in order to adapt new practices for classroom teaching and learning. I would also want to look at how this process of adapting formative assessment for

classroom teaching and learning in the culture of classroom settings of Tanzania affects the pupils.

Lastly but not least, my relatively lengthy, closer follow-up and readiness to receive and adjust to the intervention teachers' views and experiences in the light of the intervention aims, also exposed me to some challenges that could be of interest to other researchers, particularly in the Tanzanian context, and in any other similar context elsewhere. They are the challenges that I faced in supporting the intervention teachers to understand the intervention, develop, and enact corresponding practices, interpreting the outcomes of implementation in the light of the intervention aims.

The first is urging the teachers to interpret the intervention requirements in light of its expectation rather than in light of the teachers' own views and experiences. This was more the case when introducing or discussing some of the intervention requirements. For example, explaining to the intervention teachers that planning questions for exercises would focus on parts of the lesson and their conceptual connection which in turn would determine the content and size of the exercises. Upon hearing this, they became enthusiastic about it because they interpreted that they would be administering fewer questions for exercises which in turn would reduce their marking load. Similarly, when I consulted with the school head teachers for them to be exempt in completing the existing lesson plan books, and instead use the research notebook to keep their lesson records, again their initial positive response was based on the expectation that they would also be freed from the paperwork of recording their lesson details every time. Similarly, while the intervention envisaged that CPPA was for providing and enhancing opportunities for the pupils to discuss each other's assessment work and learn what they have been unable to learn. As presented in T6's narrative, both teachers and pupils initially interpreted in their own ways, to their expectations, and indeed, their initial experience which they perceived to be positive or gains, were contrary to what was espoused in the

intervention. On the one hand, the intervention teachers saw CPPA as unprofessional. On the other hand, they liked CPPA because it implied allowing pupils to mark each other's work to become legitimate, something which they were doing, albeit the education system (authorities) do not allow or expect them to do. So they initially missed the essence of CPPA in respect of the intervention aims. Therefore, getting the participating teachers to interpret and act consistently with the essence of the requirements, and the intentions of the intervention were challenging throughout the implementation process.

Secondly, in respect to the first challenge, I found myself understanding that the use of certain words in introducing or discussing the intervention perhaps contributed to their interpretation. For example, mentioning that CPPA as part of 'marking' perhaps contributed to interpretations and initial experiences that were not consistent with the intention of the intervention. My interpretation was informed by the initial data analysis when I realised that in the teachers' expressions 'marking' was a symbolic part of being a teacher. Thus, this took me to a challenge of either finding appropriate words or using the same words or phrases but with an explanation that provided operational meanings in the context of the intervention implementation. Yet the challenge remained in terms of how other individuals and authorities (for example, pupils, parents, school administration and school inspectors) who were not directly involved in the implementation. Again, this made me engage the intervention teachers on what would be the interpretation of 'other individuals and authorities' and what the intervention teachers would do to respond to any concerns that could arise. Accomplishing this and empowering the intervention teachers to have confidence in the suggestions that we discussed together was not easy for two reasons. One, because it was not possible to anticipate all the potential concerns, and so some of them took me by surprise. Adjusting and responding to the concerns as the supporter of the teacher was challenging.

Two, explaining to teachers about the suggestions and developing confidence in them was also not easy.

Thirdly, carrying out collaborative research to support the intervention teachers, while being open and willing to adjust to their views and initiatives, based on their existing experiences and that of the implementation process, was challenging. Getting the intervention focused but at the same time adjusting the process in light of the implementation, necessitated keeping track of intervention teachers, both as individuals as well as a group. This was particularly more so when the anticipated strategies did not work. In short, coping with the unforeseen eventualities was challenging.

Nevertheless, facing, adjusting and addressing the challenges in collaboration with the teachers was an insightful and enriching experience of teacher support in general, and in the area of assessment for implementation at classroom level. There is a lot to be learnt about teacher support at classroom level in particular, the positive outcomes and challenges together have exposed me to some aspects that I was not aware of regarding classroom contexts and dynamics in relation to assessment aspects, something which is commensurate with the notion of 'inside the black box' as Black and Wiliam (1998b) put it. My final comment is that I concur with previous researchers that there is more and more to be learnt about the teacher support process and assessment for teaching and learning purposes at classroom level. I have not exhausted the possibilities nor did I want to, but through this intervention study, I have just tried out a possibility in the Tanzanian primary school context.

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APPENDICES

Appendix 1: Focus group discussion guide for intervention teachers

Discussion foci	Key questions	probes for follow up
Construction of exercises	What aspects do you consider when constructing and deciding about questions for exercise for pupils' work?	**A: About the subject matter/lesson covered in exercise** Parts of the lesson Relevance of questions in the exercise to lesson parts **B: About sources of questions for the exercises** Sources of questions for the exercises Factors for each source of questions for the exercises Size of exercises i.e., range/average number of questions for the exercise Factors considered when deciding on the size of the exercise **C: Timing of constructing/deciding the questions for the exercise** Before or after the actual classroom teaching What is the teachers' rationale? Is it the usual practice? **D: Difference between exercises and other forms of written assessment (tests & homework)** Across what teachers initially mentioned Across A and B aspects above Any other aspects that will emerge
Administration of exercises	What are the conditions for administering the exercise?	**A: About timing of the administration of exercises** During or after actual classroom 'teaching' What is the teachers' explanation? What is the usual practice and why? What other factors that determine the teacher's decision to administer the exercises? **B: About the mode of pupils attempting the exercises** What are the teachers' practices and views between individual and collaborative approach for pupils to attempt the exercises? Are pupils allowed to get help from others when attempting the exercise? From peers or teachers? In case of peers, what type of peers (according to seat mates, gender, and perceived ability levels?). Why? In case of help from teachers, is it after or during attempting? How should the help be provided? Why? **C: About Dos and Don'ts for administration of exercises** How should the conversation for helping pupils by any helper (peer or teacher) be done? That is, what are the Dos and Don'ts from teachers' perspectives and usual practices?
Marking of exercises	What aspects do you consider when marking the exercise	**A: About who and how the marking of exercises is done** Are pupils involved in 'marking' their peers work? What is the usual practice of the teachers and what are the

	that you administer to pupils?	associated views? If it involves pupil-peer marking, which peers then? (seats in class, gender, perceived ability) What instructions teachers give for pupil-peer marking, if any? What are the benefits, challenges, issues involved when pupil-peer marking is used (from teachers' experiences)? Is pupil-peer marking allowed in the context of the existing participatory teaching and learning approaches? How is the teacher-and-pupil-peer marking done? **C: About contents of teacher marking** Besides ticking/crossing out, what is the usefulness of awarding marks in pupils' exercise work? What is the content of comments teachers write on the pupils' exercises? What are teachers' views about the usefulness of the comments they write as part of marking their pupils' work? **D: About time for marking the exercises** When is the marking of the exercises done? During or after teaching session? What is the usual practice and why?
Use of information from the marked exercises	What use do you make of assessment results based on marked exercises?	**A: Teacher interpretations and use of assessment results** **B: Reflection/judgement about pupils' understanding of the subject matter/lesson covered** How do teachers consider the role of marks and comments they include as parts of marking pupils' work? How do teachers evaluate the lesson based on marked exercises? What is the teacher's explanation about the notion of pupil's lesson evaluation **C: interpretation and use of assessment information** What decisions do teachers make on the basis of the marked exercises? Content of oral feedback about marked exercises during remedial sessions How does a teacher engage pupils to work on problems in classrooms?

Appendix 2:Prompt teacher questionnaire for teachers' perceptions and practices of assessment for teaching and learning purposes

Introduction

- This questionnaire is not for teacher's evaluation. It is neither for inspection nor another official purpose apart from research work. It is for gathering information from you as a teacher about what you think and do in regard to the exercises, homework and tests that you construct, administer to pupils, mark and how you give feedback to pupils for assessment purposes.
- Complete the questionnaire independently and honestly so that the responses you give will represent your actual perception and practices about the exercises and tests that you use.
- Complete the questionnaire by writing your response in the spaces provided or by circling to indicate the alternative that represents your views or practices.
- You can circle more than one alternative depending on your choice and as required
- You are entirely free to decide to participate or not to complete this questionnaire and you are not obliged to respond to all items. Please, read the attached consent form before completing this questionnaire.
- The information that you give will be treated confidential by not revealing your identity.Do not write your name on any part of this questionnaire.
- My appreciation in advance if you choose to participate to complete this questionnaire

SECTION A: Background information

1. Teaching experience_____ (years)
2. Grade_____(currently teaching)
3. Subject_____
4. No. of pupils in the class_____
5. Teaching professional qualification
    (a) Grade A
    (b) Grade B
    (c) Grade C
    (d) Other_____(mention)

SECTION B: Construction of classroom assessment instruments

6. Which of the following method do you use for assessing pupils learning? (**Circle all that apply)**
    (a) tests
    (b) exercises
    (c) examinations
    (d) project work
    (e) portfolio
    (f) simple questions
    (g) questionnaires
    (h) interview
    (i) observation form
    (j) checklists
    (k) Other_____(mention)

7. How often do you use the following formats of questions to compose **exercises** for lesson assessment?

	Always	Occasionally	Never
(a) filling in blanks questions	1	2	3
(b) multiple choice questions	1	2	3
(c) true/false questions	1	2	3
(d) matching questions	1	2	3
(e) essay questions only	1	2	3
(f) Other format (if any mention)_____			

8. How often do you use the following type of questions to compose **tests** for lesson assessment?

	Always	Occasionally	Never
(a) filling in blanks questions only	1	2	3
(b) multiple choice questions only	1	2	3
(c) true/false questions only	1	2	3
(d) matching questions only	1	2	3
(e) essay questions only	1	2	3
(f) Other format (if any, mention)			

_____

9. How often do you use the following type of questions to compose **homework** for lesson assessment?

	Always	Occasionally	Never
(a) filling in blanks questions only	1	2	3
(b) multiple choice questions only	1	2	3
(c) true/false questions only	1	2	3
(d) matching questions only	1	2	3
(e) essay questions only	1	2	3
(f) Other format (if any, mention)_____			

_____

10. How often do you use the following sources for composing **exercises** for lesson assessment?

	Always	Occasionally	Never
(a) Questions provided in textbooks	1	2	3
(b) Past exercises	1	2	3
(c) Past tests	1	2	3
(d) Past home works	1	2	3
(e) Past examinations	1	2	3
(f) I develop my own questions	1	2	3
(g) Any other source (if any, mention)_____			

11. How often do you use the following sources for composing **tests** for lesson assessment?

	Always	Occasionally	Never
(a) Questions provided in textbooks	1	2	3
(b) Past exercises	1	2	3
(c) Past tests	1	2	3
(d) Past home works	1	2	3
(e) Past examinations	1	2	3
(f) I develop my own questions	1	2	3
(g) Any other source (if any, mention)_____			

12. How often do you use the following sources for composing **homework** for lesson assessment?

	Always	Occasionally	Never
(a) Questions provided in textbooks	1	2	3
(b) Past exercises	1	2	3
(c) Past tests	1	2	3
(d) Past home works	1	2	3
(e) Past examinations	1	2	3
(f) I develop my own questions	1	2	3
(g) Any other source (mention)_____			

13. In the respective spaces provided below write down the factors you consider when composing **tests**, **exercises**, and **homework** for lesson assessment?

Form of assessment	The factors that you consider
Exercise	
Test	
Home work	

SECTION C: Your practices and views about administering the exercises, home works and tests for lesson assessment

14. The following are statements about modes of **administering exercises**, **home works**, and **tests** to pupils for lesson assessment. Write **YES** if the statement characterises your practice and **NO** if the statement does not characterise your practice. Then use the last column to describe **your views** for **Supporting (YES)** or **Not Supporting(NO)** the statement.

Statement about administration	Yes or No	Your views for your response
I. About administering the exercise		
a. Each pupil attempts the questions without seeking for clarification from any person when attempting questions		
b. The pupil can seek for clarification from peers when attempting questions		
c. The pupil can seek for clarification from the teacher when attempting the questions		
d. The exercise can be given to pupils before classroom teaching		
e. The exercise can be given to pupils after classroom teaching		
f. The exercise can be given to pupils at some point during classroom teaching		

g. The exercise can consist of any number of questions		
II. About administering the home work		
a. Each pupil attempts the questions without seeking for clarification from any person		
b. A pupil can seek for clarification from sibling/parent when attempting questions		
c. The homework can be given to pupils before classroom teaching		
d. The homework can be given to pupils after classroom teaching		
e. The homework can be given to pupils at some point during classroom teaching		
III. About administering of tests		
a. Pupils can be given a test after being taught some topics		
b. Pupils can be given a test after being taught one topic		
c. Pupils can be given a test after being taught some subtopics in a topic		

SECTION D: Your practices and views about administering the exercises, home works and tests for lesson assessment

15. The following are statements about possible conditions for **marking** the **exercises, home works**, and **tests** to pupils for lesson assessment. Write **YES** if the statement characterises your practice and **NO** if the statement does not characterise your practice. Then use the last column to describe **your views** for **Supporting** (**YES**) or **Not Supporting** (**NO**) the statement.

I. About marking of the exercises	Yes or No	Your views for your response
a. The teacher can instruct the pupils to exchange their exercise books and then supervise pupils to mark their peers' attempts in the exercises		
b. Marking of the exercise can involve giving comments		
c. Marking of the exercise can involve ticking for correct answers and crossing out incorrect answers		
d. Writing overall marks/scores as part of marking the pupils' exercise books is important to pupils' learning		
e. Errors which pupils make in attempting the exercises are important to the teacher's teaching		

f. Errors which the pupils make in attempting the exercises are also useful to their learning		
II. About marking of the homework		
a. The teacher can instruct the pupils to exchange their exercise books and then supervise pupils to mark their peers' attempts in the homework		
b. Marking of the homework can involve giving comments		
c. Marking of the homework can involve ticking for correct answers and crossing out incorrect answers		
d. Writing overall marks/scores as part of marking pupils' attempts in the homework is important to pupils' learning		
e. Errors which pupils make in attempting the homework are important to the teacher's teaching		
f. Errors which the pupils make in attempting the exercises are also useful to their learning		
III. About marking of tests		
a. The teacher can instruct the pupils to exchange their scripts/exercise-books and then supervise pupils to mark their peers' attempts in the tests		
b. Marking of the tests can involve giving comments		
c. Marking of the tests can involve ticking for correct answers and crossing out incorrect answers only		
d. Writing overall marks/scores in pupils' tests scripts is important to pupils' learning		
e. Errors which pupils make in attempting the tests are important to the teacher's teaching		
f. Errors which the pupils make in attempting the tests are also useful to their learning		

16. In your view, how helpful do you think awarding marks as part of marking the exercise work is in regard to the following?

   (a) pupils' learning

   (b) teacher's teaching

   ----

17. What do errors in pupils' exercises specifically inform you as a teacher about the following aspects?

   (a) pupils' understanding of the subject matter/lesson

(b) pupils' taking/working of the tasks embraced in questions of the assessment exercise

----

(c) teacher's lesson planning for remedial teaching

(d) teacher's lesson planning for next exercise

Section E: Prompt cases for focus group discussion

Read each of the artefacts extracted from some of your (teacher) lesson records and pupils' exercise books which represent part of teacher's practices on some aspects of the assessment process.

18. What is your interpretation about pupils who fall in the following cases (outcomes of assessment) after marking the exercise for the class?

Case1: Get all the questions correct in the exercise?
Example:
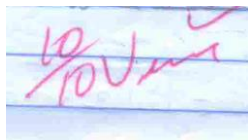
Case 2: Get all the questions wrong in the exercise?
Example:
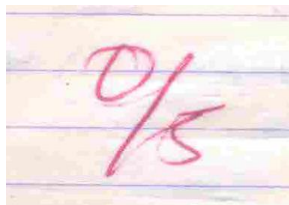
Case 3: Get some questions wrong and other questions correct in the exercise?
Example:
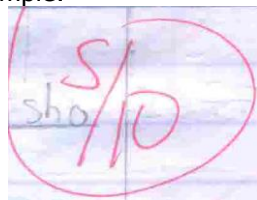
19. What is your interpretation for each of the three cases above in regard to pupils' understanding, teacher's teaching, and the assessment exercise itself? Use the chart below to fill in your responses

Cases	Interpretation about	Write your respective interpretation
Case 1	a. pupils' understanding of the subject contents/lesson	a…………
	b. teacher's teaching of the subject contents/lesson	b…………

Case 2	a. pupils' understanding of the subject contents /lesson	a................
	b. teacher's teaching of subject contents/lesson	b................
	c. assessment exercise itself	c................
Case 3	a. pupils' understanding of the subject contents /lesson	a................
	b. teacher's teaching of subject contents/lesson	b................
	c. assessment exercise itself	c................

20. What do marking symbols for incorrect work (answers) in the extract below ask the pupil to do?
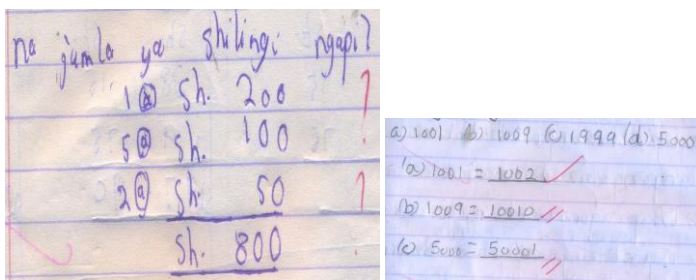
21. What interpretation do you make from the following comments about lesson evaluation given the lesson objectives in terms of pupils understanding and teacher's remedial teaching?

Part A: Swahili version of lesson objectives and lesson evaluation

Part B1: English version of lesson objectives

Subject:	Mathematics					Number	of	pupils		
Date	Class	Period	Time		Registered			Present		
				Boys	Girls	Total	Boys	Girls	Total
23/3/09	VB	2nd	7.40-8.20am	36	39	75	30	31	61

<u>General objective</u>: The pupil should be able to add compound fractions
<u>Main topic</u>: Fractions
<u>Sub-topic</u>: Fractions addition
<u>Specific objectives</u>: At the end of the period the pupil should be able to compute addition of compound fractions
<u>Teaching aid/materials</u>:
<u>Reference</u>: Grade Five Pupil's Textbook for Primary Schools

Part B2:   English version of the respective lesson evaluation
<u>Pupil's evaluation</u>:   They (pupils) liked and understood the lesson
<u>Teacher's evaluation</u>:   50 pupils were able to compute compound fractions
<u>Remark</u>: The lesson has been understood, I will do corrections for pupils who got the
        question wrong, I will proceed with the next topic

Appendix 3: Hierarchical Focused Interview Guide for Teachers

1. What do you think made Tanzania shift from content-based to competence-based curriculum?
- *Teaching*
  - -contents
  - -methods
- *Learning*
  - -contents
  - -methods
- *Assessment*
  - -National exams
  - -Teacher-made assessment
    - -exercise
    - -tests
    - -terminal & annual school exams

2. Can you tell me more about teacher-made tests and exercises in schools, how should they be according to the competence-based approach in contrast to the content-based approach?
- -Exercises
  - -cognitive demands and characteristics of questions/items
  - -any other characteristic
- -Classroom tests
  - -cognitive demands and characteristics of questions/items
  - -any other characteristic

3. We have finished the first part of the interview. Now, let us talk more about your thoughts and practices of assessing pupils learning in the subject that you teach. How useful do you find the assessments you use for pupils assessment?
- *for pupils learning*
  - -learning habits
  - -learning styles
- *gains for you as the subject teacher*
  - -more analysis of the curriculum content
  - -more knowledge about the subject
  - -sources of learning difficulties by different students
    - -slow learners
    - -girls vs boys
  - -remedial teaching measures

4. What assessment methods do you use to assess your pupils learning?
- *Types*
  - -exercise; tests; exams; oral questions; project work; etc
- *Among those assessments you have mentioned which one do you prefer to use?*
  - *-why?*
    - -in terms of facilitating pupils to learn
    - -gains on teaching aspects
    - -Are there any other reasons for your preferences?

5. Well, let us discuss further the exercises and classroom tests that teachers use for assessing their pupils learning. What do you think are the differences between exercises and tests, if any?
- *-Differences in terms of constructing*, administering, marking pupils' responses, interpreting assessment results, and giving feedback phases.
- *-Other differences* if any?

6. If we talk about constructing questions for pupils tests. What do you think are the things that have to be considered?
- -coverage of the domain

-How do you ensure balance of questions to assess the domain of the lesson?

    -With reference to your subject, how do you ensure composition of questions across cognitive levels
        -lower
        -higher

-Content appropriateness
    -by age of the learner
    -according to the syllabus
    -what was taught against what is assessed

7. As you go on marking the pupils' tests scripts, what things do you look for?
    -correct/incorrect answers
        -frequency
        -type
    -total scores
    -questions attempted and not attempted
    As you mark and after marking, what do errors tell you?
        -teaching effectiveness
        -cues about sources for pupils
        -patterns of errors
            -Do you make relate/reflect amount errors and pupils' participation? in classroom? (*Especially critical cases*)
            -paying attention
            -responding to peers' & teacher's explanation
                -How pupils' errors differ in your subject?
                    -sex
                    -any other aspect?
    Let us now come to feedback giving in pupils tests. What type of feedback do you give to your pupils following a test?
        -Corrections
            -what do you tell them when doing corrections
            -What type of comment do you give besides putting the overall scores?
                -those who get all questions correct?
                    How helpful can such comments be for pupil learning?
                -those who get all questions wrong?
                -the average achievers/scorers?

8. We have almost exhausted what I wanted to discuss with you about use of written assessment in schools. Do you have any other comment about use of assessment for teaching and learning in schools that we can share?

Thanks for dedicating your time to discuss with me your thoughts and experiences about use of written assessment particularly in the teaching and learning process.

Appendix 4: Foci of documentary observation

Type of document	Assessment information sought
1. Curriculum teaching materials, i.e., subject syllabus and textbooks used by the teacher	a. Information related to subject contents to be covered, construction, administration, marking/interpretation and use of assessment results for classroom teaching and learning purposes b. any other feature of interest
2. Teacher lesson records, i.e., Completed scheme of	a. Subject contents and learning objectives to be achieved b. Size and quality of exercises c. Teacher written comments about the success of the lessons

work and lesson plan schedules and lesson notes	(lesson evaluation) d. Teacher's instruction (administration) of exercises for pupils e. Any other feature of interest
3. Pupils' exercises books	a. Size and quality of exercises b. Quality of pupils' responses in exercises compared to lesson covered and demands of the questions c. Content of teacher's marking d. Any information or evidence that constituted teacher feedback to pupils

Appendix 5: Foci for post intervention interview with teachers

1. On your part, tell me your experience of implementing the elements of intervention
   a: Which intervention element (s) did you implement in particular?
   b: Why were certain elements not implemented if any?
   c: How did you implement the element (s) you tried out?
   d: What can you say (your experience) about its (their) usefulness?
   - For classroom teaching?
   - For pupils learning?
   - Any other usefulness?
   e: Can you tell me your experiences in terms of difficulties that you encountered if any?
   f: Are there any changes you made depending on your individual experience?
   - About construction of questions?
   - About administration?
   - About marking
   - Error analysis
   - Lesson evaluation
   - Feedback giving (oral and written)?
   - About other aspects if any

2. What is your comment about contents and quality of the questions for assessment exercises that you have been providing to pupils? (Perusal of teacher's research notebook and the sampled pupils' exercise books).
   a: Are 'irrelevant questions' for the exercises emerging or observed?
   b: How is the content and number of questions for an exercise related to the reported timing of administration?
   c: What can you comment about the issue of time factor in regard to the criteria for formative constructing of the exercises?
   d: Any comments in terms of challenges experienced apart from time factor if any?

3. What is your comment about administration of assessment exercises through collaborative pupil peer assessment in remedial classes?
   a: Which strategies did you use to enhance collaborative pupil peer assessment in discussing outcomes of marked work?
   b: Any comment about your experience in terms of pupils' participation during classroom teaching and learning?
   - E.g., in terms of articulation when asking questions?
   c: What can you comment about the issue of time factor in regard to the features/criteria for administering the exercises?
   e: Any comments in terms of challenges experienced apart from time factor if any?

4. Please tell me your experience about carrying error analysis as part of marking pupils' work?
   a. Briefly, tell me how are you carrying out error analysis?

b. Any evidence (cases) of your experiences in regard to what you said on how you are carrying out the error analysis?

c: How often did you manage to perform error analysis as part of marking the pupils' exercise books?

- e.g., per week, from August, until the end of the term etc?

d: Any other technique or modification of doing error analysis?

- (Apart from the pupil-performance-score chart techniques we discussed in August 2011)

e: How useful did you find when error analysis is incorporated in marking the exercise?

- for classroom teaching, for pupil learning, for teacher's lesson evaluation, for exercise construction etc?

f: What can you comment about time factor for the requirement to conduct error analysis as part of marking the exercises?

g: Any comments in terms of challenges experienced apart from time factor if any?

5. Let us discuss time, which in the group meetings you reported as a challenge. What is your experience and comment about time in regard to implementing particular aspects of the intervention?
   a: About construction of questions?
   b: About administration?
   c: About marking
   d: Error analysis
   e: Lesson evaluation
   f: and feedback giving?
   g: About other aspects, if any?
6. How did you find the issue of time factor in implementing the intervention elements?
   a: Time as an impeding factor in implementing some of the elements?
   b: Beneficial aspects of the intervention in terms of time factor?
7. How did you find implementation of the intervention for classroom teaching in relation to the nature of your pupils?
8. Tell me any specific aspects that you found challenging to implement, and why?
9. What are your views about the approach that was used for carrying out the intervention?

Appendix 6: Foci for perusal of documentary sources

Category of documents	Foci for observation and Information sought
1. Teacher's research notebooks	a. Information which each teacher recorded about proceeding and experience of implementing the intervention. Perusal of documents mainly focused on: • outcomes of implementing particular component of intervention across different parts of the assessment process • Positive outcomes, difficulties, concerns or challenges as experienced by individual teachers • Individual teacher's initiative or adaptation in implementing particular components of the intervention b. Contents of exercises in respect to lesson objectives c. Teacher's written comments about lesson evaluation d. Both next teaching and assessment based on teachers' comments about lesson evaluation e. Any other aspect of interest to note
2. video records of group meetings	a. Information about each teacher's experience of implementing particular components of the intervention as reported or revealed through teacher's comments to peer

	teachers or when responding to peers' comments in the group meetings b. Any other aspect of interest to note
3. Feedback forms from teachers	a. Perusing at written comments which teachers completed individually during and after intervention. This included questions which teachers completed when I asked them to give further clarification b. Any other aspect of interest to note

4. Pupils' exercise books	a. Contents of teacher's marking of pupils' responses in exercises which included:
	  • The Types of marking symbols
	  • Consistency in types of symbols that were used in marking pupils' responses
	b. Any other of feature of interest about teacher marking
	c. Size and contents of exercises in respect to lesson objectives as well when compared to lesson records in teacher's research notebooks
	c. Any other aspect of interest to note

Appendix 7: Foci for classroom observation

Foci for classroom observation	Information sought
1. Each teacher's instruction in using their respective CPPA strategies they had developed for carrying out class discussion on assessment work	a. what the teacher asked the pupils to do for them to take part in CPPA for discussing assessment work or outcomes of assessment during class discussions b. Any other aspect of interest to note
2. Content of the teacher's classroom talk	a. words or phrases were used in giving oral feedback about the marked work to the class b. Words or phrases that were used by teachers to carry out class discussion through their respective CPPA approaches c. Voice tone and body language expressions associated with the teacher's talk during oral feedback discussion of assessment work d. Any other aspect of interest to note
3. Encouraging and engaging pupils in discussion of assessment work	a. Main and complimentary strategies which each teacher used to encourage and engage pupils of different personalities in discussing the assessment work b. Any other aspect of interest to note
4. Teacher's questioning and responses to pupils' responses during class discussion	a. Insightfulness of teacher's questions b. Teacher's picking up of pupils' responses (both correct and incorrect) to elicit more responses and from pupils and extend the discussion c. Any other aspect of interest to note
5. How pupils responded to each other's questions and responses during plenary discussion of assessment work	a. Pupils' willingness to share and discuss each other's assessment work b. Quality of pupils' responses to peers' or teacher's questions c. Any other aspect of interest to note

Appendix 8: Requirements and foci for subject based group discussion

1. Subject Syllabus
2. Text book
3. Teacher's research notebook
4. Role of presenters during discussion:
   - present by writing the lesson contents and the questions for respective exercise on a flipchart paper
   - explain to peer teachers how the exercise meets the lesson aspects
   - explain to peers teachers features of the exercise that can stimulate further class discussion
5. Role of peer teachers during each peer's presentation
   - watch, listen and note down in their research notebook points for asking for clarifications or comments from presenter.
   - ask questions for clarification
   - comment (appraise) about quality of exercise by pointing out specific features of strength and/or weakness in the quality of exercise in respect to lesson objectives or any aspect
6. All teachers to take part in the discussion about the overall experiences and outcomes of implementing the intervention
7. Role of the researcher
   a. watch, listen and take some notes in the research notebook
   b. audio record the group discussion
   c. ask follow up questions to some aspects of teachers' presentation or their peers' comments if need be.
   d. ask questions and probes about overall experiences and outcomes of implementing the intervention

Appendix 9: AREA Faculty Research Ethics Committee, University of Leeds

Magong'ho Y Magong'ho
School of Education
University of Leeds
Leeds, LS2 9JT

AREA Faculty Research Ethics Committee
University of Leeds
24 March 2023

Dear Magong'ho

Title of study:	**Perception and Practices of Formative Use of Teacher-Made Tests In Tanzania Primary Schools**
Ethics reference:	**AREA 10-081**

I am pleased to inform you that the above research application has been reviewed by the ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee and following receipt of the amendments requested, I can confirm a favourable ethical opinion on the basis described in the application form and supporting documentation as of the date of this letter.

The following documentation was considered:

Document	Version	Date
AREA 10-081 response 3 - further info from applicant.txt	1	25/03/11
AREA 10-081response3.doc	1	25/03/11
AREA 10-081 supervisor comment JT.txt	1	23/03/11
AREA 10-081response1.doc	1	17/02/11
AREA 10-081 ETHICS REVIEW FORM_forMagong'hoY M Education Schl.doc	2	31/01/11
AREA 10-081 Appendices for Ethics Review_Magong'ho_Reference.doc	1	31/01/11
AREA 10-081 further info from applicant.txt (email)	1	31/01/11
AREA 10-081 Revised Information_Sheets.doc	1	09/03/11

The reviewers commented that the researcher has made considerable progress with the presentation of the information/ consent forms. The research supervisor's comments about the translation issues are noted, however it is still important that material presented to the committee shows that the researcher has a strong understanding of the issues that need to be addressed in the context of ethics, irrespective of the language they will eventually be presented in. The forms previously given did not show this.

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval. This includes recruitment methodology and all changes must be ethically approved prior to implementation.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

Yours sincerely

Jennifer Blaikie
Research Ethics Administrator
Research Support
On behalf of Dr Anthea Hucklesby
Chair, AREA Faculty Research Ethics Committee

CC: Student's supervisor(s)

Appendix 10: Research clearance letter from University of Dar es Salaam

UNIVERSITY OF DAR-ES-SALAAM
OFFICE OF THE VICE-CHANCELLOR
P.O. BOX 35091 ♦ DAR ES SALAAM ♦ TANZANIA

Ref. No: AB3/3(B)

9th March, 2011

TO WHOM IT MAY CONCERN

RESEARCH CLEARANCE

The purpose of this letter is to introduce to you **Mr. Magong'ho Yusuph Magong'ho** who is a bonafide staff of the University of Dar es Salaam.

Mr. Magong'ho has been permitted to conduct research entitled **"Perception and Practices of Formative Use of Teacher Made Assessments in Primary Schools in Tanzania".**

The period for which this permission has been granted is from **March, 2011** to **January, 2012.**

Grateful if you will render him any assistance that will facilitate achievement of his research objectives.

Prof. Rwekaza S. Mukandala
VICE-CHANCELLOR

VICE CHANCELLOR
UNIVERSITY OF DAR-ES-SALAAM
P.O. BOX 35091
DAR-ES-SALAAM

Direct +255 22 2410700
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Telefax: +255 22 2410078

Telegraphic Address: UNIVERSITY OF DAR ES SALAAM
E-mail: vc@admin.udsm.ac.tz
Website address: www.udsm.ac.tz

Appendix 11: Research Permit from Mwanza Regional Administrative Secretary

THE UNITED REPUBLIC OF TANZANIA

PRIME MINISTER'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

MWANZA REGION

Telegrams : "REGCOM"
Telephone: 028-2501057
Fax : 028-2501057/2541242
E-mail: rasmwanza@pmoralg.go.tz
In reply please quote:

Ref. No: DA.277/333/01/01/139

REGIONAL COMMISSIONER'S OFFICE
P.O. Box 119,
MWANZA

8/04/2011

District Commissioners,
Nyamagana and Kwimba.

RE: RESEARCH PERMIT FOR MR. MAGONG'HO YUSUF MAGONG'HO OF UNIVERSITY OF DAR ES SALAAM

Please refer to the above heading.

This is to let you know that, the above mentioned University of Staff has been granted permission to conduct research in our region at Nyamagana and Kwimba districts respectively.

The research title is **"Perception and Practices of Formative Use of Teacher Made Assessment in Primary Schools in Tanzania"**

Please accord him necessary assistance.

(E.L. Masanja)
For: **REGIONAL ADMINISTRATIVE SECRETARY**
MWANZA

C.C   Mr. Magong'ho Y. Magong'ho
       UDSM.

Appendix 12: Request for Teachers to Participate in the Research on Assessment for Classroom Teaching in Tanzania Primary Schools

1. **Who is the researcher?**
   My name is Magong'ho Yusuph Magong'ho a research student (PhD) at the University of Leeds in the UK.

2. **What is the research all about?**
   The research intends to investigate the teachers' perceptions and practices related to the use of written assessments for classroom teaching in primary schools in Tanzania.

3. **Why the researcher wants to conduct the research?**
   The research will enable the researcher to obtain information or data for writing a research report (the thesis) as part of his PhD studies.

4. **Which teachers will be involved?**
   The research intends to involve teachers who teach Mathematics and Geography subjects in primary schools.

5. **How interested and willing teachers are expected to participate?**
   Teachers may participate in one or more of the following activities for the conduct of the research:
   i. Participate in individual interviews, focus group discussion and complete questionnaire;
   ii. Later join a group of teachers for implementing a try out package on more supportive use of written assessments for classroom teaching in schools;
   - Teachers who will join the group for implementing the try out on more supportive use of written assessments for classroom teaching in schools will attend *Group Interview (Discussion) cum Exposition* meeting for the *Try out Package (intervention).* Subsequently, a discussion on what and how to implement the try out package including the time for the meetings and methods for collecting the required data will be agreed between the researcher and the participating teachers.

6. **What are the researcher's promises and declaration about confidentiality for participants and the information to be revealed and/or obtained?**
   - All information to be collected through questionnaires, interviews, focus group discussion and implementation of the try out in schools will only be accessed by the researcher and will be used only for the research purposes.
   - Both collection of the information and report writing will not involve revealing personal details of the participants such as their names or schools where they belong.
   - Anyone who will take part in the research will have the right to among others the:-
     i. Freedom to withdraw from participating in the research at any time should one feel so.
     ii. Freedom to refuse to answer any question or to avail the researcher any recorded data where one feels appropriate and/or necessary.
     iii. Freedom to seek for clarification from the researcher on aspects related to the conduct of the research at any time.

7. **Other information about the research** will be provided in the research consent forms for teachers who will be interested and willing to participate in the research**.**

Your participation in the study is welcomed

Appendix 13: Informed Consent Form for Teachers to Implement the Try out for More Supportive Use of Written Assessments for Classroom Teaching in Schools

1. Introduction:

Thank you for your interest and willingness to participate in this research. My name is Magong'ho Yusuph Magong'ho, currently a research student (PhD) at the University of Leeds. I am doing a research on Perceptions and Practices on the Use of Written Assessments for Classroom Teaching in Primary Schools in Tanzania. Please read and/or ask for clarification where necessary to ensure that you fully understand how you are expected to participate and the terms and conditions for your participation in this research before signing the consent declaration in number 5 below.

2. Mode of participating in the research:
- Participate in interviews and focus group discussion and later;
- Participate in implementing the try out package for more supportive use of written assessments for classroom teaching in schools (*see additional information in Form 7-C*).

3. Terms and conditions for your participation in this research:

The terms and conditions emphasised include:
- Your participation is entirely voluntary, you can decide to participate or not and that you are free to withdraw at any time should you feel so.
- You are free to refuse to answer any question or to avail the researcher any recorded data where you feel appropriate and/or necessary.
- Information that you will provide by participating in this study will be part of the research report writing or publication; but in any case strict confidentiality and anonymity will be ensured by not including any of your personal details or any other identifiable indicators or characteristics such as your name or institution (the school) itself.

4. Contacts of the researcher in case of any inquiry are:

Emails:magonghoym@yahoo.com **OR**edmy@leeds.ac.uk
Tel: +255753022326 (Tanzania)
         +255712851227 (Tanzania)
         +447501731376 (UK)
         +447404636885 (UK)

5. Participant's Declaration Consent Statement

I have read the above information for participation in the above entitled research. I understand that decision to participate in the research entirely depends on my voluntariness and I can withdraw from the study at any stage should I feel appropriate or necessary doing so without any coercion or consequence thereof. Also I understand that information that I will give to the researcher will be treated with high degree of confidentiality and anonymity to confine identifiable indicators about my personal and school details from data collection stage to reporting or publication of the research findings.

My consent decision to participate in the research is _____(Write **YES** if you are willing and agree to participate in the research or **NO** if you are unwilling and don't agree to participate in the research)

If your consent decision is **YES** then provide the details requested below to show that you have personally given your consent to participate in the research:

Participant's name:_____

Participant's signature_____

Date_____

Appendix 14: Form 7-C_Additional Information for Teachers to Implement the Try out for More Supportive Use of Written Assessments for Classroom Teaching in Schools

Introduction:
This form highlights the expected terms and conditions, and mode of participation for teachers who will be interested and willing to participate in implementing the try out package for more supportive use of the written assessments for classroom teaching in schools as outlined below:

- Regular attendance for group meeting to be agreed between the researcher and the group of participating teachers is crucial and will be highly encouraged in order to enable the researcher obtain the required information as well as preparing both individual and group tailored support or follow up as teachers continue implementing the try out.
- The researcher expects to first, hear, see, and get experiences from teachers about the use of written assessments for classroom teaching in schools. Then afterwards the researcher will present the package for the try out for more supportive use of written assessments for teachers' classroom teaching in normal primary school settings in Tanzania. What and how to implement the try out in schools will be discussed and agreed between the participating teachers and the researcher.
- The agreement between the participating teachers and the researcher will involve a discussion of the logistics for both individual follow up in schools and group meetings for feedback giving and/or discussion. Actual implementation will be preceded with a Three Day Workshop for Focus Group Discussion cum Exposition on various aspects related to the try out package.
- Only transport costs to and from the meeting destination (venue) will be compensated.
- The actual implementation of the package for the try out for more supportive use of written assessments in schools is scheduled (tentatively) to start at the beginning of the second half of the first term of the school academic calendar after the Easter break. There will be follow ups through meetings during and after the end of the First School Term in mid June or early July 2011. Other follow up group meetings will be held during and after the end of the Second Term (and at the end of the school academic term) in late November or December 2011 in which decision to end or continue with the implementation will be made, besides holding discussions for reporting and sharing the experience including outcomes of implementation process. Besides the group meetings for follow up purposes, the researcher will be visiting schools to meet and discuss with each of the participating teachers for support and data collection through carrying out classroom observations, perusal of teacher's documents and open conversations and interviews. . Confidentiality in reporting/revealing experiences of implementation can be between individual teacher and the researcher only if one feels so.
- The researcher will not breach confidentiality right from data collection stage throughout to writing about the results of the try out as explained in the consent form.
- Sharing of ideas and experiences of implementing the try out related to construction, administration, marking and use of results through written assessments among participating teachers is highly encouraged.
- Feel free to communicate at any time to the researcher in case you have something to discuss or share about the intervention.
- Even a failure **following a genuine teacher's attempt** of a particular aspect is important for sharing with the researcher as part of the findings or for providing appropriate or relevant support.

Appendix 15: Time line of intervention process between April 2010 and February 2012

Phases and stages of the intervention process	Number of participants involved	Data sources/instruments	Data generated	Dates when data generated
Phase one: preparation, development and piloting of the intervention				
Stage 1: Preparation and development of initial draft of the intervention				
Activity1: Review of literature on formative assessment in Western educational contexts	Theoretical and research studies on assessment, formative assessment and teacher professional development	Nil	Initial plan on aspects of Formative assessment to focus on for the intervention in Tanzania primary school context	November, 2009 to April 2010
Activity 2: Review of Tanzania's education documents	Different education policy and curriculum, school documents were accessed from the Ministry of Education and Vocational Training (MoEVT); Tanzania Institute of Education (TIE) and Tanzania National Examination Council (NECTA).	Supervisor's Introduction letter was used to:- Solicit for policy and curriculum documents for primary secondary school education in Tanzania: Documents from the MoEVT, TIE and NECTA	Narrative report of documentary review about assessment, pedagogy and teacher support in the context of the existing CBC.	April to July 2010 which included a trip to Tanzania
Activity3 interviews with officials	Foureducation policy makers. One official in the MoEVT and other three officials in the TIE were interviewed as key informants.	Audio records of the two informal interviews with the two key informants stated in column two	Audio records and transcripts of interview conversations	
Stage 2: piloting activities in Leeds (UK) and Dar es Salaam (Tanzania) between August 2010 and March 2011				
Piloting with groups of teachers	1st. One postgraduate student at Leeds University in the UK who was formerly a primary school teacher in her Anglophone African country:	1.The long teacher questionnaire with prompt cases 2. Research notebook	1. Completed long teacher questionnaire with prompt cases 2. Written notes about feedback	August 2010
	2nd Piloting with primary teachers in Dar es Salaam, Tanzania in two rounds of consultative activities: First round of piloting in Tanzania involved a group of 12 primary teachers in Dar es Salaam city. Their teaching subjects included Mathematics, English and Geography.	1.Long teacher questionnaire 2. Checklist schedule for observing and recording contents of teacher marking in pupils' work (exercise books) 3. Interview schedule 4. Focus group schedule 5.Initial draft of the intervention package for formative assessment across the main parts of the assessment process	1. Ten copies of completed teacher questionnaire 2. Two interviews(one with the school head and another with the academic teacher) 3. Audio records of (i) interviews, (ii) focus group discussion, (iii) group discussion of the draft of the intervention package 4. Notes on Flip chart papers about discussions of the intervention package 5. Reflective notes in the researcher's notebook	October to November 2010
Upgrade examination: I presented the upgrade document which included findings and outcomes of documentary review and piloting with teachers and discussion of the intervention package in Mid-January 2011				
Left Leeds for fieldwork in Tanzania: early February 2011				
	Second round of piloting in Dar es Salaam, Tanzania involved a group of 6 teachers and 2 teachers out of the 6 six teachers who took part. Their teaching subjects included Mathematics and Geography	1. Refined draft of intervention package 2. Foci for classroom observation 3. Researcher notebook for note taking	1. Audio records of the group meeting about the refined intervention package 2. Notes of classroom observation of the teachers about collaborative pupil peer assessment (CPPA) during remedial class sessions.	February to early March 2011
Pre-intervention data collection in Mwanza from late March through April 2011				

Pre-intervention data collection to intervention teachers	1. Ten (10) intervention teachers took part in focus groups, observation of their lesson records and pupils' work and follow up interviews 2. Seventeen (17) non-intervention teachers together with the ten intervention teachers took part in the focus group discussion in the four participating schools 3. Four (4) heads of the four schools which participated in the study were interviewed	1. Teacher questionnaire 2. Focus groups 3. Individual interviews 4. Observation intervention teachers' lesson records and pupils' work and follow up interviews	1. Audio records of the group discussion and follow up interviews 2. Researcher's reflective notes about outcomes of the observation of intervention teachers' lesson records; 3. Audio records of interview conversation with each head of school 4. Extracts from intervention teachers' lesson records and pupils' exercise books	March and April before school midterm break 2011
Phase two: Discussion of the intervention, implementation of the intervention, and support				
Stage1: Discussion of the intervention and commencement of implementation	1. Ten (10) intervention teachers 2. One research assistant	1. Prompt teachers' questionnaire (PTQ) 2. Intervention teacher lesson records 3. Draft of the intervention package	List of terms related to assessment and teaching as obtained from the documentary review and observation of intervention teacher lesson records	May and June 2011
Beginning of intervention implementation	3. Ten (10) intervention teachers	1. Intervention teachers' research notebooks 2. Brief outline of the intervention requirements as per discussion in whole group meetings and subject based meetings. 3. Folder of empty forms to complete and write in about their own understanding of the intervention 4. Follow up classroom observation and interviews 5. Concurrent subject based and combined group meetings		May -Mid June-Mid July 2011 (10th June- 11th July 2011)
Researcher preliminary analysis, reviewed implementation proceeding and wrote report to supervisors Mid-June until early July: 2011				
Stage2: First Review of the intervention and further support for implementation	1. Ten (10) intervention teachers 2. Research assistant	Reviewed the initial proceedings of the intervention and identified the things for whole group and subject based group meetings in mid July 2011 when schools were scheduled to open Skype online discussion about the proceedings and next plan for implementation	List of aspects for intervention teachers to focus on:- 1. Carrying out of error analysis as part of marking pupils' work, details on how to provide oral feedback on error analysis in classes and engaging pupils' in CPPA during remedial class sessions 2. How to peer observe each other's class and give feedback and support each other	early July 2011
Second review of the intervention package	All ten (10) intervention teachers attended whole group meetings to present and share each other about their implementation experience, obtain further teacher support to carry out CPPA during remedial class sessions; agree on ethos for peer teacher observation, communication and follow up activities while the	1.The intervention package, 2. audio recorder 3.Intervention teachers' research notebooks 4. Notes on flip chart papers and researcher's notebook	1. Flip charts 2. Audio records of some group meetings 3. Notes in the researcher's research notebooks 4. Notes in intervention teachers' research notebooks	First week of August 2011

	researcher was away			
I returned to Leeds in the second week of August 2011 while intervention teachers continued to implement the intervention Mid-August 2011				
Phase three: Teachers implementing the intervention in absence of the researcher Mid-August to November 2011				
	All ten (10) intervention teachers continued to implement the intervention, observed each other's classes and gave feedback to support each other They visited between schools, observed each other class and held four combined group meetings to share experiences of implementation, support each other, identify a list of aspects to report about their progress or receive some feedback from me the researcher. They conducted peer observation within and between participating schools and discussed their experiences of implementation during inter school whole group meetings.	1. Intervention teachers recorded (audio-video) the sessions of the four whole group meetings using a laptop with a webcam. The records were transferred into a memory card which was then sent from Tanzania to me in Leeds via DHL postage.	1. Four (4) video records of the intervention teachers' combined group meetings 2. The perusal and review of the audio-video records were used to compile feedback for follow up and support purposes and used them to prepare the instruments and plan on how to carry out post intervention data collections	Mid-August to November 2011
Schools closed because of annual holiday: while in Leeds. I worked on the drafts for the plan and instruments for post intervention activities and data collection through submission and feedback from Supervisors: December 2011 to first week of January 2012				
Phase four: End of implementation cum evaluation of the intervention				
Post intervention data collection	1. All 10 intervention teachers 2. Intervention teachers by teaching subjects; That is 6 Mathematics teachers and 4 Geography teachers. 3. Four (4) of the Six (6) Mathematics teachers were observed by the researcher twice in classroom on CPPA during remedial class sessions.	1. Interview schedule 2. Outline of activities for each teacher's presentation and others' comments 3. Observation foci	1. Reflective notes in Researcher's notebook for each teacher by teaching subjects 2.Audio records of follow up interviews about each teacher's implementation experience and their lesson records 3. Two audio records of Focus group discussions by subjects, one for 6 Mathematics teachers and another for 4 Geography teachers 4.Reflective notes about classroom observation of the Four (4) Mathematics teachers and audio records of post class interviews	Early January and February 2012
2. Closure of the intervention implementation and agreement with intervention teachers in Tanzania	Ten intervention teachers	1. List of items or aspects that intervention teachers wanted to continue communicating and getting feedback from the researcher 2. Details about modes of communication from the researcher on particular aspects related to interpretation of the data obtained if need arise • Agreed post mails, emails and Skype calls as modes of communication if any need to communicate would arise	1. More completed feedback forms to be sent and received via post mails and emails 2. Comments of intervention teachers on part of the researchers' data interpretations and insights drawn thereof	Between February and July 2012

Appendix 16: Components of the intervention for formative assessment

Aspects Literature Review	**Components of Intervention Across Assessment Process**	**Aspects Emphasizes in Tanzanian Curriculum**

Component 1
Construction of Exercises

1. Understanding learning intentions and sharing success criteria. 2. Feedback giving.	• Lesson as domain • Analysis of lesson: Parts of lesson and their conceptual connection • Specific objectives as parts of the lesson and their conceptual connection • Planning assessment work before teaching.	1. Perception that table of specification as main criterion for quality exercises for supporting pupils learning. 2. Teachers to use readymade exercises that are available in textbooks. 3. Quantity of questions/exercises as key for supporting pupils learning. 4. Teachers decided on contents for exercises after teaching the lesson and on basis of single and generally stated specific objective.

Component 2
Administration of Exercises

1. Self-assessment 2. Peer assessment	• Time of providing exercise in respect to flow of classwork • Collaborative pupils peer assessment • Engaging pupils in discussing exercise work	1. Individual approach for pupils to complete the exercise work. 2. Exercises to be administered at the end of the teaching/period. 3. Pupils to complete exercises individually 4. Pupil collaboration in completing exercises can encourage copying from each other's work.

Component 3
Marking of Exercises

1. Feedback giving 2. Effective questioning 3. Understanding learning intentions and sharing success criteria.	• Do error analysis as part of marking • Interpret implications of pupils responses to discern strengths and weaknesses • Marking symbols that guide pupils • Mark by providing written comments	1. Ticking and crossing out pupils responses 2. Inconsistence in marking symbols for incorrect pupils' responses. 3. Written comments focus on appraisal, neatness, and legibility of work or simply ask pupils to put more efforts. 4. Marking as a prerogative of the teacher.

Component 4
Feedback giving

1. Feedback giving. 2. Effective questioning. 3. Understanding learning intentions and sharing success criteria.	• Written comments to improve learning. • Contents of oral feedback for remedial teaching • Marking symbols. • Lesson evaluation based on error analysis.	1. Feedback in terms of ticks and crosses, grades (marks) and comments that mainly focus on overall performance, appraisal, neatness and legibility of work, or ask pupils to improve work or put more efforts. 2. Lesson evaluation focused on pupils' participation in the lesson and extent or ways pupils found the lesson, e.g. pupils enjoyed the lesson. 3. Attributing weakness/inability in pupils' understanding of lessons to teaching methods and materials used, parental support, pupils' personal factors like lack of innate ability, attitude, effort to learn.

Appendix 17: Categories of Tanzanian educational documents that were reviewed

Category of documents	Examples of specific documents reviewed
Type A: National education policy, curriculum frameworks, guidelines, and reports	1. 1995 Tanzania Education and Training Policy (MoEC, 1995). 2. Handbook for school inspectors (MoEC, 1999). 3. Basic education master plan: medium term strategic and programme framework 2000-2005 (MoEC, 2001). 4. Primary education curriculum for Tanzania mainland (MoEC, 2005a) 5. Secondary education curriculum for Tanzania mainland (MoEC, 2005b) 6. Education and training sector development programme: primary education development programme II (2007-2011 (MoEVT, 2006a). 7. School inspectors training manual (MoEVT, 2006c). 8. Is the primary education curriculum implementation on track?: A monitoring report of the implementation of the revised primary education curriculum in north west Tanzania (TIE, 2009a). 9. Monitoring report of the implementation of the revised primary school curriculum by trained teachers in the seven UNICEF supported learning districts (TIE, 2008). 10. Updated secondary education development programme, 2000-2009. (MoEVT, 2007).
Type B: Assessment guidelines, national examinations formats and reports	1. Approved formats by NECTA for standard four national assessment (SFNA) and primary school leaving examination (PSLE) 2. Development of the continuous assessment strategy for primary schools in Tanzania: documentary and consultative meeting report (TIE, 2010a). 3. Guidelines on the conduct and administration of continuous assessment in secondary schools and teacher training colleges. (NECTA, 1991). 4. Other formats for secondary school examinations and teacher education examinations at certificate and diploma levels. 5. Analysis of candidates' response to primary school leaving examination questions for year 2012 and 2013: mathematics (NECTA, 2012, 2013.
Type C: Modules and manuals for pre-service and in-service teacher training	1. Module for educational research, measurement and evaluation for primary school certificate teacher training (MoEC, 2003). 2. Guidance for competence and teaching methods for pre-primary and primary schools (TIE, 2005). 3. National curriculum development framework: a guide to assessment and examinations (TIE, 2004). 4. Module for competence based teaching, learning and assessment in secondary training of secondary academic deans-TAHOSA (TIE, 2009b).
Type D: Primary school subject syllabuses and teacher subject guide books	1. Mathematics syllabus for primary schools: standards I – VII. (MoEVT, 2005). 2. Geography syllabus for primary schools: standards III – VII (MoEVT, 2006b). 3. Syllabuses for other subjects 4. Teachers guide books for primary schools 5. Schedules for scheme of work and lesson plan details for primary schools

Appendix 18: Summary of insights from review of Tanzania's education document in respect to teacher support in adopting CBC

Theme 1: Nature of the documents published for teachers to read about the new conceptions and practices at classroom teaching level

Subtheme 1: Clarity of information and messages

Some concepts and practices that teachers are expected to understand or develop corresponding practices for implementation at classroom level were not clear. Three sources for the lack of clarity were obvious in the documents that I reviewed:

First source: Mixture of information and messages relevant for the general public and that for teachers to understand and use for classroom teaching and learning purposes. The emphasis that new ideas and practices are better than or the best compared to the old also takes precedence over articulating the underlying idea or actual practices to be adapted as espoused in the curriculum change.

Second source: Much description but little articulation for some technical terms. This was particularly the case where many parts of the documents did not explicitly pinpoint the features of the practices for the new thinking to be adapted as distinct from that of the old thinking that was to be abandoned. For example, features of learner centered teaching as compared to teacher centered approach

Third source: Use of various technical terms interchangeably without delineating which are main and sub-concepts, processes or practices within and between documents that teachers need to understand and develop practices.

Subtheme 2: Language and translation issues:

Some technical concepts that were translated from English into Swahili lost their actual meaning or connoted different practices. For example, formative assessment in some of the curriculum and training documents is translated as *Upimaji endelevu* (literal meaning 'endelevu' means sustainability) and in other documents formative assessment is referred to continuous assessment within and between documents. The two Swahili descriptions for formative assessment are inconsistent, misleading and do not convey the actual meaning in line with the constructivist view of learning in respect to CBC.

Theme 2: Discourse for teacher support

Subtheme 1: Directives

Information and messages which were categorised as directives included those which explicitly required the teachers to abandon existing practices and adopt the new conception or practices in conducting assessment for teaching and learning purposes. However, some explanations conveyed information and messages about assessment practice that were impractical and attributed most of the weakness or inadequacy that called for change mainly to teachers.

Subtheme 2: Guidance

Information and messages which were categorised as guidance described ways of conducting particular practice of assessment for teaching and learning purposes. However, some explanation contained contradictory messages between explanation and illustration besides providing insufficient detail.

Subtheme 3: Persuasion

Information and messages which were categorised as persuasive included those which encouraged but provided the teachers with the freedom to implement or not. These were signalled by words like 'advised' 'encouraged' could take advantage of these examples in the document to practice' etc.

Theme 3: Position of the teacher in curriculum change
Subtheme 1: Teacher as cause for change
Old practices of the classroom teacher are pointed out as inadequate and a cause of ineffective learning. This view of explaining the need for change and conveying teachers as the main source, in the policy documents, curriculum and academics, arguably, can partly explain the negativity in teachers' attitude and adoption of the changes that policy makers expect.

Subtheme 2: Content and ways for teacher to change
Teachers had to change by abandoning their old practice and conceptions about assessment and substitute   the 'new' ones.

Subtheme 3: Evaluation of success to change
In relative terms, the teachers are mentioned more on reporting the insufficiency in the hoped changes rather than when there is success in change. Nothing is attributed to weakness in content of documents for teacher support. For example, the documents on monitoring and evaluation report of implementation of the CBC did not mention anything related to problems related to theme one above.

Appendix 19: Sample of pre-intervention documentary extracts

Extract A Part A1: Swahili version of lesson objectives

Extract A Part A2: Swahili version of lesson evaluation

Extract B part B1: English version of lesson objectives

Subject:	Mathematics			Number	of	pupils			
Date	Class	Period	Time	Registered			Present		
				Boys	Girls	Total	Boys	Girls	Total
23/4/09	VB	2nd	7.40-8.20am	38	38	78	31	30	61

General objective: The pupil should be able to write [convert]) decimals into fractions

Main topic: Decimals
Sub-topic: Converting decimals into fractions
Specific objectives: At the end of the period the pupil should be able to change decimal numbers with one decimal place into fractions
Teaching aid/materials: Decimal chart
Reference: Grade Five pupil's textbook for primary school and teacher's guide books

Extract B part B2:   English version of the respective lesson evaluation
Pupil's evaluation: They [pupils] liked the lesson
Teacher's evaluation: 93% of the pupils were able to convert decimals into fractions
Remark: The lesson has been understood, I will give them (pupils) an exercise which consists of decimal and fraction questions

Appendix 20: Sample of pre-intervention focus group transcript

R: What does classroom teaching involve in the context of *mhamo wa ruwaza* as you simply call it [competence based curriculum]?

T5: Eeer for classroom teaching through this paradigm shift (competence based approach) mostly, what is required is to involve more the pupil, and not the teacher in giving what they have [know] and impart to the pupil. But instead, we (teachers) have to understand that also the pupil has some knowledge. Pupils have something which they already know. Therefore, it's good for the learner to first explain what they already know then the teacher clarifies, yeah that's it what I can say it is all about the paradigm shift.

R: mmh

T10: There you are! The main task (role) of the teacher is to elicit, to elicit talents, to elicit about what the pupil knows. We [teachers] have to stop the concept of teacher centred teaching. Therefore, we have to use participatory teaching methods. The teacher elicits the talents of pupils; through that then the pupils can proceed to learn on their own.

R: According to this paradigm shift, in practice could you (T10) please explain how do you implement in actual teaching in the class?

T10: In regard to what I can do, say, for example, about the North direction. I can ask the pupils, first by explaining, identifying something. Let's say, where is the biggest mango tree located in our school environment?, Then the pupils will show it. Then they will know that, this is North direction. Therefore, the biggest mango tree is located in the North direction in the school compound.

Another question that I can ask the pupil, for example; I can identify certain big things around such as the lake, because in our school there is a lake nearby. In which direction the lake borders our school? Other questions may include, in which direction playground borders standard three classroom? Thereby, automatically, pupils will think about it, identify ahaa!, they will reflect, know the lake is positioned somewhere. Because the lake is located in a certain direction. Then it becomes easy to know that direction, which can be North direction, or West or East. Therefore, thereby you will you have involved them like that. The answer will stick in their mind, they cannot easily forget, because I have directly involved them in learning through seeing and touching.

R: Ok, another one who can give another example of actual teaching in the class according to his or her understanding?

T6: This *mhamo wa ruwaza* [paradigm shift/CBC] is helpful for teacher's teaching. For it enables the pupil to interpret directly what they have learnt. For example, in Mathematics when teaching about Least Common Factor (LCF), I teach about the LCF and after teaching the concept of LCF then I come to teach about fraction. When talking about denominator and numerator, the concept of denominator when teaching fractions [for fractions with same denominators], Automatically, you will have to relate that, by telling the pupil that the LCF is what is used for finding out the denominator of fractions [for fractions with same denominators]. That is, we will take the denominator, say it's 4 for the case of ¼ + ¼, which means the denominator is 4, therefore, one has to take that 4 is the LCF. Thereby I will relate the LCF in addition of fractions with same denominators. Thereby, the pupil gets the correct interpretation. Thus, in other words when teaching such an aspect, having understood that thing, then you ask the pupil, what is its use? The pupils have to simply not take LCF just as a number; it has its mathematical application.

On top of that..Eee another explanation about *mhamo wa ruwaza*, is the point that, the pupil know many aspects; but at the same time they have to understand that Mathematics that I teach them is not only abstract contents, but have applications in their daily lives.

R: Can you explain more about this. Do you mean what the teacher teaches has to relate or connect with real life situation?
Yeah, for example, when you teach learners the lesson about millimetres and centimetres, you have to explain to them that; we could not even manage to get this desk if the carpenter could not have learnt about millimetres and centimetres...Therefore in that way, they understand, wow! If they learn millimetres and centimetres they may become carpenters. Therefore, a teacher has to spontaneously translate the concept at hand in relation to its use in the normal real life situation.

R: Any other views?

T3: My understanding is that, teaching according to *mhamo wa ruwaza* involves taking knowledge from the pupil to the teacher and from the teacher to the pupil. The source of learning is the teacher who elicits the by asking different questions about the lesson at hand. In short that is all about it.

R: Does it mean that when teaching you have to involve questioning?

T3: Yeah, I often incorporate questioning, I listen on how they answer to know where they stand and also I make additions by clarifying more...Eee! in other words, this new approach, the pupil becomes the centre of learning and the teacher becomes a facilitator. In the sense that, from the moment you get in the class until the time you leave, the pupil will be learning, from the time when the teacher enters the class to the time when the teachers gives an assignment or exercise the pupil will be learning. That is the meaning of learner centred learning in which the teacher becomes a mere facilitator in the class. This is another interpretation of the *mhamo wa ruwaza*.

R: Specifically how does the teacher facilitate learning, for example?

T3: For example, after entering in the class, you begin by asking what they have learned, say, yesterday, you ask them about the yesterday's lesson in order to determine if they can remember what they learned yesterday. I will start by asking questions, I will know the extent to which what you taught yesterday was understood. Then I will continue, I will start by saying that, yesterday we covered this and this and today we will continue with this lesson.

R: According to your experience, what are your views on this approach?

T3: Eee, everything, everything has its advantages and disadvantages. But this one [approach] for teachers it really helps, because you can manage a large class. Because it is

a matter of dividing pupils in groups, even if they are many groups you just pick one pupil from each group based on the work you have assigned them. Then, for each group in-group members discuss and only one member from each group presents to the class. If there are 200 pupils, means if you compose 20 groups then you will take only 20 exercise books to go through and mark.

R: Eee what do in-group members when their peers present the group work in the class?
T3: During the presentation, of course, the teacher should have already planned in advance, which group will start, I can start with group number 1 or number 5. It will depend on how you organise groups of your pupils. At that time [during presentation] other pupils will be listening. In case when the presenter [s] give different answer (s) from what you [the teacher] asked, others put up their hands and make corrections, either the in-group members or the out-group members.

About use of written assessment (exercises) for classroom teaching and learning in the context competence based curriculum
R: ...If there is no addition, I would like to ask you another question. From your experience of teaching before and after the *mhamo wa ruwaza* (competency based curriculum). In regard to assessment and evaluation, which aspects have changed particularly for written assessment that we call exercises in the context of Tanzanian primary schools?

T6: Yeah! There is a difference. Before *mhamo wa ruwaza*, it was not obligatory for the teacher to ask their pupils to comment about the lesson. I mean, if I have taught a particular concept, for example, in the past, for the case of Mathematics, what was important for the teacher was, to give questions, select some pupils to work on the chalkboard, watch and see whether they were following the explanation. But nowadays according to *mhamo wa ruwaza*, you are [the teacher] obliged, for each lesson at the end you have to get one pupil as a representative for the class to comment. The teacher must ask the pupils on what they have learnt from the lesson. The pupil has to explain. I mean through *mhamo wa ruwaza*, there is direct evaluation by the pupils. In the past there was no such a thing, it wasn't there at all.

R: ahaa! according to this approach, how is the pupil's evaluation of the lesson done and how is the teacher's lesson evaluation also done?

T6: This means when you (the teacher) finish teaching. Then, nowadays you are supposed to get comments from your pupils. You can just point out one pupil to stand up, then, you ask him/her, say, what have you learnt today? That pupil will give comments on behalf of the class. Thereby, you can know which concepts (lesson aspects) they got well and which they didn't. In the past there was no such a thing.

R: Eee so you are obliged to point out only one pupil?

T6: Eeer yes. It's one or they can be two pupils, they will give you their opinions. If the lesson was not thoroughly understood they will tell you, that honestly speaking, they did not get you well throughout the lesson. But if there is something that they will have learnt, they will tell you they will admit; in other words, nowadays, as a teacher you are directly evaluated by your pupils.

R: Are there any specific criteria that you consider when pointing out the pupils to give comments for lesson evaluation?

T6: Usually, when asking questions to find whether or not people have understood, you have to ask, say, who has a question? If they remain silent, then you can choose one person by naming. Say, Solomon, tell me how our lesson today has been? So, the options are with you the teacher. But, if they seem willing to tell you, then you just pick the first person to put up their hand, then you listen to their comments, eer (that's it).

R: Who else does this or differently?

T3: Personally, when I teach, at the end of the lesson, I do ask my pupils in order to determine how many students have understood me; and to know the pupil's evaluation first.

R:When asking about the lesson evaluation, are there any specific criteria that you consider or target?

T6: The actual criterion that I usually use is; I prefer to get total number through hands up. I just ask them, how many have liked the lesson today. That is the first thing I consider. They put up their hands. I quickly count the total number. Having seen the hands up, I then ask a question about the lesson I have taught. Let's say, if yesterday, the lesson was about economic activities (occupations), I just ask them, what are the economic activities in our country? If I see them putting up their hands quickly, then I choose one child to give the answer, I go on choosing another one, at least three, that will be enough. I also ask how many of you have not liked the lesson today. There will be some pupils who will put up their hands, then, I will ask them which aspect of the lesson you (pupils) have not understood?

R: Anyone else who can give us his/her experience of asking the pupils to find out whether or not the lesson has been understood?

T10: In addition to what others have said, for me I usually strive to consider those who are slow learners. Usually, I ask first slow learners to find out if they have understood compared to their peers who understood the lesson a bit more quickly. I do ask them some questions if slow learners have also understood compared to their peer fast learners. This enables me to find time, to provide remedial moments (sessions) before I proceed with the next lesson. Yeah! that is what I also do.

R: In regard to exercises that you give your pupils. What else have changed according to the *mhamo wa ruwaza*?

T2: Eee! there will be favouritism when pupils mark their peers work.

T6: But mind you teacher (researcher) that, in teaching, we usually give the pupils the exercises for pupils to do in the last few minutes of the period.

R: Is it that in most cases the exercise is done in the last minutes of the period?

T6: Eeh! (yes) the exercise is administered in the last five minutes, then, how will you use (teacher) enough time to ask pupils to swap their exercise books, mark each other's work or ask one or two to work or explain, you cannot get enough time to do that.

R: Do you (T5) also usually administer the exercise at the end of the period?

T5: Yes I usually do so

R: why do you usually do so?

T5: of course, that is what we are used anyway

About table specification and what determines size of exercise

T6: But what I know, I don't know for others, about this table of specification. I really find that we don't know it. Being able to know precisely that, these questions can assess remembering, these questions assess comprehension and so forth. Honestly speaking, the table of specifications is not often used.

R: ee for your case when do you use the table of specification?

T6: Personally, I use it when I am constructing Mathematics questions that involve the pupil to subtract by borrowing; thereby, I can say you are assessing how the pupils can remember. But for questions which involve subtraction without borrowing, which means you will be assessing knowledge only, eee!

T10: honestly, we don't always consider the table of specification, you just teach depending on the nature of the topic. For my case, I don't know about other teachers anyway! I just look on the topic. I give questions depending on the topic. It is five or ten questions depending on the topic. I usually teach and give questions depending on the topic. We do this (use the table of specification) when it comes at the end of the term, during midterm tests, and terminal school examinations. We use it when setting final examinations.

T1: In regard to table of specification, the National Examinations Council has published examinations format guidelines. In the guideline you can find out the contents for the table of specification. But for us in primary schools very few teachers understand about it. I mean that we need to get clarification about it because we lack that.

R: What makes you decide about questions for an exercise when you don't use table of specifically as you have said?

T6: The number of questions for an exercise depends on the pupils' abilities to understand. As I have already mentioned, when am teaching (after giving clarification), I usually give at least one question for the pupils to do it. While pupils are attempting the question I see and thereby know if they are following and able. Then, I can decide to give them ten questions for an exercise. And if I find that they are able and quick to attempt the questions. Then in the next exercise you can give them three questions only.

R: Ok T6: How about others, anyone else with an addition or different experience?

T5: In regard to number of questions for an exercise, there are problems with some of the textbooks. You can find all ten questions are in the same format. Perhaps, some authors of mathematics is not their specialisation. I am making this point because; if you take textbooks for standard four; I think the textbooks have been published by MTURE, the books indicate everything including ways of solving the questions. But if you follow careful, you will find that, they are useless, they elaborate much for the pupils to the extent that they make the pupil to become stupid [dull]. But again if you will follow more the detail some procedures have not been explained correctly.

 ...in that case, for example, I teach Mathematics in standard five, last week I was teaching the different methods for finding out the LCF, we started with the LMF method. It is indicated in the textbooks that the methods included *njia ya ngowe, njia ya vipeo nini*, but how the author explains as *njia ya ngowe* it isn't the case. Then because it has been indicated in the textbook then as a teacher you have to follow.

T10: Many of the books have mistaken; the problem is that people on the site (teachers in schools) are not involved in the publishing. So you find that, you get driven, things are imposed on us teachers. With this example (by T5), for many books, indeed, this situation causes troubles. This is different from the textbooks we used in the past syllabus or previous curriculum so to say. They could be implemented well. Nowadays what happens if you are directed to use a particular textbook, but when you look at the book, it is common to find it is not really appropriate.

...you find contents are shallow, they are below the level of pupils. Then, as a teacher you find yourself required to revisit previous textbooks for different subjects, for different topics, can be Mathematics, science, Kiswahili and so forth. It is not clear when these things will be stopped. And the problem is, while it is us (teachers) who are implementers, but it is others who do it all. They just do it by themselves, because they are there, because of certain reasons, but in the end it is teachers who suffer, so, indeed, in this way the education is in dilemma
R: ok ok...

About administration of exercises and involvement of pupils

T6: But, sir mind you, bear in mind that in classroom teaching, we usually give pupils the work (the exercise) in the last few minutes of the period.

R: Aah! Is it that the exercise is usually done in the last few minutes of the period?

T6: yes, the exercise is usually administered in the last five minutes of the period. So, how can I get the time enough to ask pupils to swap their exercise books after attempting the question, then ask few of them to explain by working on the chalkboard. There will not be enough time to do that.

R: T5 do you usually administer the exercise at the end of the period?

T5: Yeah! I usually administer the exercise at the end of the lesson. It is about twenty minutes to end the period. Because in fifteen minutes, I can administer some questions for the exercise, depending on the number of the pupils present in the class. I can give them questions they start attempting them, then within fifteen minutes I start marking the pupils' work. I know I won't finish marking, but I first begin marking while in the class.

...In Mathematics for example, there are ready made questions one two three and so forth. If I have given them, let's say, ten questions, some pupils will manage to do up to third, fourth or even fifth in the class. So I pass and go through work of pupils who will have completed attempting some of the questions. The other five minutes remaining is for pupils to comment for evaluation on how they have found the lesson.

R: Do you usually give the pupils opportunity to comment about the lesson you teach?

...yes, because there is a requirement, where you (the teacher) has to know how the pupils have felt about the lesson. Because some pupils might have been bored, they have not been happy about the lesson, some might have been happy about the lesson. You have to check this in there in the class.

R: What do you mean by pupils liking or being happy about the lesson?

..Liking the lesson [being happy] means that, they have understood. Let's say, you find that, you gave them what appears an easy task/lesson and they pass well, this means that they have understood the respective lesson.

R: How do you choose or decide the questions for the pupils' exercise from the ready-made exercises in the textbooks?

T7: Suppose you find that, there are twenty questions and the class consists of about eighty up to one hundred pupils. In that case, you have to administer ten or twelve or eight questions. If the exercise in the textbook consists of twenty questions, then, I will give the pupils ten questions and supervise them, later on mark their work. Then, in the next day I can do corrections depending on their performance. Afterwards, I will check the relevance of the other ten remaining questions in assessing the topic. If I find, they all focus on the topic at hand I will give the remaining questions as another exercise.

T2: Let me add one thing, what happens is that; in teaching once the teachers get in the class, right from the beginning of teaching, during clarification until the time of giving working examples for pupils to do, it is all part and parcel of pupils' learning…

...so, if your focus is about fractions or additions of whole numbers, for example, you can know whether the pupils have been able or unable to understand at any stage of the lesson. It could be at the beginning of the lesson, when giving work examples for illustration, when you give the pupils an exercise to do and when marking their work. Eee (that's it).

R: Let me ask another question, let's say you have decided to administer 20 or 9 questions for an exercise, you instruct pupils to do the exercise, you mark their work and award marks

(score). When can you say that you were doing assessment and when can you say that you were doing lesson evaluation?

T5: assessment is when pupils are doing the questions. At that time, I will be assessing them. After assessing them, I will be marking pupils' work. After that, then I do the evaluation.

R: what do mean by after that, do you mean after you have put the ticks against the pupils' work?

T5: yes! Thereby, I evaluate according to this exercise, have the pupils understood the lesson? Have they understood the lesson well or very well?

R: when you have marked the pupils' exercise books, what things do you consider when determining whether or not the pupils have understood the lesson?

T5: I look at the results, yeah! after marking, I find out whether they got all questions correct, how many questions have they scored correct; say, six out of ten questions I gave them. How many got 2 questions, three questions correct, at that point I will be evaluating to see what their average score is?... You just consider how many questions majority of the pupils got correct.

Let's imagine an exercise in the textbook consists of twenty questions. Let's say I first administered ten questions out of all the questions. Then I find that, majority of the pupils got five questions correct. This means for the next period instead of giving them another exercise. I will ask them to do the remaining questions to wind up the ....thereby I will have done the evaluation [of the lesson] through an exercise.

R: So, can we say that for evaluation you usually focus on percentage of questions which pupils get correct?

T5: ...that's right. I consider the extent to which they get the questions correct.

R: Anyone else with a different point about lesson evaluation apart from focusing on how many pupils get questions correct. I mean, which other things do you consider for lesson evaluation?

T2: Aaa, there is also evaluation on the teacher's side in the teacher's lesson plan book (schedule). At the bottom there is a space to complete for teacher's evaluation.

...What I comment in that space is about, how many pupils did not do well depending on what I have taught. I add that, I will do clarification again (remedial) later in the next class. I can comment in the lesson plan book that, in the next class I will do this and this so that I help those pupils who did not do well according to my evaluation.

Or I can write (comment) by indicating percentage of what they have been able to do well and/or the percentage of who did not do well; and that I will help them in the next time or just comment that, I will continue with another topic (lesson)

R: T2 do you manage to write comment in your lesson plan every day?

T2: Yes I do, the lesson plan book is my key document..

R: T1 do you manage to complete the lesson plan book for every lesson?

T1: Not all the time, but at least two times in a week.

T5: In reality I don't manage to prepare the lesson plan every day. I normally prepare for example, when I find am in a position, when my classes [periods] in a day are not many. It's when I find that I have marked [the exercises] all about what I have already taught [lessons covered in the class], when I have [find] the opportunity, I can prepare two to three lesson plans, for next day [tomorrow],say, if I have the chance today for example; I might find it easy to prepare them, I mean two to three lesson plans in a week.

R: How about T3. Do you complete the lesson plan book for every lesson?

T3: Personally, I rarely prepare the lesson plan. Eeh! Let's say, I have six periods for mathematics subject per week. I can complete the lesson plan book three times if I don't have too many periods to attend. This is because Mathematics periods are usually the first periods and sometimes you have no time to complete the lesson plan book after class hours.

R: T3, In cases when you don't complete the lesson plan what do you do then before classroom teaching?

T3: Before getting into the class for teaching, and before completing the lesson plan book. Usually, I must have already planned what to teach. It is after teaching when I complete the lesson plan book, eeh! I mean after, I have taught and marked, it is when I do lesson evaluation.

R: Eeh! Do you also do your lesson evaluation by looking at or considering how pupils got the exercise right?

T3: Eee to be honest, in doing my lesson evaluation I do not do it by writing (commenting) about how many pupils have understood and how many pupils have not yet understood. Instead, after marking, I usually check, sort the pupils' exercise books in groups such as; the ones who understood well, who could be few; those who understand a bit; and those who have not understood at all. So, I get the respective total number of pupils, that is, this is percentage of who have some understanding, percentage for the ones who understand well and so forth. So I mean that I check in which group majority of the pupils are.

R: Let's hear from T4, for your case how do you do?

T4: As we have said earlier on assessment. It all occurs when the teacher gives the exercise. For my case when pupils are attempting the exercise, it's when I am assessing them. When I begin marking their work, it means that I am evaluating. That is, I want to know what the achievement is. In the sense that, after teaching even if I have not completed teaching a topic, I give an exercise depending on what I have taught in a particular period. Then, through the exercise that I have given, I want to know the status of pupils' understanding. But I will evaluate at the end, after I have already marked their work. And when I identify how many pupils got how many questions correct and how many of them got how many questions wrong, that is when I am evaluating.

R: When you give them the exercise, do you allow them to collaborate with each other when attempting questions?

T4...I don't like letting them collaborate except during class discussions.

R: Ahaa, specifically, in regard to the exercise that you administer to the pupils, do you allow them to collaborate when attempting the questions?

...no thank you! This is about determining the pupil's ability through attempting exercises. Of course, there is opportunity for pupils to collaborate. That is only when the whole class discuss working examples…and they can also collaborate when doing remedial corrections after marking, when we are discussing what they would have done correctly to get right the whole questions or parts of the questions they got wrong.

...However, another approach, personally I like using it. For slow learners who can learn at the same place with their peers. When you administer an exercise, there are some pupils who can complete working quickly. I mean, the fast learners. So, the other technique I use, I usually take the fast learners and mix up with the slow learners. Of course this takes place after I have taught when they have done the exercise and I have marked their work.

....having done that, then I put them together and make them pair with those who are able and less able learners as friends in a way. They learn together as friends, and indeed this is a very helpful strategy. In that way they coach each other. You know they find it freer than when discussing with teachers. You know it, that some have some fear. So you (teacher)

have also to find any strategy for them to consider you a friendly person. So, you can work with them, and it is in that way that you go along with them. So the additional point here is that, I let them collaborate in working out the areas that need correction.

R: After putting together the able and less able pupils, specifically, what instruction do you give them?

...I can explain to the able pupil to help the less able peer on particular lesson aspects. Let's say, I help this on borrowing or subtraction without borrowing, things like, tactics borrowing in subtraction.

R: Thank you T5, let's hear from T7, tell us briefly, do you allow the pupils to collaborate when attempting the exercise?

T7: For my case, when I finish teaching by giving the exercise. I don't allow them to collaborate in doing the questions because, my aim is to assess each pupil individually. I want to see if each pupil has been able to understand what I have been teaching them.

 ...but when I am teaching Mathematics, I involve them, for example; I can pick one pupil to attempt a question on the chalkboard. When the pupil completes attempting, he or she may ask the class (peer pupils) about his/her correctness, the peer pupils will answer. So, they do collaborate in that way. But when I finalise by giving them work (exercise) to do, I don't allow them, because I want each pupil to do the work individually so that I can know whether or not each pupil as an individual has understood…

R: Ok T6, again, please give us your experience. From your experience about allowing pupils to collaborate in doing the exercise, when do you allow pupils to collaborate? Is it before or after you have marked their work?

T6: In my case, what I usually do when I am teaching, I like first dividing my class into columns, first column, second column, and third column. Therefore, when I am teaching I keep it in mind that I have three columns of pupils. I teach conceptual aspects of the lesson that I target. After teaching the conceptual aspects I target for the lesson.

...then after teaching the conceptual aspects, in order to assess whether or not they have understood; I prefer picking one representative (peer) from each column. I give one question for them to work on the chalkboard. I ask them to do by choosing one peer pupil from another in the second column and another one from the third column. I give each of the peer a piece of chalk to work and the rest of the pupils will attempt the same questions in their exercise books individually.

...therefore, three representatives (peers) will do the questions on the chalkboard and others will attempt the question in their exercise books individually. My job there will be to move around the class during which I also check their speed of completing the task.

...the chosen peers will do the questions until when other pupils are comfortable about correctness of their peers' work and answers. I confirm by asking the class if their peers are correct or not. At the same time I will be evaluating (checking) which one and how many pupils complete attempting the question on the chalkboard. They will give answers by putting their hands up. In that way, I get the answers...

Appendix 21: Sample of transcripts of video clips of teachers' group meetings (November, 2011)

At minute 1.05-20: All teachers agree about questions for exercise: a teacher should construct questions before the class session, and as the class discussion proceeds.
T5 asks: can we give example?
T1 explains: it means that, the kind of questions construction will sometimes originate from that error analysis within the period;

T5 picks up T1's explanation: so; this (questions from error analysis) will depend on the task (exercise) that you will provide;
T6 explains: do you know how that happens? This happens when children swap their exercise books, so, of course it is not possible to get ten out of ten (all questions) correct, you can find, some may score two out of ten. Then you have to find out in the questions they got wrong, what the problem was. It is such questions that will force you to give clarification and construct other questions. So it is not when the period (lesson) is in progress, you have to construct other questions of similar kind. But previously we were not doing that, you (we) teach, you take questions (from textbook and give to pupils), after that, you collect exercise books and take them to the staffroom (for marking). If you find one of the questions was not answered properly you plan to work on it the next day.

T6 continues: Another thing what I have discovered is that; to some extent, I have discovered that, through this approach, getting a hundred percent can rarely happen, but if you have taught the lesson today, this approach is good unlike when you give….[*nodding, granting and body language implying that it is not possible to get correct all questions, in a sense of one hundred percent*]

T8 starts by responding to T6's explanation: In my view, I see that you (T6), your explanation is mainly based on zero time (administering exercise at the end of the lesson/period) and not pupils attempting questions during class, and in my case what I was doing, of course I constructed questions in advance. When a problem emerged during the lesson in the class, I mean if the problem emerges through error analysis. What I mean, I mean that, I set questions before class, THEN, when I get into the class, I give some introduction (about the lesson), I teach and discuss with them (pupils), and afterwards, I give questions (exercise). This means that after they have completed we (collaboratively) mark in the class and THEY CANNOT get all questions correctly, and if it happens one (pupil) score **all correct!!!**, then we (teacher) have to ask ourselves, how this happens **eerh??** THEREFORE, THOSE QUESTIONS are completed in the class and you (teacher) make correction (discussion) and it is when some errors for discussion emerge. The point (worry) that some pupils get correct because of peers' support, I think this is when you administer at zero time:

T6 expresses misconception/doubts about intervention requirement he says: however, someone may correct me anyway. In my case I remember, If I have not forgotten anyway, we said in this approach, we can give pupils homework daily, that, in the evening when pupils leave school for home, one is supposed to give them some questions (isn't it?).

T8 replies to T6: no it is not a must to do so
At minute 3.11 T3 also clarifies also responding T6: it is like this, you can construct, let's say 10 questions, when you are in the class you can give an exercise you can write on a chalkboard, let say five questions. When they have (pupils) done and you have taught, thereby, you can identify errors. Then give the rest of the questions. But in regard to the errors observed, you can start discussing them at the beginning of the class.

Other peer teachers nod, grant their head implying that they agree with T3's explanation: mmmh:

T7 takes back the discussion on T6's point of children being helped by peers and his (T6) malpractice view, T7 says: but I see that there is something that you (T6) wanted to say, that there is this view a child can be assisted by her relatives or friends (peers), as a teacher you can provide questions, but the child gets the questions right (correct) mainly because of being helped by relatives at home. I think that the point that you (T6) wanted to say! Is that what you wanted to say?. **T6 responds**: Indeed, and THIS IS WHAT I CAME ACROSS, according to this approach, besides the teaching in the class, it also helps the child to be taught by part of the community, that is, their parents or relatives. **T5 joins and supports:** This enables the pupil to be taught by part of their community or their relatives. In this way, the child can get more knowledge apart from what you (the teacher) give. I come across this, may be, s/he can get assistance from a relative at home, you may find she is doing it well. I think it is a point T6 wants to make here.

T5 poses a question about CPPA
T2 responds: at the same time it (CPPA) enables you as a teacher to cover teaching of the topics in a class a bit faster.

T6 picks up what a peer (T2) has said: If I get you well on this, what you are saying is that, one may find an exercise in the textbook that consists of 25 questions, and you find that the first five questions are of one type (assessing same thing). **T5 five agrees/supports**. **T6 continues**: mmh then **supports/agrees also**: you find they are of the same kind, **T6:mmm** now according to this approach there is no need to administer them all; what you have to do is, you take two questions as sample (representative), you check them, you can find the sixth one (question 6), the eighth and tenth, now you just take only two to represent those three. In that way, instead of taking all twenty-five questions, you may find you are taking only eight questions instead of doing all twenty-five. This is what the guy (T2) is talking. I think this is what you are saying sir (T2). And I think this is what has been in actual practice of this approach. I mean that it gives us a way of selecting only what is required (relevant questions in respect to lessons at hand) (at minute 2:48 - 3:38)

Between 0 and 1.04minutes: Teachers continue reflecting on the intervention content, in contrast to what they have internalised and what they actually or currently do in integrating the approach in their classroom teaching.

Between minute 1.06 and 1.31, **T3**explains her new way of conducting a lesson introduction based on outcomes of marked work that entails carrying out error analysis of pupils' responses in the exercise. T5 follows: **mmh!**: T3, I mean, in my case, for introduction I gather all error and begin the class by discussing them. T5 continues to follow: **mmh**; T3 continues. First I take one question for clarification and they discuss the rest of errors (problems observed) in pairs and work on chalkboard. I want them to use and participate in discussing the errors observed to discuss and work on the chalkboard and at their seats.

T5: Also reveals a similar practice: My experience is also close to that; I was just asking for clarification. I mean I get in the class, begin with the discussion on the questions which they (pupils) did not get correct. This is done by discussing one question after another. I give clarification, more elaboration on particular aspects (of the questions) that appeared complex to pupils. A few pupils can attempt to work on the questions. Indeed, the questions that were complex can be further incorporated in the next work (exercise).

At minute2.03T5 poses a question to peer teachers: How do we find this?
T1 responds: I think in regard to how to provide the exercise and pupils attempting it, everyone has his/her own way. In the sense that, as we have heard here, one can begin with questions identified through error analysis before explaining what he or she expects to teach. Another one can begin by giving clarifications about what he or she expects to teach and show connection with the problems identified through error analysis in the previous exercises. So, in regard to providing questions for the exercise and pupils attempting the exercises, it mainly depends on how you think the exercises can be done or how to use the outcomes of the exercise. BUT IT IS IMPORTANT that, this provision and explanation on the way of doing this exercise should be within forty minutes. Remember, there must be an introduction and other stages of the lesson according to the lesson plan. Thus, introduction must be done just as we have heard (reported).

T5 poses a question? Does this mean that from our discussion there is only one thing important to consider?
T6: paraphrases T1's explanation by trying to match the reported practice and the intervention requirement (expectation);
But **T8** intervenes by saying that, let's talk on our actual experience.

Between minute 3.48 and 4.13 T8 says: let's talk what our experience has lead us to, I mean when should we give exercises? At the beginning, somewhere in between or at the end of the lesson, and why! In my view I think this is what we have to talk about, because this is what we have been talking about from the beginning of implementing this approach. [*here T8's point is that instead of narrating what they are supposed to do according to the intervention prescription, they needed to focus the discussion on the outcomes or experiences*]; **T5** picks up T8's concern he poses a conceptual question: Let me also ask a question, what do we mean by saying at the beginning of the period? Do we mean when we have done error analysis after marking?

Between minute 4.14 and 6.06 teachers debating on the aspect of time, whether the approach saves or demands more use of time?

T1clarifies his own views about time: Personally, I agree it takes short time, but in a sense that, this approach of providing and attempting questions help to cover more topics but not that of short time for pupils to complete the exercises. *T1 defends his point of view by reminding peers on what they reported about needing more time as a challenging aspect.*
T1 continues: I remember when we discussed the shortcomings at the beginning of this approach, we found that, provision and attempting questions in the classroom takes a long time.
T3 also shares a concern on time aspect: it took more time which sometimes overlapped with next period.
T2 tries to sum up: We need to say that; it saves in a sense of covering topics.
T1 agrees: eeh (yes): that, it saves time for completing contents of the topic, but it is not only saying it does save time. I mean this way of providing and doing exercises at the beginning or any time during the lesson, it helps the teacher to cover topic in shorter time.

Teachers discuss and reveal perceived weakness about marks and grades as T6's remarks: This approach creates classes (segregation) between those with high ability and low ability. For example, when I was engaging them (in CPPA) other pupils were hiding their exercise books. If you don't note down the total number of pupils, some may not swap their exercises, you can find that other pupils don't get exercise books from peers. This means, some hold their exercise books back because of marks issues!

T9 supports: that is true, it happens particularly at the beginning of using it (CPPA). **T5 probes further**: what does this mean? **T6 replies by insisting:** This initially seems to create classes between more able and less able pupils, this is true indeed at the beginning. **T4**: so it creates classes between those with high ability and those with low ability, this is really true but eventually only few remain but majority cooperates as we have seen in my our own classes and that we observed in many of the fellow teachers.

Between minute 2.31 and 3.36T6 continues: from this approach, what I see…what I have learnt is that, previously (before intervention) we were simply using the pupils attendance book (register). I mean that you just already know you (say) have eighty pupils (for example). You simply look in the teacher on duty's register, but nowadays (with this intervention implementation), if the registered students are eighty, if sixty of them attend class (school) then I deal (do evaluation) with those sixty only, the rest (twenty) I don't consider them in lesson evaluation. **T1 agrees with T6's revelation he nods his head and utters** yes, and comments: therefore this (approach) helps in writing a more realistic evaluation. **T6 agrees**: ehee (that's it) it helps in writing the actual percentage if you want the quantitative part of evaluation. **T1 adds another point/emphasis**, thus, it helps in writing good [precise] evaluation of the subject. Lesson evaluation is based on actual number of pupils who attend school rather than basing on registered number of pupils.

In a duration of 0.00-54 seconds T6continues: this then helps to understand more the exercise you give to pupils, WAS IT SIMPLE OR DIFFICULT? This means if it was difficult, you will find few pupils getting the questions correct. I don't know if you understand my point guys. But previously we were doing *chwaa*! *Chwaa*! [Cursory marking], then, ask class monitor [or monitress] to collect the exercise books, THIS approach give the picture right in there (in the class). You can use even that chart (formative score chart) to find out which pupils got which questions correctly. That is, how many got the fifth or first question correct. IT GIVES YOU THE PICTURE INSTANTLY.

T5 presents a different opinion or experience
However, at **between minute 2:35 and 3:00 T6 adamantly repeats to reveal his experience and point of view**: on my side, up to the time we closed schools. I was not collecting exercise books for marking in the staffroom or home. We (T6 and his pupils) were marking just in the class and to be certain on who got what, I was taking total number of pupils to be certain if it is really sixty, after we had finished marking, then I asked who had got ten out of ten? Nine? I took the statistics, so I got the exact picture right there in the class…

Appendix 22: Sample of participants' reaction about the intervention elements (T2: 3.13 minutes duration)

English version of the response: I really see this will be difficult to **do!**. Here, in primary school, we have one thing, assessment, which is something done when the period ends, I mean after the class you have to comment whether or not what you have taught has been understood. And the criterion for commenting that what I have taught has been understood, it's how the exercise has been done [performance]. But now, it seems that the exercise can be [has] been done after two days! This means that no criterion, no evidence for each lesson. This means that it will be difficult to make decision on whether or not this and that, what I have taught has been understood. Also the exercises are in a sequence, I mean to know if today I teach addition, tomorrow I teach division, the next day I teach multiplication, but this means that if today I teach subtraction I have to confirm that the (children) have

understood to do subtraction so that I can teach them division, and how do I know they understand subtraction! It's the exercise. Then if there is no immediate exercise, does this mean that like today I teach subtraction, tomorrow division, next day multiplication then I give the exercise! Then I come to recognise ahaa! They did not understand about subtraction! Should I go back to teach subtraction again? Ooh in fact that will be very confusing. But even then, concerning questions, for us teachers' developing our own questions is very rare. On top of that, if you look on our teacher guide books, it is said teach this and examples are this and that, then the exercise is number seven. They have to do that particular exercise. You see what I mean eeh! And the exercise is included in there in the textbook. So you just teach afterwards, then, you simply tell them open page so, do exercise number one say questions one to ten. So the approach you are saying requires conditions; this and that. This means that you (the teacher) have to make your own questions for the exercise. What does this really mean? Does this mean that, we (teachers) have to stop using the exercises provided in the textbook such that you (the teacher) will be teaching and using their own made questions for the exercises? How about the exercises in the textbooks that we are already directed to use that are in the teacher guidebooks? khe khe khe! [Laughter]

Appendix 23: Sample of the feedback information that I compiled and sent through email to intervention teachers in Tanzania (October 2011)

3. Summary of things that we agreed during the last whole-group sessions

This communication intends to brief and give you a summary of the things that we agreed in the last whole-group sessions before I left you to continue with the implementation. It also aims to brief you my understanding compared to your understanding of the intervention proceeding, and get your comments if any. I have also added few things for emphasis or added some explanations which in my view I think can be more helpful or useful in continuing to implement some elements of the intervention.

3.1 For error analysis of the exercises that you administer to facilitate teaching and learning in the manner that you were attempting, and as we discussed and agreed in the whole group meetings. I recall that we agreed on four main things about error analysis.

(a) The teacher to identify errors by taking a sample of pupils' exercise books that represent the main errors that you notice during marking in order obtain main groups of errors for classroom discussion.

(b) The teacher to identify and interpret types or categories of emerging errors and identify what the errors indicate about aspects of the lessons the pupil (s) specifically understand (can do) in contrast to the aspects of the lesson the pupil (s) do not understand (cannot do) according to indications (impressions) of the observed errors in the exercises. That is, the teacher to try to discern the possible causes of the observed errors and implications to pupils' understanding.

(c) The teacher to decide what and how to conduct remedial teaching (including its sequence) if need arise so that pupils can learn what they don't (have failed to) understand according to indications or impressions from the observed errors.

(d) Prepare another exercise which captures or reflects the observed errors and how to engage pupils in collaborative pupil peer assessment in order to facilitate more pupils to understand what they seemed unable to learn and understand according to the error analysis the teacher performed in the previous exercise.

3.2 After doing the classroom observation we observed that for administration of the exercise to be part and/or to facilitate more about the teaching and learning of the

lesson in the manner that we want, there are certain things for the teacher to observe which include:

(a) The teacher to stop (not) to personalise the errors, i.e., give oral feedback (explanation) and discussion about errors not to imply as a person's fault but the teacher to explain and guide the discussion in ways which imply particular misunderstanding of particular lesson aspect exists. For example, as we discussed and agreed that to stop habits such as asking all pupils who got wrong (incorrect) on particular question (s) to stand up. As you may recall, we observed and deliberated that it could be psychologically discouraging for some pupils to take part in the class discussion. Specifically, you may recall we observed that such practices lowered children's confidence, we deliberated some could feel 'foolish', feel ashamed. We also mentioned that even practices of asking pupils who get all questions correct or got most of the questions correct to stand up and ask the class to clap hands for them could stir competition divert the attention and focus of class discussion on respective strengths in the answers. In principle, it was agreed that as usual it is the responsibility of the teacher to create a friendly classroom climate for all pupils to participate confidently in attempting exercise and discussing the outcomes of marked work. As you will further recall, we discussed various strategies including the teacher to asking pupils who feel can attempt or who attempted correctly to explain or demonstrate for others by explaining/pinpointing (e.g., on the chalkboard) or to peers the source (s) of errors and how to do it correctly, differences in their work. We insisted explanation (talk) should be in a manner that it is explaining or illustrating to others and not 'correcting' others' works.

(b) The teacher to try as much as possible to minimise whole-class-chorus answering style, for example, recitation such as *yes*, *no*, *it's ten*, *it's west*, *he's right*, *he's wrong*, *she's got it correct* etc. Yes! Remember, we noted that in real classroom situation, because you as teachers and pupils as well are used to whole class response. Therefore, it's not possible for the teacher to avoid completely the chorus (whole class response) answering style. What we agreed was to minimise the style and gradually this classroom culture may disappear and eventually class discussion be more focused and insightful.

(c) We specifically discussed and agreed that briefing (introduction) of the teacher is very important in encouraging pupils to attempt the exercise. Pupils become active, implying that pupils' attempting of the exercise or discussing the outcomes of marked work is part of teaching and learning of the lesson parts and not signalling to pupils that it's time (session) for them to be evaluated on what they know, about who know versus who doesn't, who know more versus who know less or nothing, the more able to do versus the least able to do etc.

(d) We also agreed that the teacher should do enough to identify or ask those who got the questions wrong to come forward and ask other pupils to provide alternative views or understanding, if any, as per the observed mistakes in a mutual and collaborative ways.

(e) The teacher to cultivate a culture of picking up from pupils' errors to explain or to arrive to the right learning information or understanding instead of the teacher not discussing further the incorrect responses of some pupils, continue searching for the right answer/responses from other pupils or simply ask whether it is correct or not. Here you will remember that we discussed the teachers to stop or minimise moments of asking or giving gestures that imply asking pupils' to say (simply judge) their peers' responses (attempt) as correct or not correct.

4.3 Once again let me repeat, about key aspects in keeping records of your implementation experiences in your research notebooks. You may recall, we agreed that record keeping should observe the following things:

i.   Particular aspects of the intervention (s) that you are able to implement

ii.   When? (it can be once, few times, all the time, on a particular date etc)

iii.   How did you implement or do it? (it might be in accordance with what we agreed or according to your own initiatives/creativity depending on particular situation)

iv.   What do you experience in terms of difficulties, challenges? Gains or good things thereof?

We also agreed that record keeping should not be too formal like every day or after every lesson!

Further, in regard to difficulties and gains/usefulness about a particular element (s) of the intervention one should not necessarily strain himself/herself to tell the two sides of a coin in the sense of advantages and disadvantages as in a debate situation in the sense of trying to rationalise between advantages and disadvantages. That is why in the end we would expect to be realistic in the sense of telling what one really experienced by implementing the particular element (s) of the intervention in a particular manner to explain or illustrate how it helped or facilitated the teaching/learning of the lesson or how or why it was not possible or too difficult to implement.

Up to this stage of implementation one can decide the specific aspects of the intervention to focus on. It's optional; one can try out all part of the aspects. Remember we agreed that one can manage trying out just some of aspects of the intervention. What I insist to you is to be realistic, as I have been all along kept on reminding. Try and pick up or implement what seem or you find doable for you.

Appendix 24: Sample of interview teachers' views about the training process

T1's views about the training and support process

R: What are your views about the training to support you to understand and implement some components of this assessment approach?

T1: For sure I find myself making a comparison between this approach and the previous ones. I have been lucky to have attended two seminars about paradigm shift before this one. The first one was done by our head teacher; he attended a seminar and later came to train us at school. Honestly, we did not get anything substantive from him. The second one was facilitated by school inspectors. We found that the inspectors were simply instructing us on what to do about what they seemed to have been directed. With this approach things have been different. What has been interesting in this training is that, we (teachers) can ask reasons for doing our assessment in certain ways. So, we could discuss, get the justifications for change and reach a consensus collectively.

R: mmh

T1: Yeah, this was good because the researcher was flexible to take into consideration our views. You were flexible to include what we found useful and practical, worked with us to come up with what we all agreed to be the best approach to implement. We were dropping out what we found would not work or change it.

R: mmh

T1: Yeah another thing is cooperation by heads of schools and participant teachers was another good thing I noticed. For example, my school head gave us permission to work in line with the research requirements though he liked to be updated about our progress. We were exempted from other requirements of *mhamo wa ruwaza* (CBC) especially paper work related to completing lesson plan books.

R: Which aspects of the *mhamo wa ruwaza* that you do not like?

T1: For example, we (teachers) write about pupil evaluation of the lesson. Look, it is the teachers who write comments about pupil's evaluation. Honestly, there is no teacher who asks a pupil to write the evaluation in the lesson plan book. That is not there, it is us teachers who write the comments.

R: In your view which aspects of the training and support process that have been useful in understanding the component of the assessment approach?

T1: When I speak of a *mhamo wa ruwaza*, I think it is the curriculum developers who sat alone and may be included few others like school inspectors. They discussed and just decided that if they bring this (*mhamo wa ruwaza*) to teachers, it would work regardless of whether the teachers will like it or not. This means that the teacher is supposed to be involved from the beginning throughout and have to be free to give their views about what they see as useful and not useful because they are the main facilitators in the class

T1: I suggest this approach would continue and be emulated. We discussed and deliberated on which aspect to include and exclude in the sense that we were sharing views. We were excluding aspects that we found were not working out in implementing this approach depending on contexts of classes and view of a teacher. For example, we found pupil peer pencil marking was not practically possible for some lower classes or for other teachers.

T1: Another thing I found useful was about peer visits and observation. In visiting each other we first visited peers in teaching in the same school and afterwards we visited peer teachers teaching in different schools. Visiting each other helped in understanding much because among other things, one could find and learn strategies used by peers, ask and discuss about it. Through the discussion we continued and learnt much about the intervention from each other.

T2's views about the training and support process

T2: During the visits I was also able to observe how I prepare exercises compared to peers, share ideas, get comments about strengths and correct each other, so this was helpful learning about the intervention. I mean in one or another, the peer group discussion has strengthened us…

T2: …our discussions in group meetings, for instance, presentations in meetings in school visits we could correct each other on many issues. At the beginning we could find some peers who prepared lessons and assessment by simply copying from textbooks and adopt everything. These were things that we could correct ourselves even before you (the researcher).

R: Almost everyone says, at the beginning you mentioned that you find yourself comparing the approach used in this intervention and that which was used for introducing the *mhamo wa ruwaza* (CBC). What is it that you find as a difference in particular if any?

T2: Comparatively, those who introduced *mhamo wa ruwaza* did not come direct to discuss and teach us. There was also no arrangement for us to coach each other. On top of that, there was no follow up as we have done in your case; I mean there was no presentation for correcting each other on different aspects. For example, discussion of concepts, meaning, nature of specific aspects and their link to questions for assessment, aspects which one needs to identify. Instead only school heads went for seminars to be told on what teachers should do in implementing the *mhamo wa ruwaza.*

T2: Even today I just have the lesson plan book for *mhamo wa ruwaza* but honestly I know little, but, unlike for this one, this approach. The way we have been doing, I can show other teachers how I plan the lesson and the assessment. Surely, I see the work it was relatively easier to understand components of the intervention. When I asked to present to others, I can explain about confidently…For example, when I prepared questions somehow contrary to requirements of the intervention, my colleagues could correct me. So discussions helped me catch up aspects according to the intervention requirements.

T2: You observed how we observed each other's class work, afterwards present and discuss the observations in group meetings just as you demonstrated and coached us.

T4's views about the training and support process

T4: Peer classroom observation was good because I could see how a colleague used aspects of the intervention and other strategies they developed, how one starts and engages the children in discussing assessment and other lesson activities in the class.

T4: In my view, the other thing I find useful is classroom observation. For example, if I wanted to implement something I invite or go with a colleague to observe me in the class. Afterwards we held discussions during which I could understand my weakness and what I would have done instead.

T4: To be honest at the beginning we were not very clear about your expectations and requirements. But after discussing your exact target and requirements, we managed to

make progress….but the start was difficult. Indeed, were it not for the initial discussion for clarification of expectations about the assessment approach, we would have committed a lot of blunders and not developed our standard to where we are now.

T4: Face to face meetings about class (lesson) between ourselves helped to determine whether each other's understanding and actual use of assessment work were correct according to the aims of the intervention which included the extent of engaging children in learning...

T4: You communicated with us and gave feedback to guide us where we slipped back, you explained to us about implementing components of the interventions you corrected us.
R: What other views do you have about this approach of supporting teachers if any?
T4: Participation in the intervention through discussions has been advantageous to me. For me it increased more knowledge and passion to work. Through collegial relationship with other teachers, I could know who is better to consult when I face a particular problem or challenge not only about assessment but also about teaching as a whole. Therefore, by participating in the intervention we have established more collegial, relations depending on the context of our work.

Appendix 25: Sample of T1's implementation and post intervention data sets and profile

Part A: Follow up interview transcript with T1 about his initial experience of implementation in May, 2011.

R/T1	Conversation	Comment
R	…I have no more questions to ask on construction of exercises. Let us now share your experience about pupils collaborating to discuss assessment work. What happened when you explained to them about the new way of discussing assessment work?	1
T1	…honestly, before I explain other observations that I have made, explaining to children softly in the way you said, as we agreed in the meeting. I found somehow difficult. Although we said not to force pupils who don't want to share their work with peers. Honestly, I found struggling like what T3 said in the last meeting.	2
R	…mmh	3
T1	…you know when you tell children softly, sometimes they are slow to follow. Other children are just stubborn, this is normal. Pupils are sometimes naturally stubborn especially when they are in a group..	4
R	…can you tell me what you asked but they did not follow, which aspects did you find difficult according to how pupils responded?	5
T1	…you know when you tell children softly, sometimes they are slow to follow. Other children are just stubborn, this is normal.	6
R	…can you tell me what you asked but they did not want to follow?	7
T1	...for example, you will see this when you come in my class. Asking pupils to share their work is an issue. I think, some don't want peers to see their answers in exercises. You know, when we return the exercise books, after marking, for some children even touching their exercise book is an issue…eeh!	8
R	…mmh	9
R	…in other discussions, you told me that, because of participatory method, you put pupils in group to discuss as part of teaching, are they also resistant?	10
T1	..ooh! they have no problem on that, because in those group discussion, there is no exercise work…	11

Part B: My classroom observation notes in T1's initial implementation of CPPA in July 2011

Upon entering class, pupils stand up and greet their teacher (T1). Then, T1 introduces me to the class and then he proceeds with his lesson on addition by carrying. He explains and writes some work for illustration on the chalkboard. His voice is loud enough for all pupils to hear; he appears confident and displays a sense of being approachable by pupils. He sometimes moves around the class in attempts to reach some pupils when asking questions, listening to or when picking up some of pupils' responses. However, his facial expression and gestures do not display a sense of encouraging the pupils to elaborate more about their responses. Some pupils work on the chalkboard and explain to the whole class confidently when asked. But, some pupils appear avoiding and unwilling to work the questions on the chalkboard or express their thoughts when T1 poses questions to the whole class. T1's comments, tone and gestures that constituted his talk to individual pupils and whole class are more pinpointing to pupils as individuals rather than their responses in the assessment work that was being discussed.

Part C: Post class interview with T1 in July 2011
R: What can you say about participation of pupils in the lesson today?
T1: They were generally ok, they were following the lesson, generally, they were active
R: But I noticed moments of pupils remaining quiet, why was this?
T1: You know, children, some days they are active but sometimes not,
R: Why do you think this happens, what make pupils for some days to be like that?
T1: In fact, if you don't ask them questions, point one to work on the chalkboard, to be honest, the class can be less active more than what you saw them, today
R: Ok, but what makes you judge they are active?
T1: To me, when they quickly respond to answer questions or go on the chalkboard. This is what we talked about in the meeting. Yeah, also this is similar to what Mr. T5 talked in the last meeting, we need to work more on this. In most cases my children are active when we do corrections session. You will see changes when you observe corrections. You can come on Wednesday, in the morning if you are not going to other schools. The second period on Wednesday, in the morning is Mathematics
R: Ok, yes, I will come, then, from there we can talk more about this
T1: Ok
R: I have another question. I saw some pupils were avoiding facing you sometimes. They turned their facestoother directions or appeared busy looking down their seats in an attempt to avoid not being asked to give an answer or work on the chalkboard. Some of them appeared uneasy when you moved close to them. Is my interpretation correct?
T1: There you are! This is a challenging thing. Some pupils simply feel shy to express their ideas. Others think they can be looked down if they provide wrong answers. You remember, we discussed this in the last group meeting, such kind of pupils are always there. You cannot miss them in any class. Getting such pupils to come out or speak out their answers or to put up their hand is just difficult.
R: Is the situation the same when discussing errors observed in marked exercises?
T1: Yeah. As we have just discussed, you will see more when you come to observe my class on Wednesday during correction and remedial session.
R: That is fine, we will discuss more afterwards, is that right?
T1: Surely, because though nowadays they like discussing each other's work in line with this approach (CPPA), there are still some of these difficulties…
R: Ok…

Part D: My classroom observation notes in T1's correction cum remedial class using CPPA
CPPA in July 2011
T1 begins the correction session by pointing out that, almost half of the pupils did not manage to attempt question three and five which involved addition by carrying. Then, he turns on the chalkboard to write three sample worked questions of peer pupils. As he was writing the incorrect work, the pupils were watching, whispering to each other and at some moment appeared to amuse at some of their peers' work. He then asks the class to copy down and discuss in pairs on their seats. T1 turns to the class and asks a question: "what are the weaknesses in each of the three work about question three?"

Part E: post class interview on T1's on remedial class observation

R: what else did you find today about pupils discussing each other's work apart from the challenges we discussed last time?

T1: Today they were ok, few of them of course were still a bit shy to swap their work or be ready to work on the chalkboard.

R: I noticed some pupils were whispering and amused their peers' work that you wrote on the chalkboard for discussion. Did you notice that?

T1: Yes, I did. Indeed, that is common for them in regard to incorrect work. They just take part of the incorrect work as fun, I mean making jokes.

R: Having fun is not a problem, but how it is done, that can be a concern or can lead to harm, what is your view on this?

T1: This is obvious, because they know, a 'bongo lala' has been asked, who cannot do anything, but some pupils are sympathetic anyway.

T1: Indeed, for example, the day before, yesterday, in standard three, what I noticed, I noticed this, that, when you asked a pupil who other pupils know 's/he' will not be able to give the answer, it is true, I saw others were whispering, gesturing, like saying let us see what is going to say. This is interesting, I think I need to work more on this.

R: why do you think they do that?

T1: i think i need to find out more about this and later share with you in our next group meeting.

Part F: Extract from T1's feedback form

Encouraging pupils during corrections of exercise to achieve good teaching, this is also a challenge that I have encountered in this approach., especially for those pupils with low ability, a feature of fear, shame, lack of confidence to speak and not to participate in the discussion. in our approach, when you make corrections, it touches everyone, especially with these characteristics. So I become unable to be able to touch them all, especially when I consider that I have already taught and I consider this (correction) just as revision. This is the part which is giving me difficulties (T1's comments in feedback form, 2012).

Part G: First interview in February 2012

R: Tell me your experience about preparing questions for exercises before teaching lessons in the class.

T1: About setting questions for exercises before teaching. Initially, I was setting exercises depending on questions that are provided in the textbook. But after meeting with other peer teachers, we shared and I started setting questions using different references. Especially after meeting T4 who advised and borrowed me a textbook published by TIE. At least the questions in textbooks by TIE are more detailed. Before meeting T4 I was using only textbooks published by MTURE in which most of the questions do not cover most of the details of the lessons. The conditions for setting questions for assessment we discussed and agreed for this approach. I mean aspects of previous lesson and possible misconception related to the current lesson. So having obtained textbook by TIE from that peer teacher alongside other textbooks I prepared questions that cover almost the main aspects of the lessons. But, I have also been including my own made questions in order to enrich quality of exercises.

R: mmh

T1: So what I was doing in setting questions is, perusing different textbooks to see the aspects of lesson which the questions cover what I intend to teach; the respective objectives and ways in which I expect to assess the children. So I have to analyse, sort out questions as agreed in this approach. That is, questions have to address different parts of the lesson, including aspects that are challenging for children to understand. Therefore, I can have different types of questions that cover different objectives. That being the case, I was first sorting out and then decide which ones to include and use in the class. That is what I have been doing in terms of setting the questions. I was setting questions before class in order to be certain if they meet the conditions that we agreed. I have been preparing questions for exercise as part of my lesson preparation before I get into the class.

R: mmh

T1: mmm But at the beginning of taking part in this intervention, I was struggling to set questions before teaching. Honestly, at the beginning of implementation, let's say, if I have a class in the morning. I was just simply checking at the questions provided in the textbooks, and see which ones matched with the aspects of the lesson I intended to teach, and just picked some questions for the exercise.

R: mmh

T1: But now, after gaining experience with peer teachers. The thing is, provided I know what I will be teaching. I can set questions even while at home before coming to school. Gradually, I have been improving. Initially, I was using mainly questions provided in the textbook, but now I no longer do that. I gradually mastered preparing my own questions at least a day before teaching.

R: do you have any other comments about your experience of constructing questions according to the intervention?

T1: eehh let me add, I have another thing about construction of questions for my assessment and evaluation. After they have done exercise and after error analysis, I was using questions which I found difficult to pupils in evaluation of the lesson…eer, for example let me show you one exercise book which has been on my interest today…Among the questions that I had given the pupils, some of them asked pupils to write some numbers in words. For example, this questions eight which was about five hundred and five. I had written the question in numbers and asked them to write in words. For this one (pupil) and some others got it wrong. So, in interpreting, after running error analysis I found that this was one of the questions which was challenging to many of the pupils….

R: specifically, what was challenging for pupils about question number eight?

T1: eeh you mean, eerh

R: I mean, based on these errors what will the clarification to pupils be about?

T1: for clarification in the class in relation to these errors, this means that I have to revise the concept of hundreds, tens and ones including how to read them. Before starting these, the first thing to do is reading numbers that are in hundreds, tens and ones. We will start with the task of reading before writing numbers. Then afterwards we focus on writing numbers. Therefore, I will go to teach about how to read hundreds, tens and ones, then, focus the clarification on the concept of place value.

R: What have you planned to do in the class based on these errors?

T1: what I have planned, you know what! what I have planned to do in the class is. I will take question number eight and nine. I will write them on the chalkboard. Then, I will ask pupils who got the questions correct. Also, I will ask pupils who got the questions incorrect by writing fifty five. From there the discussion will proceed by asking pupils to explain the difference between the incorrect answer fifty five and the correct one, five hundred and five. This means, the pupils will explain about their peer who wrote answers of fifty five and the other one who wrote five hundred and five. Then discussion would focus on who is correct and who is not correct by giving reasons for each of the two answers. Then I would focus my clarification on numbers with zero.

…I have planned to take question eight and nine, I first write this question eight on the chalkboard then search for a pupil who got it correct to write the answer on the chalkboard, take another pupil who wrote the answer fifty five. We discuss and let them find out why the one who got fifty five is not correct. They can also say something why the one who wrote five hundred and five is right, we can discuss which is correct and which is not and why…

R: What else will you do?

T1: I will also add other questions which are very similar, for example, I can include questions like 209 to 259 in order to see if they are still reading twenty-nine and twenty-five and nine which is mainly due to the inability to identify the values for hundreds, tens and units in a given number value. when composing the exercise I will emphasize on these numbers containing zero in between, for example 105, 505, 506, 606, 609, 906, 909, 309, 404, 408, 808, 804

T1: Although the questions will be fewer, the good thing is that, they will cover different aspects of the lesson. Thus, I have stopped the habit of simply copying questions provided

in the textbook and asking the pupils to do a particular exercise in the textbook. For example, instead of simply asking pupils to do question one to ten, say, in exercise number nine provided in the textbook in which it is possible that all questions test same aspects of the lesson has ceased. This has been advantageous to me, to me the teacher and to the pupils as well.

R: Any comment about the outcomes of setting questions before class to you as a teacher?

T1: Analysing to identify parts of the lesson including their conceptual connection (lesson domain analysis), I easily identify aspects of the lesson for teaching in the class, I get the key aspects to focus on for teaching and possible questions for exercises....

Also, there is no duplication of questions for the exercise, unlike before where you can find all of the ten questions repeatedly assess the same lesson aspects. But now depending on this approach for construction of the exercise where each questions relates to a particular lesson aspect different from other aspects, this is more useful to us [teachers].

Appendix 26: Extract of classroom observation for follow up initial implementing the CPPA in July 2011 in T3's class

Moment (Number)	Class conversation Key: 1. Words in upper cases means spoken with high voice tone that implied confidence 2. Words in bolded upper cases means spoken with high voice tone that implied asking for more response e.g., to confirm what has been said	Actions and interactions between T3 and her pupils
1	T3: when computing addition by carrying we begin adding digits from right to the left. Ok We begin from the right hand side leftward. She writes on the chalkboard 15 + 25, Now, each of you put up your right hand, high up please so that I can see	T3 asks her pupils to put up their right hands to show right-left flow of computing addition by carrying

Pupils listen to T3's clarification and instruction; Pupils watch T3 writing on the chalkboard, |
2	T3: while showing the right hand she utters right!	T3 repeats the instruction and puts her right hand up to demonstrate to pupils on what she is asking them to do
3	Pupils: raise up their right hands	Pupils respond to T3's instruction by raising up their right hands
4	T3: every one show and raise up the right hand Pupils: responds T3: So the rule is beginning from right, ok, gestures again	T3 repeats her instruction to the pupils Pupils: pupils put their right hands more high up T3: emphasises the point of adding from the right leftward and through gesture signals to pupils to put down their hands
5	T3: which number can we add with five?	T3 asks a question to the class while pointing to the question written on the chalkboard
6	Pupils: Five	Pupils in a chorus reply five
7	T3: is five plus…, is the answer five?	T3 repeats students' response but facially and through gestures asks which digit to be added to five
8	Pupils: It is five plus five	Pupils in a chorus reply, it's five plus five
9	T3: What do we get then?	T3 asks pupils what is the sum of five plus five
10	Pupils: Ten	Pupil in chorus reply, ten

11	T3: YES, it is ten	T3 facial expression signals commending pupils mentioning the correct answer, ten
12	T3: Do we write ten as 10?	T3 mentions and writes 10 but at the same she asks the class if what needs to be written is 10, or 0 then carry 1
13	Pupils: NOO!	Pupils in a chorus reply, NOO!
14	Two girls: whispers	Two girls seated near T3 whispers, we write zero
15	T3: So, we write zero, is it ok? Are we together?	T3 turns to the two girls who have whispered zero, her facial expression commends. She then picks up utterance of the two girls (we write zero). She writes it on the chalkboard, but also asks pupils if they think zero is the correct answer and if everyone is following the lesson
16	Pupils: YES!	Pupils in chorus and with high voice tone reply YES to show they are following the lesson
17	T3: Where has one gone?	T3 asks what happens to 1 (one ten) after writing zero in the ones position (place value)
18	Pupils: it is in our head,	Pupils in chorus reply, one is carried over
19	T3: it was our heads, now, if we add zero and zero here, what will be the answer, should we put zero?	T3 regurgitates (that one is carried over), then, adds zero and zero and without adding the 1 which was carried over, she asks the pupils if it is correct to take 0 plus 0 and take 0 as the answer?
20	Pupils: NO!	Pupils in chorus and high voice tone reply, it is not correct
21	T3: So, what should we put	T3 asks the class what should then be written (by considering the carry over 1
22	Pupils: ONE	Pupils in chorus reply, it is ONE
23	T3: where does one come from?	T3: asks where one comes from?
24	Male pupil (Kasese): from tens	Pupil Kasese replies I came from tens
25	T3: Yes from tens, it was in our heads, is it OK?	T3 agrees with Kasese's response and regurgitates, she then asks the class to confirm if everyone understands
26	Pupils: YEEES	Pupils in long chorus and high voice tone reply, yes
27	T3: it was in our heads, clap your hands, clap your hands	T3 regurgitates and emphasises the idea of carry over in addition by carrying. Then, she asks pupils to clap their hand for applause
28	Pupils: WAH WAH WAH	Pupils clap their hands in big bangs three time
29	T3: So what do we put here?	T3 proceeds by asking pupils what should be written
30	Pupils: ONE	Pupils reply in a chorus, ONE
31	T3: what about here?	T3 moves on the second question (64+19) for work example by writing it on the chalkboard
32	T3: Pili?	T3 turns to class and selects one girl (Pili). T3 signals for Pili to do first part of addition by carrying on the chalkboard
33	Pili: works on the question on the chalkboard and it's ten;	Pili stands, moves from her seat, go in front of the class on the chalkboard and writes 13 aside and says it is 13 aside, we first write 1 then carry 3 from ten
34	T3: Is Pili correct? Put up your hands. Kipiga? What do we write first and carry what here?	T3 asks peer pupils to put up their hands to comment if Pili is correct. She select one pupil (Kipiga) amongst those who have put up their hands
35	Pupil Kipiga: three and carry 1:	Kipiga while standing up in his seat, he gestures and mentions write 3 and carry 1
36	T3: is Kipiga's correct?	T3 asks the class whether Kipiga's explanation is

		correct or not
37	Pupils: YES	Pupils in chorus reply, yes
38	T3: clap your hands for him	T3 asks class to clap hands as applause for Kipiga's correct response (explanation)
39	Pupils: wah wah wah	Pupils clap hands three times, wah, wah, wah
40	T3: what should we write now?	T3 asks the class
41	Pupils: 3	Pupils answer in a chorus, 3
42	T3: What is in here?	T3 while pointing 6 asks the class what is here now?
43	Pupils: six, seven	Pupils in different positions in the class give two different responses. Some pupils reply six, other reply seven
44	T3: **WHAT IS HERE, EEeh?**	T3 repeats in high tone, again and again. Her facial expression signal that she does not agree with one of the answers (between 6 and 7) pupils replied
45	T3: put up your hand	T3 asks pupils to raise up their hands to give individual response
46	Pupils: *6, 7*	One pupil replies 6 and another one replies 7
47	T3: is 6 plus 1 here plus 1 we carried over equals six?	T3: while her facial expression and gestures signal that she is surprised why some pupils are giving the response of 6
48	Pupils: NO	Pupils in chorus reply, NO
49	T3: poses and gestures	T3: Looks at class but with facial expression and gestures implying that, it is time to raise up their hands and give the answer
50	Pupils: raise up their hands	A number of pupils put up their hand
51	T3: picked one and uttered **ENHEEE!**	Points one pupil to answer (Haji) and gestures signalling for Haji to give the answer
52	Haji	Haji replies, it is seven
53	T3: It is seven so we got the answer (7), ok, is that ok	T3: repeats, it is 7 while writing on the chalkboard, then turns to the class, and says **IS THAT COMPLETE**?
54	Pupils: NO!	Pupils answer in chorus reply, NO!
55	T3: **NO**?	T3 repeats but raises her voice tone on the pupils' NO
56	Pupils: NO	Pupils reply by repeating their response, NO
57	T3: NO	T3 repeats the pupils' response (NO) in voice tone that connotes that she agrees with their response (NO)
58	Pupils: Yes	Pupils in a chorus reply YES connoting that they concurred with T3's appreciation through her voice tone on their correct response (NO) in moment no.57
59	T3: Is there any number that is left?	T3: Asks, is there any number to be carried over (any number that is left?)
60	Pupils: YES	Pupils: in chorus reply, YES
61	T3: Who can tell me? Malulu? eeh	T3 asks the class and points one pupil (Malulu)
62	Pupil Malulu: it is one	Pupil Malulu: replies, it is one
63	T3: Did we leave one?	T3 asks in voice tone in a way that reminds the class, that one was carried over (did we leave one)?
64	Pupils: YES	Pupils in chorus reply, YES
65	T3: Where is it from?	T3 asks class, where one comes from?
66	Pupils: FROM TEN	Pupils reply in chorus and voice tone: from ten and that they are confident ten is the right answer
67	T3: from tens. We carried	T3 repeats the pupils' answer, one was carried over

	over, **YES?**	from tens place value. She utters YES in a voice tone that seeks to confirm, but at the same time connoting that the pupils' answer (ten) is right
68	T3: So what is the answer when five is added with one that we carried over?	T3: moves to the chalkboard, elaborates verbally and asks the class what would be the answer (the sum) when, one that was carried over is added to five, i.e, 5+1,
69	Pupils: SIX	Pupils reply in a chorus and in a high tone suggesting that they are sure of the answer (the sum) being six
70	T3: it is six, You See Now?	T3: repeats the pupils' correct response (six). Her talk, facial expression and gestures communicate the message (this is how do work on addition by carrying)
71	T3: All numbers follow each other in their respective place value, well arranged work. How many have understood? Have you understood?	T3: also reminds by explaining and pointing to the worked example about writing numbers in their place value, work being neat. She then asks if all pupils have understood
72	Pupils: YES	Pupils in a chorus reply, YES
73	T3: So, if I give you a question now, **WILL YOU GET RIGHT?**	T3: asks pupils if she gives them a question to do at this moment. Her talk and facial expression both ask pupils to confirm if they have really understood.
74	Pupils: YES	Pupils reply in chorus and high voice tone reply YES showing and signalling that they are confident to have understood about the lesson
75	T3: Do you mean from what you say?	Are you sure from what you say?
76	Pupils: yes	Pupils reply in a low tone perhaps to express some doubt
77	T3: Now take your exercise books	T3: instructs the pupils to take their exercise books, writes the questions for an exercise on the chalkboard for pupils to copy down and work in their exercise books
78	Pupils: Writing an exercise in their exercise books	Listens to T3's instruction, opens their exercise books, copy questions from the chalkboard and work on the questions individually and quietly