

**A comparison of learner responses to different  
types of feedback provided by teachers in formative  
assessment tasks**

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**15 March 2012**

## **DECLARATION**

I declare that this research report is my own, unaided work. It is being submitted to the School of Education in partial fulfilment of the requirements for the Degree of Master of Education by Coursework and Research Report in the University of the Witwatersrand, Johannesburg. It has never been submitted before for any degree or examination purposes in any other Institution / University.

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15 March 2012

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## **ABSTRACT**

This study explored the way in which teachers use formative assessment in an “underperforming” school. Specifically, the study was designed to examine which of the types of feedback that teachers provide in formative tasks best improves engagement for learning in the school chosen for investigation, since the lack of effective feedback for learning was identified as a possible reason for the poor performance of the grade 7 learners in the National Assessment and Common Examinations. Written feedback in Mathematics and English was evaluated by analysing comments and rated them according to criteria in a rubric which had been designed for the purpose. Three books from each of three classes (9 books), one from a strong, average and weak learner, were examined over a period of three months. Verbal feedback, as being indicative of feedback given on a day-to-day basis, given during grade 7 Mathematics and grade 7 English classes, was analysed by rating criteria which would indicate an ideal learning environment on a four point Likert scale, after classroom observation. I found that learners were not adequately engaged into tasks or required to use critical thinking which would promote deep learning. The teachers of these classes were taught to use an interactive classroom response system (CRS), and classes were observed again to investigate whether use of the technology had created opportunities for meaningful engagement to enhance learning. The mathematics class was observed prior to an intervention in which a university lecturer, who had used the system extensively, explained how the system should be used pedagogically to promote critical engagement, and an English class was observed post-intervention. It was found in English classes observed (post-intervention) that learners were far more engaged and encouraged to think critically because they were given a chance to justify their answers or reasoning.. This was in contrast to the mathematics classes observed (before intervention), where the technology had increased engagement but had not increased critical thinking because learners were not given an opportunity to justify their answers. Learners were interviewed to establish their opinions about the different types of feedback received in their learning environment. In this respect, their responses were evaluated in the context of how they felt the feedback received encouraged them and promoted engagement. Thereafter the different modes of feedback were compared and evaluated to explore which could best improve engagement for learning. Teachers were also interviewed to ascertain their opinions on teaching, learning and assessment, both in general and in this school environment, and the factors influencing the time taken for teachers to provide written feedback to their learners, as well as the factors influencing the level of feedback that teachers provide in formative assessment tasks was probed. The study led to the conclusion that in this school, the conception of the value of

feedback has had to be reconsidered by both learners and teachers so that both parties recognise that it is not whether a response is correct or not that carries the most value, but rather the ability to provide a justifiable or defensible response which encourages deep learning. Therefore, this study established that feedback through any medium can enhance learning if it encourages learners to reason or to think more carefully about concepts and ideas. The interactive classroom technology has changed perceptions of learning in some of the classrooms in the school examined as it enables learning to take place in a manner that incorporates formative assessment, effective feedback, and promotes social constructivism.

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## **CHAPTER 1: INTRODUCTION**

### **1.1 The purpose of the study**

In many cases, teachers wait until a formal assessment and / or they have marked learners' books in order to gauge how their learners are progressing and to evaluate learners' understanding of school work. In a classroom situation, teachers often find it difficult to provide in-time feedback to formative assessment (FA), and to engage every learner in the class in the process of learning.

This study therefore explores the different ways in which teachers use formative assessment in an "underperforming" school. Specifically, the study was designed to examine which of the types of feedback that teachers provide in formative tasks best improves engagement for learning in the school chosen for investigation. In this regard, the verbal and written feedback given in various formative assessment tasks was examined and learners' responses to the different types of feedback were compared. Learners' responses were evaluated in the context of how they felt that feedback received encouraged and promoted engagement in learning tasks. Thereafter the different types of feedback were compared and evaluated to explore which could best improve engagement for learning. The study also looked at the factors influencing the time taken for teachers to provide written feedback to their learners, as well the factors influencing the level of feedback that teachers provide in formative assessment tasks.

In addition to the types of feedback (verbal and written) that were usually provided by teachers in this school, I also explored whether immediate feedback provided through the use of technology like an interactive classroom response system (CRS) could facilitate the process of drawing out learners' prior knowledge, assist in maintaining learner attention, and create opportunities for meaningful engagement (Mellon: 2007) to enhance learning. The use of CRS was thus included with other types of feedback within the framework of constructivism, formative assessment and feedback. These aspects were included in this study because each of them supports the notion of "interaction, construction of knowledge, scaffolding and dialogue" (Lambert and Lines, 2000: 145) which are necessary to engage learners in various tasks.

Therefore, the main focus of the study was to evaluate three ways in which teachers gave feedback to a class of grade 7 learners. These are:

- 1) Feedback via technology, specifically an interactive classroom response system (CRS), the *Interwrite* PRS “clicker” system.



**Figure 1.1: A learner using the *Interwrite* PRS “clicker” system**

- 2) Verbal feedback during class, and
- 3) Written feedback.

In order for optimum learning to occur, teachers need to create activities that invoke an interest in learning, and engage learners in both critical thinking and construction of knowledge. Learners seem to learn better if teachers plan quality tasks such as questions to be asked and answered by learners, worksheets to be completed, and give comments which promote understanding of concepts. This means that verbal interaction or feedback to questions asked in class is essential, in the sense that if not carefully thought through by teachers, this may affect the performance of the learners and their quality of learning. In this regard, it is necessary to improve both the quality of learning and teaching, which may require both teachers and learners to commit themselves to interactive conversations. Furthermore, teachers must make use of effective comments to benefit learning as well as use positive marking styles, as these appear to enable better learning and subsequent achievement.

As a grade head, learning area head, and a member of the SAT (School Assessment Team) Committee, I was aware that in the school in which I teach many learners underperform when writing the Annual National Assessment (ANA) and District Common Exams (DCE). I decided that a potential cause of their poor performance could be that they were not given effective feedback during the learning process. It was therefore decided to observe how

teachers provide feedback in formative assessment tasks, and to examine the impact of the feedback provided on encouraging learners to perform better.

## 1.2 Statement of the problem

Grade 7 learners' performance in external examinations such as Annual National Assessment and District Common Exams suggested that immediate intervention was required in the school in which I teach. I felt that one reason for the poor performance in these examinations could have been because internal assessments set by individual teachers in the school were not aligned with the external assessments set by the National Department and Ekudibeng District. In addition, it was possible that formative assessment was not being used effectively in the classroom environment.

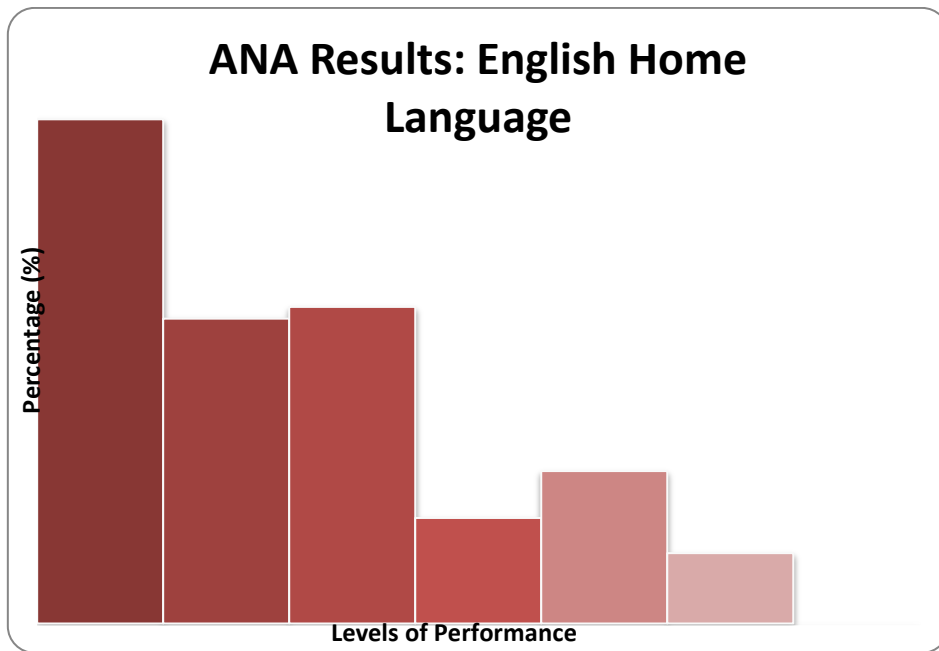
As a result of the abovementioned poor performance in external examinations, my school had been declared one of the underperforming schools in the District. This classification had been based purely on the results which learners obtained in the District Papers (District Common Exams) and Annual National Assessment (ANA). Table 1 below illustrates the link between marks and levels of performance according to Gauteng Department of Education Assessment Policy (Department of Education, 2002).

**Table 1: Description of competence in grade 7**

Rating Code	Description of Competence	Percentage
7	Outstanding Achievement	80 – 100
6	Meritorious Achievement	70 – 79
5	Substantial Achievement	60 – 69
4	Adequate Achievement	50 – 59
3	Moderate Achievement	40 – 49
2	Elementary Achievement	30 – 39
1	Not Yet achieved	0 – 29

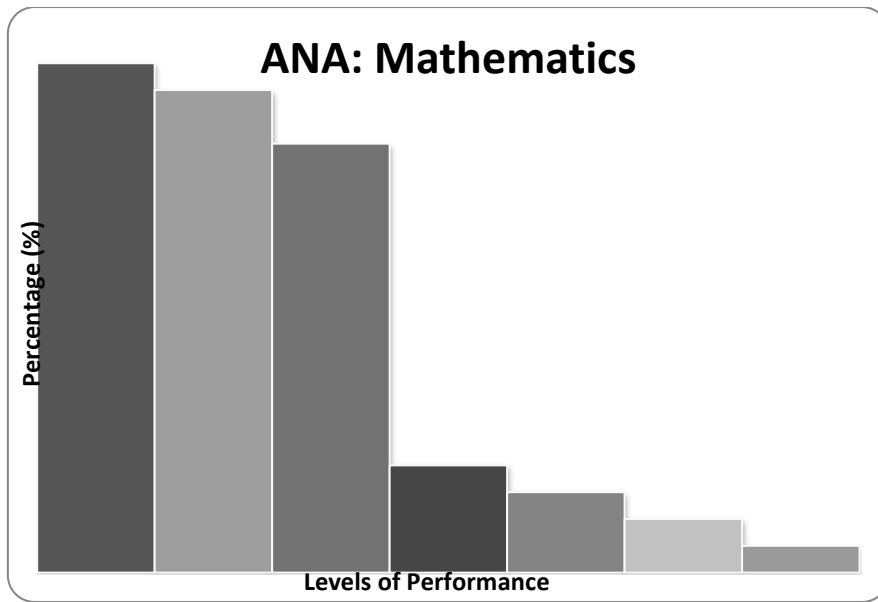
If learners in a school score below 65 % in ANA, a school is classified as 'underperforming' and the Department of Education (DOE) intervenes with the intention of assisting the school to perform better in the future. One of the interventions staged by the DOE is a requirement to write Common Exams set by the Gauteng Department of Education every term. From the ANA results shown in Figures 1.2 and 1.3 below, it is evident that in 2011 the learners in my school were below average in both English and Mathematics. The Learning Area Average in English was 38 % and in Mathematics was 31 %, both which indicated that the school would have to improve substantially in order to reach the required National Assessment Standards. From Figure 1.2 and 1.3 it can be seen that the majority of learners underperformed, and

that there were very few learners who performed well. The graph below shows English ANA results analyses obtained in 2011 in the school:



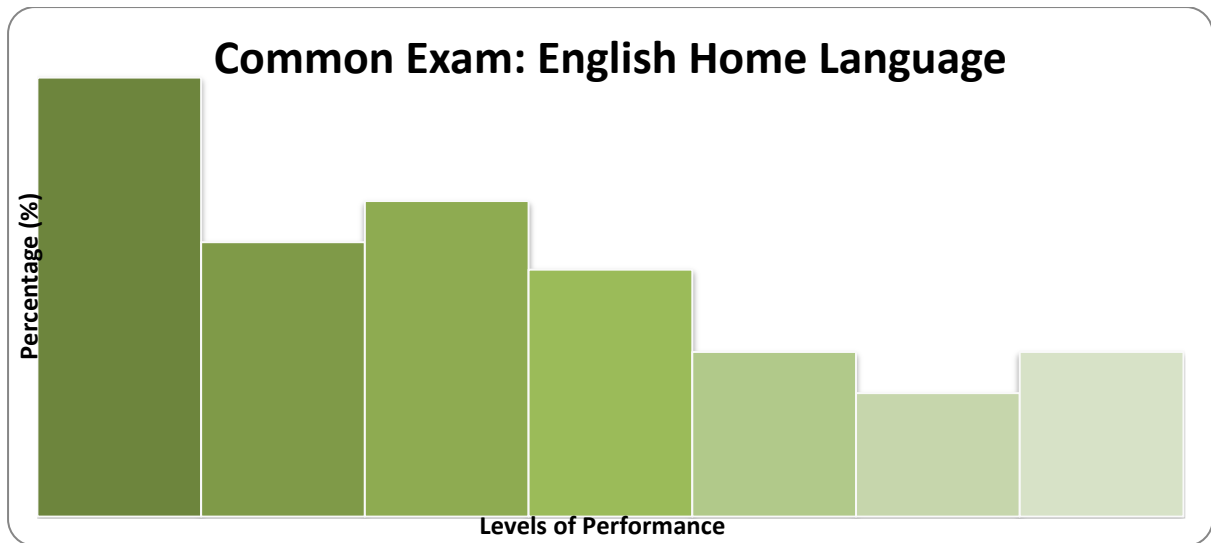
**Figure 1.2:** Bar Graph showing English ANA results analysis of 2011

Based on the above mentioned results, it was clear that the learners were not performing well in English Home Language, as 45 % of them (learners) were not yet achieving the expected learning outcomes and assessment standards. As mentioned above, these results caused the DOE to intervene in the school. The ANA Mathematics results in 2011 (Figure 1.3) were similar to the English results, and the average result was 31.1 %. This means that learners were also underperforming in Mathematics. These results confirmed that a serious intervention was required in the school in order to improve learners' performance in the ANA examination.



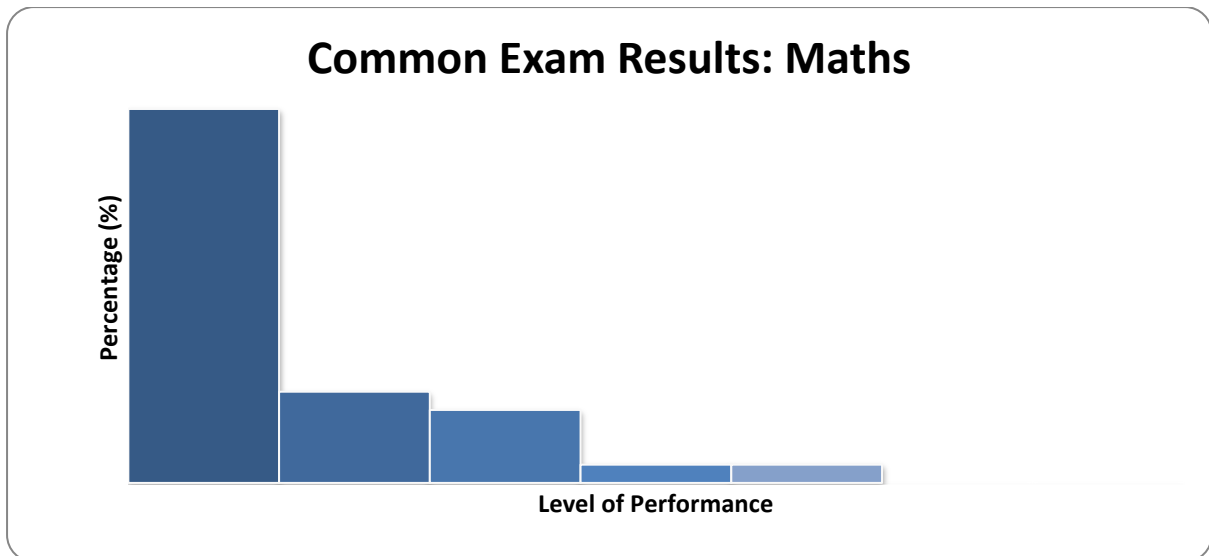
**Figure 1.3:** Bar Graph showing Mathematics ANA results of 2011

Despite the introduction of the Common examinations, the performance of the learners did not really improve, as indicated by the results for such Common Examinations shown below:



**Figure 1.4:** Levels of performance in English Home Language Common Exam obtained in June 2011

Based on the above evidence, there was no doubt that some other type of intervention was required in the school, as the majority of learners did not achieve the Learning Outcomes and the Assessment standard of the Grade. The average result in English in this grade was 45.1 %; clearly below the benchmark of the Department (65 %). The Mathematics results were as follows:



**Figure 1.5:** Levels of performance in Mathematics Common Exam obtained in June 2011

With regard to Mathematics the situation seemed to be serious, as almost 80 % of the learners did not perform to the expected standards; the average being 24.3%. Again, the above results indicated that there was a problem in my school which needed to be addressed, and that immediate intervention was needed to help learners to improve their performance and to learn more effectively.

Firstly, an attempt was made to identify the reason for the poor achievement of the learners in Grade 7 in the school.

When invigilating during examination periods at the school, I had observed various internal examination papers and noticed that the standard of such papers was low compared to both the Annual National Assessment and District Common Exams. My judgement has been based on the fact that many questions in the internal papers only require lower order cognitive levels, and very few (if any) questions fall under higher order thinking. This alone means that learners are unable to respond to questions requiring critical thinking and other higher order thinking skills. When examining a number of internal examination papers, the results found were as follows:

**Table 2: Analysis of English Home Language formal assessment (internal paper)**

	The Cognitive Process Dimension			
The Knowledge Dimension	Remember (Level 1)	Understanding (Level 2)	Apply (Level 3)	Higher ability (Level 4)
Factual	24	8	5	-
Conceptual	6	3	-	-
Procedural	-	-	-	-
• Total number of questions = 46				

The above analysis indicates that learners in the school might be not familiar with the types of questions requiring higher ability of thinking. As a result, many of them do not respond to such questions if asked during ANA and Common Exams, because internally they are used in level one cognitive process dimension.

However, in Mathematics, when examining internal examination papers the following results were found:

**Table 3: Analysis of Mathematics formal assessment (internal paper)**

	The Cognitive Process Dimension			
The Knowledge Dimension	Remember (Level 1)	Understanding (Level 2)	Apply (Level 3)	Higher ability (Level 4)
Factual	14	-	-	-
Conceptual	-	7	5	-
Procedural	-	-	-	10
• Total number of questions = 36				

Thus, as can be seen from Table 3, the situation in Mathematics was different, since there was evidence of critical thinking and other higher order thinking skills in the internal paper. This made one look for another reason to explain why learners were performing so badly in the ANA and Common Exams.

Therefore, apart from the obvious misalignment between the internal and external summative assessment (SA) requirements and standards, one may also wonder whether learners were given sufficient opportunities through formative assessment and appropriate feedback (both verbal and written) to prepare them for the rigours of the external summative

assessments. In light of this, this study aimed to evaluate the feedback that teachers provide in formative assessment tasks which might be used to promote learning.

From another perspective, it appears that many learners simply guess answers and seem to show little understanding of concepts taught. Also, some learners did not read questions and did not appear to understand an instruction, which meant that they were unable to apply what knowledge they did have when they attempted to answer questions. I feel that these problems could be solved if learners were to be provided with better feedback in the classroom, and were to be exposed to questions and other tasks which require critical thinking during lessons. It is for this reason that I chose to focus part of my research on the evaluation of learner responses to different types of feedback, especially because feedback had been described by Weeden *et al.*, (2002: 115) as the cornerstone in improving learning. This is because learners have to be provided with both opportunity and time to implement the suggestions made for improvement of their work.

In addition to the above, there was a trend at my school whereby learners progressed to the next grade despite the fact that the learning outcomes and assessment standards of the previous grade might not yet had been achieved. This could have contributed to the low level of performance in the school. We, as teachers in the school, were extremely concerned about this and had agreed that something needed to be done to improve performance.

In an attempt to address the problems identified above, I decided to investigate different types of feedback that teachers provide in formative tasks. This is because I was not sure how (or whether) learners were engaged in class, and whether verbal feedback to questions posed to the class really promotes engagement for learning. In addition, I had noticed from cursory glances at the learners' activity books that written feedback provided by my colleagues was not constructive, in the sense that learners could not use it to improve. For example, some teachers did not indicate in the learners' activity books what needed to be done in future in order to improve. In many instances, teachers were behind schedule with regard to marking learners work, possibly because they teach too many classes, each of which is comprised of between 45 and 50 learners. This resulted in written feedback to the learners being delayed, which in turn means that learners did not pay attention to this feedback, as it no longer related to what they were learning at the time. I also decided to examine a completely different type of system and investigated whether in-time feedback

using an interactive classroom response system (CRS) would promote better engagement for learning.

In the final part of this research I explored why it was that teachers take so long to give their learners feedback to written tasks, with the aim of establishing whether this type of feedback could be provided more timeously and more effectively. Thus, the manner in which teachers engaged learners through the use of formative assessment (which includes verbal feedback) and the use of technology in class was evaluated along with written feedback to ascertain which of these could assist most effectively in deepening learners' understanding and correcting learners' misconceptions.

### **1.3 Background to the research problem**

Studies have established that in South Africa learners in general do not perform well in literacy and numeracy (Mji and Makgato, 2006: 253). Some shortcomings were reported in the study conducted by the Third International Mathematics and Science Study (TMSS) in 1995, in which South Africa participated with 41 other countries. For example, TMSS reported that South Africa came last when compared with other countries regarding its performance in mathematics (Mji and Makgato, 2006: 253). The mean result of South African learners in senior phase was significantly lower than the international benchmark.

The above mentioned findings contributed to my desire to investigate how teachers provided feedback in formative tasks, and to ascertain whether these could be improved to enhance learning at primary school level and to assist learners in improving their results in summative assessments. The reason for the focus on feedback was due to the research findings of Mju and Makgato, (2006: 254) who reported that "outdated teaching practices and lack of basic content knowledge have resulted in poor teaching standards" which may result in poor performance of the learners. Therefore, against this background, I investigated whether the use of technology like an interactive classroom response system (CRS) could improve the standard and the quality of teaching and learning because of its potential for providing in-time feedback to the learners.

According to Mji and Makgato (2006: 254) "the poor standards had also been exacerbated by a large number of under qualified or unqualified teachers who teach in overcrowded and underequipped classrooms." Moreover, it was found that in underperforming schools, there was a notion that teachers can teach every subject at primary school level. This could also

contribute negatively in the process of knowledge acquisition and learning, and would impact on the type of feedback provided to the learners.

Literacy and mathematics are the keys to good general performance at school. Therefore, if learners underperform in these areas, there is a possibility that this could affect their performance in other learning areas. For example, if a learner cannot read, communicate in English, count or do simple calculations, s/he would be unable to perform well in other learning areas as well. To deal with this problem, the South African Government has taken the initiative to assist underperforming schools by requiring participation in a national strategy to improve literacy and numeracy, and to engage in the Gauteng provincial strategy to standardise assessment at primary school levels. In light of this a number of programmes have been implemented, including the Foundations for Learning, Annual National Assessment (ANA) and District Common Exams to assist schools in meeting the required standards. However, as can be ascertained from the previous section, these have not had the desired effect in this school.

The National Department of Education has set targets for the improvement of learners' literacy and numeracy levels from present until 2014, in order to measure learners' progress. The first task of the Annual National Assessment was to establish the initial levels at which learners were performing, thus establishing a baseline against which teachers could measure future performance. Therefore one of the intentions of the Annual National Assessment was to guide teachers as to whether a learner needed assistance in any particular area. It was for this reason that the Annual National Assessment is written at the beginning of the year, in order to test the levels of performance the learner should have reached at the end of the previous grade.

It was evident that in my school many learners underperformed in the Annual National Assessment, which made me question what standard of internal assessment had resulted in their promotion to the next grade. As a result of our learners' poor performance in the Annual National Assessment, my school had a responsibility to improve learner performance in the foundational skills for academic success, in particular, literacy and numeracy. Since these foundational skills had not yet been achieved by many learners in my school, they fell far below the basic average and assessment standard required in the external examination written every year at school. The challenge ahead is therefore to meet the stipulated targets for improvement of our learners' literacy and numeracy levels from now until 2014.

In addition to the Annual National Assessment, the Gauteng Department of Education (GDE) also sets common exams to standardise assessment in Primary schools. As mentioned above, although many learners in my school did not perform well in these District Common Exams, they obtained adequate results in internally set summative assessments. One possible reason for their poor performance in the common examinations is that many learners couldn't read questions or understand instructions. Another is that many teachers did not use formative assessment sufficiently well to prepare learners for these external exams. It is also possible that written feedback in learners' activity books was not constructive and did not promote engagement or learning.

Furthermore, the internal assessments that form the Continuous Assessment (CASS) marks were not standardised, and if they were to be analysed on a taxonomic scale (see Table 4 in Chapter 2), and it may well be confirmed that the questions are mostly set at the lowest cognitive levels. These are the possible reasons for learners not being able to answer questions requiring critical thinking and other high order cognitive levels. Many learners do extremely well in internal assessments, but perform poorly in external exams such as the Annual National Assessment and District Common Exams. However, initial analysis of the internal mathematics internal papers had indicated that these did indeed require higher order thinking. For this reason, my attention was drawn to the area of formative assessment with a particular emphasis on feedback for learning.

In order to evaluate and examine some of these assumptions which aimed to help identify the problems facing my school, I asked the following questions which guided my investigation of the problem.

#### **1.4 Research question and sub - questions**

Because of the number of problems identified in my school regarding learners' underperformance, the following main research question was asked to inform my investigation:

- In what ways do teachers use formative assessment to give feedback to the learners, and how do learners respond to the various types of feedback received?

This question has been broken down into sub-questions which lend themselves to empirical investigation. Therefore, to enhance my comparison of various types of feedback received

by the learners in my school, the following categories of sub-questions have been suggested:

- How do teachers assess learners' progress during lessons on a day-to-day basis, and what type of verbal feedback do they give?
- What type of written feedback is provided by teachers in the learners' books?
- How do learners respond to the verbal and written feedback given by teachers?
- What is the learners' response to the CRS technology with respect to learning; in other words, does engagement increase if CRS technology is used?

## **1.5 Theoretical Framework**

This study was located in two theoretical frameworks; these being social constructivism and assessment for learning (formative assessment). Both theories, which are discussed in the next section, emphasise the fact that effective learning takes place if there is effective interaction, scaffolding and feedback provided to the learners. Knowledge has been seen as something that needs to be shared and requires a strong participation of individuals in the process of learning and meaning making (Vygotsky, 1978). With regard to social constructivism, the main focus will be on how the Zone of Proximal Development can be used if one is to promote learning, and with regard to the assessment for learning, the focus is on how feedback can be used to improve engagement.

## **1.6 Rationale**

This investigation was conducted at a Primary School which had been designated as "underperforming" by the Department of Education. Two teachers teaching English and Maths in Grade 7 were observed during class and were also interviewed, in order to try and identify problems which could have led to the learners' poor performance. These two learning areas had been selected for investigation because learners write common exams in these almost every term and, in addition, the learners write English and Maths in the Annual National Assessment every year.

This study explored the different ways in which teachers use formative assessment in this school. By doing so, the researcher focused on the learner responses to different types of feedback provided by teachers. This was based on the premise that if feedback is constructive enough, it will promote engagement for learning and it will identify learning difficulties (weakness and strength of the learner) so as to improve their learning.

It is anticipated that the findings and recommendations of this study will assist teachers who are committed to improving their practices and who wish to enhance the learning of their learners. Teachers could use the outcome, claims and arguments made in the study to choose the most meaningful ways to give feedback to their learners. Teachers could also be encouraged to consider the significance of using formative assessment to give in-time feedback and to engage learners, thus deepening their understanding and correcting learners' misconceptions without allowing these to impact negatively on future learning, particularly in Maths and English. Furthermore, the school management team could use the findings and recommendations of this study to deal with the current problem of underperformance in the external examination.

Therefore, a comparative analysis of learners' responses to different types of feedback and factors influencing the types of feedback that teachers provided in formative assessment tasks would add value to the existing knowledge on how to use formative assessment in an effective way to improve learning. This comparison would be framed by the theories of social constructivism, formative assessment and the influence of technology (CRS) in providing in-time feedback.

Teachers who are committed to improving learning will be able to use the outcomes of my analysis on various forms of feedback to improve their own practice. In particular, it would be interesting to ascertain whether the use of technology like CRS which was able to give instant feedback to learners had a significant role in improving engagement and enthusiasm for learning. If it did, the Gauteng Department of Education will be petitioned to provide schools with a CRS system and to help train teachers to enable them to effectively use this technology to unlock the potential of the learners. From this perspective, this study hopes to guide GDE and school management decisions and to enhance classroom, school and system accountability (McMillan and Schumacher: 2006), as well as to support teachers in their commitment to improve learning in my school.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

In order to answer the main question and sub – questions in this study, selected literature in the following areas are discussed. The idea of what best promotes learning is deliberated and the distinction between explicit and implicit learning examined. These types of learning have been associated with five models of learning, namely presentation, reflection, engagement, exploration and transformation (Raid, Forrestal & Cook: 1989). In this way, these types of learning are connected to the types of feedback that teachers use to enhance learning in their classrooms. Therefore, assessment in this study is seen as a tool that can drive learning, because it can be used to motivate and engage learners in the tasks set for them. This implies that there is a need to create learning environments that may assist learners in constructing meaning independently, but at the same time takes into consideration that learners may need the help of an adult in order to learn something new or to discover the truth (Vygotsky, 1978).

The main focus in this study is on the type of assessment that promotes learning in order to release the potential of the learner i.e. formative assessment (Black, 2003). Central to this issue is that effective verbal and written feedback and other means of two–way communication between the either learners themselves, or between a learner and a teacher, is crucial for engaging learners.

### **2.2 Learning through meaning making**

In this study, learning is seen through the lens of a social constructivist like Vygotsky (1978), as individuals bring to a learning environment different experiences and knowledge. Implicit in the acknowledgement that some people are more knowledgeable than others is the notion that human beings can share knowledge and can learn from one another. In this context, in order for learning to take place learners need to be given a chance to rediscover their existing knowledge, to make their own meaning and to gain understanding of a situation (Vygotsky, 1978). In order for the learners to understand their situation, they need teachers to create an environment which is conducive to learning. This environment is one which stimulates debate and argument, provides opportunities to challenge existing knowledge, and promotes critical thinking to deepen learners' understanding. It is important to note that while there are things that learners can do independently, there are those that they cannot do without the help of the teacher or an adult (Vygotsky, 1978). With regard to learning *per se*, both implicit (in a sense that there are things that learners can do independently) and

explicit learning (in a sense that at times an adult needs to explain certain concepts to the learners) are examined and various conceptions of how learning occurs within the constraints of these two ideas was deliberated.

In South Africa, the current outcomes based education system requires learners to achieve the stipulated learning outcomes, assessment standards, and learning objectives of that particular grade (Warby, 2008). Teachers therefore need to ensure that these are achieved, and need to create the conditions that sustain learning. These conditions involve criteria, assessment grids and rubrics which give learners a clear guide of what is required of them to achieve these objectives.

### **2.3 Types of learning**

Implicit learning occurs without a learner being aware of it (Stevenson and Palmer: 1994), which makes one believe that implicit learning is natural. It is the kind of knowledge that one can learn from the surrounding environment with little or no help from anyone else. Learners come to school with knowledge they have acquired at home or from the greater community. Bearing this in mind, teachers are required to draw on what learners already know, and then to relate such information to school knowledge. One aspect of this study explored how teachers can use formative assessment to draw out this knowledge, as well as use it (through appropriate feedback) to promote learning. One of the tools which could potentially enhance this process is a CRS (clicker) system, which is why it was introduced in this study.

In addition to the above, it is important to note that implicit learning “influences almost everything we do, and it is what we usually mean where we refer to the prior knowledge that a learner brings to bear on new learning” (Stevenson and Palmer, 1994: 20). In light of this view, implicit learning can be used as background for the acquisition of new knowledge where there is a need to make some connection to make meaning of the world. This means that often implicit learning may be employed to promote explicit learning. Moreover, since explicit learning is the kind of learning that is fostered in school and other educational establishments (Stevenson and Palmer 1994: 21), and since this study was based in a primary school environment whereby children require the support of the teacher to explain new ideas that challenge existing ideas, if they are to learn, teachers need to set assessments for learning in addition to relying on summative assessments of learning.

This view about understanding plays a very important role in classroom learning when a teacher draws on what learners already know in order to correct learners' misconceptions, and then confirm if their answers to questions are in line with school knowledge. Scardamalia and Bereitter (1991) (quoted in Stevenson and Palmer, 1994: 8) state that "Pre – existing knowledge is used to interpret the new material and in turn, the new material yields information that may be used to modify our pre – existing ideas and beliefs, sometimes in major ways." This conception highlights the role of implicit or prior learning in enabling the learning of new ideas communicated through interaction between two or more individuals. From this perspective, understanding involves deliberate attempts to make sense of new material by using prior knowledge, and deliberate attempts to rethink one's ideas in terms of new material or content that has been introduced (Stevenson and Palmer, 1994).

In contrast, explicit learning requires "conscious and deliberate effort" (Stevenson and Palmer, 1994: 1), which means that "an expert or capable peers are required to mediate information in order to help learners to learn" (Vygotsky, 1978). This means that learning conditions such as providing opportunities for interaction, creating assessment grids and other activities which promote learning need to be planned so that they promote critical thinking and understanding of concepts. However, Stevenson and Palmer (1994) indicate that "our capacity for explicit learning reveals a vast potential for learning that few people ever fully achieve." Vygotsky's notion that learning only occurs in the "Zone of Proximal Development" ("ZPD") supports the idea that a learner is pushed or pulled away from everyday knowledge towards an area of potential development to ensure that something new is learned. Within this context, explicit learning is enhanced through scaffolding by teachers and through interaction between teachers and learners, as well as interaction between learners and their peers (Vygotsky, 1978). If a teacher teaches beyond or below a learner's ZPD, it creates confusion and will not lead to learning. In addition, it is important to deal with misconceptions brought to a class by the learners by opening the flow for debate and discussions. The ZPD may thus be regarded as an intellectual space where learner and teacher interact. The teacher can gauge the intellectual development of the learner and provide the appropriate support to advance the learner's thinking. With teacher support, learners can achieve more than they would unaided. It is also important to note that more knowledgeable peers can perform the same function as teachers in this regard (Vygotsky, 1978 quoted in Jordan *et al*, 2008: 59), as the two way interaction between the learner and a teacher (or other learners) may improve learning (Stevenson and Palmer, 1994: 8 quoted in Scardamalia and Bereitter, 1991).

In light of the above, learners are required to show or demonstrate real understanding of phenomena and concepts rather than just guess answers. Teachers, on the other hand, need to both make explicit what needs to be learnt as well as clearly advise learners how the content should be learned, in order to help the learner to achieve his or her maximum potential. In this regard, learning activities and assessments need to be diverse in terms of cognitive demands, especially if one subscribes to the view that assessment may be used as a tool which promotes learning.

In order to promote critical thinking in class, teachers need to ask questions or create activities that stimulate debate and dialogue among the learners. Such platforms may help teachers to identify and address gaps whilst these debates are in progress, in order to allow learners to learn from one another. Morgan (1993: 75) emphasizes that “in terms of improving learning so as to enhance understanding, it seems to be well established that we need to help students to become involved in various forms of ‘dialogue’, so as to enable them to become more actively involved with material and to help them relate it to previous knowledge and personal experience.” The integration of technology such as the use of CRS to provide immediate feedback to learners may comply with this theory, since the use of this technology not only results in enhanced dialogue in class, but also provides a means to identify misconceptions as it affords an opportunity for all learners to participate in the learning process.

Thus the technology may be useful in learning beyond its role in giving “in-time” feedback. According to Morgan (1993: 74 - 5) “where the material was initially difficult, the development of understanding required an active engagement with material being learned, involved internal debates about the new material and its meaning, or discussions with friends.” This view of Morgan is in line with the use of formative assessment and Vygotsky’s ZPD, which promotes dialogue, engagement, exploration and scaffolding of knowledge to help learners to understand concepts. As a result, in this study, learning is seen as part of social interaction among two or more people. If formative assessment is used effectively, it may stimulate interest so that to the learners learn more effectively. This also reiterates and emphasizes the need for teachers to plan their lessons well and to ask the types of questions that evoke debate and discussion in class.

In many instances teachers aim to teach better, and most of the time they are eager to introduce new teaching methods to their learners in order to promote better learning. Despite

this goal, it appears that teachers have problems engaging all learners in the class. Despite their best efforts, there are still only a few learners who participate in classroom discussions and debates or engage in any form of dialogue. To counter this, teachers need a way of encouraging every learner in a class to participate and to answer questions posed to the class so that they can assess at what stage the learning of each individual is, so that they can respond pedagogically and adjust the teaching frame to assist the learners who need help in specific areas. In essence, their main goal is to ensure that every learner participates or engages in a task. In addition, it seems as if teachers are struggling to provide instant feedback to their learners. From this perspective, it is crucial to look for ways in which teachers can give “just in time” feedback to the learners. In this regard, technology may be of value since it can potentially foster learner participation and provide in time – feedback (Stevenson and Palmer, 1994: 12).

While it is acknowledged that information and knowledge play an important role in the learning process because they may be used by an individual to support current claims and arguments, acquisition of knowledge should not be equated to learning. “To transfer units of information or knowledge, or what is commonly referred to simply as facts, from the external source such as a teacher or a book, into the head”, is not considered the prioritised aim of learning; rather a learner should seek an understanding of facts” (Morgan, 1993). The acquisition of facts alone only requires lower order cognitive skills. The cognitive domain involves knowledge and the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns and concepts that serve in the development of intellectual abilities and skills on a taxonomic scale such as Bloom’s taxonomy. Since this study is concerned with the acquisition of higher order thinking skills, this conception of learning (transfer of information or knowledge) was discounted (Bloom, 1966). The main focus will instead be focused on understanding facts and concepts. The table below shows the various cognitive levels in learning according to Bloom (1966).

**Table 4:** 6 levels of Cognitive Thinking

Teachers are required to use the table below to assess the level of the tasks Bloom's Taxonomy (Ref: Gauteng Department of Education, Directorate: Examinations and Assessment, Examination Instruction, No. 17 of 2011):	
<b>Level 1</b>	Recall of information (What? Which? When? list; label; name; give; explain; identify; interpret; describe)
<b>Level 2</b>	Understanding and using information (interpret; summarize; classify; solve; apply rules; discuss; calculate; prove)
<b>Level 3</b>	Applying information (distinguish; specify; compare; design; explain; investigate; interpret; give your input)
<b>Level 4</b>	Analysis of information (classify; compare; give reasons; give causes and effects)
<b>Level 5</b>	Synthesize information (summarize; construct; argue; create; relate; design; formulate)
<b>Level 6</b>	Evaluate information (judge; assess; evaluate; choose; support; compare; estimate)

According to the above table 2.1, it is clear that if teachers aim to engage learners into higher order thinking or deep learning, they need to distribute their questions according to the above mentioned levels and ask questions that challenge learners. If learners are to become used to using higher order thinking levels, this needs to be done during day to day interaction (formatively). One might assume that this would acquaint learners with the types of questions that require critical thinking which may improve their performance during formal and summative assessments.

## **2.4 Social Constructivism**

Black *et al*, (2001) and other writers like Airasian, (1997), Brooks and Brooks (1999); Abdal – Haqq, (1998); (Clarke, 2005); and Bell *et al*, (2001) give explanations of the term 'constructivism.' Abdal – Haqq, (1998: 1) maintain that constructivism is “an idea that teachers can use in class to engage all learners in the process of learning.” Based on this

meaning of constructivism one can argue that it carries the characteristics of formative assessment because it intends to improve learning. Therefore, constructivists give teachers ideas on how to develop the cognitive thinking of the learner. However, if learning is to be provoked, feedback received from or given to the learners would play an important role in learning.

This study is grounded within the framework of social constructivism, which means that it is important to understand that these are a group of theories that explain knowledge acquisition and learning from a constructivist perspective. In particular, social constructivists argue that knowledge is the result of social interaction and language use (Jordan *et al*, 2008: 55). It is imperative to note that the different types of constructivist thinking are generally classified according to their main emphasis. In this study constructivism is perceived as a theory of learning that is focused on what people do with information to develop knowledge. In particular, Jordan (2008: 8) argues that “constructivism holds that people actively build knowledge and understanding by synthesising the knowledge they already possess with new information.” This means that learners need to be prepared to adapt or to accommodate new knowledge in their minds. It seems as if learning aims to change or to modify the beliefs of the learners. Jordan *et al*, (2008: 56) specified that “people ‘construct’ mental models of the way things are. When new information is received, the new mental construct has to be accommodated within previous existing constructs” to assist learners to make meaning or sense of the world.” In light of Jordan’s views, a learning environment needs to be designed in a way that enables learners to construct their own meaning. This can be done if teachers create activities and ask questions that fall within the ZPD of the learner.

According to Scott (2001: 33) “learning comprises discovering what they are and developing adequate models to explain them.” Therefore, it is important to note that real learning involves learners constructing an understanding of the world and developing skills through mental and physical actions within the social context in which they exist (Twining: 2001), not just memorising facts without understanding of their meaning (Morgan: 1993). In this study learning is seen as the abstraction of meaning (Morgan: 1993) rather than just the reproduction of information. This equates to the higher order cognitive skills according to Bloom’s taxonomy. Since learners are unlikely to achieve this level of understanding independently, it is imperative that they should be given the opportunity of constructing meaning through interaction with more knowledgeable others. In light of this, the main focus in this study is to explore ways in which teachers create an environment that is conducive to learners being able to make their own meaning or to rediscover new knowledge about the

world. Social constructivism implies that learners learn better through interaction with one another. The addition of technology such as the interactive classroom response system can assist learning by requiring learners to engage with the material being taught and in helping them to think more carefully about their answers before they send answers to the teacher. It may also provide opportunities for learners to interact with others.

In order to understand the appropriateness of constructivism in this study, it is useful to adopt Jordans' *et al*, (2008: 55) table (Table 5) which distinguishes constructivism from other theories of learning as follows:

**Table 5: Comparing behaviourism, Cognitivism and constructivism**

<b>Theory</b>	<b>Mental Activity</b>	<b>Learning Process</b>	<b>Role of the Teacher</b>
Constructivism	Meaning - making	Returning schemata and constructs Internal event	Support 'meaning making Challenges 'existing ideas'
Behaviourism	Irrelevant	Stimulus – response Reinforcement External event	Control environment and stimuli
Cognitivism	Perception attention process	Memory Surface and deep learning Internal event	Applies cognitive process to facilitate cognitive process

Source: Von Glasersfeld, (2007) quoted in Jordan *et al*, (2008: 55)

Importantly, Piaget's theory of cognitive development is based on the idea that children's active engagement with their environment leads them to the construction of meaning and learning. As a result, playing is particularly important for cognitive development, because this is when children actively explore the world (Jordan *et al*, 2008: 57). This is in line with the use of CRS to stimulate interest of learner participation in class because it has been observed that generally learners like to play with "toys". In this case technology is integrated with learning processes and learners who use clickers are more likely to contribute to the process of learning which takes place in a classroom setting. Piaget's theories have practical implications (Pound, 2005: 38) that need to be taken into consideration in the process of

promoting learning in class (Pound, 2005: 38). This is because learning is supported by action which implies that children need to experiment actively with materials and experiences. In light of this, the use of clickers may serve a dual purpose: Firstly, a clicker could be regarded as a “toy” which makes learning fun, and, secondly, it is able to provide instant feedback which will enable learners to construct knowledge within the framework of their existing conceptions. Jordan *et al*, (2005: 60) indicate that “in everyday life, modelling is evident in the way children like to play with toy versions of machines and domestic appliances that they see their parents using. From an educational point of view, it is clear that much learning occurs by observation. Modelling is part of all learning.” Learners need to be given opportunities to discover knowledge and to make their own links or connections to show that they understand. Feedback from clickers affords teachers the opportunity of modelling their thinking when solving problems, immediately after each problem has been posed to a class.

Like Piaget (1978), Jordan *et al*, (2008: 57), state that “another form of learning occurs through cognitive conflict, when children’s views are opposed by those of others” which leads to disequilibrium or destabilization of existing constructs. Learners must therefore search for new constructs, which can synthesize the different viewpoints and restore equilibrium.” This means that through interaction or formative assessment taking place in class learners’ thinking may be challenged, and they are expected to adapt into new learning. This process occurs internally and is later manifested externally by talk and actions (Jordan *et al*, 2008). In this regard, theories of learning, especially the social constructivist approach, seem to have some legitimate ways of helping teachers to understand how to engage learners into thinking with the aim of improving learners understanding.

In order to engage students into the process of learning, teachers are required to state the learning objectives well in advance and also to indicate how they intend to assess learners’ understanding of what has been taught. Reid (1989: 18) stated that “this initial stage of the learning process should involve more than the teacher providing students with new content material. For students to become engaged in activity, they need to understand why they are examining this particular topic, text, information or material. They also need to understand how this particular lesson, or unit of work, fits in with what they have done before and what they will study in the future.” Thus it is the teachers’ responsibility to show learners a link between previous knowledge / prior knowledge and new knowledge. As Reid (1989: 18) argues: “students generally become engaged, or their intention to learn is aroused, when they become curious or puzzled about what they are to learn.” Furthermore Reid (1989: 18)

indicates that “the engagement stage is the time during which students acquire information and engage in an experience that provides the basis for, or content of, their ensuing learning. It should involve a shared experience for students so that they have common ground on which to base their learning.” Students are expected to base their learning in meaning making and understanding to ensure that something new is learned.

Formative assessment is informed by the concept of socialization whereby pupils interact with others in a quest for deepening their understanding. This means that in this study the assumption about learning is that knowledge is socially constructed and is learned by the people in their social environment such as school (Wertsch and Tulviste, 1993), through interaction with others. By interacting with others learners are able to construct meaning and make sense of their surroundings. According to Jordan, Carlisle and Stack (2008) “learning is an active process through which learners ‘construct’ new meaning.

Unlike Piaget, Vygotsky affirms the role of teachers and experts in guiding learning as well as passing on theoretical knowledge; teachers support learners in the learning process (Jordan *et al*, 2008: 59). According to Vygotsky (1978) quoted in Brodie (1996: 8) “the distance between the actual developmental level as determined by independent problem solving and the level of proximal development as determined through problem solving under adult guidance or in collaboration with more capable peers” Is the level at which a teacher should be teaching. This view indicates that the relationship between teacher and learner is essential in terms of developing or helping the child to improve if effective feedback is given. This implies that teachers need to design their lessons in the way that questions asked in class allow them to scaffold information to encourage new learning.

Therefore, the notion of reaching a level of potential development and being maintained with the teacher’s assistance, asserts that teaching is crucial to development. However, Vygotsky argues that if we teach to current developmental levels, we condemn the child to remain at these levels. If we want the child to grow, we need to be constantly in advance of his or her development, leading and directing it (1978). Therefore teaching in the ZPD is a challenge, because teachers need to be well prepared and to know their subject very well in order to engage learners into the necessary thinking processes. This may occur through informed questioning. Teachers are thus expected to ask questions and create activities that stimulate their learners’ interest in the subject at hand and in this way enable them to acquire more knowledge.

The ZPD can also be viewed from the aspect of action within a certain activity. To the school child action is related to the learning and teaching activities (Hedegaard: 1996). Teachers are required to understand and build on what children already know through the use of formative assessment if they are to guide their learners towards the next potential development stage. They need to make wise and informed choices in selecting knowledge and methods of teaching that suit the needs of their learners. That is why in this study it is important to examine learners' responses to feedback which has been provided to them, in order to ascertain if it has promoted engagement and learning.

The notion of a ZPD emphasises the importance of what has been called 'scaffolding'. This relies on careful observation of what children can do, and the subsequent planning of a curriculum which challenges their current capacity (Paund, 2005). It is then the responsibility of the teacher to support learners in the process of constructing their own meaning of facts and concepts by giving them activities and asking questions that require higher order thinking. Scaffolding may consist of resources such as the use of technology to enhance learning, the introduction of challenging activities such as essay writing, and the provision of mentoring by teachers or more experienced peers. Therefore, the level of scaffolding required is also affected by how far into the ZPD learners have progressed (Jordan *et al*, 2008: 68). In order to determine the level of the learner in the ZPD Jordan *et al*, (2008: 64) quoted Tharp and Gallimon (1988) who have suggested that four stages have been identified in learners' progression through the ZPD:

1. Scaffolding is provided by others. Through interaction with other people the learner shares ideas with capable peers and grasp knowledge that will assist in dealing with misconceptions in class.
2. Scaffolding provided by the learners themselves, for example by 'self-talk'. Learners are constructing meaning of the world in their head.
3. Scaffolding becomes redundant as learners act automatically. At school level, there is a need to plan expanded opportunities to accommodate those learners who seem to be ahead of others all the time to minimize this redundancy.
4. Scaffolding is required again if there are changes in task or context. Teachers need to state learning outcomes and learning objectives well in advance to give learners clear direction on how they are going to learn and be assessed.

In the light of these four stages of learners' progression through the ZPD, it is useful to explore the role of the teacher in terms of scaffolding learning in a classroom setting by

looking at different ways in which teachers can provide feedback in formative tasks. Therefore, in order to scaffold learning, teachers should follow the guideline set out below when they plan and implement their curriculum at schools (Jordan *et al*, 2008: 65):

- Provide time for pupils to construct relationships with others;
- Allow pupils' responses to drive lessons, as well as determine the teaching methodology and content;
- Inquire about pupils' understanding of concepts, including false understandings, before sharing their own understanding of these concepts;
- Encourage pupils to engage in dialogue with both the teacher and with each other;
- Encourage inquiry by asking open-ended questions and encouraging peer questioning;
- Seek elaboration of pupils' responses to questions;
- Wait for a response after asking questions;
- Create metaphors and use different teaching styles to aid mental representation; and
- Model the behaviour or the techniques to be acquired.

These tenets of scaffolded learning need to be implemented in a classroom setting in order to promote learning especially at the higher order cognitive levels. Teachers may implement these guidelines through formative assessment which encourages interaction, debates, and other two-way relationships taking place in class. According to Freestanding (1998-2001) "children learn through interaction, curricula should be designed to emphasise interaction between learners and learning tasks." In this regard, with appropriate adult help, children can often perform tasks that they are incapable of completing on their own. With this in mind, scaffolding is a process where the adult continually adjusts the level of performance through effective teaching. Scaffolding not only produces immediate results, but also instils the skills necessary for independent problem solving in the future (Freestanding, 1998-2001). In light of these guidelines for scaffolded learning, assessment methods need to take into account the ZPD. In this regard, two children might have the same level of actual development, but given the appropriate help from an adult, one might be able to solve many more problems than the other. This means that assessment methods must target both the level of actual development and the level of potential development (Freestanding, 1998-2001).

## **2.5 Approaches to learning**

In this study it is also useful to explore teachers' conception of learning in order to understand better how they prepare their learners for assessment. This is particularly relevant since learners' approaches to learning seem to be influenced by the assessment

tasks that teachers prepare for them. The cognitive level required in an assessment task can promote surface or deep learning. According to Morgan (1993: 72) “the importance of the approach to learning is that it is directly linked to the quality of learning outcomes. Students who take a surface approach fail to gain a good grasp of the content of their reading, whereas those take a deep approach to learning do gain a full understanding of issues in questions.” Since this study has been prompted by the poor performance of learners in Annual National Assessment and District Common Exams of the school selected, it is a priority to question the teachers’ approach to learning in the school. In essence, if a school has been regarded as underperforming, one might question whether the approach to learning that is pursued in that particular school is adequate.

In order to distinguish between surface and deep learning Ramsdens’ table (1998), (cited by Morgan 1993: 72 – 3), will be adopted. Ramsden (1998) draws together the different ways in which deep and surface learning approaches have been described and provides a useful summary as follows:

**Table 6: Types of learning**

<b>Deep Approach</b>	<b>Surface Approach</b>
Intention to understand	Intention to complete [learning] task requirements
Focus on what ‘is signified’ (e.g. the author’s argument)	Focus on the ‘signs’ (e.g. the text itself)
Relate and distinguish new ideas and previous knowledge	Focus on discrete elements. Fail to distinguish principles from evidence, new information from old
Relate concepts to everyday experience	Memorize information and procedures for assessment
Organize and structure content	Unreflectively associate concepts and facts
Internal emphasis: ‘A window through which aspects of reality become visible, and more intelligible’	External emphasis: ‘Demands of assessment, knowledge cut off from everyday reality’
	Treat [learning] task as an external imposition

Source: Ramsden (1998) quoted in Morgan (1993: 72 -3)

According to Ramsden, better teaching is that which promotes deep learning, because it is this approach that promotes understanding rather than simply the presentation of facts and knowledge to the learners. In table 7 shown below, there are five aspects of teacher action which may bring about the learning process (Reid *et al.*, 1989).

**Table 7: Model of learning: Teacher action during each stage of learning process**

<b>Presentation</b>	<b>Reflection</b>	<b>Engagement</b>	<b>Exploration</b>	<b>Transformation</b>
-the teacher encourages learners response and feedback	-reviews lessons and outcomes of learning	-encourages reflection	-facilitates development of e.g. speaking and reading.	-recalls directions
-facilitates development of presentation skills, such as rehearsal and oral reading.	-reviews the learning	-reviews progress so far	-provides time for learners to make their own links with the information	-organises classroom appropriately
-ensures that lesson have been shaped to suit learners.	-shows enthusiasm and disappointment	-points to further directions	-may provide direction through open – ended questions	-facilitates development of writing, reading and speaking skills as appropriate
-provide sense of performance by explicitly valuing the learners response	-encourages learners to evaluate their own work process in terms of curriculum aims.	-encourages prediction and hypothesising	-reflects on information gained from learner responses	-monitors quality of work produced
-encourage sharing of feedback given	-organises classroom appropriately for: 1) individual writing / response; 2) small group talks and 3) whole class discussion.	-Presents new content  -links new material with old material		-provides new information when necessary (by recycling the engagement and exploration)
	-re – establishes links between this activity and whole curriculum	-provides structured overview		
	-reflects upon all this for future planning	-demonstrate or models new skills		

Source: Reid, Forrestal and Cook, (1989: 57)

To achieve deep learning, learners need to be engaged when teachers explain information and facts using appropriate language. Moreover, since learning involves interaction between people, and scaffolding enables learning, it is language which is the tool that makes learning

happen. In this respect, language not only describes the world, it also plays a part in shaping the way we see it. Children make sense of the world through the use of language (Reid et al., 1998: 8). Concepts are also interpreted through the use of language. As a result, learning is social because it involves a social subject or a person in the process of knowledge acquisition. Pound (2005) quoted Vygotsky (1978) as “emphasising the significant role that language plays in the development of abstract thought. In other words, the child’s language both results from and is part of social interaction.” From this perspective one would expect verbal interaction during formative assessment would be the kind of feedback that is most valuable for learners because it allows them to clarify points they don’t understand (Weeden *et al*, 2002: 116). Learners may also use it to express and explain their ideas.

Research (Reid *et al.*, 1998) shows that learning arises from our need to solve problems that involve other people, or to imitate the skills we see that other people possess. This takes place in our natural exploration and play in the world as well as from the guidance or the requirements other people present to us. There is also the aspect of the sheer emotional pleasure that we take from our interactions with significant people in our lives. It is only through this social interaction that children are enabled to use language to explore the world individually (Reid *et al.*, 1998: 8). Through this form of interaction, new ideas can be learnt and misconceptions can be corrected in the process. According to Pound (2005: 40) “interaction benefits a child when they are helped by another child who knows more about the tasks. The more knowledgeable child benefits too, as the process of making their ideas more explicit renders the grasp of what they know clearer and more objective.”

Vygotsky (1978) (quoted in Jordan *et al*, 2008: 59) considered that “human activity is distinguished by the extensive use of tools.” Therefore, language is the most important ‘tool’ for social interaction and knowledge construction. Vygotsky (1978) argued that “language is an external tool that children use first to communicate” with their surrounding environment as they grow up. This kind of experience is needed at school because it forms the basis or the ground on which to build subsequent school or formal knowledge (Jordan *et al.*, 2008:59). In this regard, if learners are to learn to think, it should be made evident that their language and ideas are valued. Therefore teachers are required to create activities that facilitate social learning through the use of peer discussion whereby learners are able to assist one another.

In this study, it is necessary to examine how teachers create the above-mentioned conditions in order to support their learners and to promote learning. Reid *et al*, (1998: 15) argued that “if teachers want students to understand what they teach, they must give them the opportunity to personalize knowledge. Teachers cannot give students knowledge; they can only help them to come to know by providing structures within which students can develop their own understanding.” For example, if the teacher has created a rubric as an assessment evaluation tool and explains it carefully to the learners, then they will understand the teacher’s expectations and be able to practice self-evaluation whilst the rubric can be used to guide learning. This suggests that assessment needs to be constructive in order to promote learning.

## **2.6 Assessment for Learning**

It is important to note that learning, teaching and assessment are interrelated. With regard to assessment, the focus here is on the type of assessment that is aimed at improving learning. Therefore, it is necessary in this study to change the focus from traditional assessment i.e. assessment of learning to assessment for learning. However, it should be understood that both these assessment types are interrelated, in the sense that it is important to use formative assessment properly to help learners to achieve and do well in their summative assessments.

Therefore, it is essential to understand the meaning of assessment and its purpose in relation to education in order to determine its role in promoting learning. According to Lambert and Lines (2000: 106) assessment is “the process of gathering, interpreting, recording and using information about pupils’ responses to educational tasks” which is necessary when teachers are required to account to officials about their practice. This means that assessment involves both those in more formal contexts and with formal procedures including written, timed tests which are marked under strict conditions, and less formal settings including reading pupils’ work and listening to what they have to say. Thus assessment encompasses responses to regular work as well as to specially devised tasks (Lambert and Lines, 2000). In terms of these accounts of assessment it is evident that it is relevant in this study to explore different ways in which teachers provide feedback in formative tasks in their desire to promote learning. As the primary aim of feedback is to promote learning, learners’ responses to different types of feedback will be evaluated to establish which types of feedback best promote learning.

In order to frame the debate and argument raised in this study about the ways in which teachers provide feedback in formative assessment tasks, it is relevant to adopt Sieborger and Macintosh's (1998) way of describing assessment. They argue that "to assess means to measure something. Usually what is measured is what has been learnt, what can be remembered, what is understood, or what can be applied from what has been learnt in a different context." Following the above notion, teachers have the responsibility to put measures in place to maximize learners' performance by preparing them for summative assessment. Learners, however, also need to play an active role in adopting teachers' strategies to help themselves to improve their learning. Teachers' strategies include many ways of using formative assessment to give feedback to their learners. These include written and verbal feedback, and more recently via technology like classroom response systems (CRS). Therefore, it is important to explore the purpose of assessment in education in order to evaluate its role in the promotion of learning at school. Lambert and Lines (2000: 106) have suggested four important purposes of assessment:

- assessment should play a formative role by providing feedback to teachers and pupils about progress in order to support future learning;
- assessment should provide information about the level of pupils' achievements at points during and at the end of the school year (Summative);
- assessment should identify learning difficulties (Diagnostic); and
- assessment should judge the effectiveness of local education authorities, schools and teachers by using assessment data as performance indicators.

In education it is important to look at what an assessor does in class in order to use assessment as a tool to improve learning (Sieborger and Macintosh, 1998: 5). This is because an assessor "is a judge or someone who estimates the value of something" Sieborger and Macintosh (1998: 5). Through formative assessment one can measure learners' understanding of concepts by asking them questions which uncover their misconceptions. If teachers or peers ask questions that engage learners and make them think, then there is a possibility of correcting their misconceptions and of deepening their understanding.

Contrasting the two types of assessment (formative and summative) and their interdependence, there is an assumption that if formative assessment is not properly planned or conducted it will influence learners' performance in summative assessments (Black, 2001). This means that teachers have to conduct formative assessment well so as to prepare learners for success in summative assessments.

Lambert and Lines (2000: 29) describe summative assessment as “a snapshot judgement that records what a pupil can do at a particular time. It is concerned with providing information about a pupil in a simple, summary form that can be used to review progress, can be passed on to a new teacher or school or can certificate the pupil’s achievement in formal way.’ In fact, summative assessment is meant for accountability to officials and parents, and seems to do little (if anything) to improve learning. As Black, (2003) indicates, “summative assessment was and is mainly used in schools to account to the government officials, parents and children.” This form of assessment is mainly for marks (Black, 2003) that determine the success and the failure of the learner. However, one should not discount the possibility that there is an opportunity to turn or to use summative assessment formatively, in a way that supports learning. On this account Weeden *et al*, (2002: 115) argue that “if the test is being used ‘for’ learning, it can be used to diagnose areas of weakness and motivate pupils to look at those areas more carefully. For example, test papers can be returned marked but ungraded, and pupils can be asked to rework the parts they found difficult using the comments provided.” This idea requires dedicated teachers who do not mind putting in more effort in marking learners’ activities to help them to improve. If marking is perceived by learners’ as something that does not encourage competition (Black, 2003) learners will be motivated to learn. As a result, ungraded marking aims to motivate learners to return to poorly answered questions and to try to understand how to improve their answers, so that their final ‘grade’ is improved Weeden *et al*, (2002: 116).

Furthermore, it is possible to use summative assessment formatively in another way, by asking learners to work in groups with their marked papers to generate improved answers to a selection of questions. These can then be presented to the rest of the class and lower achievers will receive adequate feedback to the answers. Both of these strategies aim to integrate ‘the test’ into the learning so that pupils see it as an opportunity to learn more, rather than simply an ordeal to be got through as quickly as possible. Both strategies thus have a formative purpose using the test as a motivator, not as a summative judgement (Weeden *et al*, 2002: 116). The challenge in this regard, is to bring about change in teachers’ beliefs about assessment as judgment, and instead to view it as an aspect of promoting engagement for learning (Black, 2003). In this respect, teachers are required to give learners enough time to review comments made in their scripts and to implement them to improve their summative marks in the future. As Weeden *et al*, (2002: 114) argue, “learners also need to be provided with opportunity and time to implement the suggestions made for improvement of their work.” This might be good in theory, but in many instances

teachers do not have enough time for adequate marking due to the large number of learners in the classes they teach.

Importantly, teachers also have to create conditions that are suitable for learners to receive in-time feedback and to integrate assessment into their everyday lessons. Traditionally, assessment of learning does little, if anything, to provide instant feedback to the learners. It is often the case that in order for learners to know what progress they have made, they need to be patient. For example, they might have to wait until the end of the chapter, unit, term or perhaps even a school year to know how they have performed and to see how they have progressed (Black *et al*, 2001). By that time it is too late for those who are under-performing to catch up to their peers. To deal with this problem, the focus in this study is on formative assessment, which intends to provide regular feedback to the learners to help them to improve before it is too late (Black *et al*, 2001).

Through the use of technological tools, such as CRS, to provide immediate feedback to the learners, misconceptions can be corrected immediately. Lambert and Lines (2000: 106) stated that “formative assessment provides the theoretical framework to deepen and improve the quality of teaching and learning in the classroom.” From this point of view, technology in classroom seems to be an ideal way of engaging learners as it encourages participation of all learners in tasks set for them by the teacher. Since this study is more concerned with feedback in a classroom setting, it is relevant to focus on the use of formative assessment (or assessment for learning) as a means of providing an immediate response to the learners, with the purpose of dealing with their misconceptions and deepening their understanding. The main reason to focus on formative assessment is because it occurs on daily basis and thus is designed to help the learner to continue to show improvement (Black and William: 2001).

Assessment for learning at times occupies an ambiguous and uncertain position in the world of education, as research (Lambert and Lines, 2000: 107-8) reveals that “day-to-day assessment ... is weak and the use of assessment to help planning of future work is unsatisfactory in schools. What is particularly lacking about standards they have achieved in a piece of work, and what they need to do to improve; whilst marking needs to be supportive of efforts made, it also needs to be constructively critical, and diagnostic of both strengths and weaknesses”. The researcher is of the opinion that this might be a reason for the

underperformance in the school investigated, which is why the study will look at formative assessment and feedback.

Lambert and Lines, (2000) have stated that “many teachers are looking for a good practice of formative assessment that enhances learning. But the kind of good practice inspectors and researchers say they want to see is not exactly easy to find. That good formative assessment practice is hard to find is also somewhat perplexing, for we imagine that many, if not most, teachers would say that they do it. Perhaps inspectors and researchers do not see it and it is the case that unlike formal summative assessment in the form of tests, for example, formative assessment may well be relatively invisible, in the teacher’s head rather than in some form of documentation.” In light of this it is important to find out how teachers give feedback in formative tasks to ensure that learning take place in a classroom setting. According to Lambert and Lines, (2000: 108), inspectors and researchers are looking for the kind of assessment that):

- Helps teachers plan future work;
- Informs pupils of the standards they have reached;
- Shows pupils what they need to do to improve;
- Is diagnostic of strengths and weaknesses; and
- Is constructively critical.

With these ideas in mind, formative assessment requires a teacher to give feedback to the learners from time to time, and at the same time the learners need an opportunity to give feedback to the teacher or to peers about learning events. That feedback could be used to identify / fix learning gaps and problems to release the potential of the learner.

It is thus the responsibility of teachers to create more formal and structured opportunities for self – monitoring and a means of making judgements about a learner’s progression towards achieving goals. From this perspective, it is important to note that self-assessment tasks are constructive, as are activities that encourage reflection on both the processes and the products of learning. An important aspect of self-assessment involves helping students both to identify criteria that apply to their work and to make judgments about how their work relates to these standards (Nicol and Macfarlane–Dick, 1989). Therefore, if criteria such as rubrics and other assessment grids are made explicit to the learners, especially in writing, these can be used by learners as a frame of reference or checklist to meet the performance requirements. According to Shulman (2004: 227) “teaching necessarily begins with a

teacher's understanding of what is to be learned and how it is to be taught." It is therefore crucial for teachers to know how it is to be assessed. In this way, every action or learning event needs to be made explicitly clear to ensure that learners are aware of what will be taught and how they are going to be assessed.

In light of the above, there is therefore a need for teachers to use certain criteria to assess knowledge taught, as well as the learners' performance or understanding of that particular knowledge. Assessment criteria seem to be important in helping the learner to improve, because learners are able to use these to assess the quality of their work before teacher or peer intervention takes place. As Gipps, (1999: 381), indicates, "this type of feedback encourages children to assess their own work and provides them with strategies that they could adopt to develop their work. Teachers, in this approach, are involving learners in the process of assessment as well as demonstrating power with – rather than power over – them." This also provides learners with an opportunity to ask teachers or peers if certain criteria are unclear, and to try and put in more effort to meet such criteria.

In essence, as stated by Lambert and Lines, (2000: 143 -4), "pupils should be trained in self – assessment so that they can better understand learning goals and appreciate their own potential as learners." From the teacher's perspective the intention is to therefore:

1. Break the pattern of passive learning;
2. Make learning goals ('the overarching picture') explicit to the pupils;
3. Establish a positive action cycle with pupils and teacher working together. For example, the three stage sequence can be practised:
  - a) to clarify the desired goal;
  - b) to establish the present position in relation to the goal; and
  - c) to find ways to close the gap (Lambert and Lines, 2000: 143 -4)

There are many types of assessment evidence that need to be taken into consideration when planning a lesson since each type may serve a different purpose. Lambert and Lines (2000: 113) summarised sources of assessment evidence as shown in Table 8.

**Table 8: Sources of assessment evidence**

Oral	Written	Graphic	Products
Questioning	Questionnaires	Diagrams	Models
Listening	Diaries	Sketches	Artefacts
Discussing	Reports	Drawings	Games
Presentations	Essays	Graphs	Photos
Interviews	Notes	Maps	Web page
Debates	Stories	Overlays	
Audio recording	Scripts		
Video recording	Newspaper article		
Role play	Bullet point lists		
Simulation	Poems		
<p><b>Questions to consider when planning lessons:</b></p> <ul style="list-style-type: none"> <li>• Which are produced rarely?</li> <li>• Which of these are produced frequently in your classroom?</li> <li>• In what ways do these activities provide different assessment opportunities?</li> <li>• Can you add others to these?</li> </ul>			

Source: Lambert and Lines (2000: 131)

Looking at this table, it seems as if in order for learning to take place, the two way relationships between either the teacher and the learner or learner and peers (Vygotsky: 1978) is essential to improve learning of an individual. This study aims to use the relationship and interactions between the teacher and learners to compare feedback that is given to the learners in an endeavour to improve their performance.

The aim is to explore the ways in which formative assessment is used in the school and to what extent valuable feedback is given to the learners. This is because it is through formative assessment that teachers and learners can identify learning problems and try to deal with misconceptions as quickly as possible. Formative assessment therefore encourages both teacher to learner and learner to learner interaction as a means of helping learners to improve (Black, 2003). Black's (2003) view of describing assessment for learning is that it "differs from assessment designed primarily to serve the purpose of accountability, or of ranking, or of certifying competition." It differs in the sense that formative assessment seems to be informal because it occurs from time to time to improve learning.

If teachers use formative assessment effectively, learners' misconceptions will be minimized or eradicated because they would become aware of the learners' problems as they progress (Hargreaves, 2005). The implication is that if teachers stay informed about learners' problems, they can plan accordingly to deal with them in the subsequent lessons (Hargreaves, 2005). Thus feedback may be used to deepen learners' understanding and knowledge of concepts taught in class. From this perspective technology such as a CRS seems to be a promising tool for promoting learning.

## **2.7 Feedback to promote learning**

Effective verbal and written feedback may be used to promote learning. In this way, one can argue that feedback plays a central role in engaging learners in the process of learning. Thus it is important not to view feedback in terms of marks awarded or in terms of other forms of reward given to the learners, because if that is the case, it might impact positively on those learners who are doing well and negatively on those who are not attaining the required standards. As Black (2003) argues, "feedback given as rewards or grades enhance ego rather than task involvement. It can focus pupils' attention on their 'ability' rather than on the importance of effort, damaging the self-esteem of low achievers and leading to problems of 'learning helplessness.'" This indicates that feedback needs to be designed in a way that can engage, motivate and improve the learning / thinking of a child. This study looks at and compares different forms of feedback given to the learners and evaluates the significance on learning of the various types.

It is noted that teachers can use formative assessment to plan appropriate lessons (Hargreaves, 2005) which can help the learners to improve. This is because as teachers engage learners into learning they receive feedback about their progress and strive to fill learning gaps which have been identified. In essence, formative assessment helps teachers to identify problems using feedback they receive from the learners' performance and to try to deal with misconceptions encountered immediately.

In order to promote learning, teachers need to make effective comments in learners' activity books, and learners need to be encouraged to use these comments to improve the quality of their work. Weeden *et al*, (2002: 115) state that "comments that focus on the task and its learning objective, and offer positive ways for pupils to improve their work, are likely to be more helpful than grades." Therefore, teachers should not assume that learners

automatically understand their comments and can make use of feedback without any reinforcement or guidance. In this respect, it is vital for teachers to help learners understand how their work has been marked and what they should do with the feedback given (Weeden *et al*, 2002: 114).

Bell *et al*, (2001: 65 – 66) argue that “formative assessment relies on nonverbal and verbal information.” To illustrate this Bell states that “a teacher will be observing children, in terms of facial expressions, body language, listening, talking, in practical activities; the teachers reading student work in their books; posters, charts, and notes and concerns, and the new understandings they were developing. The teacher sets up different learning situations to provide the opportunities for this information to be gathered or elicited.” In order to consider both nonverbal and verbal information, in this study the learners’ activity books will be observed to examine written comments and teachers will be observed in practice giving verbal feedback; in order to explore ways in which they engage learners into thinking or learning.

Black *et al*, (2001: 7), stated that “the dialogue between learners and a teacher should be thoughtful, focused to evoke and explore understanding, and conducted so that all pupils have an opportunity to think and to express their ideas.” The nature of this type of dialogue helps teachers to identify gaps and learners are able to deal with their misconceptions to improve learning. The teachers’ responsibility is thus to create a “conjecturing atmosphere” in class to stimulate interest in the learners (Love and Mason, 1995). According to Love and Mason, (1995: 258) “a conjecturing atmosphere is one in which everything said is taken as a conjecture; in which pupils seek to express their thinking when they are unsure, and to listen carefully to each other when they are sure about the topic to hand.” This emphasizes the need to explore the classroom situation in the school chosen for this study and to examine the ways in which learners respond to the feedback given to them in terms of whether it is significant in improving learning. The manner in which teachers formulate their questions and conduct classroom interaction will provide insight into whether their lessons are promoting learning.

Constructive marking and policies that promote learning need to be formulated to release the potential of the learner. In a school, it would be valuable to agree on one format of marking learners’ books to avoid confusion among the learners. As Weeden *et al*, (2002: 116) state, “pupils are often very confused about feedback when it comes in different forms from

different teachers.” One answer to this problem is for the school or departments to agree that feedback will only be given in the form of comments directly related to the learning aims; the differences will just depend on the kind of work being done. This might be a difficult policy to implement but based on the evidence would seem to be one that could help pupils to make sense of their learning progress (Weeden *et al*, 2002: 116). Therefore, marking It is vital to approaches should be positive in order to promote learning rather than competition between learners (Black, 2003). In this study, the marking approach of Lambert and Lines’ (2000: 167) which contrasts key ways of marking in a way that plays a significant role in motivating learners to learn with those ways which discourage learning, has been adopted as a means of evaluating written marking by the teachers.

**Table 9: Approaches to marking**

<b>‘CARROT’</b>	<b>‘STICK’</b>
<b><i>Types of marking</i></b>	<b><i>Types of marking</i></b>
Positive Enthusiastic Constructive Eager Generous Affirmative Encouraging	Negative Cool / distant Destructive Harsh Severe Critical Analytical
<b><i>Marking style</i></b>	<b><i>Marking style</i></b>
Give credit Look for intrinsic merit Marks from ‘bottom up’	Find faults Compares to the ‘model answer’ Marks from ‘top to down’
<b><i>Comments in learners’ books</i></b>	<b><i>Comments in learners’ books</i></b>
You have ... A good start that can be developed by ... Well done for ... Interesting point. Re – write this point to gain the mark ... The strengths in this are ... Ask me if you do not know why this is a brilliant sentence, claim, argument, etc.	You have not ... Develop this point. It is pity you have not ... What does this mean? Explain! The weaknesses here are ... Not good enough – see me!

Source: from Lambert and Lines, (2000: 167)

It is evident therefore, that comments in learners' activity books may either motivate them to learn, or may discourage them. In essence, teachers need to be trained on how to make valuable comments and on how to avoid comments which impact negatively on their learners.

In order to ensure that feedback promote learning it is necessary to adopt some guidelines for giving feedback from David Boud (1995) quoted in Weeden *et al*, (2002: 118). These guidelines were designed for those giving feedback to peers, but they apply equally to teachers giving feedback to their learners in classroom settings. What is important is what they mean to the person using them (Boud, 1995, quoted in Weeden *et al*, 2002: 118).

**Table 10: Some guidelines for giving feedback**

Be realistic	Don't compare
Be specific	Be diligent
Be sensitive to the goals of the person	Be direct
Be timely	Be positive
Be descriptive	Be aware of the consequences (e.g. avoid negative comments, etc.
Be consciously non - judgemental	

In this study, feedback is seen as a major component of learning. Therefore there is a need to find ways in which teachers can provide feedback which enables learners to construct meaning and to deal with their misconceptions. The value of written feedback will be determined by the quality of written comments in learners' activity books. Verbal feedback will be examined to ascertain whether it promotes learning. The questioning and interaction taking place in class will therefore be observed and the value of interactive classroom technology in promoting learning will be assessed.

## **2.8 Conclusion to the literature review**

From the literature discussed, it is evident that learners may learn better if they are given an opportunity to interact with each other in the process of knowledge acquisition and learning. Furthermore, assessment can be used to assist learners to construct knowledge and to make meaning of the world around them. However, learners generally need some guidance

from capable peers or a teacher to achieve this. In this study learning will be seen as a social activity. In this regard, the study will be framed by the theories of social constructivism and formative assessment with its concomitant aspect of effective feedback. Therefore, types of learning, models and approaches of learning have been discussed to clarify the best way in which learners can learn. It is evident from the literature that learners achieve if effective feedback is provided to them. Bearing this in mind, different types of feedback have been discussed as an introduction to the study which aims to evaluate whether the feedback given to the learners is sufficient in order to help them to improve.

## CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

### 3.1 Overview of the research design

This study was conducted at Primary School which is located in the suburb of Leondale, near to Germiston, which falls within the Ekudibeng (previously known as Ekurhuleni South) District in Johannesburg. This school had been chosen because the participants were easily accessible, as I teach there. It was also easy to access information such as the statistics of learners' performances in the Annual National Assessment and District Common Exams for analysis. Moreover, the school is typical of other underperforming schools at this level.

All grade 7 classes of 2011 had been selected to participate in the study, which aims to explore how teachers provide feedback in formative assessment tasks and how learners respond to different types of feedback in this school. Data pertaining to written feedback was obtained from randomly selected learners' books. Semi-structured interviews with teachers and selected grade 7 learners were undertaken, and three Maths and three English classes were observed to obtain the data required to answer the research questions pertaining to verbal feedback (See appendix 2: normal verbal feedback and appendix 3: feedback via technology). In order to examine the effectiveness of the interview schedules and observation data collection instruments, I piloted the study with a colleague who teaches Maths in Grade 6. This provided practice in classroom observation, which helped to ensure that adequate information had been collected so as to increase the reliability and validity of the findings (Powney and Watts, 1987). Classroom observations were also made when teachers used an interactive classroom technology (CRS).

In this study, mixed-methodology was used and both qualitative and quantitative methods were combined to gain an in-depth understanding of the trends in providing feedback to the learners from formative assessment tasks. As Ivankova *et al.*, (2011: 263) state, the reason for collecting and analysing qualitative and quantitative data within one study provides "a more elaborated approach to a research problem". In order to establish the level of learners' poor performance, the quantitative data (results of Annual National Assessment and District Common Exams) was analysed. Thereafter, a qualitative approach based on evidence gathered through observation and interviews which intended to deepen understanding of the problem was undertaken (Ivankova, Creswell, and Plano Clark, 2011). Mixed methodology had been promoted in this study because it could assist in minimizing the limitations of using

one approach only (McMillan and Schumacker, 2010) to investigate a complex problem of this nature. This was pertinent to a comparative study where tables, models and graphs have been used to capture and explain learners' responses to different types of feedback.

With the research design outlined above, it was necessary to acknowledge that one might end up with too much information for analysis which, as pointed out by McMillan and Schumacker, (2010), can provide a challenge in selecting what is important and crucial to the study. In this approach, both numeric information (for instance statistics of learners' performance in Annual National Assessment and common exams) and text information (interviews and observation) were needed (Ivankova, Creswell, and Plano Clark, 2011) to answer the study research questions. Therefore, an explanatory mixed methods design was used to elucidate the results or findings. The rationale behind adopting this design was to use qualitative findings (from interviews and observations) to assist in illuminating the quantitative results (statistics obtained from the school about Annual National Assessment and District Common Exams), and ultimately to assist the school in improving the performance of its learners. (Creswell *et al.*, 2003; Ivankova *et al.*, 2006 quoted in Pieterse and Maree, 2011).

Templates and interview schedules were created, and published models were adopted for use in the analysis of data. When piloting the study with a Grade 6 teacher, it was discovered that there was a need to make adjustments to the intended learners' structured interview templates in order to allow the emergence of their ideas about the use of formative assessment and the responses to the feedback they had received. Observations which fell outside the scope of the tools which had been designed were noted and evaluated independently. It was intended that the study would produce results which could allow for recommendations for improved performance to be implemented in the school.

### **3.2 Data Collection and Analysis**

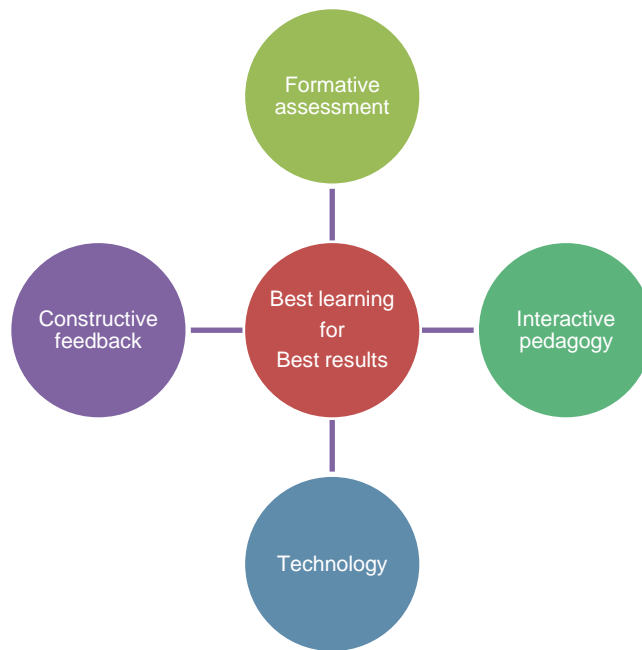
It was decided to divide the process of data collection into three phases to allow for better comparison between learner responses to different types of feedback. This was done in order to match the categories of sub-questions that were investigated.

### **3.2.1 Phase one: Statistics of Annual National Assessment and District Common Exams**

In this phase, the management of the school was requested to provide the statistics of the Maths and English results of the 2011 Grade 7 Annual National Assessment and common exams. These results were analysed in order to establish the level of performance of the learners, and to clearly define the problems in each of these two subject areas. This would thus provide a baseline with respect to the level of the problem of underperformance encountered in the selected school. It was hoped that since effective feedback is said to increase learning and performance (Black, 2003), identification of specific problems could potentially guide feedback for learning.

### **3.2.2 Phase two: Observations**

Phase two of data collection focused on observation of the feedback currently provided by teachers during lessons as well as written feedback provided in learners' activity books. Thereafter, teachers were taught how to use the CRS technology and their uses of this as well as learners' responses to it in terms of the feedback it provided were evaluated. Although initially they had been taught to use the technology from a mechanistic perspective, it was considered that it would be valuable to host a workshop where teachers could be shown the possibilities of this technology from a pedagogical perspective. A lecturer, Dr Elisabeth Brenner, from the University of the Witwatersrand, who had used the technology extensively for teaching, was requested to facilitate the workshop at the school. All teachers at the school were invited to the workshop which focussed primarily on how to integrate the interactive *Interwrite PRS* ('clicker') technology into the classroom to promote critical thinking and to encourage higher order thinking skills, to promote peer engagement, to encourage reflection and to use the technology to diagnose misconceptions. The workshop did however also address the value of in-time and positive feedback on learning from a more general perspective. This workshop was found to be valuable because, as shown in the graphic (Figure 3.1) below, it emphasized the ways in which technology can be incorporated into a lesson to maximize opportunities for learners to learn best and to produce better results.



**Figure 3.1:** Interaction between various aspects in the classroom with the incorporation of technology that promotes engagement and learning

To be more precise, in this phase it was decided to look at three categories of feedback provided to learners from formative assessment tasks.

### 3.2.2.1 Stage 1: Observation and analysis of learners' activity books

It was decided to adopt Lambert and Lines' (2000: 167) approach to marking and commenting (**see Appendix 1**) and to use their strategy as a tool to evaluate and analyse teachers' approaches to marking, specifically in terms of providing feedback to learners in written tasks. This tool had been chosen because of its potential to reflect key ways of marking which would provide feedback that plays a significant role in promoting learning.

A selection of the Maths and English activity books from three grade 7 classes were evaluated. Three books from each class were selected so that there would be at least one book from a strong, weak and average performer in each class. The selection of a book from each of these categories was random.

The 142 Grade 7 learners were ranked according to their performance in each subject area and then divided into three. Therefore, the first 47 learners on the list were considered the

top achievers, the middle 47 learners were considered to be average achievers and the lowest 47 learners were regarded as the lower achievers in the grade. The three groups were colour coded and inserted into class lists and then a book from each colour in each class was selected randomly. The selected learners' books were collected once a month over a period of three months for observation starting from July. The reason for observing each book more than once was to ensure that the information gathered from learners' activity books was valid and reliable. This means that each month nine Maths and nine English books were analysed i.e. an overall total of 27 books in each subject area in the study.

#### 3.2.2.2 Stage 2: Observation of teachers providing normal verbal feedback in the classroom

The researcher was a non – participant observer (Maree and Pieterse, 2011) in this process of collecting data from classroom observations. This means that I was able to look objectively at classroom interactions, the scaffolding of knowledge and the feedback to answers to questions provided by the teacher, and at the same time to evaluate the level of learner engagement taking place in the classroom setting without being directly involved. An observation schedule (**see Appendix 2**) was used as a check list to evaluate the feedback provided by the teachers in formative tasks, and was designed to facilitate objective observation and data collection. This observation schedule allowed for comments, so that anything relevant or interesting could be recorded at the time of observation. The aim of the classroom observations was to examine how teachers assessed learners' progress during lessons on a day-to-day basis, and to ascertain what types of verbal feedback learners were being given during lessons. Factors that might influence the nature of the verbal feedback were evaluated by interviewing the teachers to establish, in the first instance, how they viewed learning and assessment, and secondly how they rate the importance of feedback. One 30 minute lesson per learning area was observed.

#### 3.2.2.3 Stage 3: Observation of teachers providing feedback via CRS technology (clickers)

After the initial classroom observations, teachers were taught how to use the CRS (clicker) technology both from a technological and pedagogical perspective and were asked to use

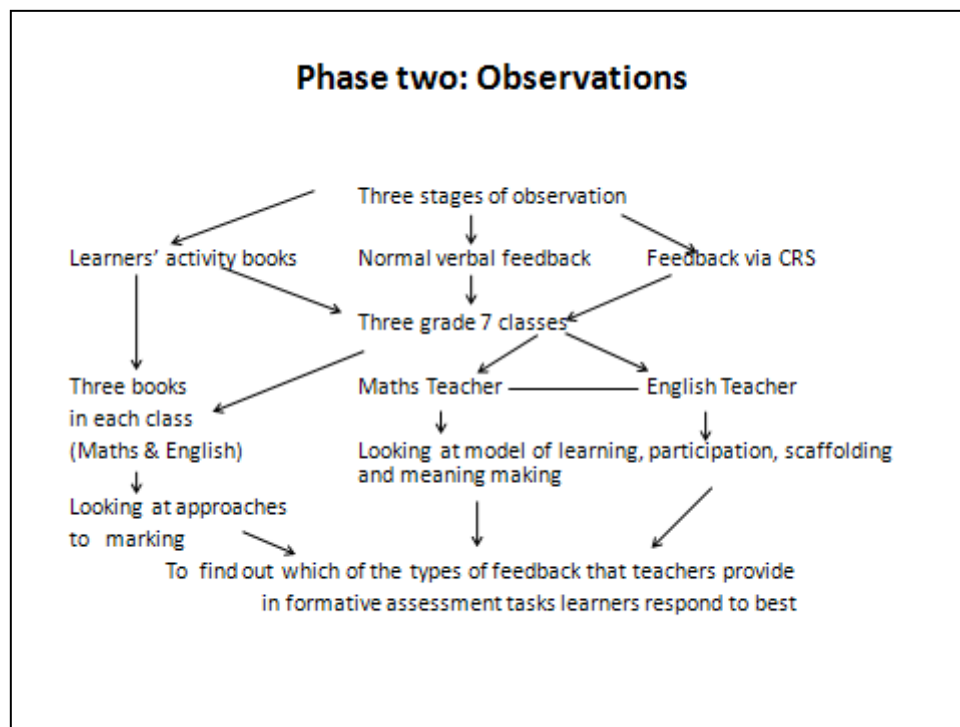
the system in their classrooms. The CRS technology selected was the Interwrite PRS. With this technology, each learner is given a personal response keypad, which they can use to respond to multiple choices, true or false, numerical or survey type questions displayed in PowerPoint which are projected from the teachers' laptop. Their responses are keyed in and sent via radio waves to a radio receiver plugged into the teacher's laptop. All the responses are collated and displayed graphically in the form of a bar-graph after each question. This allows the class to see how they are performing; each learner is immediately made aware of whether the answer that was submitted was correct, and the teacher is made aware of the level of understanding of the class in class in general during the teaching and learning phase. Use of the technology also provides the opportunity for meaningful discussion between the teacher and the class, and for discussion between learners on which answer to submit to the teacher.

Observations were made to establish whether the technology could be used to draw out learners' prior knowledge and to evaluate whether it would assist in maintaining learner attention, as well as create opportunities for meaningful engagement during class (Mellon: 2007). Specifically, observations were made on the feedback provided by teachers after the introduction of the technology, both prior to the workshop held at the school and afterwards.

Due to the large number of learners in grade 7 classes, ranging from 47 to 50 learners in each class, teachers find it difficult to provide in-time feedback to the individual learners. Teachers also find it difficult to ensure that all learners participate in class. As a result, it was felt that the use of CRS could assist teachers in engaging all learners during the lesson. In this aspect of the study, teachers were trained on how to use the clicker system and on the finer pedagogical aspects of its use in the classroom. The clickers, laptops (with the relevant software) and projectors were lent to the school by Sangari Pty (Ltd.), and technical support was also provided by the company.

The training of teachers commenced as soon as observations on classroom feedback had been completed. The reason for the timing of the training was because it was felt that this alone might be viewed as an intervention which could impact on the feedback provided to learners during lessons, and subsequently would skew the results of the study. The training took place after school and teachers were given the opportunity of practicing using the technology with their learners prior to the lessons which were observed.

In this study, one lesson per learning area was observed to examine the impact of immediate feedback when the CRS (clicker) technology was used. In order to evaluate whether the use of clicker technology improves or promotes learning, it had been decided to adopt the **Model of Learning: Teacher action during each stage of learning process** (Raid *et al*, 1989) (see **Appendix 3**). The effectiveness of the use of clicker technology was evaluated using this model in order to assess whether it had motivated and engaged learners. The use of CRS was also evaluated to see whether it had been used by teachers to improve learners' critical thinking and understanding of concepts.



**Figure 3.2:** The above mind map shows the three stages of observation used to collect data.

### 3.2.3 Phase 3: Interviews

In order to understand how importantly feedback was rated by teachers in the school, teachers were interviewed about their views on learning, feedback and assessment. Thereafter, learners were also selected for interviews about their views on the different types of feedback that they have received from the teacher.

Since the school chosen for the study had been regarded as underperforming, grade 7 English and Maths teachers were interviewed to ascertain their views on learning,

assessment and feedback. Special emphasis was given to probing how teachers felt that feedback and formative assessment could be used to help learners improve their understanding of concepts and to encourage critical thinking. The data obtained from the interviews were evaluated according to the scheme shown in **Appendix 4**. Also examined were the factors influencing the timing of written feedback given to the learners. Teachers' views on the use of technology (CRS) to provide feedback in formative tasks were also collected. These interviews took place during break or immediately after school, with each interview lasting between 20 and 30 minutes.

Thereafter, learners were interviewed to examine their response to the different types of feedback received from their teachers (**see Appendix 5**). They were asked to explain whether or how they had made use of such feedback to learn. This means that questions asked during the learner interviews were focused on how they had felt that the verbal feedback, written feedback and feedback via CRS technology had promoted or enhanced their learning. Three learners in each grade 7 Maths and English class were selected for interviews and were asked 9 questions in a semi-structured interview. These interviews were scheduled to take place during breaks so that they did not impact on learner's scheduled class times.

### **3.2.4 Data analysis**

When analysing data, it was obvious that learners in the School scored below 65 % in ANA, and, as a result, the school was classified as 'underperforming'. The Department of Education (DOE) had therefore intervened with the intention of assisting the school to perform better in the future. One of the interventions staged by the DOE was a requirement to write Common Exams set by the Gauteng Department of Education every term. From the ANA results shown in Figures 1.2 and 1.3 in the previous chapter, it is evident that in 2011, the learners in my school were below average in both English and Mathematics. The Learning Area Average in English was 38 %, and in Mathematics was 31 %. Both of these scores indicated that the school would have to improve substantially in order to reach the required National Assessment Standards. From Figure 1.2 and 1.3 it can be seen that the majority of learners underperformed and that there were very few learners who performed adequately or well.

Notes were made during classroom observations of teachers providing normal verbal feedback and feedback via technology to the learners. One observation per subject area in a

grade 7 class was made. Data was clustered into tables displaying evaluation criteria. The table cited an ideal classroom situation in terms of feedback and promotion of engagement for learning by listing criteria supporting this type of environment, and then grading the actual situation observed in the classroom on a four point Likert scale (McMillan and Schumacher, 2010). This evaluation tool was designed to assist the researcher with the analysis of the observations, and to assist him in drawing objective conclusions from the qualitative research.

In another phase of the investigation, a selection of the Maths and English activity books from three grade 7 classes were evaluated. Learners' activity books were evaluated according to a rubric with set criteria. An attempt was made to match the comments in the books with the criteria in the rubric, and the comments were also rated and colour coded to assist in making objective evaluations of the general level of feedback given to the learners in each subject.

In the next phase of the study, the English and Mathematics teachers who had been observed during class were interviewed in order to ascertain what factors might have affected the level of feedback generally provided both verbally during lessons and in the learners' books. In the final phase of this study, learners from each level of achievement were selected randomly to be interviewed in order to find out which type of feedback they thought best assisted them to learn. The same approach used in the selection of learners' activity books was applied when randomly selecting learners for interviews.

#### **3.2.4.1 Classroom observations**

Data collected from all classroom observations were collated into rubrics which had been designed specifically for each learning area. Each rubric listed criteria divided into different areas viz. feedback; what the teacher does in class, what learners do in class, attempts to clarify tasks, and the teaching and learning environment (which would be considered essential in an environment which would be the most enabling for learning especially with respect to provision of meaningful feedback). Each criterion was then rated according to classroom observations on a four point Likert scale (strongly agree, agree, disagree, strongly disagree). The number of times each category was scored was plotted onto a bar graph, and the following scale of equivalence was awarded:

Strongly agree = most enabling environment

Agree = enabling environment

Disagree = not an enabling environment

Strongly disagree = least enabling environment

This strategy afforded an objective way of graphically viewing each classroom situation in terms of how enabling it would be for learning especially in terms of feedback from formative assessment.

### **3.2.4.2 Analysis of Written Feedback in Learners' books**

A strategy similar to the one described for analysis of data from classroom observations was adopted. Specially designed rubrics were used to code feedback provided in learners' books and a similar graphical representation is presented in the results section.

### **3.3 Limitations**

One cannot assume that the outcome of this investigation would be indicative of the practice of all the teachers in the chosen school, or whether it would be indicative of the situation that exists in most South African schools. Moreover, since the scope of this investigation was limited to one particular school, it is acknowledged that other schools may have different experiences and problems. It is also understood that there are other kinds of technology that can be used to enhance learning. However, in this study it was decided to focus on the use of CRS clicker technology as a tool to enhance engagement and to compare responses to the feedback it provides with normal written and verbal feedback. The study was however carried out within the theoretical framework of feedback, social constructivism, types of learning (surface and deep learning), formative assessment and technology (referring to CRS) which can be used to promote learning. This suggests that results on feedback and learners' responses to different types of feedback can be extended to a more generalised situation. Figure 3.3 shows the theoretical framework in which this study was located.



**Figure 3.3:** Theoretical framework in which this study was located

Finally, it is also acknowledged that there were many units of analysis that needed to be evaluated in this study. It was for this reason and for the sake of clarity and better time management that the process of data collection was divided into phases so that each could be analysed separately. Findings of different phases were combined to make comparisons and draw conclusions.

### **3.4 Delimitations of the study**

The study was restricted to an investigation of the Grade 7 English and Maths classes in the school chosen for the study. In terms of assessment, only formative assessments in written tasks, through classroom interaction, and posed via a CRS and the resulting feedback from these types were evaluated. Only two Grade 7 teachers (those teaching Maths and English) were observed in the classroom and were interviewed afterwards. A limited selection of books was analysed. Learner responses to the feedback given were also confined to those selected to be interviewed.

### **3.5 Significance of the Study**

Although the study was confined to one particular primary school, the school selected was typical of many other schools which had been designated as “underperforming” in South Africa. In light of this, it was anticipated that the findings of this study could inform the practices of other primary school teachers, and thus lead to the improvement of numeracy and literacy in other schools with similar problems as the target school. If use of the technology should lead to a significant improvement with respect to feedback and its concomitant effects on learning, this could inform government or provincial decisions as to whether to introduce this more widely into schools.

### **3.6 Ethical Considerations**

In an endeavour to take ethical issues seriously, I applied for permission to the Department of Education (**see Appendix 10**) to do this research. This was necessary because I intended to interview and observe teachers in practice and to interview learners about the feedback they receive from their teachers. As a result, teachers (**see Appendix 6**), the principal (**see Appendix 9**) and parents (**see Appendix 7**) were requested in writing to give consent to participate in the study. The objectives of this study were communicated to them to explain the process and study as a whole. With regard to the learners, activity books were observed as per normal practice at the school, and some of the learners were selected for an interview in order to examine their response to the feedback which had been provided to them. It was for this reason that consent was requested from their parents (**see Appendix 7**) and learners were asked if they wish to participate in the study (**see Appendix 8**). Learners and their parents were assured that they would not be prejudiced in any way should they not wish to participate in the study and would not be affected directly by the findings of the study. The principal of the school was informed in writing (**see Appendix 9**) about the aim, purpose and ethical issues of the study in order to get permission from him to do this research. Personal arrangements to pursue the study were made with the principal to schedule times for class visits / observations and interviews with all participants. All these processes took place during school hours, and there was therefore a need to apply for permission (**see Appendix 10**) from the Gauteng Department of Education.

Participants in this study were informed that participation was not compulsory, and it was emphasized that the participants had the right to choose whether to participate or not. It was also realised that in some studies coercion might be subtle, and for this reason I emphasized that they would not be letting me down in any way if individuals should choose not to participate. Participating learners were also assured that the name of the school and the name of participants in this study would remain anonymous when presenting the findings or writing the research report, and all raw data would be kept confidential.

The notion behind the use of informed consent (forms) in this study was to provide an opportunity to explain the reason for the research, and to inform participants that they may terminate their participation at any time with no penalty. It also served to disclose any risks associated with the study (McMillan and Schumacher: 2010). This is despite the fact that it was not anticipated that there would be any risks in this study as findings would not prejudice the participants in any way. Learners were asked to consent to participate. McMillan and Schumacher, (2010: 199) have emphasized that “this means that learners agree to participate after knowing about the study and any potential for risk or harm.” As I am also a grade 7 teacher, I tried to explain personally about the significance of this study to the school and to me in my personal capacity as I was undertaking the research for an M Ed research report. I confirmed to all participants that the privacy of research participants would be protected. This meant that access to participants’ characteristics, responses, behaviour, and other information would be restricted to the researcher, and data would be kept in a locked cupboard to which only the researcher had access and the data would be destroyed after five years. In essence, the names of the school, teachers and learners who participated in the study were kept confidential and the data was used only for the purpose of fulfilling the requirements for my M Ed degree.

## **CHAPTER 4: RESULTS**

### **4.1 Overview of the presentation of the results of the study**

The Grade 7 English and Mathematics classes were selected for this study. Specifically, the study focussed on an evaluation of the feedback provided to learners in these subjects. To this end a multi-pronged approach was used to assess the level of feedback provided through various means. According to the results of these assessments (or learner performance in both ANA and District Common exam) which were shown earlier (Figures 1.2, 1.3, 1.4 and 1.5), learners in this school were found to be weak in both the key areas of English and Mathematics. When I observed various internal examination papers, I noticed that the standard of these papers is low compared to both the Annual National Assessment and District Common Exams. My judgement has been based on the fact that many questions in the internal papers only require lower order cognitive levels and very few (if any) questions fall under high order thinking. This alone means that learners are unable to respond to questions requiring critical thinking and other higher order thinking skills (see Table 2). These results created a need to investigate the problem in the school. Having considered various possible reasons for the poor performance of the learners in the school, it was decided to investigate how teachers use formative assessment to provide feedback to the learners and also examined what types of feedback could best engage learners and promote learning.

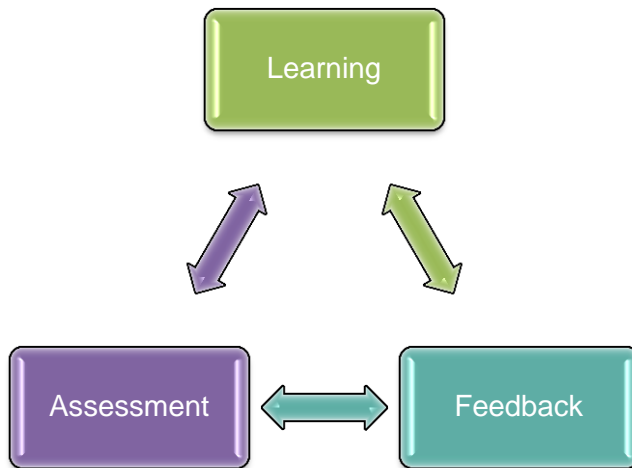
In the first instance classroom observations were made by the researcher who was a non-participant observer (Maree and Pieterse, 2011). The aim of the classroom observations was to examine how teachers assess learners' progress during lessons on a day-to-day basis and to ascertain what types of verbal feedback learners are given during lessons with and without the use of technology and prior to and after an intervention in which a university lecturer gave a workshop on the pedagogical aspects of the CRS technology and its use in formative assessment and the value of appropriate feedback. From this perspective the role of the technology was also assessed to establish whether learners felt that they benefitted from the immediate feedback it provided, and whether it could be used to draw out learners' prior knowledge, whether it assisted in maintaining learner attention and if it created more opportunities for meaningful engagement during class (Mellon: 2007).

Notes were made by the researcher during classroom observations of teachers providing normal verbal feedback and feedback via technology to the learners. One observation per subject area in a grade 7 class was made. This means that each teacher was observed

providing normal verbal feedback and once providing feedback via technology. Data were clustered into tables displaying evaluation criteria. The table has cited an ideal classroom situation in terms of feedback and promotion of engagement for learning by listing criteria supporting this type of environment and then grading the actual situation observed in the classroom on a four point Likert scale (McMillan and Schumacher, 2010). This evaluation tool was designed to assist the researcher with the analysis of the observations and to assist him in drawing objective conclusions from the qualitative research. To this end tables were colour coded and bar graphs were subsequently constructed to indicate how often each category was encountered. Dark green (strongly agree with the criterion) was used to indicate that the environment was “very enabling”, light green (agree) was chosen for an “enabling” rating, yellow (disagree) for “not enabling” and red (strongly disagree) for “least enabling” environment. This strategy enabled the researcher to compare and analyse the observations and assisted in their interpretation.

In another phase of the investigation, a selection of the Maths and English activity books from three grade 7 classes were evaluated. Learners’ activity books were evaluated according to the rubric shown below which had set criteria. An attempt was made to match the comments in the books with the criteria in the rubric and the comments were also rated and colour coded to assist in making objective evaluations of the general level of feedback given to the learners in each subject.

In the next phase of the study, the English and Mathematics teachers who had been observed during class were interviewed in order to ascertain what factors might have affected the level of feedback that they generally provide both verbally during lessons and in the learners’ books. Amongst other questions, teachers were asked how they view learning, how they view assessment and how they would rate the importance of feedback. These three pillars were seen as critical in influencing learners’ performance and their interdependence is shown in Figure 4.1 below:



**Figure 4.1:** Representation of the continuing sequence of events that needs to be taken into consideration in order to release the potential of the learner to achieve better results

In the final phase of this study, learners from each level of achievement were selected randomly to be interviewed in order to find out which type of feedback they thought best assisted them to learn. The same approach used in the selection of learners' activity books was applied when randomly selecting learners for interviews.

Finally, in order to make sure that the data make sense, a frequency distribution analysis (McMillan and Schumacher, 2010) was undertaken in order to establish how often each rating occurred.

## 4.2 Classroom Observations

### 4.2.1 Description of normal verbal feedback during an English lesson (without the use of technology) and prior to the intervention.

During the English lesson which was observed, the teacher returned test papers to all the learners in the class so that they could revise the test. It was noticed that learners immediately began comparing marks and that some were pleased with their results whereas others were obviously unhappy with their performance. Learners were required to fetch papers from the teacher in the front of the classroom. On their return to their own desks it was noticed that some learners immediately put the test away and hid it in a book. However, they were asked to put their papers on their desks and to get ready to do corrections. Some

learners, especially the lower achievers, put their hands on top of the test paper to hide their marks while they were writing corrections. Most of the time the top achievers were the only ones who provided answers to the teacher's questions while the rest of the class sat writing corrections and were unresponsive. The teacher provided the correct answers to the test questions on the blackboard. While the teacher indicated whether the answer provided in response to his verbal questioning was correct or incorrect, he didn't engage learners by asking them to justify their answers. This was a missed opportunity for diagnosing misconceptions. Learners simply read answers from their test papers. New questions or follow up questions were not asked to promote debate, arguments or dialogue. Learners didn't ask questions of the teacher either and there was little discussion amongst peers. It appeared that the main focus was on what the correct answer should have been rather than on promoting understanding of the material that had been assessed.

Learners showed each other respect in that they didn't interrupt if the teacher was talking or if a peer was busy answering a question. The learners were prepared to take instructions from the teacher. It appeared that lower achievers were scared to make contributions to the class.

In the classroom setting, most of the learners' discussion was focussed around the test, especially the marks obtained. If an individual learner knew the answer, s/he was given an opportunity to communicate his/her response with the rest of the class. The teacher then indicated whether the answer was correct or incorrect and all correct answers were written on the chalkboard. The teacher also made general comments about learners' performances in the test, and he thanked those learners who managed to perform well in the test and also asked those who didn't achieve to put more effort (to study and to read questions with understanding). Throughout the period, learners responded to what the teacher asked. However, as mentioned, no one debated answers or asked questions to enhance their understanding. It appeared that everyone was content with just establishing the correct answer to each question. In the classroom, desks were arranged in rows and learners were seated in pairs. However, despite sitting next to a peer, learners were not asked to discuss difficult questions with the person sitting next to them or to brainstorm ideas. It was also noticed that the situation in class was very formal and that no one talked without permission.

Results of the English classroom observations have been incorporated into the rubric shown in Table 11. This rubric lists criteria which would describe an enabling teaching and learning

environment and then according to observations made during the contact time, each of these criteria was considered and categorized according to whether the researcher agreed that this aspect had been observed. Examples of observations made which justified the category have been included in the table. Thus data were incorporated into a table and the observation of each criterion was assessed on a four point Likert scale. The table was colour coded and bar graphs were subsequently constructed to indicate how often each category was encountered. Dark green was used to indicate that the researcher strongly agreed with the criterion, light green was chosen if the researcher agreed, yellow for disagree and red for strongly disagree. This strategy enabled the researcher to analyse the observations and assisted in their interpretation since mostly dark green blocks would indicate that the environment was very enabling, mostly light green would indicate an enabling environment, mostly yellow blocks an environment which indeed was not enabling, and mostly red blocks the least enabling environment.

**Table 11: Classroom Feedback in Grade 7 English**

Name of the lesson: English Test Revision

Grade 7: All inclusive

Strongly agree	Agree	Disagree	Strongly disagree
<b>1. Feedback</b>			
<b>Criteria</b>		<b>Example / s of observations made to justify the rating of each criterion</b>	
Objectives of the lesson were made explicit		Often, the teacher made explicit on what learners should learn (test feedback) in class.	
Learners were interacting		Often, learners were responding to the questions asked in the test / by the teacher.	
Learners participated in various forms of 'dialogue'		It was observed that debates or dialogue were not stimulated or established to enhance understanding.	
Teachers diagnosed misconceptions and scaffolded information		The teacher never diagnosed misconceptions and scaffolded information.	
Learners were given advice on how to answer each question rather than just being given the correct answer.		The teacher was observed providing few explanations on what was expected from the learners in answering the question.	
Decision made about correct or incorrect answers and reason / s were given afterwards as to why that is a case.		The teacher never gave learners reasons on what had made their responses correct or incorrect.	
<b>2. What the teacher does in class? (Knowledge)</b>			
Decide what learners should learn.		In this case learners were told that they were revising the test.	
Knowing how to ask questions to promote engagement with the material.		Never asked new questions except those that were in the test that was being revised.	
Are creative enough to deepen learners' understanding		Learners were asked new questions; they were not stimulated to debate or have arguments to show that they could view things from different perspectives.	
Are able to promote problem solving.		Learners were never asked to give reasons to their answers and it was observed that surface learning was promoted.	
<b>3. What learners do in class?</b>			
Listen to the teacher and to each other		Learners were observed to pay attention and participate in class discussions.	
Obviously feel free to ask and answer questions, argue, debate and demonstrate their level of understanding		Learners responded to the question asked by the teacher but never asked new questions or asked for explanations.	
Do not hesitate to participate		Often, top achievers were observed to participate but lower achievers seemed to lack the confidence to participate.	
Learners were encouraged to do oral reading, share feedback and rehearse information.		Learners were observed hiding their marks and this behaviour makes conclude that they felt uncomfortable in sharing the feedback with others.	
<b>4. Approaches to clarify classroom activities / tasks to the learners</b>			
Verbal explanation was given		The teacher always told the learner what is expected.	
Explanation of assessment criteria was provided		The teacher always read questions and clarified the assessment criteria to the class.	
Exemplars of good work were shown		Never shown exemplars of good work to the learners	
Learning barriers were identified		Never identify learning barriers amongst the learners.	
<b>5. Teaching and Learning Environment</b>			
Environment enables learning		Learners never disputed or contested the teacher's or others' opinions or answers	
Creation of a relaxed environment where everyone felt comfortable asking questions.		Often, learners respected each other's opinion	
Entertaining environment whereby learners enjoy learning		Lower achievers were visibly upset when asked to display their test papers on their desks and to write corrections.	
Encouraged a relaxed environment for teaching and learning		Learners were called to order if they made a noise. The environment was tense/strict and very formal	

Results from five categories were considered. These are: 1) feedback, 2) teacher's action, 3) learners' action, 4) approaches to clarify learners' activities and 5) teaching and learning

environment. The categories which are included in table 11 were evaluated and rated according to classroom observation in order to ascertain whether there was alignment between actual behaviour / actions and the criteria listed in the table which describe an enabling teaching and learning environment.

With respect to feedback, it was evident that while the objectives of the lesson were made explicit and learners were seen to be interacting, the teacher did not create a dialogue or explain sufficiently why specific answers were correct. The most worrying aspect was the lack of scaffolding and diagnosis of misconceptions. Learners were also not advised on how to answer questions. Over-all what appeared to be lacking was the creation of a dialogic learning environment which would encourage critical thinking.

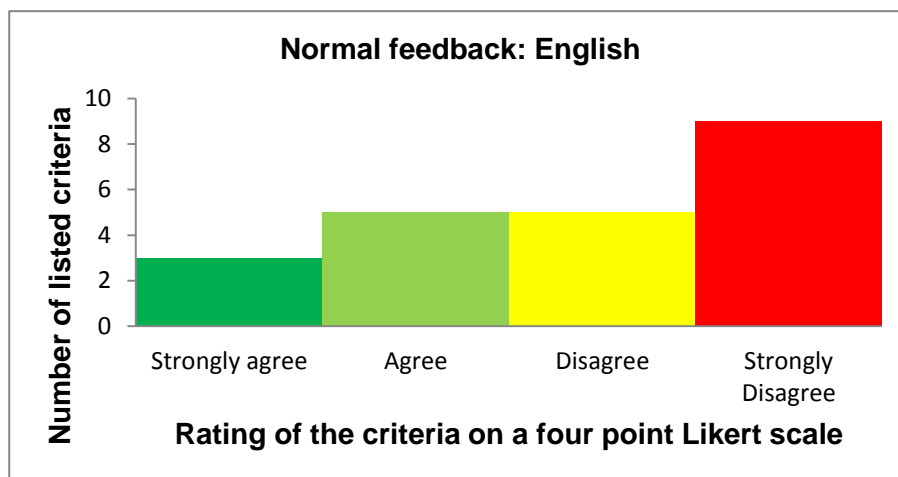
Secondly, four criteria were used to evaluate the teacher's action in class. As can be seen from the table, the teacher always (dark green rating) had a clear idea of what was to be learnt. A worrying factor in this category was to discover that the red colour was coded three times because it indicated that teachers did little to promote deep learning, did not encourage problem solving and engagement to enhance understanding.

Four criteria were used to evaluate the learners' actions during contact time. With regard to this category, it was noticed that only some learners participated in classroom discussions or responded when the teacher asked questions. Most of the time when questions were asked, top achievers and middle achievers were selected to respond to the question. It was worrying that lower achievers were not selected to respond to the questions asked. This means that lower achievers were not given enough opportunity to express their views in the class and as a result they missed an opportunity to receive feedback.

The next category evaluated the approaches taken by the teacher to clarify classroom activities / tasks to the learners. It was observed that learners were instructed to do corrections but that learners were given no guidance on how to construct a good answer and barriers to their learning were not identified. This again is indicative of inadequate feedback. Nevertheless an explanation of the assessment criteria was often provided.

Finally, criteria which would create an enabling teaching and learning environment were evaluated. It was observed that most of the time the teacher prefers a formal teaching and learning environment in which he keeps strict control, in preference to a relaxed environment. This meant that lower achievers were not comfortable asking questions and were visibly upset when required to display their test papers on their desk and to write corrections. The environment was tense and very formal.

In order to provide a general impression of how enabling the classroom environment had been for learning from formative assessment, a bar graph (Figure 4.2), which illustrates how many times each category had been selected in terms of the criteria listed in the rubric, was constructed:



**Figure 4.2:** Assessment of the Classroom environment in English. The graph indicates how many times each criterion (chosen for an ideal classroom situation) had been rated on a four point Likert scale

As can be seen from Figure 4.2, out of the 22 criteria which would describe an ideal learning environment, the researcher found 13 of these to be missing in the classroom. The formality of the classroom environment did not always support learning, as learners were not relaxed enough to ask questions and to engage in dialogue and discussions. Learners also needed more guidance into how to answer questions and would have benefitted from being shown exemplars of good work.

#### **4.2.2 Description of normal verbal feedback in the Mathematics class (without the use of technology)**

In the mathematics class observed, learners were asked to sit in groups and were reminded that one learner in each group would be given five minutes to provide feedback on the task given. Their task was to investigate ‘measuring distance’ in the school yard, netball or soccer field and steps counted when they walk home. Learners’ groups were allowed to choose one

topic from those listed above. Learners were also told to demonstrate which formula they had applied to work out calculations.

One learner in the group stood up and presented the groups' findings to the class. Learners also demonstrated how to go about converting units like metres into kilometres and showed other learners by writing on the chalkboard what they did to calculate the distance by using the following formula:

$$L \text{ (Length)} \times B \text{ (Breath)} \times H \text{ (Height)} = D \text{ (Distance)}$$

The teacher asked the presenter questions in an attempt to help the group to clarify certain things. The other learners passively listened to the presenter and the teacher. It was noticed that only top achievers participated in this lesson. In some groups other members did not help the presenter if he/she was asked by the teacher to clarify any points in the presentation. At some stages the teacher showed learners how to do the calculations to arrive at the correct answer to the problem. He also helped the presenter to justify / clarify answers to the class.

Learners respected each other's opinions and the teacher. It was noticed that the teacher was the authority figure. At the end of presentation the teacher thanked the presenter and the group for their efforts. However, it was noticed that there were no explicit assessment criteria given to the learners so that they would be aware of what was expected of them.

It was evident that the learners' conversations were focussed on their class work. In particular, they were talking about the procedures involved in inter-converting units. At some stages learners were observed to be arguing about who would represent the group. During presentations, it was only the teacher who questioned or challenged the opinions of the group presenter. Other learners didn't contribute to any arguments that emerged in class. Once again, the teacher was the authority figure and learners looked to him to show them how to solve the mathematic problems based on unit conversion and on how to measure distance. Data have been incorporated into a table (Table 12) and criteria have been assessed on a four point Likert scale as described in section 4.2.1.

**Table 12: Classroom Feedback in a Grade 7 Mathematics class**

Name of the lesson: Measuring distance

Grade 7: All inclusive

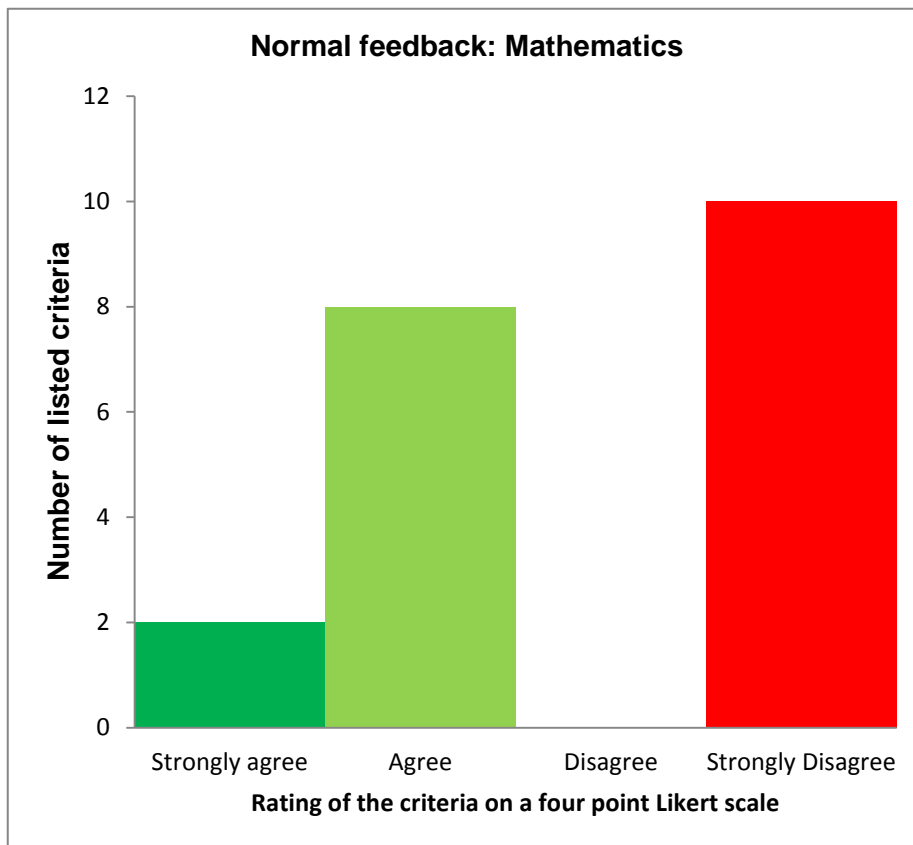
Strongly agree	Agree	Disagree	Strongly disagree
<b>1. Feedback</b>			
<b>Criteria</b>		<b>Example / s of observations made to justify the rating of each criterion</b>	
Objectives of the lesson were made it explicit			The teacher articulated the learning objectives and aim: measuring distance
Learners participated in various forms of demonstration or showing others how to work out the problem			Often, the teacher asked the top achievers to demonstrate or show others calculations on the green board.
Teacher used examples to simplify complex mathematics problems or to show learners how to solve the problem.			He was observed showing learners calculations on the green board.
Learners were provided with explanations about methods of calculating			He did not provide explanations about methods or formulas of calculations.
Teacher explained why an answer was correct			Often, learners were given reasons when answers were correct or incorrect
<b>2. What teacher does in class? (Knowledge)</b>			
Deciding what to learn			Always telling learners what to do and how to solve mathematics problem: measuring distance
Knowing how to ask questions or engage learners into tasks (thinking)			Never asked additional questions, only prescribed questions were discussed. Learners only provided prepared answers.
Creative enough to deepen learners' understanding on mathematics concepts			Observed asking learners to show calculations on the board which makes them try to scaffold calculations or steps to the possible answer.
Able to promote problem solving			Never asked the learners to prove their answers.
<b>3. What learners do in class?</b>			
Listen to the teacher or to each other			Always listen to each other or to the teacher.
Learners feel free to challenge calculations made by others or to correct each other.			Never challenge each other or correct each other. Only a teacher that was observed seeking clarity to those learners who were presenting.
Do not hesitate to participate			Never took initiative to assist each other when one of them presents the findings.
Learners were encouraged to share information, feedback and rehearse information.			Never asked to work in peers or in groups to work out mathematical problem.
<b>4. Approaches to clarify classroom activities / tasks to the learners</b>			
Verbal explanation was given			Often were told what to do and how to go about to deal with mathematical calculations.
Explanation of assessment criteria			He was observed showing learners how to follow procedures when measuring distance.
Exemplars of good work were shown.			Never observed him giving or showing learners a good example on how to measure distance.
Individual learning barriers were identified or diagnosed			The teacher never diagnosed learners' strengths and weaknesses except those learners who were presenting.
<b>5. Learning and teaching environment</b>			
Valuing everyone's' contribution in solving the problem.			Often, the teacher helped the presenters to clarify their answers.
Relaxed environment where everyone felt comfortable asking questions.			Learners were not given enough opportunities to ask questions if they do not understand.
Encouraging environment for teaching and learning.			Learners were called to order if they made a noise even if this was related to their learning.

In light of criteria mentioned on Table 12 the results show that during the lesson the teacher did not explain methods or formulas that needed to be followed to solve the problem. This means that learners were expected to know them beforehand and be able to apply them to the given tasks. It was however, encouraging to observe that the teacher made an attempt to inform learners what to do and assisted them with their calculations. One may argue that those learners who participated the most were given the most opportunity to acquire knowledge and get feedback compared to those who were passive in the classroom.

It was observed that learners were only required to respond to the prescribed questions and were not asked new questions which would have enhanced their understanding of the mathematics concepts. These questions could also have been used to ascertain if they had understood the procedures that are required to solve the problem rather than asking questions to which they could obtain the answer by referring to their exercise or work books. When learners were asked to show how they had obtained answers they did not need to do more than write previously prepared answers on the green board, rather than being asked to prove that they had understood the procedures. If the teacher asked them how they had obtained a particular figure they seemed to be confused.

In addition, engagement was not adequately encouraged because it was observed that learners did not challenge other learners' answers. It is also felt that they could have been encouraged to help each other with calculations in order to deepen their understanding. It was only the teacher who judged whether responses were correct or incorrect. Nevertheless, the teacher was very encouraging and made it clear that he valued the contribution made by the learner who had responded to a question. The feedback given by the teacher was constructive. The worrying factor was that there was no attempt to check whether the other learners in the class had grasped the concept. This would have been possible if individuals had been asked to demonstrate or show others how to solve particular problems.

The bar graph below (figure 4.3) presents an overall view of the class observed in terms of whether it enabled good feedback in a relaxed and dialogic environment. As described previously, the strongly agree category of the Likert scale was considered the most enabling, agree equated with enabling, disagree with not enabling and strongly disagree with the least enabling. The graph, which illustrates how many times each category was encountered, thus indicates how enabling the classroom environment was for provision of meaningful feedback as well as the situation regarding feedback *per se*.



**Figure 4.3:** Bar graph that shows the number of times each criterion listed for an ideal classroom situation had been rated on a four point Likert scale after observations in the grade 7 Mathematics class.

Once again in the mathematics class there were many points that were not in line with the researcher’s listed criteria. For example, learners were never asked to work in pairs to brainstorm or discuss complicated calculations. There were also many other criteria which were not observed as is evident from the height of the red coded area in Figure 4.3. While the teacher appeared to be solid and encouraging, it is felt that more could have been done to introduce or integrate other methods of teaching to enhance learning of children especially since the learning environment did not promote engagement in class.

### 4.3 Feedback via the Interactive Classroom Technology

#### 4.3.1 Feedback via technology in a grade 7 Mathematics class

The mathematics teacher was shown how to use the technology and how to set up questions in PowerPoint using the software. However, it is important to note that observation

of the mathematics class which used this technology occurred before an intervention at the school which aimed to inform teachers how to use the technology as an effective pedagogical tool and how to use it to provide appropriate feedback and to see it as an opportunity for engagement to promote critical thinking rather than just relying on the technology to inform learners whether their responses had been correct. At the start of the lesson, learners were informed that the content would be on graph interpretation. Learners were aware that they were going to use technology (clickers) to respond to questions set by the teacher and posed to the class. Questions were displayed in a PowerPoint presentation and learners were requested to activate their clickers to join the class and were encouraged to send their answers on time so that all the responses would be valid.

Before the lesson the teacher was advised to prepare multiple choice questions or True or False questions to maximize chances of quick responses to the question asked and because learners would find it easy to respond to questions when using the Clickers. Twenty questions had been set up for the lesson and it was noticed that sixteen of them were in multiple choice format and four of them required a true / false response.

Thereafter, the teacher read the first questions and options for the learners. The question was sent to the learners and everyone in the class responded on time. Learners could not disguise their excitement when they saw the whole class' responses on the screen. The teacher asked them to reduce the noise, and then described the results without asking the learners why they made their choices. Learners were not given a chance to discuss complicated questions in pairs or in groups before submitting answers. The teacher simply read each question and then asked learners to respond independently.

Inside the classroom, desks were arranged in rows and learners were seated in pairs. Learners were not asked for opinions about which answer would be the correct one, and there was no follow-up discussion once the correct answer was displayed on the screen.

Learners were excited about the responses that had been displayed on the screen. Everyone was happy because answers were anonymous, although some learners claimed to have every answer correct. Even the lower achievers were not shy to participate because there were given a fair and equal chance to send their answers without being intimidated by the top achievers in the class or even by the presence of the researcher.

Learners continued to discuss their answers to the questions while the teacher tried to maintain silence in the classroom. Learners tried to trace 'who sent what' and to create a little bit of competition in class as if they were playing games. Others attempted to be number one or last when sending their answers. Despite obviously enjoying the use of the

clicker technology, learners were not encouraged to ask questions about the content. The observations were rated according to what extent the researcher agreed or disagreed with the criteria listed in the rubric (Table 13), and colour coded as described previously. A graphical display was also used to indicate whether the environment had been enabling for learning and giving appropriate feedback for learning.

**Table 13: Feedback via technology (Clickers) in a grade 7 mathematics class**

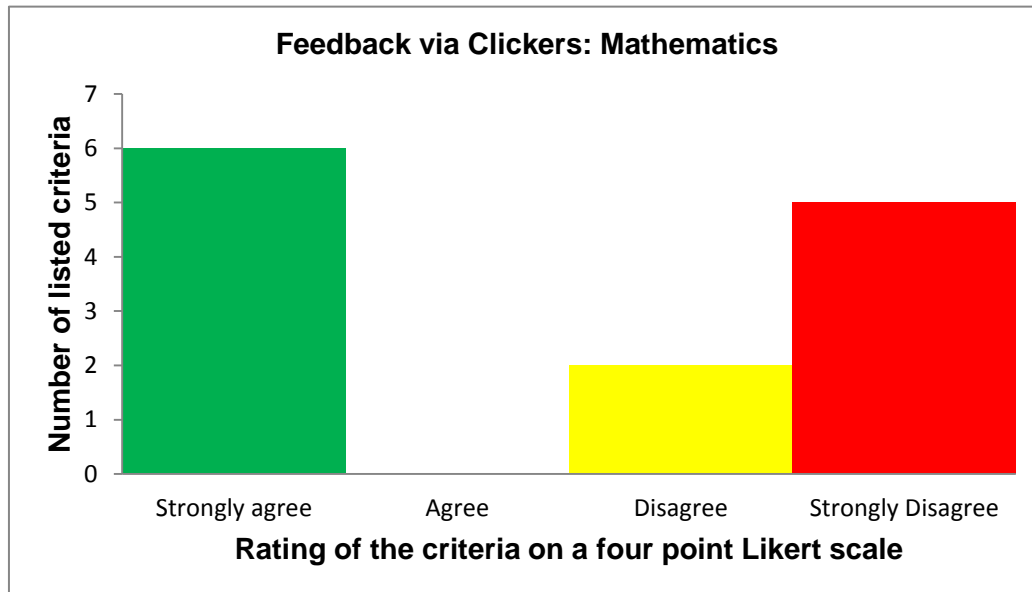
Name of the lesson: Graphs interpretation in Mathematics

Strongly agree	Agree	Disagree	Strongly disagree
<b>Criteria</b>			<b>Example / s of observations made to justify the rating of each criterion</b>
<b>1. Teacher action during each stage of learning process when technology is used</b>			
			Learners were told they would be learning about graphs
Objective/s of the lesson were made explicit			Learners were always able to view their responses on the screen and they immediately became aware of whether their responses were correct.
Teacher encouraged learners to share ideas in order to solve complex mathematical problems.			During the lesson, learners were never told to work in pairs or in groups to brainstorm ideas.
Learners were able to assess or to evaluate their own work			He never asked learners new questions or follow – up questions to justify their answers in order to enhance understanding.
Teacher promoted understanding rather than presentation of facts			Always participating in answering the questions. Even shy learners sent their answers to the class.
All learners participated in class discussion.			
<b>2. What learners do in class?</b>			
Learners were focused on their work or tasks			Always willing to participate or to respond to all questions asked by the teacher (learners even asked the teacher to send more question) and make a bit of debate about responses.
Learners were actively involved into thinking about the tasks			Learners were never asked to give reasons for their answers to enhance understanding.
Learners felt free to asked questions or to express their views in class			They were observed making an attempt to chat to each other but were not given an opportunity to air their views in class.
Sharing of feedback was encouraged			Never asked to discuss answers with the teacher or each other. They were just required to respond to the question asked.
<b>3. Learning and teaching environment</b>			
Learners had a sense of owning the lesson			They were called in order by the teacher if they showed over-excitement about answers.
All opinions were respected			Always respect other's views.
Learners enjoyed learning			Always felt excited when answering and viewing responses on the screen.
Relaxed environment was promoted			The teacher was observed regulating noise all the time when learners displayed excitement.

It was observed that feedback via technology brought about a complete change in classroom engagement because all learners in class participated in answering the questions. This meant that the teacher had an opportunity of tracking, identifying and diagnosing learners' problems or misconceptions. During the lesson it was noticed that learners were told what to do in class. The use of technology was seen as a gateway to eroding disciplinary problems in the class because learners were obviously so excited by having made a contribution to the tasks given. Nevertheless, beside the obviously positive impact of the CRS (Classroom

Response System) in promoting engagement, there were still some pedagogical problems that were identified during the lesson. Amongst others, it was observed that the teacher did not ask learners to provide reasons for their answers. That alone shows that learners were not actively involved in critical thinking to enhance their understanding of the concepts. It was noticed that the teacher did not ask learners to share feedback or discuss questions with others, with the result that they did not really learn from each other (Vygotsky, 1978) in order to deal with difficult questions or to deepen their understanding. Moreover, it was observed that the teacher was more concerned about the noise in class when learners received the correct answer than asking those who had it correct to explain the reason of their selection of the answer. Thus little was done to promote discussion and dialogue which would have resulted in enhanced understanding.

Subsequently, the bar graph below (figure 4.3) presents an overall view of the feedback from the class observed. It was constructed to show how many times each category had been selected in terms of the criteria that were looked at during the classroom observations. Each bar shows how often each category (strongly agrees, agree, disagree and strongly disagree) was encountered:



**Figure 4.4:** Bar graph showing how many times each criterion had been rated on a four point Likert scale when the grade 7 Mathematics teacher provided feedback via technology (clickers).

The graph above (figure 4.4) shows that introduction of technology into the lesson promoted learner participation in the class. Thus the teacher was given an opportunity to provide “in time” feedback or, by asking the correct questions to diagnose or to deal with learners’ problems. Although there were some criteria that were not met, there was still a drastic improvement in the classroom in terms of feedback provided and in terms of classroom participation. What was lacking was that the teacher did not ask follow-up questions in class to determine whether learners had all grasped a particular concept or to promote thinking about what they were learning. However, it was evident that the technology could create opportunities for improving learning and for providing feedback, provided that it would be used properly. This was the reason for the researcher inviting a lecturer from the University of the Witwatersrand who had used the technology extensively, and who had an understanding of the role of feedback in learning and formative assessment, to workshop teachers on the benefits of integrating technology in the lesson, and to let them discover how it could be used most effectively to promote critical engagement.

#### **4.3.2 Description of feedback via technology in English class**

This lesson was observed after an intervention in the school which aimed to teach teachers how to use the technology in a way that would effectively promote critical engagement in class and also addressed the value of feedback in learning. During the lesson, all learners

were given clickers. They were asked to activate them to join the class. The aim of the lesson was articulated by the teacher. The lesson was designed to give 'feedback on a poem which had been taught previously'. The teacher displayed the poem on the PowerPoint screen. He read and explained all the stanzas to the learners. He then displayed a question with multiple choice options and asked learners to answer the question using their clickers. Every learner in the class, (even lower achievers and shy learners) managed to send their answers to the teacher and appeared to be extremely excited when they saw their responses on the screen in the form of a bar graph. The teacher asked learners to give the reasons for their choices. This strategy promoted debate and arguments about the various choices. This was encouraged by the teacher until he intervened to confirm which of the options presented had been correct. On difficult questions, the teacher encouraged learners to work in pairs in order to reach a consensus before sending their responses.

Despite their obvious excitement and enthusiasm, learners remained respectful to each other and put up their hands if they wanted to contribute to the class debate. Learners obviously enjoyed the lesson and appeared to view it as a game. They walked around to ask their friends what answers they had sent to the teacher, and they were obviously interested in learning. Even the lower achievers were included in the class discussions and were asked to justify their choices so that other learners or the teacher could discuss their answers.

The common topic of their conversation was about the answers that they had sent to the teacher. Some learners were not shy to tell others that they had sent wrong answers or that they had guessed the answers. It was noticed that the use of clickers in this class developed a spirit of unity and shared learning amongst the learners. Table 14 below rates the feedback provided to the grade 7 learners by the English teacher via technology (clickers) after the intervention.

**Table 14: Feedback via technology (Clickers) in a Grade 7 English class**

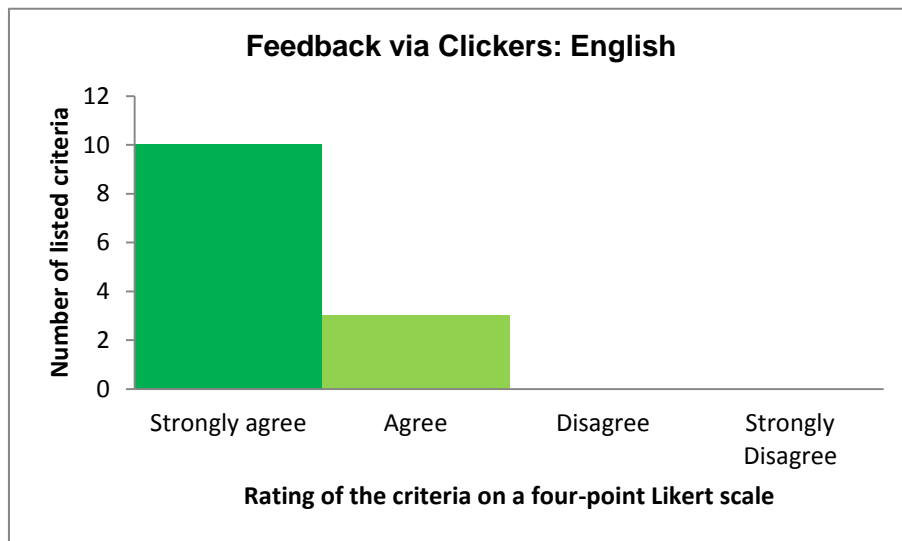
Name of the lesson: English poem

Strongly agree	Agree	Disagree	Strongly disagree
<b>Criteria</b>		<b>Example / s of observations made to justify the rating of each criterion</b>	
<b>1. Teacher action during each stage of learning process when technology is used</b>			
Objective/s of the lesson were made explicit			Learners were told explicitly what to do: revising poem
Teacher encourages sharing of ideas or feedback			Often, learners were encouraged to participate and work together e.g. work in pairs and agree on one answer
Learners were able to assess or to evaluate their own work			Learners were asked to provide the reason for their answers e.g. 'how do you know that is personification.'
Teachers promote understanding rather than presentation of facts or seeking correct answers only.			The teacher elaborated further on learners' ideas, to enhance debate and arguments.
Monitors quality of work or responses provided by the learners.			Asked learners to elaborate on their answers (thinking) even if they were incorrect to enhance understanding.
<b>2. What learners do in class?</b>			
Learners keep on focusing on their work or tasks.			Learners were always willing to participate and wished to have more questions to answer (asking a teacher to send more questions).
Learners were actively involved in their tasks			Often, learners were observed to be arguing about responses (tried to compare answers).
Learners didn't hesitate to express their views in class			Learners obviously felt free to ask or to challenge the responses (as if they were playing a game).
Sharing of feedback was encouraged			Often, learners were asked to work in pairs to discuss difficult questions and they were given an opportunity to chat about feedback.
<b>3. Learning and teaching environment</b>			
Learners had a sense of ownership			Learners were not shy to respond to questions or to ask questions as they viewed the whole lesson as fun and like a game.
All opinions were respected			It was observed that everyone wished to participate, without fear because participation was anonymous. They were not exposed 'who sent what'.
Learners enjoyed learning			Learners were excited to be using clickers in the lesson.
Relaxed environment was promoted			Learners were relaxed enough to walk around the class and were eager to respond to questions.

The results presented in Table 14 indicate that the teacher had worked hard to promote an encouraging and relaxed environment to promote engagement and learning. This means that an attempt was made to use formative assessment to integrate different forms learning to enhance understanding of the poem. It was observed that the learners' learning path was identified and they were encouraged to participate in discussion. As a result, learners were keen to participate and they were engaged during the entire period. Noteworthy was the way in which the teacher used follow up questions to get them to clarify their clicker responses. This means that they were encouraged to justify their answers in order to enhance understanding and to promote deep learning. This made the feedback provided by the clickers more valuable. Thus, the teacher was able to create a teaching and learning environment that stimulated debate, arguments and promoted sharing of feedback and knowledge amongst the learners. This approach also gave learners an opportunity to learn

from each other and to seek clarity from the teacher if they were confused. This encouraged greater engagement.

Figure 4.5 presents a bar graph which illustrates the extent to which the criteria for an ideal learning environment were met:



**Figure 4.5:** Bar graph to show how many times each criterion had been rated on a four point Likert scale when the English teacher provided feedback via technology. This gives an indication of the teaching and learning environment in the class.

The results show that there was an improvement in the process of engaging learners when technology was used after the intervention which demonstrated how the technology could be used most effectively. The English teacher used the knowledge acquired from the workshop to make sure that learners were engaged and that they benefited from feedback. Most of the criteria listed in Table 14 were met. The improvement observed in this lesson suggests that if all teachers in the school would try to integrate technology within a sound pedagogical framework, the learners' examination results could possibly improve and the "in time" feedback provided by the clickers could help teachers to deal with learners' misconceptions "just in time."

#### **4.4 Written feedback in both English and Mathematics in the learners' activity books**

A selection of the Maths and English activity books from three grade 7 classes was evaluated. Three books from each class were selected so that there would be at least one book from a strong, weak and average performer in each class. The researcher used a rubric to evaluate learners' activity books and evaluated each criterion on a four point Likert scale.

##### **4.4.1 Written feedback in English books**

It was observed that, for the most part, feedback consisted of ticks if the learners' responses were correct and crosses if the learners' responses were incorrect. Top achievers obtained many ticks and it was very rare for them to be corrected in any instance. In some instances, corrections were found in middle achievers' books. Lower achievers obtained many crosses and there were many corrections evident in their books. However, there was no elaboration to explain why certain things were incorrect. There were also encouraging comments like 'excellent', 'good' or 'better' and work was awarded a percentage. However, the encouraging comments were not elaborated in order to explain why work was "good" or "better".

On the other hand certain comments aimed at informing learners how they could improve their work and what was expected of them in order to achieve the learning outcomes.

*'Where are the meanings of underlined words?' and*

*'Where are the elements of a good advert?'*

*'Show all the elements of good advertisement.'*

*'Be specific' and*

*'These are just pictures. Where are the elements of good advert?'*

Comments such as those displayed above, also played a significant role in supporting learning as shown on the table below (Table 15). In addition, it was noticed that the teacher also corrected learners' spelling errors and grammatical errors to enhance their level of competence. The evaluation rubric showing the colour coded rating of each criterion is displayed in Table 15:

**Table 15: Written feedback: English learners' book**

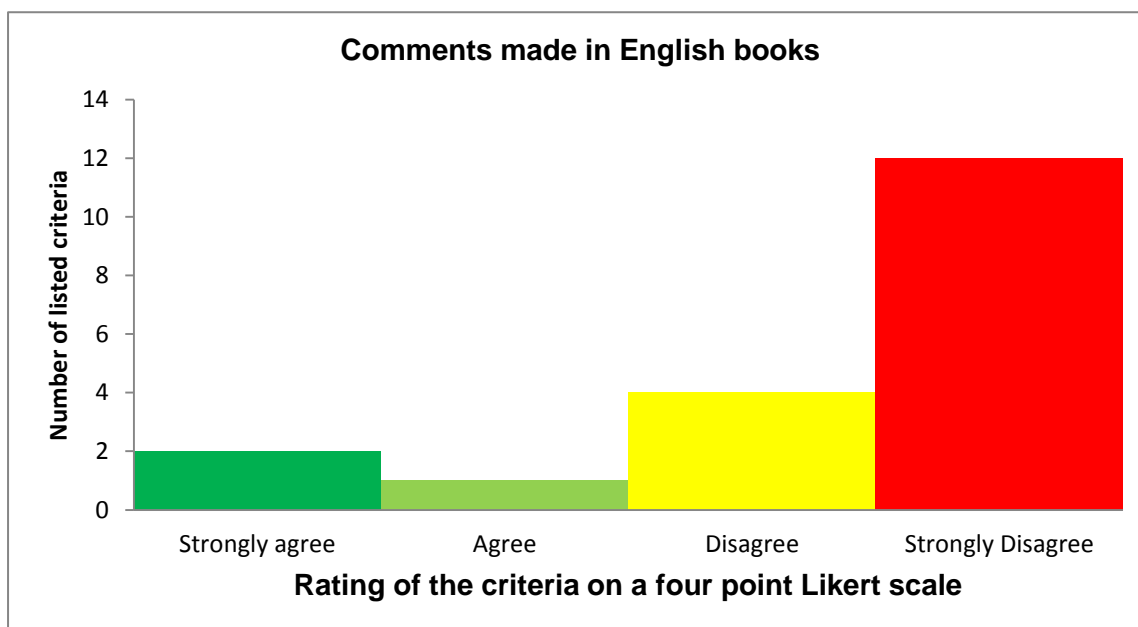
Criteria	Strongly agree	Agree	Disagree	Strongly disagree	Example / s of observations made to justify the rating of each criterion
<b>1. Types of marking</b>					
Teachers make encouraging comments					By often writing the following: 'good', 'excellent', and 'very good'.
Mistakes were corrected					Always correcting spelling and grammar in the book.
All books had comments or were marked and not just signed					Certain comments were observed in the book.
Ways of dealing with misconceptions were clearly articulated in the book					Observed the following: 'show all the elements of good advertisement.
Learners were encouraged to come forward to discuss their work					Never seen a written comment that invites learners to come to the teachers for clarity or discussion.
Learners' weaknesses were identified, explained or elaborated					Never elaborated further on the weaknesses of the learner. I've seen the following: 'be specific'
Teachers over-looked errors and concentrate on meaning and understanding					Observed not granting marks when spelling or grammatical errors were severe
Mistakes were highlighted and ways of rectifying mistakes were articulated in the book					Often, the teacher didn't make comments that directed the learner onto a specific learning path.
Reasons to justify correct or incorrect answers were given					Never seen a comment that justifies teachers' judgments. I've seen ticks and crosses only.
<b>2. Marking style and commenting in the book</b>					
Teachers value learners' work and their effort to complete their work					Always value learners' work. Frequently I've seen the use of 'good', and 'excellent' to appreciate learners' effort.
Teachers had a system in place to appreciate or reward learners					Never seen the format of rewarding learners.
Teachers shown an understanding of learners' background, ability and potential					Never seen written comments that were in line with this criterion.
<b>3. Comments in learners' books</b>					
You have done this correctly or incorrectly because...					Never seen a comment that shows the learners a learning path.
A good start that can be developed by ...					Never seen a comment that shows the learners a learning path.
Well done for ...					Never seen a comment that shows the learners a learning path.
Interesting point because you have ...					Never seen a comment that shows the learners a learning path.
Re-write this point to gain the mark ...					Never seen comments that promote assessment for learning (to use feedback to improve)
The strengths in this are ...					Never seen comments that encourage learners to learn more.
Ask me if you do not know why this is a brilliant sentence claim and argument.					Never seen such comments that engage learners into tasks.

The evaluation made on Table 15 shows that the English teacher was very concerned about the use of language when marking learners' activity books as demonstrated by the number of times that the teacher corrected grammar and spelling in learners' activity books. This was good because it indicated that the teacher was concerned about improving the standard of written English in the school.

Moreover, it was obvious that he also valued learners' work by telling them in writing that their work was 'good', 'very good' and 'excellent'. One might argue that, by doing this, learners who were doing well would maintain their level of performance and the others may strive to improve. This shows that there is a need for teachers to have some mechanism to motivate their learners or to appreciate their efforts by making encouraging comments in order for them to repeat their good performances or be motivated to improve in future. This

means that learners will not be de-motivated and would instead be encouraged to see learning in a positive light.

Nevertheless, many gaps were identified when evaluating learners' activity books against the criteria selected in the table. It was felt that the teacher did not make sufficient comments which would promote learning and thinking and guide individual's learning paths. The graph below gives an indication of the type of written feedback given to the learners. This overview plots the number of times each criterion has been rated in each category on the four point Likert scale:



**Figure 4.6:** Bar graph which illustrates how many criteria (which reflect an ideal situation regarding written feedback) had been rated on a four point Likert scale after an evaluation of the English activity books.

The above graph (figure 4.6) indicates that the feedback in learners' activity books could be more constructive in order to promote learning. This is reflected by the number of times that the researcher has strongly disagreed with a criterion which describes an ideal situation as

indicated by the height of the red column (compared to the columns coded green) on the graph.

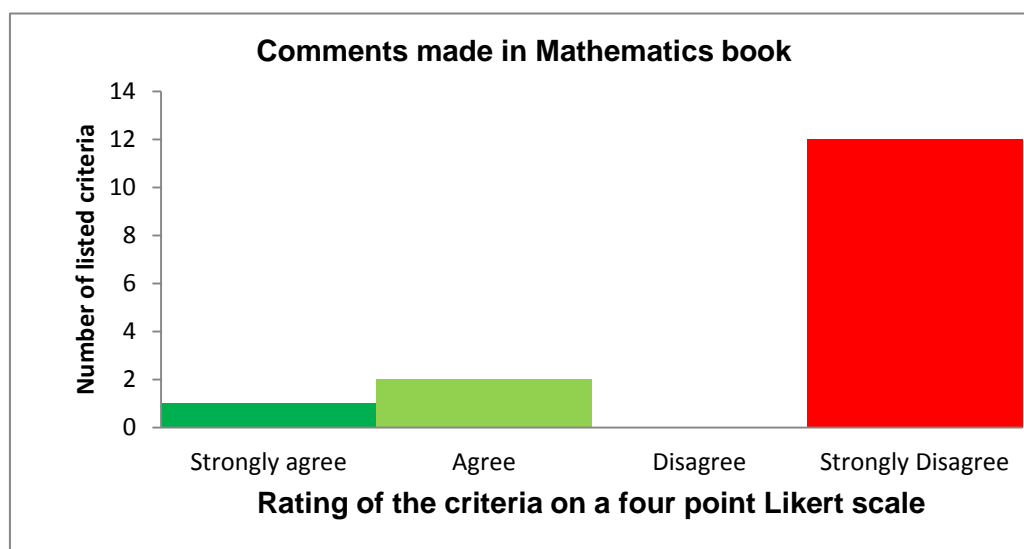
#### 4.4.2 Written feedback in Mathematics

Interestingly, in Mathematics there were no written comments at all in learners' activity books. In the book I found ticks and crosses only. There was no diagnosis of general misconceptions. However, it was noticed that in some instances, the teacher helped the learners with calculations in the book although he did not provide explanations for these. There was also no evidence of motivating comments like: "good", "excellent work" or "well done". Learners had been required to write corrections in the book using a pencil. It was also noticed that learners were marking their books with a pencil according to feedback that was given in class after which the teacher signed the books and awarded marks. An ideal situation has been described by the criteria listed in the table below and each criterion has been rated on a four point Likert scale (Table 16).

**Table 16: Written feedback: Mathematics**

Criteria	Strongly agree	Agree	Disagree	Strongly disagree	Example / s of observations made to justify the rating of each criterion
<b>1. Types of marking</b>					
The teacher appreciated learners work					Never seen evidence in the book to indicate that that the teacher appreciated learners' effort
The teacher never uses question marks and exclamation marks.					Always never use these signs in learners' book.
Learners were engaged or cautioned about incorrect procedures					Often, learners were shown how to do calculations in the book to support learning
Ways of dealing with misconceptions were clearly articulated in the book					Never seen a written comment to show learners how to remove misconceptions.
Learners were encouraged to come forward to discuss their work					Never seen comments that invite learners to discuss the work or to solve mathematics problem.
Mistakes were highlighted and methods or procedures problem solving were articulated in the book					Never seen such comments in the book.
Reasons to justify correct or incorrect answers were given					Never seen such comments in the book.
<b>2. Marking style</b>					
Teachers value learners' work and their effort to complete their work					Never seen any comment that value learner's effort about their effort.
Teachers had a system in place to appreciate or reward learners					No evidence found in the book
Teachers compares learners' responses against their 'model answers'					Often, rubrics were used to make judgments
<b>3. Comments in learners 'books</b>					
You have done this correctly or incorrectly because...					Never seen a comment that shows the learners a learning path.
A good start that can be developed by ...					Never seen a comment that shows the learners a learning path.
Well done for ...					Never seen a comment that shows the learners a learning path.
Re-write this exercise or work to gain the mark ...					Never seen comments that promote assessment for learning (to use feedback to improve)
The strengths in this are ...					Never seen comments that encourage learners to learn more.

It is evident from Table 16 that many of the criteria were not met. Therefore, it was concluded that engagement of learners through the use of written comments in the book was not achieved in the Mathematics books. On account of this, one may argue that learners missed an opportunity to be guided on what to do and how to complete tasks in an effective way. This means that learners who were battling to understand the teacher in class had no point of reference (written feedback) to check what needed to be done to improve in future. The bar graph below shows how many times each criterion had been rated after an evaluation of the Mathematics activity books:



**Figure 4.7:** Bar graph which illustrates how many times each criterion had been rated on a four point Likert scale after evaluation of the Mathematics activity books

The bar graph (Figure 4.5) indicates that the mathematics educator did not use written comments as effectively as possible in order to show learners what they needed to do to improve. In this respect it could be considered that written feedback was inadequate to promote improvement.

#### 4.5 Interviews

Semi-structured interviews were conducted with teachers and learners. The aim was to obtain more evidence about the ways in which teachers use formative assessment to provide feedback to the learners and also to ascertain how learners respond to different types of feedback that they have received from their teachers. The duration of these interviews were between 20 and 30 minutes with both teachers and learners.

An attempt was also made to establish teachers' views on teaching and learning and in particular their views on the value of feedback in learning. Special emphasis was given to probing how teachers feel that feedback and formative assessment could be used to help learners improve their understanding of concepts and to encourage critical thinking. Also probed were the factors influencing the timing of written feedback given to learners. Teachers' views on the use of technology (CRS) to provide feedback in formative tasks were also collected and evaluated. One set of ten pre-prepared interview questions in the interviewing schedule were used to ascertain how both the English and Mathematics teachers use formative assessment in the classroom settings, but they were interviewed separately.

#### **4.5.1.1 English teacher**

Interviews were conducted in a semi-structured manner in that a number of pre-prepared questions were asked by the researcher but responses were probed to obtain as detailed a view as possible. The researcher took notes during the interview and recorded the responses in writing in a prepared sheet (see appendix 4 and 5). Teachers were also encouraged to elaborate on their views on teaching and learning, and assessment and feedback. A summary of the major points noted from their responses is detailed below.

The English teacher feels that the best approach to teaching and learning should be 'an interactive' one. He felt that with this approach learners would be actively involved in learning and it would make them feel that they were part of constructing meaning or re-discovering truth or knowledge. This means that the two-way relationship between a teacher and a learner needs to be encouraged. His response to the question asked was in line with the views of Vygotsky's' social constructivism (ZPD) which emphasises that children learn best when they interact with each other or with a teacher in a social environment.

Furthermore, he believes that learners may learn best if they are taught by a qualified teacher with a sound knowledge of the subject. This demonstrates his belief that subject knowledge has a role to play in influencing the quality of feedback given to the learners. He argued against the notion that a primary school teacher can teach all learning areas because he believes that subjects are different and complicated. Therefore, teaching approaches need to differ per subject as well. He believed that the school is under performing because certain teachers are teaching learning areas that they are not comfortable with, and that this was affecting the level of performance of the learners. Therefore the quality of formative assessment or day-to-day assessment would be influenced by the level of subject knowledge of the teacher.

In order for him to judge whether his learners had understood what had been taught, he said that he normally gave the learners activities, formal assessments and asked them questions during contact periods to check if the work done had been understood. If he felt that learners had accessed this level and were able to complete their activities in a reasonable manner he would proceed to the next lesson. He felt that explanation of instructions and questions to the learners would be sufficient to help them to meet the requirements of the tasks given.

Nevertheless, he also felt that teachers have a responsibility to motivate learners to achieve more and to show them that there is always something new to be discovered in life or in the subject that they are doing. In this regard, the English teacher liked to read motivational stories where necessary to generate interest in learning or to show learners the benefits of being educated. He said that he felt that it is important as a teacher to avoid negative comments or remarks about learners' work because they are sensitive and it was thus easy for them to give up or become de-motivated. This means that teachers should take responsibility and be prepared to go the extra mile by searching for speeches and stories that may revive the culture of learning in the school. However, that being said, it appeared that the English teacher usually waited until the end of the lesson or unit before assessing learners' progress:

*“When I begin my lesson by asking questions about previous work ... or after teaching the unit / topic ... I ask them questions ... then I am able to determine their progress...”*

This shows that the teacher didn't view on-going formative assessment as an integral part of learning. Instead he perceived it as something separate from teaching and learning. Formative assessment was not at the forefront of his assessment strategy but classroom observations confirmed that at times he implemented it unconsciously (without knowing that he had put it into practice). This means that if the teacher could be made aware of the essential role of formative assessment in dealing with learning barriers, misconceptions and feedback to problem solving 'just in time', he might change his approach and in the process promote deep learning and critical engagement by providing effective and immediate feedback to the learners.

With respect to the role of technology, the teacher felt that when technology (clickers) is used all learners in class participated, unlike the situation which normally occurred in the classroom where many learners are too shy to participate. He was excited when talking about clickers and eager to learn more about their possibilities for promoting learning. This was noticed because in contrast to his responses to other questions where he was cautious before answering, when asked about clickers he was noticeably enthusiastic. He perceived technology to be a tool which can be used to minimize time in providing or getting feedback from the learner.

In terms of support, the teacher feels that it is hard to support every learner in the class. He believes that extension work and additional time (after hours) is required to provide individual assistance to learners in small groups. This implies that the learner ratio in the school makes it impossible for teachers to get and give immediate feedback to every learner in the class. This means that he considered that the main factor that influenced in-time feedback in the school was the learner to teacher ratio because it took too much time for the teacher to mark books and to deal with the learners' problems or misconceptions timeously. As a result, the teacher feels that technology like clickers could assist him in fast tracking the process of providing feedback to the learners.

#### **4.5.1.2 Mathematics teacher (MT)**

The teacher feels that the best approach to teaching and learning doesn't exist anymore because he believes that it is negatively influenced by the demands from the GDE (Gauteng Department of Education). He felt that it was important to work hard to complete the syllabus because of the testing regime which had been imposed on the school. He feels that some learners don't grasp concepts because there is insufficient time to drill them in one thing until they understand the concept before moving on. This is important in subjects like mathematics where concepts are built up hierarchically. He said that learners would learn best if a teacher could understand their backgrounds and if he tried to make use of the learners' backgrounds to identify their misconceptions and to assess what they already know.

In order for him to gauge whether learners understand what was taught he had a similar feeling to the English teacher in saying that he gave learners activities to do individually or as a group, and also set tests, projects, assignments that would be marked to find out whether they had grasped the concept or not. Moreover, he stated that he revised work with the learners before any form of assessment took place in order to ensure that everyone would meet the requirements in the tasks given. As he said:

*“I ask questions and try to erode their misconceptions ... at times I asked few of them to repeat what I have said ... but in many cases, I always revise work with them before formal or summative assessment takes place.”*

With regard to technology (CRS) he had similar views to the English teacher in saying that technology would make a difference in class and uplift the standard of learner performance because learners' enjoy it and show increased interest in learning.

*“... It makes learning fun and enjoyable”*

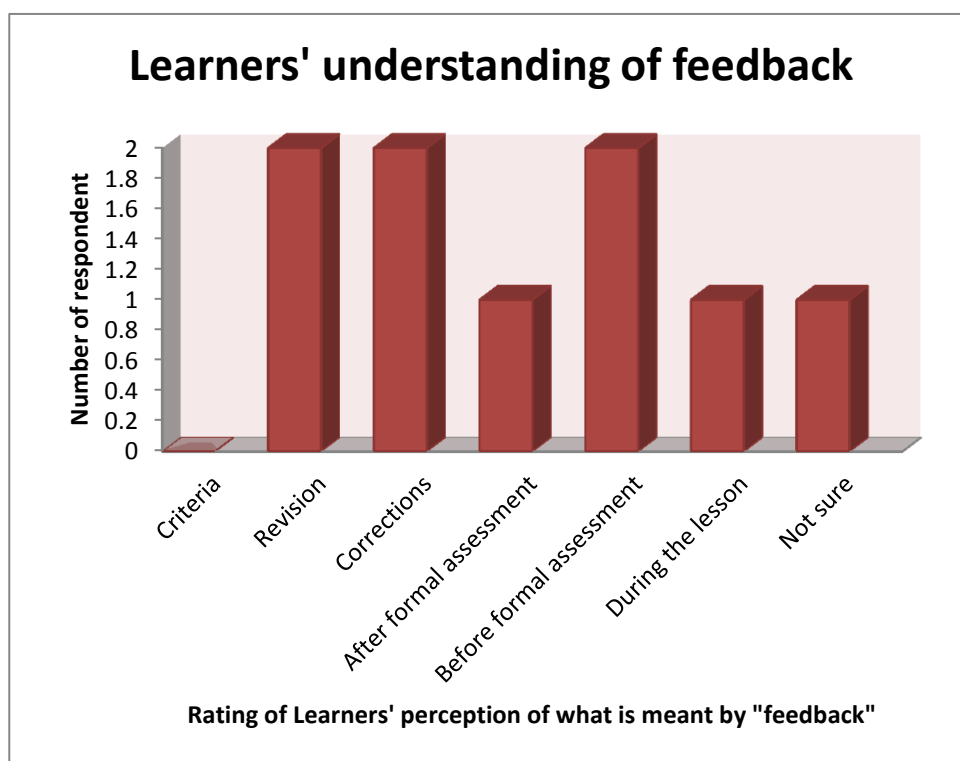
The teacher feels that technology like this (CRS) could be used to create the most enabling environment whereby every learner would feel free to respond to the questions asked or to make mistakes and that this is a strategy that will lead them to the correct learning path.

#### **4.5.2 Interview with learners**

In the final phase of the study, learners were interviewed to establish their views on the different types of feedback that they had received from their grade 7 English and Mathematics teachers. They were asked to explain whether or how they had made use of it to learn. This means that questions asked during the learner interviews focused on how they had felt that the verbal feedback, written feedback and feedback via CRS technology had promoted or enhanced their learning. Three learners in each grade 7 Maths and English class were selected for interviews and were asked 9 questions in semi-structured interviews. These interviews took place during break or immediately after school. All learners were

willing to participate in the study as they returned their 'assent' form to the researcher to be selected for interviews. They tried their best to answer all the questions asked.

Subsequently, the bar graph below (figure 4.5) presents an overall view of learners' perception of the concept of "feedback". The content of conversation about feedback had been divided into 6 categories: 1) when revising work, 2) when doing corrections, 3) after assessment, 4) before assessment, 5) during the lesson and 6) not sure in order to evaluate learners' responses.



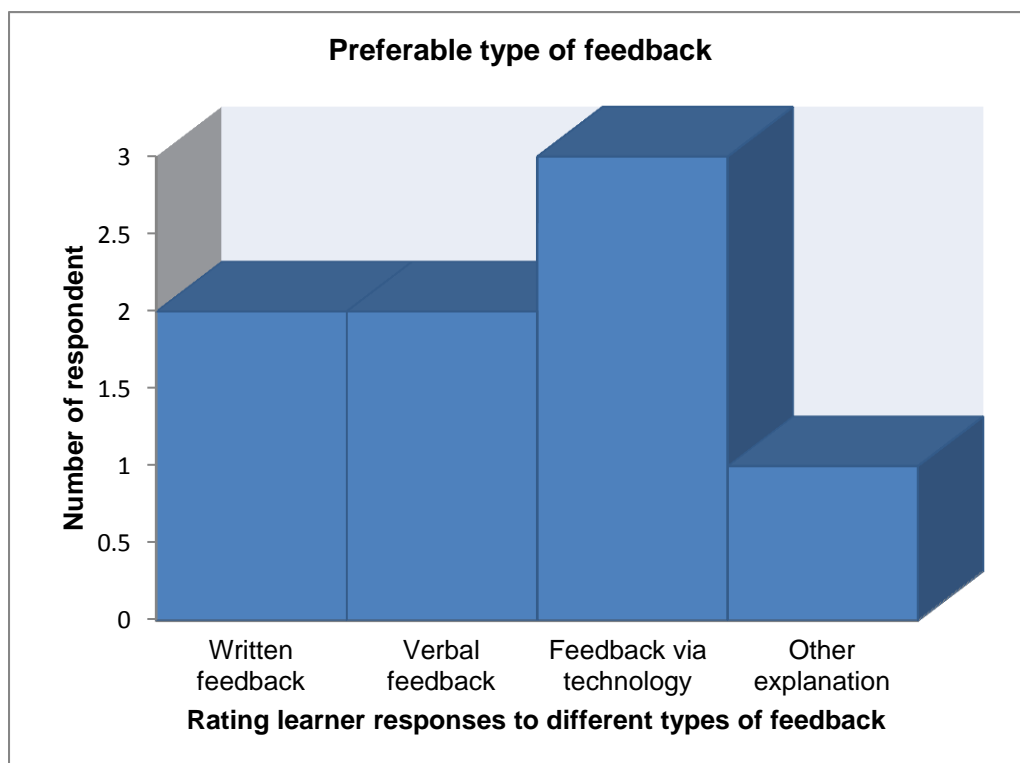
**Figure: 4.8:** Bar graph to illustrates how many times each learner perceive/understand the concept 'feedback'

When analysing the responses as shown in Figure 4.8, the result shows that out of 9 learners who were interviewed; the majority of them perceived feedback as a process whereby the teachers revise work with them and do corrections with them or make a judgement about whether their responses had been correct or incorrect. As one learner indicated:

*“Feedback, it’s when educators discuss / show you your mistakes or discuss with you how to do activities in a correct way.”*

It was very rare for them to perceive feedback as a conversation that may take place during the lesson and/or after formal assessment had been done.

Therefore, in order to fulfil the mandate of responding to the main question asked in this study, it was necessary to investigate which type of feedback would be considered best for the learners to learn. The graph below shows that many learners prefer feedback via technology because it reduced their workload since prior to its use they had been required to write corrections. They feel that with technology life would be easier because they would just have to click their answers and would immediately get a response on the screen to show them whether they had been correct or not. The graph below shows learners’ preferences regarding different mechanisms of feedback:



**Figure 4.9:** Bar graph to show how the 9 learners interviewed feel about different types of feedback.

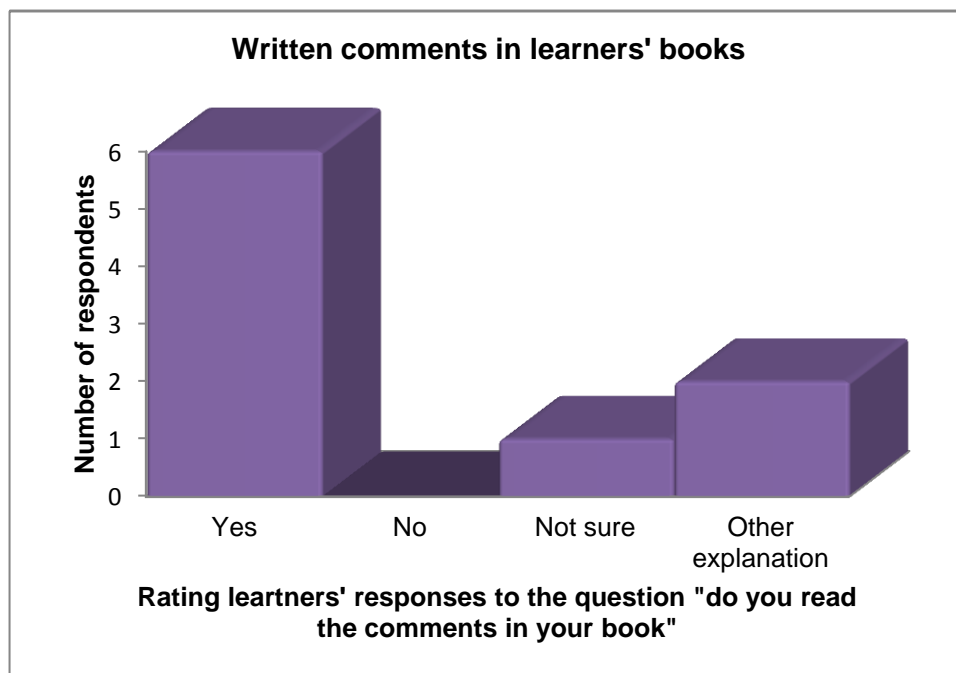
During interviews learners often made remarks about the attitude of teachers when they received their assessments back. According to them teachers normally passed some remarks that de-motivated them from learning in the future:

*“I wish to be absent when teachers return our test paper ... Why? ... They always complain about my performance... telling me that the test was so simple ... other learners got that mark ... and you have failed because you don’t study ...”*

This shows that negative remarks do little (if anything) to promote learning or to encourage learners to learn. At times negative remarks may lead to the situation whereby learners define feedback as a tool for punishment instead of a tool for promotion of learning. Nevertheless, the result on the graph (figure 4.6) shows that learners like feedback from the teacher. Although the majority of them appear to like feedback via technology they seem to like other types of feedback as well. This means that certain learners also recognized the value of written and verbal feedback as a powerful tool which would lead to improvement. Learners maintained that written feedback had an advantage in that it would remain in their book forever and thus serve as a point of reference to avoid future mistakes. However, learners acknowledge that verbal feedback has its role in education but at times felt that it is

easy for them to forget what was said which is why if they had to choose they would prefer written feedback. Finally, it was noticed that if there could be a combination of written, verbal and feedback via clickers in one lesson, learners could be encouraged to produce the good results required by the Department of Education.

Learners were asked whether they read comments written by teachers in the book and how such comments could improve the quality of subsequent tasks given to them. The graph shown in Figure 4.10 presents the learners' responses to this question. It demonstrates that the majority of the learners do read the comments made by teachers in the book. It is unfortunate then (see table 16) that teachers do not make use of that opportunity to engage learners through the use of more comments. The graph below (figure 4.10) is an indication that written feedback is highly valued as most learners read it to see where they could improve.



**Figure 4.10:** Bar graph showing responses to questions to ascertain whether or not learners read comments written in their books

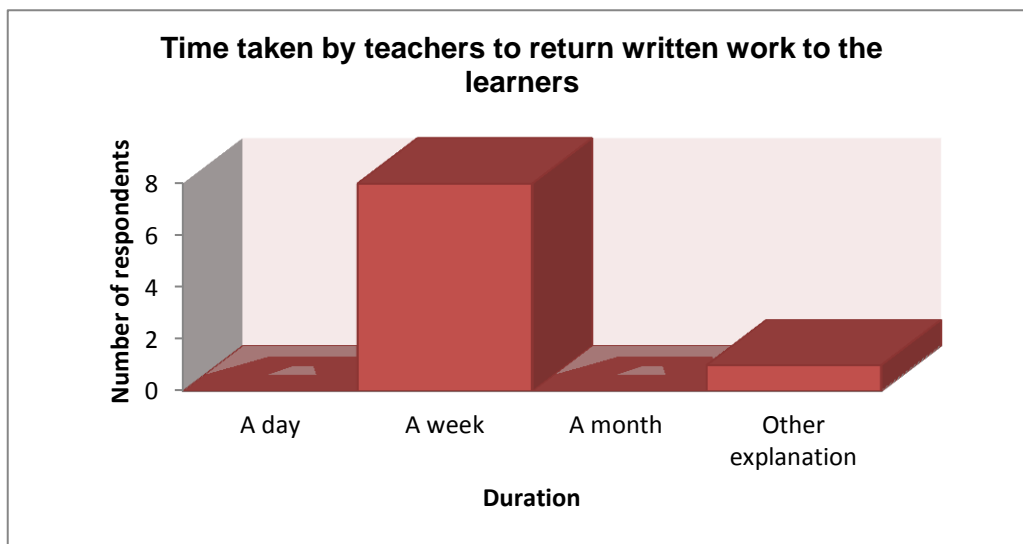
Without doubt, the above results show that learners do read written comments in their books. It is unfortunate therefore that there is not more use by teachers of this knowledge so

that they can make effective comments that may engage learners into improving. This means that learners need to know what do next to improve their performance. Such remarks may motivate them to learn more because they would be aware of their learning path. By writing down comments like “excellent”, “good”, “better” “outstanding”, ticks and crosses without an explanation is not enough to give a learner an in-depth understanding of his/her performance on tasks.

The bar graph below (Figure: 4.8) shows the time taken by teachers to return written work (like tests, assignments, projects and other forms of assessments) to the learners. According to the responses to the question of how long learners had to wait to receive feedback, it appears that teachers took about a week to give learners feedback. This means that learners did not receive in time feedback in written tasks. When interviewing learners they appeared to realise the level of teachers’ workloads and to sympathise with their teachers as they seemed to understand that there were many learners and they knew that teachers have a lot of work to complete. As one learner said:

*“I understand that teachers have a lot of books to mark ... so I must be patient.”*

This view shows that there is a mutual understanding between learners and teachers. The graph below present the results to this question obtained from learner interviews.

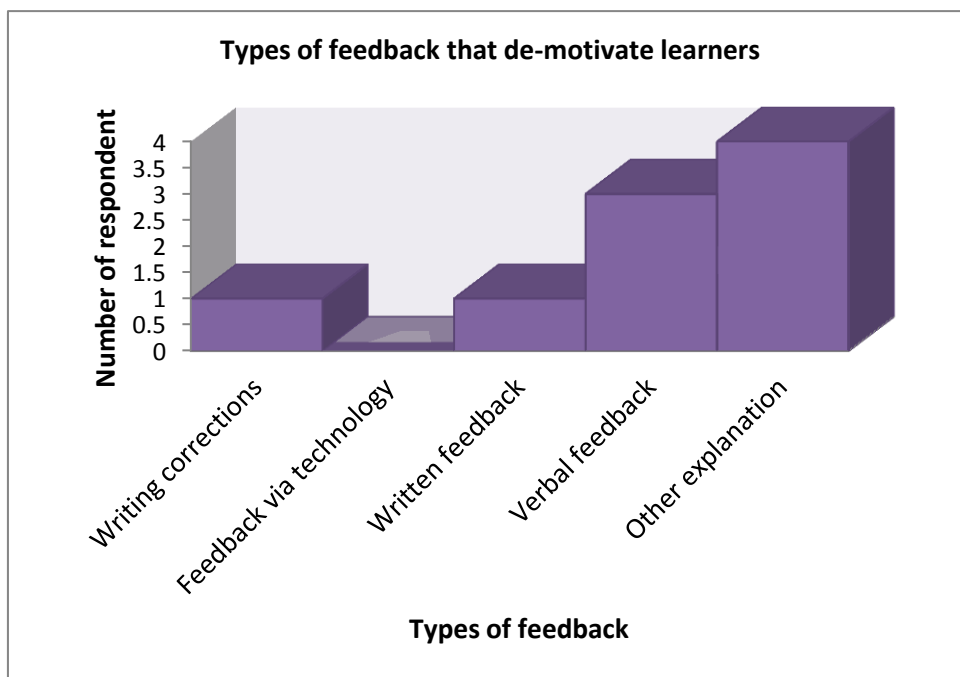


**Figure 4.11:** Bar graph which illustrates how long learners wait for written feedback from their teachers.

These results also send a clear message to teachers that there is a need for a change to reduce the time taken to return written work to the learners. Although in terms of workload a week seems reasonable, in terms of effective feedback it is a long time which means that

some learners might lose interest and lose focus on those concepts. Moreover, by the time that they receive feedback it is possible that they would not remember the finer details of the task and so would not benefit as much as they could if the feedback had been obtained straight away.

Learners were asked to express their views about the type of feedback that de-motivates them during the process of learning. It was noticed that learners were reluctant to respond to this type of question because I also teach them and they do have the responsibility to learn. As a result some of them (learners) deflected this question to their experiences of what teachers had said to them in class. As these results indicate, some kinds of verbal feedback de-motivate them. The graph below (figure 4.9) shows learners responses to this question.



**Figure 4.12:** Bar graph to show type of feedback that de-motivates learners

Four types of feedback were identified during conversation with the learners. These were: 1) writing corrections, 2) feedback via technology, 3) written feedback and 4) verbal feedback. The learners' feelings about these types were probed to find out what they felt should be

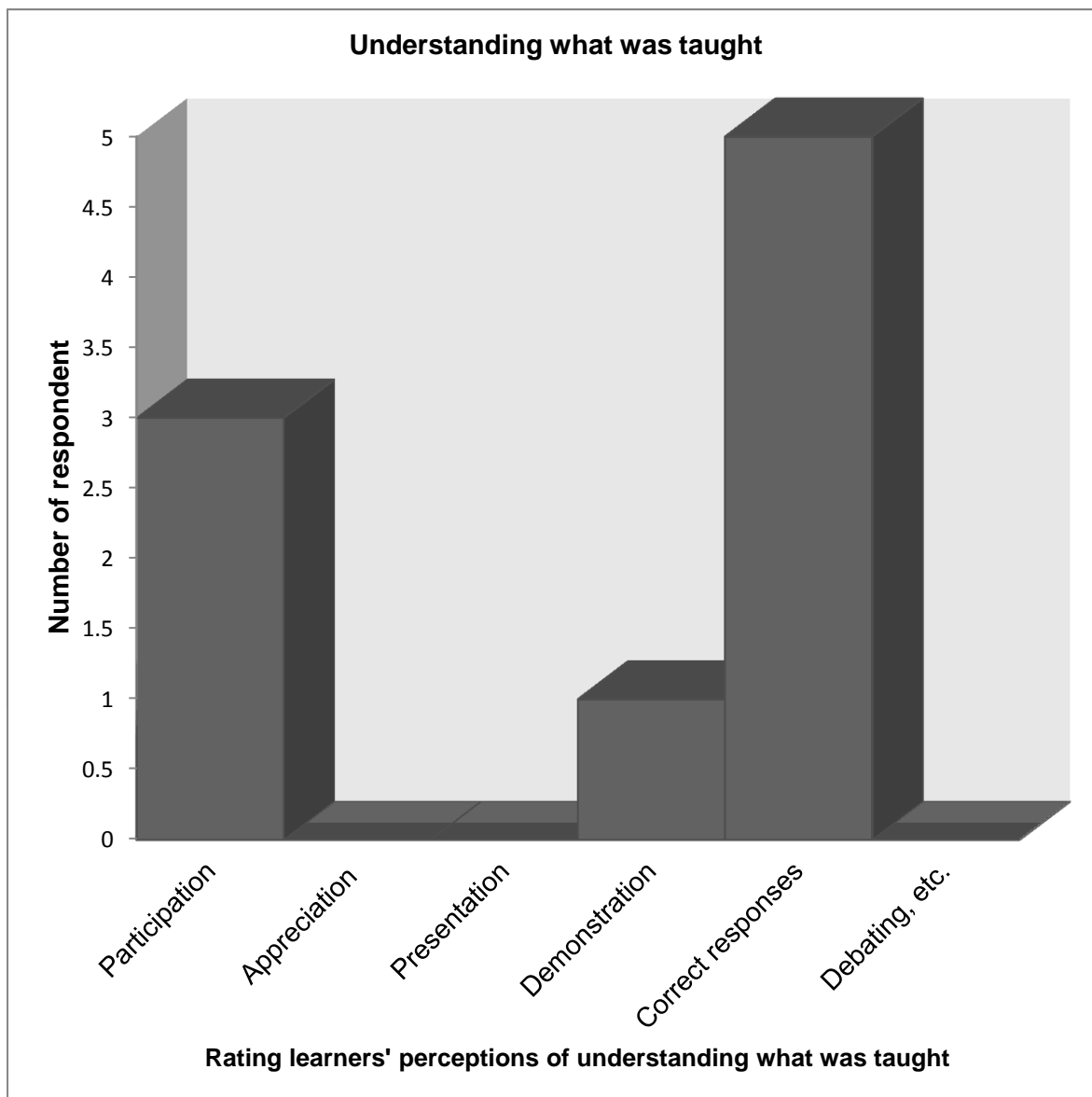
promoted during teaching time. The result in the above graph (figure 4.9) shows that feedback via technology needs to be promoted because all learners were positive and no-one had anything negative to say about it. It was noticed that the majority of the learners felt that verbal feedback de-motivated them. When analysing their responses about verbal feedback, it was noticed that many based their judgments on the attitude of the teacher when providing verbal feedback to them. They said:

*“Some teachers shout our marks in class and I feel more embarrassed if I didn’t pass.”*

*“Teachers express their anger through it (verbally) if we didn’t do well in the test.”*

This shows those teachers’ attitudes when using formative assessment to provide feedback to the learners also plays a very important role in encouraging an interest in learning. Sometimes there is a need to appreciate what they had done and to show them kindly what more needed to be done in order to improve their performance.

Learners’ felt that they had understood what had been taught if they were able to provide correct responses to the teacher. This has been shown in figure 4.10 which shows that the participant in the interview associated understanding of what was taught with the process of providing correct responses to the question/s asked and to being able to participate in class. Learners felt that other categories such as demonstrations, debates, appreciation and presentation of posters/articles in class were less important than providing correct responses when doing tasks. The bar graph (figure 4.10) below shows how learners gauged whether they had understood something that had been taught:

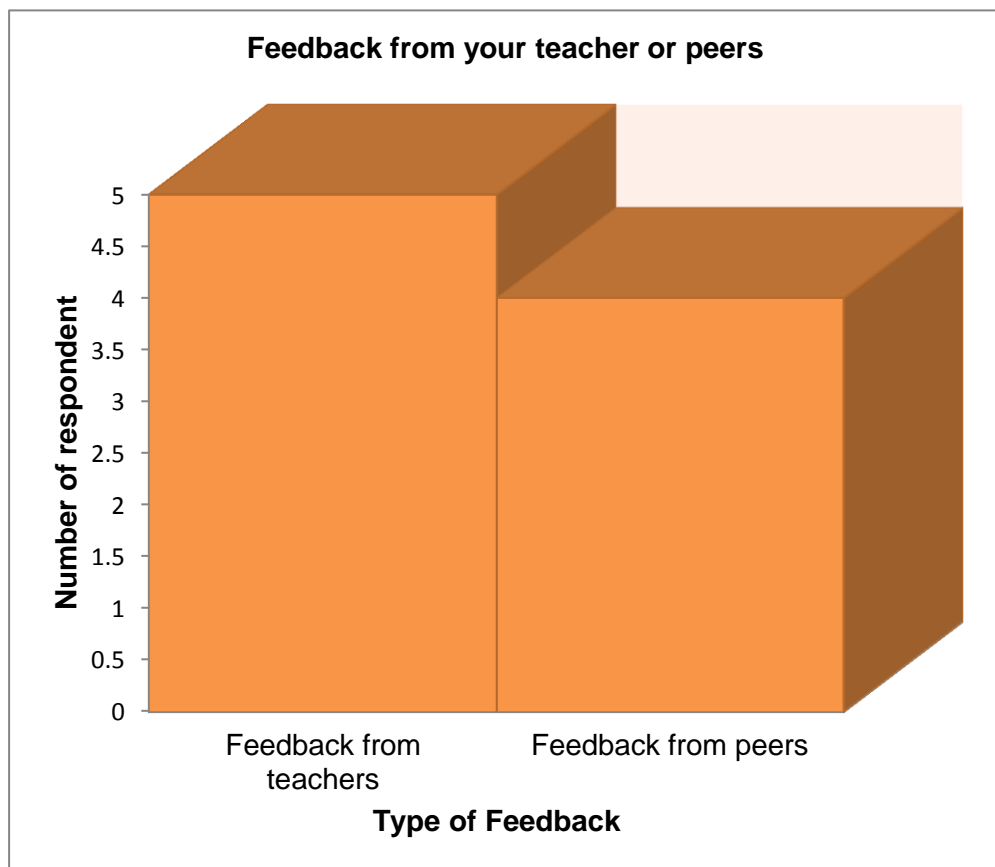


**Figure 4.13:** Bar graph illustrating how learners gauge that they have understood something that had been taught

In short, the above mentioned graph shows that learners think that they have understood something that taught if they got questions on it correct in any form of assessment. Some of the learners think that if they are given an opportunity to participate in class it means that they are mastering the subject. At the same time learners felt that the feedback that is provided by the teacher is the best means of enhancing their understanding. Many learners believe that teachers are sources of knowledge and they trust that teachers won't mislead them. As the learner said:

*“... We mislead each other because we are competing as learners”*

This means that some learners sometimes perceive feedback as something that stimulates competition about marks, abilities and rewards amongst each other rather than as a means of leading them to a learning path. They want teachers to make the final judgement of what they are doing or discussing. The graph below (figure 4.11) shows how learners responded to the question of whether they would prefer feedback from teachers or peers:



**Figure 4.14:** Bar graph to ascertain whether learners prefer feedback from their teacher or from their peers.

Surprisingly when compared to the results of the previous question, learners were happy to receive feedback from both teachers and peers. This suggests that teachers would be well advised to ask learners to discuss or brainstorm ideas as a group or peers because there are things that learners can do on their own and there are other things that they cannot do without the help of others (Vygotsky, 1978). The results in figure 4.11 show that learners like feedback regardless of whether it comes from their teacher or from a peer.

The results reported in this chapter are discussed in more depth in Chapter 5. The discussion will include a focus on learner responses to different types of feedback to find out which type of feedback they prefer and why. Investigations reported in this chapter revealed that teachers do ask learners questions in class as well as giving learners activities to do. It was noticed that before the intervention in which a university lecturer gave a workshop on formative assessment and the value of feedback in promoting engagement and deep learning, the feedback that learners received wasn't adequate to diagnose the weaknesses and strengths of the learners in the classes that were included in this study. However, after the workshop, there was an improvement in the way in which teachers used formative assessment to provide feedback to the learners. The evidence reported in table 4.4 and figure in 4.4 shows that the teacher was able to create an "enabling" environment that promoted critical thinking and engagement to release the potential of the learners when they used technology (clickers). They were also able to draw out learners' prior knowledge. It also assisted in maintaining learner attention and it created more opportunities for meaningful engagement during class (Mellon: 2007). Learners also felt that the use (integration) of technology (see figure 4.6) is the best way of learning as the majority of them prefer feedback via technology (clickers). They said that feedback via technology makes learning fun and enjoyable. And teachers also supported this view when they said that almost every learner in the class participated or responded to all questions and they did not give up sending responses even if they got a question incorrect because learning had become a game. One may therefore conclude that when technology is integrated into lessons on day to day basis learning could be enhanced because the technology enabled teachers to provide immediate feedback.

## CHAPTER 5: DISCUSSION

This study was located in a primary school that had been designated as “under-performing” by the Gauteng Department of Education (GDE), based on the results of learners in the Annual National Assessment (ANA) and regional summative assessments known as Ekudibeng District examinations or Common Exams. According to the results of these assessments, as shown earlier in Figures 1.2, 1.3, 1.4 and 1.5, learners in this school were found to be weak in both the key areas of English and Mathematics. If a school is under-performing, there is obviously a need for a change in practice, or some sort of intervention to resolve the crisis. Teachers in this particular school were expected to come up with a plan for how to achieve better results. Research has suggested that, amongst other possible strategies, formative assessment, which engages learners and promotes thinking, might enhance learning and thus produce better summative assessment results (Black 2001 and 2003; Lambert & Lines 2000; and Weeden *et al*, 2002). For example, Lambert and Lines (2000: 106) have stated that “formative assessment provides the theoretical framework to deepen and improve the quality of teaching and learning in the classroom.” This means that the quality of activities given to learners and the types of questions asked by learners or teachers in class may play a vital role in determining the quality of learning. In turn, quality of learning (i.e. deep versus surface learning approaches) has an effect on the quality of results that will be achieved in summative assessments (Ramsden (1998) quoted in Morgan, 1993). Thus effective verbal and written feedback can play a tremendously important role in engaging learners and in stimulating critical thinking, provided that the learning environment stimulates debate, argument and creativity in the learners. For instance, if learners are posed difficult questions, or are taught conceptually difficult concepts, they need to be given a chance to brainstorm problems and to discuss issues and ideas, because this can assist their learning. Most importantly, the feedback that learners receive from formative assessments will play an important role in directing their learning and will also affect their motivation for learning (Black *et al.*, 2001).

This investigation was guided by the main research question and sub – questions which were:

- In what ways do teachers use formative assessment to give feedback to the learners, and how do learners respond to the various types of feedback received?

This question had been broken down into sub–questions which lend themselves to empirical investigation. The following categories of sub–questions had been discussed:

- How do teachers assess learners' progress during lessons on a day to day basis, and what type of verbal feedback do they give?
- What type of written feedback is provided by teachers in the learners' books?
- How do learners respond to the verbal and written feedback given by teachers?
- What is the learners' response to the CRS technology with respect to learning; in other words, does engagement increase if CRS technology is used?

The primary aim was thus to explore the different ways in which teachers in the school provide feedback during formative assessment. Therefore, in order to achieve this aim, it was necessary to rate the quality of the feedback provided in various tasks and to examine which of the types of feedback teachers provide in formative tasks best improves engagement for learning.

Literacy and mathematics were selected in this study because of their major role in determining good general performance at school. Therefore, if learners in the school were underperforming in these areas; there was the possibility that this could affect their performance in other learning areas. For example, if a learner cannot read, communicate in English, count or do simple calculations, s/he will be unable to perform well in other learning areas as well. To deal with this problem, the South African Government has taken the initiative to assist underperforming schools by requiring participation in a national strategy to improve literacy and numeracy, and to engage in the Gauteng provincial strategy to standardise assessment at primary school levels. In light of this, a number of programmes have been implemented, including the Foundations for Learning, Annual National Assessment (ANA) and District Common Exams to assist schools in meeting the required standards. Since basic foundational skills in mathematics and literacy had not yet been achieved by many learners in my school, they fell far below the basic average and assessment standard required in the external examinations written every year at school. The challenge ahead is therefore to meet the stipulated targets for improvement of our learners' literacy and numeracy levels from now until 2014.

Two teachers teaching English and Maths in Grade 7 were observed during class, and also interviewed to investigate and to try and identify problems which could have led to the learners' poor performance. These two learning areas had been selected for investigation because learners write common exams in these subjects almost every term and, in addition,

the learners write English and Maths in the Annual National Assessment every year. The aim of the classroom observations (normal feedback) was to examine how teachers assess learners' progress during lessons on a day-to-day basis, and to ascertain what types of verbal feedback learners were being given during lessons. Factors that might influence the nature of the verbal feedback were evaluated by interviewing the teachers to establish, in the first instance, how they view learning and assessment, and in the second instance how they rate the importance of feedback. One 30 minute lesson per learning area was observed. Furthermore, observations were made to establish whether technology could be used to draw out learners' prior knowledge and to evaluate whether it would assist in maintaining learner attention and create opportunities for meaningful engagement during class (Mellon: 2007). Specifically, observations were made on the feedback provided by teachers after the introduction of the technology, both prior to the workshop held at the school and afterwards.

A selection of the Maths and English activity books from three grade 7 classes were evaluated. Three books from each class were selected so that there would be at least one book from a strong, weak and average performer in each class. The selection of a book from each of these categories was random. The three groups were colour coded, inserted into class lists and a book from each colour in each class was selected randomly. The selected learners' books were collected once a month over a period of three months for observation starting from July. The reason for observing each book more than once was to ensure that the information gathered from learners' activity books was valid and reliable. This means that each month nine Maths and nine English books were analysed i.e. an overall total of 27 books in each subject area in the study.

In order to understand how importantly feedback was rated by teachers in the school, they were interviewed about their views on learning, feedback and assessment. Thereafter, learners were also selected for interviews about their views on the different types of feedback received from the teacher, and asked to explain whether or how they had made use of such feedback to learn. This means that questions asked during the learner interviews were focused on how they had felt that the verbal feedback, written feedback and feedback via CRS technology had promoted or enhanced their learning. Three learners in each grade 7 Maths and English class were selected for interviews, and were asked 9 questions in a semi-structured interview. These interviews were scheduled to take place during breaks so that they did not impact on learner's scheduled class times.

Special emphasis was given to probing how teachers feel that feedback and formative assessment could be used to help learners improve their understanding of concepts and to encourage critical thinking. The data obtained from the interviews was evaluated. Also probed were the factors influencing the timing of written feedback given to the learners. Teachers' views on the use of technology (CRS) to provide feedback in formative tasks were also collected. These interviews took place during break or immediately after school, with each interview lasting between 20 and 30 minutes.

Furthermore, the factors that might influence the feedback that teachers provide in formative assessment tasks were investigated by interviews with randomly selected learners and two teachers, each teaching a grade 7 class in the key subjects of English and Mathematics. As an intervention, it was decided to introduce the use of an interactive classroom technology, the *Interwrite* PRS system. Moreover, it was felt that it would not be sufficient to just show teachers how to use the technology from a mechanical point of view, but that they should also be given guidance via a workshop for all the teachers in the school (so that everyone could benefit rather than just the teachers selected for the study) on how to use this pedagogy to engage learners, to promote critical thinking and deep learning, and also on the value of feedback for learning.

Theories of learning such as Vygotsky's conception of a Zone of Proximal Development within a social constructivist learning theory and Black's notions of formative assessment which promotes in – time feedback were used to frame this study from the perspective that interaction between the learners, or with their teachers, to enhance debate, argument or dialogue in the class and to obtain effective feedback will enhance learning. This type of learning environment would also, in turn, provide effective feedback to the teacher in terms of dealing with learners' misconceptions 'just in time.'

In the initial stage of the study, the management of the school was requested to provide the statistics of the Maths and English results of the 2011 Grade 7 Annual National Assessment and Common Exams, as well as the schools grade 7 results from these examinations. The aim of this request was to establish the level of performance of the learners, and to identify the problems in each of these two subject areas. This provided the baseline in terms of the problems encountered in the selected school. It was hoped that since effective feedback is said to increase learning and performance (Black, 2003), identification of specific problems could potentially guide the type of feedback that was

needed for learning in the school. In order to get possible answers to the main question asked in this study, the researcher was fortunately able to get access to the statistics about the learners' performance.

The statistics show that learners in the school scored below 65 % (standard set by the Department of Education) in both the ANA and in District Common Examinations. From the ANA results shown in Figures 1.2 and 1.3, it is evident that in 2011, the learners in my school were below average in both English and Mathematics. The Learning Area Average in English was 38 %, and 31 % in Mathematics. These results indicate that the school will have to improve substantially in order to reach the required National Assessment Standards. The analysis of results in both figure 1.2 and 1.3 shown that the majority of learners underperformed, and that there were very few learners who performed well.

Based on the above mentioned results, it was clear that the learners were not performing well in English Home Language as 45 % of them (learners) were not yet achieving the expected learning outcome (the benchmark of the Department was set at 65%) and assessment standards. As mentioned previously, this outcome resulted in the DOE intervening in the school. The ANA Mathematics results in 2011 (Figure 1.3) were similar to the English results (with the average result being 31.1 %), meaning that learners were also underperforming in this subject with almost 80 % of the learners not achieving or perform to the expected standards since the average was 24.3%. Despite the introduction of the Common Examinations, the performance of the learners did not really improve in the school. Therefore, there was no doubt that some other type of intervention was required. These findings show that there was a need for teachers to change their practice to consolidate technology with immediate effects to promote engagement and effective or in – time feedback to release the potential of the learner.

When observing various internal examination papers, I have noticed that the standard of such papers is low compared to both the Annual National Assessment and District Common Exams. My judgement has been based on the fact that many questions in the internal papers only require lower order cognitive levels and very few (if any) questions fall under high order thinking. This alone means that learners are unable to respond to questions requiring critical thinking and other higher order thinking skills (see Table 2 and Table 3 in chapter 1.

This analysis indicates that learners in the school were not exposed to the types of questions requiring higher order thinking. As a result, many of them do not respond to such questions if asked during ANA and Common Exams, because they are only used to one level cognitive process dimension. However, in Mathematics (see Table 3 in chapter 1) the situation in was different, as there was in fact evidence of critical thinking and other higher order thinking skills required in the internal paper. This made me look for another reason to explain why learners were performing so badly in the ANA and GDE Common Exams. Therefore, apart from the obvious misalignment between the internal and external summative assessment (SA) requirements and standards, one may also wonder whether learners were given sufficient opportunities through formative assessment and appropriate feedback (both verbal and written) to prepare them for the rigours of the external summative assessments. In light of this, classroom observation was made to evaluate the feedback that teachers provide in formative assessment tasks to promote learning.

Classroom observations before and after the introduction of an interactive classroom technology were conducted, in order to examine both how teachers assess learners' progress during lessons on a day-to-day basis as well as to ascertain what types of verbal feedback learners were given during lessons. A further intervention was provided in the form of a workshop for teachers at the school, conducted by a lecturer from Wits University. This workshop dealt specifically with the pedagogical aspects of using the classroom technology. In this regards, the value of feedback in learning was emphasized and a discussion on types of feedback that promote critical thinking and engagement in the classroom was initiated.

Prior to the workshop, it appeared that teachers were not aware of how they could use feedback to promote learning and thinking. For example, it was noted early in the study that when teachers provided verbal feedback in the classroom they didn't ask learners to justify their answers to questions posed in class or in written tests. It was also obvious that they applied the same approach when they provided written feedback to the learners in their workbooks. In this case, an analysis of the feedback provided revealed that they just graded tasks in the learners' books or wrote comments that were not designed to help learners to think more about the tasks. Moreover, certain comments could have been construed as promoting competition or ego amongst the learners (Black, 2003). The findings of this study also showed that teachers were battling to provide in – time feedback after written work had been completed, which meant that any feedback from written work could not be used to promote learning of material that was currently being taught.

Another cause for concern was that before the workshop was staged as an intervention, there was no attempt to develop or stimulate debate in the classroom or to encourage learners to ask questions or to open a platform that would allow learners to view issues from another perspective in order for real learning to take place (referring to deep learning). To take full advantage of this idea of real learning, teachers need to develop questioning skills that are in line with higher levels on Blooms' Taxonomy (see Table 2.3) during teaching time or in day to day conversation with the learners, rather than create a situation where learners are faced with higher order questions in formal or summative assessments for the first time. Obviously learners would not be able to achieve good results in these assessments if the situation is different to the one that they are used to on a day to day basis. In short, it is argued here that teachers did not spread the questions asked on a day to day basis to all levels of cognitive thinking (levels of Blooms' Taxonomy) to maximize chances for learners to perform well during the GDE and ANA examinations. Moreover, interviews with the learners established that some of them were actually de-motivated by having to write corrections to work that had been completed a long time ago.

Classroom observations of teachers using formative assessment with and without the classroom technology, prior to the workshop intervention established that 85% of questions asked by teachers during formative assessment were located in level 1 when evaluated against Bloom's Taxonomy's levels of cognitive thinking. In addition, 10% of questions asked were classified into level 2 category according Bloom's Taxonomy's levels of cognitive thinking. This meant that only 5 % of the questions fell within levels 3 to 6 of Bloom's Taxonomy's levels of cognitive thinking. In addition, this result was confirmed by an analysis of the internal examination and formal assessment papers. Based on the above evidence, one may argue that in order for learners in the school to achieve better results during GDE Common and ANA examinations, teachers are required to consider all levels of cognitive thinking when setting formal assessment tasks and activities, as well as in the questions asked during lessons. If learners were to be exposed to higher levels of questions on a day to day basis, they would be inculcated into the way of higher order reasoning and thinking skills that would enable them to perform better during external examinations.

As a consequence of the level of feedback they received, many learners didn't perceive feedback as a cornerstone in the promotion of learning, thinking and conceptual understanding. Instead, it appeared that they perceived it as a device for punishment (Black, 2001) because before the intervention, they were not aware that feedback was a

tool which would teach them how to perform better in future. This means that real learning (deep learning) that promotes understanding was not happening in the school. It was observed that most of the questions asked in class or the activities that teachers were doing with the learners were more likely to promote remembering (surface learning) of facts, as opposed to real learning. This denied learners an opportunity to discuss and debate phenomena in class. Therefore, one may argue that learners in this school were under-performing because there was no alignment between what learning theories require teachers to do in class and what actually happened in the classroom. Teachers were in fact doing quite the opposite of what was learning theory suggests promotes engagement and learning.

The introduction of the Interactive classroom technology (clickers) did however promote engagement in the classroom. This was evident from the observations that the learners were excited by the immediate feedback they received as to whether they had answered questions correctly or not. Clickers appeared to make learning fun and enjoyable, and this was substantiated by comments made by learners during interviews with them. However, in the initial classroom observation when clickers were first used, it was evident that the teacher deemed it sufficient for learners to be given immediate feedback on whether they had chosen the correct answer to a multiple choice question, for example. Learners were not asked to justify their choice of answer. On the other hand, the teacher also made no attempt to explain why one answer would be the best choice or why others would be incorrect. After the workshop however, a change in feedback strategy was immediately apparent. This suggests that use of the technology in an effective manner could bring about changes in learning in the school to the extent that performance in the examinations could be positively affected. If the excitement observed in learners were to be matched by the pedagogical objective to engage learners into tasks, there is no doubt that the level of learners' performance in the school may improve. One may expand this argument to contend that this technology, used effectively, is a tool which could give teachers in under-performing schools an opportunity to achieve better results in the GDE and ANA examinations because it encourages teachers to prepare their lessons and learners' activities in a manner that could enhance performance in summative assessments.

When observing teachers teaching after the intervention (workshop) there was evidence of a vast change in their teaching practices. It was evident that they had worked very hard to find ways of engaging learners and of encouraging critical thinking. Teachers no longer perceived feedback as a simple process of writing corrections or "bagging" correct answers

from the learners, but as something which could be used to draw out the original reasoning of the learner by asking them to justify and explain their answers. By so doing, arguments and debates about the tasks were stimulated to sustain a teaching and learning culture in the classroom setting. Consequently, there were opportunities for learners to demonstrate or deepen their understanding and for them to correct misconceptions without any delay. Previously they would have had to wait until receiving results of summative assessments, by which time most would not be interested in seeing more than the score they obtained.

The learning environment promoted by the effective use of the classroom technology also enabled teachers to diagnose the strengths and the weaknesses (Lambert and Lines 2000) of the learners 'just in time', because every learner was able to answer every question and having done so, to participate in the classroom discussion that ensued. Previously any classroom participation had been left to the stronger learners, while the weaker ones were embarrassed to answer questions or to enter discussions. Failure to achieve good marks in class tests was seen as an embarrassment which was evident from the way in which learners had covered their marks and hidden tests inside books if they had not performed well. This alone was indicative of an environment which did not provide support for weaker learners, but rather made them feel hopeless about improving. Prior to the introduction of the interactive technology, learning had not been seen as something which could be achieved with the help of a classroom community, but instead something that had to be done individually in a competitive environment.

Expanding on the notion of learner participation, feedback from formative assessment using technology like clickers may be used to establish and draw on what the learners already know and then pull / push it to the situation where they can learn something new, or in other words to teach within Vygotsky's notion of a ZPD (Vygotsky: 1978). This would be possible if a teacher were not simply asking questions of the learners in class, but rather to be going the extra mile to ascertain more about the nature of learners' reasoning. If teachers could persevere with this way of teaching i.e. by engaging learners into thinking about ideas and explaining their reasoning, one may argue that learners may do better when faced with challenging questions (middle and high order thinking) during their external examinations. This is because learners would then become used to questions that require critical thinking on a daily basis. Moreover, teachers need to design activities specifically to encourage learners to think and rationalise their reasoning so that constructive learning can take place. The kind of questions that are asked in class on a daily basis, need to be organized in a way that can challenge the cognitive thinking of the

child rather than simply requiring them to remember facts that have been taught previously. When preparing a lesson, teachers need to strive to create a teaching and learning environment in which learners can brainstorm issues together or share ideas with their friends, because peer learning in a community of practice would help them to understand concepts as well as to remember how to carry out procedures better than when they work individually (Lave & Wenger, date).

In this study, there was evidence that before the intervention and the workshop on feedback and pedagogical aspects of effective teaching with clickers, teachers were not doing enough to engage learners in tasks or into encouraging thinking to promote deep learning or an understanding of the tasks given to them. This in essence, was what was identified as the major problem in the school and the most likely explanation for the poor performance of learners in the externally set examinations. In the lessons observed before the introduction of the interactive classroom technology, teachers normally asked learners straightforward questions (questions that didn't stimulate debate, arguments, etc.) and they didn't ask learners new or follow – up questions to find out more about their answers or reasoning. By using this approach, learners were trapped into the idea that learning was all about lower order thinking. This resulted in them struggling to adjust to higher order thinking during their summative assessments because they had not been required to do so previously. It was observed that Learners were simply responding to what the teachers had asked of them, which meant that they accepted facts presented to them without scrutinizing and questioning how new ideas fitted into what they already knew or whether ideas made sense. Therefore, one may argue that in order for feedback to encourage learning and to promote critical thinking amongst the learners, there is a need for it to be continuous and in-time, rather than being postponed to being provided after summative assessments.

From the classroom observations without the use of the technology and of its use prior to and after the intervention, one might conclude that effective use of an interactive classroom technology may be one of the solutions to help teachers cater for learners of different abilities and to guide them into all levels of cognitive thinking during the lesson. This is because the technology makes it easy for a teacher to ask follow up questions during the lesson to establish whether learners understand the content at the higher cognitive levels. Morgan (1993: 75) emphasizes that “in terms of improving learning so as to enhance understanding, it seems to be well established that we need to help students to become involved in various forms of ‘dialogue’, so as to enable them to become more actively involved with material and to help them relate it to previous knowledge and personal

experience.” Clickers do promote dialogue both prior to learners submitting answers and then with the teacher after they have been given the result of the answer they had submitted. This study confirmed this (Figure 4.3), as it was shown that through the use of Clickers every learner in the class was engaged in learning and enjoyed receiving in-time feedback. Teachers were able to use in-time feedback to deal with learners’ misconceptions without any delay.

In addition, after the workshop on how to integrate technology pedagogically, it was observed that teachers had changed their strategy. For the first time they allowed learners to brainstorm ideas on difficult questions to obtain a consensus on the answer which was to be submitted. This then supported the idea of Vygotsky’s ZPD that advocates the use of prior knowledge as a stepping stone to learning something new from others (Vygotsky, 1978). Moreover, it had been observed that through the use of clickers’ teachers found it easy to facilitate any form of debate because learners enjoyed the lesson. Learners were found to regard learning as fun and like a game. Importantly, Piaget’s theory of cognitive development is based on the idea that children’s active engagement with their environment leads them to the construction of meaning and learning. As a result, playing is particularly important for cognitive development, because this is when children actively explore the world (Jordan *et al*, 2008: 57). In this regard, it is noteworthy that the technology (clickers) has value since it had the potential to foster learner participation as well as to provide in time-feedback (Stevenson and Palmer, 1994: 12) to both teachers and learners about the learners’ progress.

In this study, the aim of the classroom observations was to examine how teachers assess learners’ progress during lessons on a day-to-day basis and to ascertain what types of verbal feedback learners were given during lessons. Black *et al*, (2001: 7), stated that “the dialogue between learners and a teacher should be thoughtful, focused to evoke and explore understanding, and conducted so that all pupils have an opportunity to think and to express their ideas.” That nature of dialogue helps teachers to identify gaps, and learners are able to deal with their misconceptions to improve learning. This means that verbal interaction or feedback to questions asked in class is essential, in the sense that if not carefully thought through by teachers it may influence the performance of the learners and their quality of learning. In this regard, it is necessary to improve both the quality of learning and teaching, which may require both teachers and learners to commit themselves to interactive conversations that may lead to deep learning instead of surface learning. This supports Morgan (1993: 72) who advocated that “Students who take a surface approach

fail to gain a good grasp of the content of their reading, whereas those take a deep approach to learning do gain a full understanding of issues in questions.”

The findings of this study show that before intervention took place in the school, teachers were more likely to ask questions that belong to lower order thinking levels that promote surface learning and do little (if anything) to engage learners in tasks that promote deep learning. It was observed that before the introduction of technology and the workshop about the use of Clickers, teachers were not doing enough to promote dialogue in their lessons. This approach meant that they acted against the advice of Morgan (1993: 75) who suggested that “in terms of improving learning so as to enhance understanding, it seems to be well established that we need to help students to become involved in various forms of ‘dialogue’, so as to enable them to become more actively involved with material and to help them relate it to previous knowledge and personal experience.” Therefore dialogue in class aimed to promote Vygotsky’s notion that learning only occurs in the “Zone of Proximal Development” (“ZDP”) which supports the idea that an experienced person has a role to play in assisting a learner to learn something new. A learner needs to be pushed or pull from everyday knowledge towards an area of potential development to ensure that something new is learned. Within this context, explicit learning is enhanced through scaffolding by teachers and through interaction between teachers and learners, and learners and their peers (Vygotsky, 1978).

Finally, classroom observation evaluated how teachers provided in–time feedback to the learners. The findings show that before the introduction of technology (clickers), teachers were struggling to provide in–time feedback and learners were forced to wait for a long time before receiving feedback from the teachers. By so doing they supported the view of Morgan (1993: 74 - 5) who advocated that “where the material was initially difficult, the development of understanding required an active engagement with material being learned, involved internal debates about the new material and its meaning, or discussions with friends.” A primary objective of the introduction of the CRS was to improve learners’ critical thinking and understanding of concepts. In addition, feedback provided through the use of CRS (technology) can facilitate the process of drawing out learners’ prior knowledge, assist in maintaining learner attention, and create opportunities for meaningful engagement (Mellon: 2007) to enhance learning. Through the use of technological tools such as CRS to provide immediate feedback to the learners, misconceptions are corrected immediately. Consequently, through use of technology, teachers realised that engagement does not

simply mean participation or remembering of facts. Instead, it goes beyond simple production of knowledge into deep learning that requires more understanding or thinking.

In this study, interviews were conducted with teachers teaching Mathematics and English in Grade 7 because learners were expected to write ANA and District Common exams in both these learning areas every year.

In order for better learning to take place in the school, teachers need to locate their pedagogical design to create a relaxed environment whereby everyone enjoys learning. In so doing, every learner may have interest in participating in class. Technology helps achieve this and can make it possible for teachers to engage every learner into discussion. This was obviously achieved as supported by the following comment from one of the learners regarding the use of clickers:

*“Makes learning fun! Everyone Sir is enjoying ...because is like we are playing a game ... I like it.”*

Furthermore teachers are tasked with asking questions that stimulate debates and dialogue. Learners were willing participants in a teaching and learning environment which enabled the process of engagement. This occurred when teachers made use of opportunities to encourage slow learners to provide reasons for their answers and for the teacher to deal immediately with any misconceptions. As all learners fully participate in classroom dialogue they construct their own meaning or make sense of their environment (Vygotsky, 1978). In addition, Abdal – Haqq, (1998: 1) declared that constructivism is “an idea that teachers can use in class to engage all learners in the process of learning.” In this regard, technology (clickers) can be used as a tool to unite everyone in the class and to create a team spirit because answers are anonymous and learners feel that they were treated in a just manner. As a result of their change in teaching practice, teachers began to discuss the problems facing the learners rather than just praising those who had answered correctly and making learners who had difficulty feel inadequate. In this case, it was not an issue to be correct or incorrect when answering the questions. What counted most was understanding, and the encouragement of participation of everyone in the class, so that all the learners could learn through reasoning. By using this methodology, they engaged learners in tasks and were able to identify and erode misconceptions.

It was considered that a study of this nature would not be complete without an analysis of learners' workbooks to establish whether they contained meaningful comments and were marked constructively in a way that would engage learners in the tasks and promote critical thinking in the learning process. Ideally, teachers should make use of effective comments to

benefit learning as well as use positive marking styles, as these appear to enable better learning and subsequent achievement. According to Weeden *et al*, (2002: 115) “comments that focus on the task and its learning objective, and offer positive ways for pupils to improve their work, are likely to be more helpful than grades.” This idea requires dedicated teachers who do not mind putting in more effort in marking learners’ activities to help them to improve. Moreover, if marking is perceived by learners’ as something that does not encourage competition learners will be motivated to learn (Black, 2003).

The results (figure 4.10) show that the majority of the learners do read the comments made by teachers in the book. It is unfortunate then (see table 16) that teachers do not make use of that opportunity to engage learners through the use of more comments. The graph in figure 4.10 is an indication that written feedback is highly valued, as most learners read it to see where they could improve. But, it was unfortunate that when observing learners’ activity books especially English books, learners received written comment (s) that that do little (if any) to guide them into learning. Examples of comments received included:

*“Be specific”*

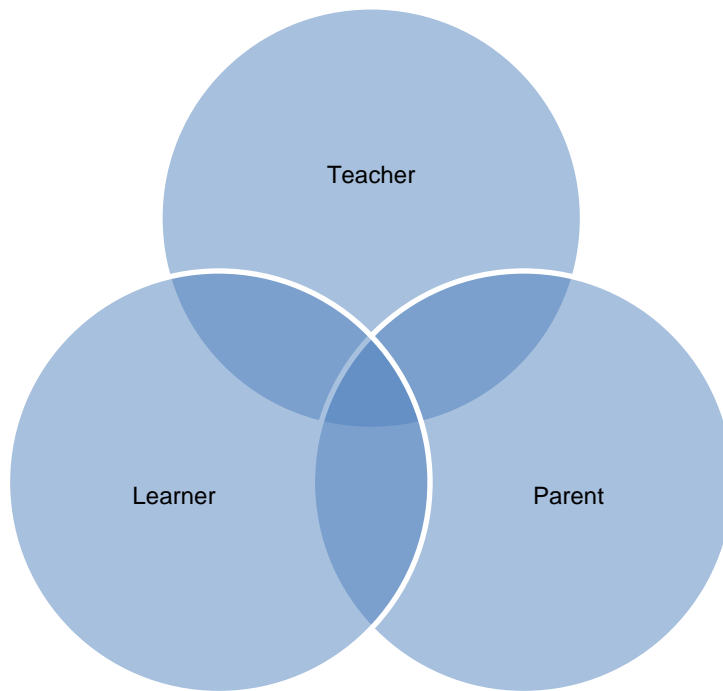
*“Very good”*

*“Excellent”*

*“Not good enough”*

It is in fact possible for the learners to be more confused when seeing such comments because their meaning is implicit; the learner not knows “what” to do or “how” to develop such particular point (s). Preferably, learners will be motivated to learn if they know direction on what to add or delete to improve their answers.

Following the above suggestions, it shows that written feedback also has a very important place in the process of improving the quality of learning. Therefore, it is imperative to encourage learners to read such comments and share it with teachers or parents in order to grasp concepts. Once there is a solid relationship between the learner, parents and a teacher, learners may celebrate the value of written comments in their books because everyone (all stakeholders) is helping to release the potential of the learner through written comments that provide clear guidelines. In this study, written feedback was seen as a tool that can form a comprehensive relationship between three stakeholders that is, a teacher, the learner and a parent.



**Figure 5.1:** Graphic showing the relationship between stakeholders to enable learning through written feedback in order to promote engagement of the learner.

If this is the case, one may argue that engagement of the child at primary school level requires these three stakeholders to join forces for the benefit of the child as shown in Figure 5.1. Therefore, transparency between stakeholders about learners' progress on day to day basis is necessary to enhance the process of engaging the child in tasks. If one of these stakeholders is not familiar about the tasks given to the child, it is imperative to make scaffolding comments in the book and to encourage consultation of different resources (including people or learning materials) to engage the child into learning. This would enable a child to make connections of what had been taught in class when interacting with materials.

Furthermore, written comments may assist those learners who feel embarrassed if their mistakes were to be discussed in public (in class). During observations, it was discovered that if learners received their test papers back, some of them hide them so that his / her friends could not see the marks / grade or comments written on the test script. One learner commented:

*"I prefer written feedback ... because it's between me and a teacher ... I do not want to be exposed in front of everyone that I was wrong ... other learners take advantage of that ... they make a joke about you."*

Based on the above evidence, one perspective is that some learners perceive feedback as something that is confidential. This means that some learners might feel despondent if they were to be exposed as being below the standard of others in the class. They end up viewing feedback as competitive, rather than as part of the learning process. This is a worrying point of view, because ideally feedback needs to be seen as something for sharing so that everyone (capable peers, parents and teachers) can help if there is a problem. Therefore, learners need to be taught that at times it is necessary to expose your problem and that some people are willing to assist if they are aware that you have a problem.

However, prior to the use of the CRS, it was observed that some learners laughed at others without realizing that they made them feel down. The role of general class feedback did not seem to be appreciated. This view changed however once clickers were used effectively. Consequently one might propose that if written comments and feedback via technology (clickers) were to be integrated in one lesson, this may greatly enhance learners' performance because some part of the feedback given to the learners is anonymous and individual, while at the same time learners would feel free to participate in the tasks and to benefit from group and peer assisted learning.

It had been noticed during the initial classroom observations that teachers were likely to be the ones with the power in controlling the lesson, as they always led the debates and asked the questions in class. Learners were given little (if any) chance or space to make any contributions to the lesson (Gipps, 1999). However, the intervention resulted in teachers reviewing their teaching styles. They seemed to realise that learners had been force-fed information and had not been given a chance to demonstrate their creativity. One could argue that teachers were not actually teaching, but instead were attempting to transfer knowledge to the learners as opposed to engaging them into learning constructively and encouraging them to understand what was being taught. This observation was supported by a comment from one teacher during an interview session:

*"I do not think we are teaching any more ... we are lecturing ... you know ... just like a lecturer in the higher institution ... learners at primary level needs to be taught ..."*

Apparently, on one hand, teachers understood that their style of teaching wasn't helping the learners to improve and did not provide learners with opportunities to understand what was taught, yet even their formal assessments indicated that they only required them to regurgitate facts. Learners thus found it difficult to answer questions that required higher

levels of cognitive thinking in the ANA and GDE examinations. As a result, the school was assessed as under-performing by the GDE. Morgan, (1993) argues against the notion of simply transferring knowledge to the learners because he claimed that “to transfer units of information or knowledge, or what is commonly referred to simply facts, from the external source such as a teacher or a book, into the head, is not considered the prioritized aim of learning; rather a learner should seek an understanding of facts.” Therefore, it is realised that teachers need to create activities that help promote self – assessment and to provide feedback to enable learners to respond adequately to teachers’ expectations. Gipps, (1999: 381), indicated that, “this type of feedback encourages children to assess their own work and provide them with strategies that they could adopt to develop their work. Teachers, in this approach, are involving learners in the process of assessment as well as demonstrating power with – rather than power over – them.” Once learners are used to this approach of self-assessment, they would learn what counts as high quality work that would lead to good results. Currently, many learners in the school were doing assessments just because they were required to complete them and without any regard for how they were completed. They were unaware that quality is important. This idea could have been inculcated into them by the types of questions that had been asked in class and the activities that they had been required to do.

Furthermore, it was discovered that little had been observed in the workbooks analysed that would indicate that teachers considered marking and commenting approaches in learners’ activity books as a fundamental factor for engaging learners or for encouraging thinking. Teachers in this underperforming school did not seem to provide informed written feedback to the learners which would show them what needed to be done in order to improve as had been advocated in the literature (Black, 2003). Such a scenario, makes one agree with Lambert and Lines, (2000: 107-8) who reveal that “day-to-day assessment ... is weak and the use of assessment to help planning of future work is unsatisfactory in schools. What is particularly lacking about standards they have achieved in a piece of work, and what they need to do to improve; whilst marking needs to be supportive of efforts made, it also needs to be constructively critical, and diagnostic of both strengths and weaknesses”. Instead it appeared that the comments that they made in the book like:

*‘Be specific’*

seem too unelaborated to encourage communication and engagement. In essence, the above-mentioned comment is a typical example of the feedback that teachers provided before the intervention. In order for learning to take place, teachers would be required to

rather write in the book what went wrong and to suggest possible ways of dealing with the problem. What was most disturbing was that on most occasions teachers didn't make any comments at all in the learners' book or assessment papers. In this case, one may argue that learners may feel unimportant or that they were ignored by the teacher. Also, those learners who were not doing well would not know what to do to improve, whilst those learners who were achieving better results might not realize that they still could learn more in order to reach their maximum potential.

Through formative assessment teachers and learners can identify learning problems and try to deal with misconceptions as fast as possible. This is because both teacher to learner and learner to learner interaction is encouraged as a means of helping learners to catch up, immediately (Black, 2003). One teacher who realised this commented on ways of assessing learners' progress on a day to day basis:

*"... I use to give them activities to do, formal and informal assessment or asked them questions. If I am satisfied about their responses ... then I know that they understood."*

However, this teacher had not indicated that informal responses in a classroom may only come from the more able learners. This is why the CRS (clicker) technology is so valuable. It enabled the teacher to gauge the responses from all the individuals in the class. After the workshop on how to use Clickers, it was observed that teachers had made considerable efforts to create opportunities for dialogue during the lesson. This, in turn, encouraged learners to ask questions of the teacher or their peers. Since the learners were also encouraged to discuss possible answers before submitting them, this learning environment also enabled learners to exchange ideas and to correct each other. As a result, one may argue that the use of clickers in the classroom may promote engagement and higher order thinking depending of course on the type of questions that are asked during the lesson.

In addition, teachers have to structure their questions in the way that will stimulate debate. Love and Mason, (1995: 258) argue that "a conjecturing atmosphere is one in which everything said is taken as a conjecture; in which pupils seek to express their thinking when they are unsure, and to listen carefully to each other when they are sure about the topic to hand." In this respect, straightforward questions like those requiring only lower order thinking promote surface learning. Obviously if teachers base their questions on this

level only they cannot expect learners to do well in external assessments like the GDE and ANA examinations which contain questions requiring higher order thinking.

Furthermore, it is a given that for teachers to ask better questions during the lesson they require better understanding of the topic or subject that they are teaching. This means that subject knowledge also has value in determining the quality of teaching, questioning or engaging learners in tasks. There is no need to take it for granted that at primary school level teachers can teach everything because certain units are complex and require teachers with a good background of the subject. Therefore, it is also vital to consider specialization as a cornerstone in promoting quality teaching and learning in under – performing schools. In light of this, the School Management Team (SMT) needs to be careful when allocating duties to the teachers. This means that duties ought to be allocated on basis of major subjects teachers obtained at the higher institution in order for them (teachers) to make best use of knowledge they have to engage learners in tasks. This was brought up during an interview with one teacher who stated that:

*“Certain educators are placed or teach learning areas that are not comfortable with ... Why? ... Because there is an assumption that a primary teacher can teach everything ...”*

Finally it emerged from interviews that another problem in the school is that there is no platform or teachers’ forum to discuss issues related to pedagogy and learning in which teachers can advise each other on how to teach best and to share best practice. Such a platform may provide the ideal opportunity to provide all the teachers with the necessary skills which would enable them to provide effective feedback to the learners and to implement pedagogy which would enhance the culture of teaching and learning.

In order to sum up from a theoretical perspective, it is vital to note that the findings reported in this study supported Lambert and Lines, (2000) who consider that generally day-to-day assessment in schools is unsatisfactory. The results show that this underperforming school needs to recognize and understand the significance of providing effective and meaningful feedback in order to engage learners. The workshop intervention, however, did show teachers how they could engage learners and how feedback could be used to promote the quality of teaching and learning. This change in strategy is one which could be used to assist the school enhance the performance of its learners in the external assessments.

Therefore, this investigation on how teachers use formative assessment to provide feedback in an underperforming school has shown that the teaching and learning environment was doing little to promote engagement or to stimulate debates which could result in deep learning. During formative assessment higher order questions were found to be lacking. Scaffolding of knowledge was not adequate during day to day interaction, and there was little feedback given that could be used to prepare learners for the external summative assessments. However, on a positive note, teachers were observed to change their teaching strategy once the technology was introduced and once they had been made aware of how it should be used most effectively to promote critical engagement.

In conclusion, this study established that feedback through any medium can enhance learning if it encourages learners to reason or to think more carefully about concepts and ideas. In this school, the conception of the value of feedback has to be reconsidered by both learners and the teacher, so that both parties recognise that it is not merely whether a response is correct or not that carries the most value, but rather that it is the ability to provide a justifiable or defensible response which encourages deep learning. The interactive classroom technology has changed perceptions of learning in some of the classrooms in this school as it has enabled learning which takes place in a just manner that incorporates formative assessment and effective feedback and promotes social constructivism.

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## CHAPTER 7: ATTACHMENTS

### Appendix 1: Approaches to marking and commenting

<b>'CARROT'</b>	<b>'STICK'</b>
<b><i>Types of marking</i></b>	<b><i>Types of marking</i></b>
Positive Enthusiastic Constructive Eager Generous Affirmative Encouraging	Negative Cool / distant Destructive Harsh Severe Critical Analytical
<b><i>Marking style</i></b>	<b><i>Marking style</i></b>
Give credit Look for intrinsic merit Marks from 'bottom up'	Find faults Compares to the 'model answer' Marks from 'top to down'
<b><i>Comments in learners' books</i></b>	<b><i>Comments in learners' books</i></b>
"You have ..." "A good start that can be developed by ..." "Well done for ..." "Interesting point." "Re – write this point to gain the mark ..." "The strengths in this are ..." "Ask me if you do not know why this is a brilliant sentence, claim, argument, etc."	"You have not ..." "Develop this point." "It is pity you have not ..." "What does this mean?" "Explain!" "The weaknesses here are ..." "Not good enough – see me!"

Source: from Lambert and Lines, (2000: 167)

Comments or notes

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## Appendix 2: Observation schedule – Normal verbal feedback

### 1. Feedback

<b>Interaction</b> (e.g. Oral or verbal, written, and engagement.)	<b>Participation</b> (e.g. Responding to questions, doing activities, debates and presentation.)	<b>Diagnose</b> (e.g. Identifying individual strength and weaknesses)	<b>Motivational</b> (Verbal comments e.g. Well done, try again and excellent.)	<b>Judgments</b> (e.g. This is not correct or correct, not clear or clear, elaborate your point by referring to ...)
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Comments or notes

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### 2. What teachers do in class? (Knowledge)

<b>Decision made explicitly or implicitly</b>	<b>Involvement into tasks</b>	<b>Creativity</b>	<b>Type of learning</b>
Deciding what to learn (e.g. topic or concepts to be taught.)	Knowing how to ask questions, telling answers, demonstration.)	Constructing knowledge, deepen learners understanding, drawing prior knowledge understanding, (e.g. Interpretation of graphs and modelling.)	Promoting problem solving learning, surface learning, deep learning, explicit or implicit learning

Comment or notes

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### 3. What learners do in class? (Knowledge)

<b>Engagement</b>	<b>Participation</b>	<b>Sharing feedback</b>	<b>Attitude</b>
Two way relationship with the teacher (e.g. asking and responding to	Doing what teachers asked them to do (e.g. writing corrections, activities and answering	Help each other (e.g. working in pairs, individuals and groups to brainstorm ideas.)	Listening and respecting each other / their teacher.

questions.)	questions.)		
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Comment or notes

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4. Approaches to clarify classroom activities / tasks to the learners

<b>Verbal explanation</b>	<b>Explanation of criteria</b>	<b>Performance standards</b>	<b>Learning barriers</b>
“You need to do or complete this work by referring ...”, “You need to follow this example to acquire more ...”	Discussing rubrics, instructions, check lists, assessment grids and other assessment criteria together with learners.	For example, exemplars of good work are shown or given to the learners for discussion	Evidence of supporting an individual learner (if any) or supporting the class as a whole in general

Comment or notes

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**Appendix 3: Observation schedule – Feedback via technology (clickers)**

**Model of learning: Teacher action during each stage of learning process**

<b>Presentation</b>	<b>Reflection</b>	<b>Engagement</b>	<b>Exploration</b>	<b>Transformation</b>
-teacher encourages learners response and feedback	-reviews lessons and outcomes of learning	-encourages reflection	-facilitates development of ... e.g. speaking, reading, etc.	-recalls directions
-facilitates development of presentation skills, such as rehearsal, oral reading, etc.	-reviews the learning	-reviews progress so far	-provides time for learners to make their own links with the information	-organises classroom appropriately
-ensures that lesson have been shaped to suit learners.	-shows enthusiasm and disappointment	-points to further directions	-may provide direction through open – ended questions	-facilitates development of writing, reading and speaking skills as appropriate
-provide sense of performance by explicitly valuing the learners response	-encourages learners to evaluate their own work process in terms of curriculum aims.	-encourages prediction and hypothesising	-reflects on information gained from learner responses	-monitors quality of work produced
-encourage sharing of feedback given	-organises classroom appropriately for: 1) individual writing / response; 2) small group talks and 3) whole class	-Presents new content  -links new material with old material		-provides new information when necessary (by recycling the engagement and exploration)

	discussion.			
	-re – establishes links between this activity and whole curriculum	-provides structured overview		
	-reflects upon all this for future planning	-demonstrate or models new skills		

Source: Raid, Forrestal and Cook, (1989: 57)

Comment or notes

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**Appendix 4: Interview Schedules for Teacher**

1. What would you consider as good approach to teaching and learning and why?

1.1 Deep or surface learning

1.2 Discovery learning

1.3 Teacher centred learning

1.4 Learner – centred learning

1.5 Explicit or implicit learning

1.6 Other (specify)

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Comment or notes

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2. How would you say learners learn best and why?

2.1 Through engagement or participation whereby the teacher encourages prediction and hypothesising in the lesson.

2.2 Through reflection whereby the teacher encourages learners to evaluate their own work process in terms of curriculum aims.

2.3 Through exploration whereby the teacher provides time for learners to make their own links with the information

2.4 Through presentation whereby the teacher provide a sense of performance by explicitly valuing the learners' response.

2.5 Other (specify)

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Comments or notes

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3. How do you know that your learners understand what was taught?

3.1 By showing interest in learning process through participation in answering questions asked in class.

3.2 By responding correctly in the task given in class.

3.3 By correcting each other if someone provides a wrong answer.

3.4 By connecting what was taught with the outside world or practical life.

3.5 Other (specify)

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Comments or notes

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4. What strategy do you use to ensure that everyone meets the assessment requirements in the task given?

4.1 Asking learners questions and give feedback to the learners' responses.

4.2 Giving learners an opportunity to ask a teacher to clarify certain content covered in class.

4.3 Giving learners questions, worksheet or activities and asking them to work as a group and to help each other where possible. If they encounter any problem, they must ask a teacher to clarify the concept.

4.4 By conducting an overall revision strategy whereby a teacher re-visit and emphasize areas that are important in the section taught.

4.5 Other (specify)

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Comments or notes

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5. Are the criteria for judging learner performance made explicit? If so, how?

5.1 Learners know beforehand what the teachers' expectations are

5.2 Learners are given verbal and written feedback.

5.3 Learners are shown an example of good work.

5.4. Learners are reminded to read and follow the instructions

5.5 Rubrics, check lists and any form of assessment grids are discussed with the learners.

5.6 Other (Specify)

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Comments or notes

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6. In what way do you motivate your learners to learn more?

6.1 Giving them some form of reward

6.2 Emphasizing the nature of content, its importance and its role in the world

6.3 Challenging or questioning certain knowledge and prior knowledge

6.4 Evidence driven – through experiments, observations and others

6.5 Other (Specify)

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Comments or notes

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7. How do you assess learners' progress during lesson on a day to day bases and type of verbal feedback do you give to the learners?

7.1 By promoting debate and discussion in class.

7.2 By facilitating group work discussion.

7.3 By putting questions to the learners

7.4 By giving them individual activities to complete.

7.5 Other (specify)

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Comments or Notes

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8. Is the use of technology (CRS) making any difference in improving learning and why?

8.1 Most learners participate in answering questions.

8.2 Provide in – time feedback which promotes learning.

8.3 Maintain discipline and keep learners focusing on tasks.

8.4 Motivates learners to learn

8.5 Other (specify)

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Comments or notes

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9. How do you support learning in your class?

9.1 By providing written feedback to the learners' activity books.

9.2 Giving learners another chance of submitting assessments and asking them to use written feedback given to produce work with improved quality

9.3 By providing verbal feedback to clarify the criteria for quality work

9.4 By scaffolding content to the learners to ensure that learning takes place.

9.5 Other (specify)

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Comments / notes

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10. What would you consider as factors influencing in time feedback in your school?

10.1 Training to and access to technology

10.2 Learners do not make use of written feedback to improve

10.3 Large number of learners in class

10.4 Too much administration work which affects lesson preparation or time to mark and provide feedback

10.5 Other (specify)

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Comments or notes

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**Appendix 5: Interview Schedule for learners**

1. What do you think feedback is?

1.1 Writing corrections

1.2 Revision of work

1.3 Ongoing interaction

1.4 Other (specify)

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Comments or notes

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2. Which type of feedback would you consider best for you to learn and why?

2.1 Written feedback

2.2 Verbal feedback (Without the use of technology – Clickers)

2.3 Feedback via technology (Clickers)

2.4 Other (specify)

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Comments or notes

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3. Have you read comments made by teachers in your book? If so, how do such comments motivate or help you to improve the quality of subsequent tasks given to you?

3.1 Gives you direction on what to do next time to achieve good marks.

3.2 Shows you gaps or things you should include in order for you to improve your marks.

3.3 Shows you the strengths and weaknesses of your work.

3.4 Motivates you to acquire more information or knowledge about something.

3.5 Other (specify)

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Comments or notes

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4. How long you wait for feedback from your teacher after written work has been completed and how does that affect or worry you and why?

4.1 a day

4.2 a week

4.3 two weeks

4.4 a month

4.5 other (specify)

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Comments or notes

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5. What type of feedback de - motivates you to learn and why?

5.1 Written feedback

5.2 Feedback via technology

5.3 Corrections

5.4 Verbal feedback

5.5 Other (specify)

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Comments or notes

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6 How do you know that you've understood something that was taught?

6.1 By participating in group discussions, debate, presentation and so on.

6.2 By correcting other learners if they have misconceptions.

6.3 By making comments and raising questions in class.

6.4 By interacting with your peers or teacher about interesting ideas.

6.5 Other (specify)

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Comments or notes

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7 Why do you think feedback from your teacher or peers would help you to improve and to understand?

7.1 Because we learn from each other.

7.2 Because they (peers and teachers) are knowledgeable than me.

7.3 Assist in viewing things from different perspectives.

7.4 They guide me (the learner) to understand different factors.

7.5 Other (specify)

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Comments or notes

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## **Appendix 6: Teachers' Consent Form**

3483 Ikhala Street

Extension 3

Palm Ridge

Johannesburg

1458

The Teacher

Primary School

P.O. Box 16015

Leondale

Germiston

1424

Dear Teacher

### **Re – Permission to observe and interview you for M Ed research study**

**Study Title:** A comparison of learner responses to different types of feedback and factors influencing the feedback that teachers provide in formative assessment tasks

As part of my M Ed (Master of Education) studies at the University of the Witwatersrand I am doing research on the above – mentioned topic. I would like to observe you twice in a 30 minute lesson. In the first 30 minute lesson I will observe your normal lesson. Then I will come again to observe you in a lesson in which you will use clickers. I would like to offer you free training on the use of clickers to provide instant feedback to the learners. This training will commence in June at primary school between 14: 05 – 14: 35. As a participant in this study you are requested to attend every Tuesday and Thursday of July 2011.

Throughout the period of my research I will use an observation schedule and note down information where necessary. Once I have completed this observation process, I would like to interview you during breaks or immediately after school, and I hope that this interview will not last longer than 20 minutes. During the interviews I will ask you questions about learning, feedback and assessment in your school.

I would like to assure you that your responses to any questions asked during the interviews and that any data collected during my observations of your lessons will be strictly confidential. I will not discuss your responses with my colleagues, principal, or friends. I am not going to disclose your name, the name of the classes you teach, or the name of the school in my report writings, speeches and presentation of the findings, or in any other public forum. In essence, the findings will be used for the sole purpose of the research report which is required for my M Ed degree, and I will destroy the raw data collected after five years. During these five years I will lock up the data in my trunk. I believe that your participation will provide a long – term benefit to the school as the study aims to identify which of the different ways in which learners receive feedback from formative assessment tasks will best improve their performance in summative assessments. I would also like to assure you that you have a right to choose not to participate in this study. Moreover, if you do choose to participate, you may stop at any time without any negative implications. You may also choose not to answer particular questions that are asked in the interview without being intimidated or persuaded to answer.

If you consent to participate in this study, may you please sign and return this form to Mr Stanley Nyembe. If you have any questions about the study or about your participation in it please contact:

Mr Stanley Nyembe

Teacher at \_\_\_\_\_ Primary and Part – Time Student at Wits University

Cell: 082 6271 361

E – Mail: [stanleynyembe@ymail.com](mailto:stanleynyembe@ymail.com)

## CONSENT

I have read this consent form and I understand the information about this study and what my participation entails. Questions that I wanted to ask about the study have been answered. My signature says that I am willing to participate in this study.

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Participant name (Printed)

Participant Signature

Date

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Name of the Person Conducting Informed Consent

Discussions / Witness

(Printed)

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—  
Signature of the Person Conducting Informed Consent

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Investigator's signature

## Appendix 7: Parents / Guardians Consent Form

3483 Ikhala Street

Extension 3

Palm Ridge

Johannesburg

1458

The Parent / Guardian

Primary School

P.O. Box 16015

Leondale

Germiston

1424

Dear Parents / Guardians

### **Re – Permission to observe and interview your child in Grade 7 for M Ed research study**

**Study Title:** A comparison of learner responses to different types of feedback and factors influencing the types of feedback that teachers provide in formative assessment tasks

As part of my M Ed studies at the University of the Witwatersrand, I am required to complete a research report. As part of my research, I would like to observe your child's activity book once per month over the period of three months from, June to September 2011. During this process of observing learners' activity books, I will analyse the comments that teachers have made when marking the books. I would also like to interview your child about the different types of feedback he / she has received from teachers during class and in their books, and how they make use of it to improve their understanding of what has been taught or assessed. During interviews, I will also note down things that your child will say about the feedback that teachers in the school provide to them. Some of what your child tells me will be written up as part of my research a report which will be a partial requirement for the M Ed degree for which I am registered. I am not going to tell the principal, teachers, parents or even friends about what your child will say. The data will be used for research purposes only, and the name of your child will remain anonymous and confidential when presenting and writing the report.

You are not obliged by law to ask your child to participate in this study. If you choose to allow her / him to participate in this study and suddenly you change your mind, you may stop her / his participation at any time. No one will blame you or criticize you if you ask your child to drop out of the study, and there will be no repercussions.

If you have questions about allowing your child to be part of this study, you can talk to Mr Stanley Nyembe:

Mr Nyembe Stanley

Alston Primary Teacher and Part – Time Student at Wits University

Cell: 082 6271 361

E – Mail: [stanleynyembe@ymail.com](mailto:stanleynyembe@ymail.com)

Please sign and return this form via your child to Stanley Nyembe at Alston Primary School.

### CONSENT

I have read this form. I understand the information about this study. I give consent to my child to participate in this study.

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Parent / Guardian Name (Printed)      Signature of the Parent / Guardian      Date

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Witness Name (Printed)                                      Witness Signature                                      Date

**NB: The witness must be an adult aged 18 or older, present when signed.**

## **Appendix 8: Learners' Assent Form**

3483 Ikhala Street

Extension 3

Palm Ridge

Johannesburg

1458

The learner

Primary School

P.O. Box 16015

Leondale

Germiston

1424

Dear Learner

### **Re – Permission to observe and interview you for my M Ed research study**

**Study Title:** A comparison of learner responses to different types of feedback and factors influencing the types of feedback that teachers provide in formative assessment tasks

This form may have some words that you do not know. Please ask someone to explain any words that you do not understand. You may take home a copy of this form to think about and talk to your parents about it before you decide if you want to be in this study or not.

As part of my Master of Education (M Ed) studies at the University of the Witwatersrand, I would like to observe your teacher providing verbal feedback (without the use of technology) and feedback via technology (Clickers) to help me fulfil the requirements of my studies. I would also like to observe your Maths and English activity books to evaluate teachers' written feedback in your book. This process will take place once a month over a period of three months. Thereafter, I will interview you about different types of feedback you received from teachers. Such interviews will take place during breaks, and I hope that it will only take between 10 and 20 minutes. I will ask you seven questions during the interview. Please note that I will note down everything you say, but I will not tell your teacher, your friends and even

your parents about what you have said. The conversation between you and me will be strictly confidential. If I need to talk about the study in speeches, presentations and in writing a report at the University, I will never mention or use your name. The data will be used for writing a research report to my supervisor / Wits University about what all of the children are saying about different types of feedback they received from their teachers.

As a learner you have a right to choose whether or not to participate or to answer a question and you may stop a conversation at any time without being threatened or intimidated by the researcher, parents or teachers. If you decide to be in this research study, you are requested to sign this form and return the slip to Mr Nyembe. Make sure that you do not sign the form until you have had all your questions answered and that you understand what you will be required to do to participate.

If you have questions about being in this study, you can talk to the researcher or you can ask your parent / s or another adult to call:

Mr Nyembe Stanley

\_\_\_\_\_ Primary Teacher / Wits University Part – Time Student

Cell: 082 6271 361

E – Mail: [stanleynyembe@ymail.com](mailto:stanleynyembe@ymail.com)

Please do not sign this form if you have any questions. Be sure that someone answers your questions.

### **ASSENT FORM**

I have read this form. I promise that I understand the information about this study. I am willing to be in this study.

\_\_\_\_\_

–  
Learner Name (Printed)

Learner Signature

Date

\_\_\_\_\_

–  
Witness Name (Printed)

Witness Signature

Date

**NOTE: The witness must be an adult aged 18 or older, present when the learner signed.**

## Appendix 9: Principal's letter

3483 Ikhala Street  
Extension 3  
Palm Ridge  
Johannesburg  
1458

Primary School  
P.O. Box 16015  
Leondale  
Germiston  
1424

Dear Sir

### **Re – Permission to conduct research for M Ed research studies at Primary School**

**Study Title:** A comparison of learner responses to different types of feedback and factors influencing the types of feedback that teachers provide in formative assessment tasks.

As part of my Master of Education (M Ed) research report required by the University of the Witwatersrand in partial fulfilment of the degree requirements, I would like to conduct a research study about the above mentioned topic at Primary School. Information gathered in this study will be used solely for my research report. If I will talk about the study in, presentations and in the research report or in any other forum, I will never mention or use the school name or the names of the participants in this study. The information acquired during research will remain anonymous and confidential because the researcher will lock up the data inside his trunk and destroy it after five years.

For the purposes of my research I request permission to:

- obtain access to the Grade 7 statistics or ANA and Common exams results of the past two years, to date.

- train teachers on how to use technology (clickers) in class to give instant feedback to the learners. These clickers will be loaned to the school for the duration of the study by Sangari Educational Solutions. They will provide each learner with the opportunity of participating in the class and of responding to questions asked during lessons. . Training will be free of charge. The researcher will communicate information with the selected participants.
- observe Maths and English teachers providing verbal normal feedback (without the use of technology) and feedback via technology (clickers) during class. I will spend thirty minutes (one period) in three classes for each observation
- analyse the feedback and comments provided by teachers in the grade 7 Maths and English and learners' activity books once per month over a period of three months. I will randomly select three learners' activity books in each grade 7 class.
- interview selected grade 7 teachers (Maths and English) and selected learners. These interviews will take place during breaks and immediately after school.
- use data gathered in the school for academic research purposes.
- allow me to conduct this study during contact time (where necessary or the need arises).

If you have questions about this study, I will be happy to answer these and to address any concerns you might have,

Mr Nyembe S. K.

\_\_\_\_\_ Primary School Teacher / Wits University Part – Time Student

Cell: 082 6271 361

E – Mail: [stanleynyembe@ymail.com](mailto:stanleynyembe@ymail.com)

Please complete and return to Stanley Nyembe.

I \_\_\_\_\_ (Principal' full names) allow Grade 7 teachers and learners to be, trained, observed and interviewed about learning, feedback and assessment in the school hours, breaks and immediately after school.

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Principal's Signature                      School Stamp                      Date

## **Appendix 10: Interviews with English teacher**

### **Q 1: What would you consider the best approach to teaching and learning?**

**ET:** Interactive approach could be the best and drilling the learners until they understand the concept.

### **Q 2: How would you say learners learn best and why?**

**ET:** If they were taught by specialized teacher with strong subject knowledge ... *Why? ... Because there is an assumption that a primary teacher can teach everything ... I guess certain teachers avoid teaching certain topic... apart from this I think they would learn best if we can introduce Team Teaching in this school. Apparently, teachers don't want to share skills and knowledge with others.*

### **Q 3: How do you know that your learners understand what was taught?**

**ET:** *Through activities ... I use to give them activities to do such as formal assessment or asked questions. If responses are correct then I know that they understood.*

### **Q 4: What strategy do you use to ensure that everyone meets the requirement in the task given?**

**ET:** *One, I explained instructions and questions to them ... and two, I informed them well in advanced that they are going to write a formal assessment on what topics.*

### **Q 5: Are the criteria for judging learner performance made explicit? If so, how?**

**ET:** *I always explain to them what to do and how to go about to complete any activity...*

### **Q 6: In what way do you motivate your learners to learn more?**

**ET:** *I thank learners who participated for their effort ... I also try by all means to avoid any form of negative comments that may de – motivate them*

**Q 7: How do you assess learners' progress during lesson on a day to day bases and type of verbal feedback do you give to the learners?**

**ET:** *Mm ... pending to the nature of the lesson ... right ... at times I begin my lesson by asking questions about previous work ... or after teaching the unit / topic ... I asked them question ... then I able to determine their progress...*

**Q 8: Is the use of technology (CRS) making any difference in improving / engaging learners and why?**

**ET:** *Yes ... kids of today, born in the era of technology. They really enjoy it. Ok, like the one that there were using (Clickers), every child was excited about it ... and all of them participated... they think there are playing the game ... nonetheless, technology makes teaching faster and easier ... it help to organise the work of an educator.*

**Q 9: How do you support learning in your class?**

**ET:** *I display wall charts ... I give them corrections ... perhaps some work to do...*

**Q10: What would you consider as factors influencing in time feedback in your school?**

**ET:** *Learner ratio ... but I've seen that technology (clickers) can minimize that gap.*

**Appendix 11: Interviews with Mathematics teacher (MT)**

**Q 1: What would you consider the best approach to teaching and learning?**

*MT: As we are underperforming in our school ... I think our approach to teaching and learning needs to be changed. I think we need more interactive approach ... that will help us to engage these learners into learning.*

**Q 2: How would you say learners learn best and why?**

*MT: Mm ... you know ... teachers need to be friendly to the learners ... or approachable ... so that learners will feel free to ask if they do not understand*

**Q 3: How do you know that your learners understand what was taught?**

*MT: I asked questions ... or give them formal assessment like test and projects assignment. These assessments would give me feedback about their performance.*

**Q 4: What strategy do you use to ensure that everyone meets the requirement in the task given?**

*MT: I asked questions and try to erode their misconceptions ... at times I asked few learners to repeat what I have said ... but in many cases, I always revise work with them before formal or summative assessment take place.*

**Q5: Are the criteria for judging learner performance made explicit? If so, how?**

*MT: I discuss criterion with them ... some of them they don't concentrate and produce wrong results ... or not doing their work at all...*

**Q 6: In what way do you motivate your learners to learn more?**

**MT:** *I emphasize the important points s/he made ... and I know that a learner will feel proud...*

**Q 7: How do you assess learners' progress during lesson on a day to day bases and type of verbal feedback do you give to the learners?**

**MT:** *In Mathematics ... I always give them tasks to do ... we mark the tasks together ... then I quickly know if there is a problem ... that's how I engage them into tasks.*

**Q 8: Is the use of technology (CRS) making any difference in improving / engaging learners and why?**

**MT:** *... clickers ... can make a difference in our school ... it makes learning fun ... learners are not stressed when asked to answer the questions ... some of them are complaining about writing ... we push them to do work ... but with technology ... they just click the answer ... they don't shy to send their answers because their responses were anonymous rather than putting up their hands in class. I've noticed that even the slow learners they copy with it ... they managed to send their responses on time ... unlike if you asked them to write ... they took so long to finish of their work...*

**Q 9: How do you support learning in your class?**

**MT:** *It's hard to support individual learner in the class ... there are so many ... after school I've tried ... few of them reported into support classes due to transport problem...*

**Q10: What would you consider as factors influencing in time feedback in your school?**

**MT:** *... if we have resources like clickers ... things would happen ... we will engage the learners there ... and there ... without boring them.*

## Appendix 12: Interviews with learners

Keys:

# = Learners

Q = Question (Researcher)

### Q1: What do you think feedback is?

#1: *It's an overall revision of work done in class.*

#2: *It's a process whereby a teacher is telling us what was supposed to be done to get good marks.*

#3: *I am not sure ... but I think is when a teacher revealed his / her expectations about the tasks that we should do...*

#4: *Mm ... it's when we do corrections in class ... a teacher telling us to answer questions ... and we become aware of our mistakes.*

#5: *After writing a test ... teachers tell us what was expected from us...*

#6: *It's when a teacher tells us what went wrong after assessing us.*

#7: *It's hard to tell... but it's all about revision of work ... perhaps after writing a test...*

#8: *I think Sir ... it's when educators discuss show you your mistakes or discuss with you how to do activities in a correct way.*

#9: *Oh ... it's when a teacher tells us how to go about to complete an activity...*

### Q 2: Which type of feedback would you consider best for you to learn and why?

#1: *Written feedback ... because it's between me and a teacher ... I do not want to be exposed in front of everyone that I was wrong ... other learners take advantage of that ... they make a joke about you.*

#2: *All types of feedback are good to me ... I need to know why I got it wrong ... and learn from my mistakes ... that's it.*

#3: *I wish to be absent when teachers return our test paper ... Why? ... they always complain about my performance... telling me that the test was so simple ... other learners got that mark ... and you have failed ... you don't study ... etc. that makes other learners in class laughed me.*

#4: *Sir ... I don't like to write corrections ... Why? ... It's boring ... I wish if we can be told what to do all the time. When using Clickers ... there were no more writing ... I like it ... because*

*time and energy is saved. You just click to respond to the question asked and wait for the answer. That's it.*

*#5: I think is written feedback ... because if information is written down you won't forget it... you know exactly where to check ... at times verbal feedback ... you tend to forget what you are told to do.*

*#6: Feedback via clickers ...Sir... Why? ... Makes learning fun! Everyone Sir is enjoying ...because is like we are playing a game ... I like it.*

*#7: I don't like verbal Sir... Why? ... Teachers have friends ... they used to praise certain learners more than others ... that are not fair ... I prefer clickers because all of us were praised ... no one knows who send what...*

*#8: Mm ... teachers know the subject more than us ... I enjoyed if they talk to us (verbal)... if they tell us what to do and why it should be done like that.*

*#9: Sir ... I enjoyed the use of clickers ... because is easy to use them ... you send answers very fast rather than writing in the book...*

**Q 3: Have you read comments made by teachers in your book? If so, how do such comments motivate or help you to improve the quality of subsequent tasks given to you?**

*#1: Yes ... if I saw comments like 'good', 'excellent' etc. I feel good and get motivated to do my work...*

*#2: Mm ... usually there is nothing in my book except ticks and crosses ... I can show you my book Sir ... there is nothing.*

*#3: Sir some comments make me feel down. They make it when things are wrong ... like if work is 'incomplete' ... they didn't give us more time to complete ... if homework is difficult ... I don't do it ... they wrote 'homework not done'. Like in Mathematics... even my mom... doesn't know it ... and most of the time I don't do maths homework because of that...*

*#4: Yes... but I feel down if there are not good ... like the one which says 'incomplete' or 'work not done' ... I don't like those.*

*#5: Yes ... if there are not good I am worried because my mother will cheek me when checking my books.*

*#6: ...sometimes ... if there is something interesting I would like to read it ... and even show my friends ... but if things went wrong I feel down ...*

*#7: Yes ... I check my books all the time ... I feel proud if teachers appreciated what I have done. Most of the time teachers indicated in the book that my work is 'excellent', 'well done', etc.*

#8: Yes ... in Mathematics, Mr... Show me in writing how to go about to calculate or to solve the problem ... and in English I always corrected if I my spelling is wrong.

#9: I use to check my book when teachers return it ... I've noticed the following comment: 'incomplete', 'work not done' etc.

**Q 4: How long you wait for feedback from your teacher after written work has been completed and how does that affect or worry you and why?**

#1: Probably a week or so ... I am not worried ... unless if the test was so difficult then I am wondering about my performance.

#2: A week ... not worried because at the end of the day teachers will return our test papers.

#3: A week ... I understand that teachers have a lot of books to mark ... so I must be patient.

#4: We wait for few days ... not more than a week ... I am not worried because teachers will check us if we keep on asking for it...

#5: I must say a week ... I am not worried if they took so long as long as I manage to pass that's it.

#6: A week ... as you know teachers are busy ... I don't like to put them under-pressure ... I understand

#7: Probably a week ... No! I am not worried at all...

#8: A week ... I give them a chance to mark ... we are so many in a grade...

#9: Few days ... I can say a week or so ... I am not worried because at the end of the day I will receive my test back.

**Q 5: What type of feedback de-motivate you and why?**

#1: No! ... Teachers are trying to help us to understand their subjects ... so we need to be positive in what they are telling us to do.

#2: We need alternatives like clickers rather than writing corrections ... in fact I hate writing.

#3: Verbal feedback ... because teachers express their anger through it if we didn't do well in the test.

#4: Feedback is feedback ... is about my performance ... so I must accept my weaknesses and learn out of it.

#5: Verbal feedback ... because some teachers shout our marks in class and I feel more embarrassed if I didn't pass.

#6: Written feedback because it makes my book looked so horrible...

#7: No! ...Sir... I think it's not about the matter of being de-motivated. We are here to learn. So I do as teachers asked.

#8: Verbal feedback is problematic... because teachers got angry about my performance and expose me in the class.

#9: Verbal feedback ... after receiving our test papers back ... teachers arranged us according to our performance in the test. When he asked questions during the lesson he made remarks that I do not like about those learner who are under performing ... we are not treated fairly.

**Q 6: How do you know that you've understood something that was taught?**

#1: They give us activities to do ... if I got almost everything correct then I knew that I am on track...

#2: If I got everything correct and if I've answered the entire questions asked by the teacher.

#3: When I answered all questions correctly.

#4: When teachers appreciated my work ... I knew I'm on track.

#5: Like in Mathematics... Mr... Normally asked me to do calculation in the on the chalkboard... I feel proud because it shows that I master the subject.

#6: If I am chosen a group leader to present information to the class ... I think that's an honour to me ... then I knew that I understand the subject very well.

#7: By given a chance to make a contribution in any form of debate that emerged in class.

#8: By answering questions asked...

#9: By providing correct answers to the teacher...

**Q 7: Why do you think feedback from your teacher or peers would help your to improve and to understand?**

#1: I trust feedback that comes from my teacher rather than the one that comes from peers because friends can mislead you as we are competing as friends.

*#2: I prefer to ask my friends because they even explain to me instructions and questions with vernacular language... teachers don't use vernacular ... its hard ever to ask them questions...*

*#3: Teacher tells us a truth ... learners ... Sir ... we mislead each other because we are competing...*

*#4: Teachers correct my mistakes fairly ... learners laugh at me ... especially with regard to spelling...*

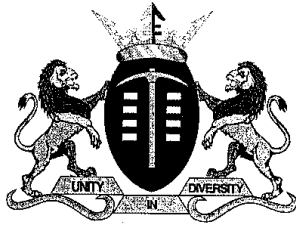
*#5: Teachers were trained to teach us ... so they know what to do ... and Sir... I hate group work ... do you know that learners in a group behave like parasites... they don't contribute and expect thing to happen.*

*#6: Teachers are more knowledgeable than a peer... that's why we are coming to school to learn from them. We do have friends in our communities. Why can't we learn from them?*

*#7: I prefer feedback from peers ... teachers asked you too much questions if you tell them that you didn't understand and end up telling you that you have an obligation or responsibility to study... I do study ... what must I do then if I can't figure out how to do the work?*

*#8: Some friends / peers are knowledgeable than me. They quickly understand the teacher very well... so it's wise to ask them how to go about to complete an activity...*

*#9: Peers ... explain better than teachers ... it's hard to approach teachers if you didn't understand.*



## education

Department: Education  
GAUTENG PROVINCE

For administrative use:  
Reference no. D2012/85

### GDE RESEARCH APPROVAL LETTER

Date:	Friday, 17 June 2011
Name of Researcher:	Nyembe Stanley Khumbulani
Address of Researcher:	Po Box 16015
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	Germiston
	1424
Telephone Number:	011 865 1506
Fax Number:	011 8651 326
Email address:	<a href="mailto:stanleynyembe@ymail.com">stanleynyembe@ymail.com</a>
Research Topic:	A comparison of learner responses to different types of feedback that teachers provide in formative assessment tasks
Number and type of schools:	One [1] Primary School
District/s/HO	Ekurhuleni East

#### **Re: Approval in Respect of Request to Conduct Research**

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

**The following conditions apply to GDE research. The researcher may proceed with the above study subject to the conditions listed below being met. Approval may be withdrawn should any of the conditions listed below be flouted:**

1. *The District/Head Office Senior Manager/s concerned must be presented with a copy of this letter that would indicate that the said researcher/s has/have been granted permission from the Gauteng Department of Education to conduct the research study.*
2. *The District/Head Office Senior Manager/s must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.*

1

*Making education a societal priority*

#### **Office of the Director: Knowledge Management and Research**

9<sup>th</sup> Floor, 111 Commissioner Street, Johannesburg, 2001  
P.O. Box 7710, Johannesburg, 2000 Tel: (011) 355 0506  
Email: [David.Makhado@gauteng.gov.za](mailto:David.Makhado@gauteng.gov.za)  
Website: [www.education.gov.za](http://www.education.gov.za)

3. A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher/s have been granted permission from the Gauteng Department of Education to conduct the research study.
4. A letter / document that outlines the purpose of the research and the anticipated outcomes of such research must be made available to the principals, SGBs and District/Head Office Senior Managers of the schools and districts/offices concerned, respectively.
5. The Researcher will make every effort obtain the goodwill and co-operation of all the GDE officials, principals, and chairpersons of the SGBs, teachers and learners involved. Persons who offer their co-operation will not receive additional remuneration from the Department while those that opt not to participate will not be penalised in any way.
6. Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.
7. Research may only commence from the second week of February and must be concluded before the beginning of the last quarter of the academic year.
8. Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.
9. It is the researcher's responsibility to obtain written parental consent of all learners that are expected to participate in the study.
10. The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.
11. The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research report without the written consent of each of these individuals and/or organisations.
12. On completion of the study the researcher must supply the Director: Knowledge Management & Research with one Hard Cover bound and an electronic copy of the research.
13. The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.
14. Should the researcher have been involved with research at a school and/or a district/head office level, the Director concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards



Shadrack Phele MIRMSA  
 [Member of the Institute of Risk Management South Africa]  
 CHIEF EDUCATION SPECIALIST: RESEARCH COORDINATION

17 June 2011

**Office of the Director: Knowledge Management and Research**

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Ggg

Student number:

0303603A

2011ECE079C

22 August 2011

Mr. Stanley Nyembe

3483 Ikhala Street, Ext 3

**Palm Ridge**

1458

Dear Mr. Nyembe

### **Application for Ethics Clearance: Master of Education**

Thank you very much for your ethics application. The Ethics Committee in Education of the Faculty of Humanities, acting on behalf of the Senate has considered your application for ethics clearance for your proposal entitled:

**A comparison of learner responses to different types of feedback that teachers provide in formative assessment tasks.**

The committee recently met and I am pleased to inform you that clearance was granted. The committee was delighted about the ways in which you have taken care



of and given consideration to the ethical dimensions of your research project.  
Congratulations to you and your supervisor!


Please use the above protocol number in all correspondence to the relevant research parties (schools, parents, learners etc.) and include it in your research report or project on the title page.

**The Protocol Number above should be submitted to the Graduate Studies in Education**

**Committee upon submission of your final research report**

All the best with your research project

Yours sincerely

  
Matsie Mabeta  
Wits School of Education

Cc Supervisor: Dr. L Brenner (via email)

