Practice and Challenges of School-based Formative Assessment

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Abstract

Formative assessment is regarded as a means to provide teachers and students with information about the strengths and weaknesses of student learning with the ultimate goal of making responsive changes in teaching and learning. In Hong Kong, formative assessment has recently been promoted in schools. Through analyzing a case study, this paper aims to explore: (1) the key strategies employed by the school in assessing and improving students' performance, (2) the effects of these strategies in student learning and (3) the challenges the teachers have encountered in practising formative assessment. The intention is to provide a living example for those teachers and policy makers who favour the use of formative assessment as the major approach to improving students' learning.

Keyword: School-based assessment; Formative assessment.

Introduction

There has been an increasing criticism in the educational field on high stakes examinations of having harmful effect on student learning and should be reduced to minimum (Harlen & Crick 2003; Morrison & Tang 2002; Black 1998). Black & Wiliam (1998) indicate that formative assessment, if properly implemented in schools, is a powerful means to improve student learning. In the international scenarios, formative assessment has already been practised in schools in various western countries including Australia, Canada, Demark, England, Finland, Italy, New Zealand and Scotland (OECD 2005). In Hong Kong, the recent assessment reform policy has an aim to encourage the use of formative assessment in schools so as to improve students' learning skills and to promote their life-long learning abilities (CDC 2001).

While the positive role of formative assessment has been widely accepted in the educational field, there has been an absence of coherent research underpinning both the theoretical and practical development of the formative assessment process in schools (Black 2000). Torrance (1993) indicates that 'if arguments in favour of formative assessment are to survive and prosper, they must be articulated more fully and explicitly, and built on more than taken-for-granted assumptions about what constitutes "good practice" (p.339). To support this view, Black & Wiliam (1998) has made a call for further research and theorizing on formative assessment. In response to this request, Bell & Cowie (2001) has explored how the science teachers practised formative assessment in some New Zealand classrooms. Additionally, the OECD (2005) has examined exemplary practice in secondary schools in eight countries

(including Australia [Queensland], Canada, Denmark, England, Finland, Italy, New Zealand and Scotland. The results provide clarification of the approaches to school-based formative assessment. However, these research studies are mainly restricted to the western countries and research on the practice of school-based formative assessment in Asian region is still lacking. Thus a case study was carried out in Hong Kong to explore the formative assessment practice in a primary school. This school provides a living example of school-based formative assessment which will be of benefit to the central policy makers in education and teachers in schools.

This paper aims to report the practice and challenges of formative assessment in a case study school. In the following, the concept of formative assessment is firstly examined. Then the approaches of formative assessment practicing in a primary school are described and analysed. Practical and research implications for school-based formative assessment are finally discussed.

What is Formative Assessment?

Assessment is the term used to describe those actions for collecting information about what the students have learnt in terms of cognitive, psycho-motor and affective domains (Morris 1996). It should be an integral part of the education process. (DES 1988; Shepard 2001). In school practice, assessments are mostly summative in the form of standardized tests and examinations which measure student learning outcomes for the purpose of holding schools accountable for their student performance (OECD 2005, p.13). Nevertheless, assessments can be formative when teachers provide information to students to enable them to improve their learning; and, on the basis of this information, teachers are able to adjust their teaching strategies to meet the identified learning needs of their students. (OECD 2005).

Bell & Cowie (2001: 82-91) propose two models of formative assessment in schools. They are planned formative assessment and interactive formative assessment (Figure I, p.3). These two models are cyclical in nature and the components involved are mutually related. Moreover, the purpose of formative assessment determines how the assessment information is collected and used. In the process of planned formative assessment, the teachers plan to use various assessment strategies to elicit information about student learning. For example, the teachers usually ask their students to write something on a piece of paper or to make a physical model. The teachers interpret the collected information with a pre-determined set of criteria and make judgement on the achievement levels of the students. Then the teachers act on the interpreted information to improve student learning by providing students with different tasks or materials to work with. Interactive formative assessment occurs during student - teacher interactions. Unlike planned formative assessment with pre-determined

Figure 1   Models of Formative Assessment in Schools
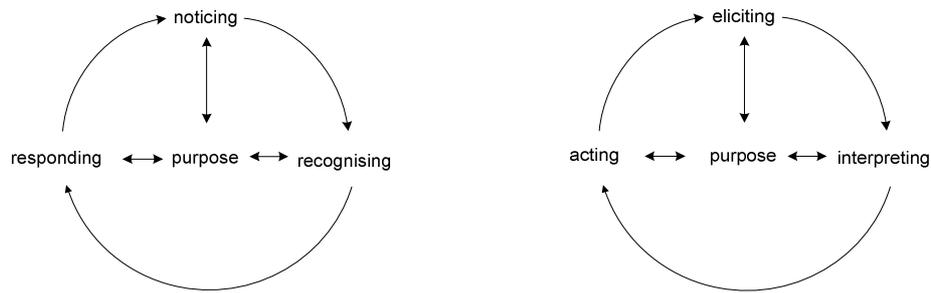
Planned Formative Assessment   *Interactive Formative Assessment*

assessment activities, interactive assessment arises out of a learning activity. The teachers are unable to plan the details of this kind of formative assessment because they cannot predict what exactly the students would be doing. In the actual process of interactive formative assessment, the teachers firstly get information which is verbal (e.g. students' answers) or non-verbal (e.g. students' body language). This sort of information is short-lived and in progress. The teachers recognise the significant levels of this information and determine its implications for their student learning. Then the teachers make response to the information so as to improve their students' learning.

According to OECD (2005, p.72-78), schools have benefits in using formative assessment. At classroom level, the quality of teaching has been improved. Teachers have developed their ability to scaffold learning goals for students and to adapt instruction to meet individual learning needs. They also pay closer attention to teaching approaches that work well and put them into practice more often. Their relationships with students and parents are stronger. Parents know specifically on what their children are learning and students have greater involvement in the learning process with their teachers. Moreover, students are taking more responsibility for their learning, and produce better work products. At school-wide level, a number of case study schools have moved from failing to exemplary status. Such dramatic changes in school performance required time, dedication, creativity, and the willingness of teachers to take risks. Evidence of benefits includes: students have improved "learning to learn" skills, students' achievements have high value-added, increased student retention and attendance, aims in academic achievement and greater attention to the weakest students.

Teachers generally accept the concept of formative assessment, but they have difficulties to put it into regular practice. The major obstacles are the big class size and extensive curriculum requirements (OECD 2005) and the lack of attention and resources in developing the formative assessment process (Shorrocks-Taylor 1999). Teachers protest that it is difficult to use formative assessment with students they consider as more challenging. When formative assessment is used within the classrooms, teachers may vary in their interpretation and

application of the same performance criteria – either among themselves, or with different students or classes (Kellagahan & Madaus 2003). Teachers may develop various impressions of students on the basis of incomplete information or stereotypes. They may also give high marks to students who are more like themselves and make negative judgements of students from different cultural backgrounds or with different communication styles (OECD 2005). Additionally, an important barrier to wider practice of formative assessment emerged has been identified (OECD 2005). This is related to the perceived tensions between classroom-based formative assessments and high visibility summative tests (i.e. large scale national or regional assessments). This kind of highly visible assessments is intended to hold schools accountable for student achievement that drive what happens in classrooms. Teachers are often cautious of developing or implementing new approaches and techniques to use with their students for fear of failure (including poor results on external tests or school inspections, upset parents, or other bad results). This factor is relevant to the Hong Kong context in which the Basic Competency Assessment is implemented.

With an understanding of the concepts and models of formative assessment as well as the benefits and obstacles for the implementation of formative assessment in schools, the researcher has conducted a research study in a primary school to explore how the teachers use formative assessment to improve their students' learning.

Research Methodology

The objective of this research is to investigate how the formative assessment strategies are practiced in school to improve students' learning and the challenges the teachers have encountered in practising formative assessment activities. A primary school, namely Man Tak Primary School (a pseudo name) in which formative assessment was formally implemented was chosen as a case study. In discussing the use of case study in research, it is important to point out that this sort of method can provide only a glimpse of assessment process in the school and it is traditionally viewed as having limitation in time, scope and perspective. Thus special care is needed in drawing generalized conclusions.

In this case study, interview and documentary analysis were the two main research techniques. 15 personnel received individual, face-to-face interview in the school. These personnel include the principal, vice principal, curriculum leader, 2 senior teachers responsible for academic affairs and teaching affairs , 4 subject panel heads (Chinese, English, Maths and General Studies) and 6 subject teachers teaching Chinese, English, Maths and General Studies. 20 pupils from primary 4 and 5 class levels were also interviewed in groups. All these interviewees were chosen by the curriculum leader who was specially appointed by the principal to arrange the research activities for the researcher in the school. In addition, assessment documents such as subject assessment policies and assessment tools were collected from the subject teachers.

School-based Formative Assessment in Practice

The practice and challenges of school-based formative assessment in the case study school are analysed in terms of the key strategies used by the teachers to practise formative assessment, effects of these strategies, and the challenges the teachers have met in the process of using the strategies. Prior to the analysis, a brief introduction to the school background is firstly provided.

Man Tak Primary School is situated in a newly developed but highly populated area in the Northern region of the New Territories. It has been operated for over six years and is regarded as an outstanding school in the community. At the time of the research was done in November 2005, there were 32 classes with 994 students and 60 teachers. The school used a small class teaching approach to teach English, Chinese and Maths (i.e. a class of 40 students was split up into two groups in these subject lessons and each group is taught by a teacher), and all teachers taught one class level only. The school had been working on school-based curriculum development since its commencement. The recent change to school-based assessment approach was the outcome of this curriculum development initiative, and this assessment approach was mainly implemented at primary 1-4 levels.

Practice of Formative Assessment in School

At the beginning of each academic year, the teachers distributed to the pupils and their parents the school's expectation on pupils' learning, the learning areas to be assessed and the assessment criteria to be achieved. Various alternative assessment methods were used to assess and record their student learning. These included: project work, portfolios, games (which were called "Overcoming Obstacles"), and Precious Box (i.e. students selected the most valuable assignments or assessment tasks to put into their boxes). However, for improving student performance continuously during the year, the teachers tended to employ two methods: (1) individual, face-to-face, oral feedback in class, and (2) assessment paper review with follow-up remedial work or activities. In the following, the implementation of these two formative assessment methods is described.

1.   Individual, face-to-face, oral feedback in class

Individual, face-to-face, oral feedback was generally practised in Chinese, English and Maths lessons at P.1-2 levels. For the upper class levels, the use of oral feedback would depend on individual subject teachers who felt it as necessary and appropriate. In these subject lessons, the teachers would give class work to the pupils after they had finished teaching the topic. They then moved around in class to see which area their pupils had learnt and which area they had not. In addition, the teachers gave feedback to individual pupils. For high achievers, the teacher praised their work. For low achievers, the teacher gave them

advice on how to improve their work or even re-taught the item if their pupils had not grasped it. The following scenario was described by an English teacher:

"We've got a book to record the performance of pupils during the class…When the pupils were doing exercises, the teacher would move to individual pupils and ask them to read some vocabulary items which had been taught early in the lesson. If pupils could read it, the teacher put a tick in the record book at the side of their names. If they could not read it, the teacher would teach them all over again…In this way, we know the progress of individual pupils… who is really stronger… who is weaker and needs more help."

A Chinese teacher also delineated what she had done in her class:

"In primary 2 composition lesson, we often helped individual pupils to improve their sentence structures. After individual pupils finished their sentence making, we asked them to come out and gave them feedback on the sentence structures or their expressions. If necessary, I would modify the sentences with them."

Almost all teachers agreed that individual oral feedback was very effective in helping pupils to learn and perform better. Just giving back the marked assignments to the pupils could not help them to improve because pupils often paid attention on the marks without taking much notice of their mistakes. In the process of individual oral feedback, pupils would be able to explain why they did it in such a way. As a result, their explanation skills would be stronger. When the teachers helped them to correct the mistakes, the pupils would know why and how they were wrong. As a result, the pupils liked to have conversations with their teachers. Their relationship could therefore be built up. After feedback, pupils were happy especially when their teachers praised them. They were willing to work harder. On the other hand, when the teachers saw their pupils could really do the work because of individual oral feedback, they would have more confidence in helping their pupils further in the next step of their learning.

Most teachers indicated that, in each lesson, they could only give oral feedback to four or five pupils individually. Very often, the teachers would focus on one or two critical items which pupils often made mistakes in the assignments. One of the teachers even stressed that the provision of feedback right after the completion of assignment was most helpful to the students. In receiving this impressive help, the pupils would not make the same mistakes or perform better in the next assignment.

The pupils were positive in their attitudes towards the individual oral feedback. They regarded this as the best chance to clarify the important learning points that they did not understand during whole class teaching or the written comments made by the teachers in the marked assignments. Some other pupils also took oral feedback as the way to know exactly how to improve what they had done. A pupil described what the Chinese teacher did for him in the composition lesson,

"Miss Au (a pseudonym) helped me to change the sentence which becomes more fluent. She

also introduced me some vocabulary so that my composition becomes more substantial and meaningful."

2.   Assessment paper review with remedial activities

At the beginning of the academic year, the school made pre-determination about pupil passing rate in Chinese, English and Maths. In the 05-06 academic year, the passing rate for Chinese and Maths was 85% and that for English was 80%. Having finished the assessment, the teachers often had two days for assessment papers review while pupils had their holidays. On these two days, the teachers looked at the overall performance of pupils and determined whether the targets had been achieved. They also decided the relevant remedial work necessary for their pupils.

On the first day of paper review, the focus of discussion was on pupils' performance in individual subjects. Subject teachers of the same class levels sat together to mark the test papers and they brought up any identified learning problems for discussion. Additionally, the teachers discussed the levels of pupils' performance in the relevant subject assessments, whether the papers were useful for assessing pupils' performance, and what follow-up remedial work could be done for the students. On the second day, the focus was on pupils' performance at the class levels. Teachers reviewed the teaching content and the teaching strategies used in class in relation to the pupil performance. They also analysed the assessment items on the papers together with the strengths and weaknesses of pupils' performance in the relevant subject assessments.

After the review work, the assessment papers were given back to the pupils so that they could know exactly what they had done and whether they had achieved their set targets. In fact, pupils were asked at the beginning of the academic year to design their own achievement plan (i.e. individual pupils had to plan their own target marks to achieve in all subject assessments). Pupils would get award from their teachers if they could achieve the targeted marks,.

Individual subject teachers used two to three periods to follow up their pupils' performance in their subjects. For example, in Chinese, when the teachers found that the pupils were generally weak in reading comprehension, the teachers would organize follow-up activities in class to strengthen their comprehension ability. For some of the weak pupils, teachers would recommend them to formally join the remedial groups. The remedial group was nicknamed as "Adding Oil Station" in which pupils were grouped according to their class levels and subjects. The remedial activities were carried out after school.

The assessment paper review has important effect on pupils' learning and teachers' teaching. In understanding the strengths and weaknesses of pupils' learning, teachers could modify their teaching content and strategies in meeting the specific needs of their pupils in their next phrase of teaching. As the design of the assessment papers was based on a limited

number of teaching units, pupils could easily prepare what they had learnt so as to meet the demand of the assessments. In connection with this, pupils would not feel much pressure when they faced with this sort of assessment and took it as a kind of revision exercises rather than a test or an examination. In identifying their shortcomings in the assessment, they could pick up the missing part or unlearnt part without much difficulty in the follow-up or remedial class teaching.

Challenges Encountered in School

In the implementation of school-based formative assessment approach, the school had encountered a number of challenges in the process. Very often, there were new teachers joining the school in new academic years, some of them might not have the professional knowledge and skills in school-based formative assessment. Some others might not agree with the use of formative assessment or would not be willing to change their mind-set unless they saw the good results of formative assessment. The school had to allow adequate time for these new teachers to establish their relevant concept and practice. The existing teachers in the school needed to have the professional knowledge and patience to help the new colleagues to understand and work on formative assessment.

Due to the fact that assessment design in the school was based on class levels, each class level would have different modes in their assessments. Subject teachers who used to teach primary 4 classes would not know what was happening at primary 2 level. Thus coordination between class levels appears to be important and necessary. Besides, teachers often had differences in their marking of students' work. They might give high marks to their favourite pupils. So the teachers needed to have consensus in assessing pupils by sitting together to discuss about the marking criteria. For example, in marking Chinese composition, teachers discussed about how to count the scores in relation to the content, structure, writing styles and use of phrases as well as their weightings. In order to ensure the use of set criteria, they then picked one or two papers for pre-marking with the use of these criteria and weightings. This was regarded as an effective way to minimize the differences between teachers' markings. At the end, when they had some assessment papers with very high marks, they would ask other colleagues to mark the same papers again. If the marks were different, they would suggest a score for the colleague to change the marks. Similar work would be done for those assessment papers with low marks.

Concerning individual oral feedback in class, teachers needed to spend more time on and be careful of what to record in the lessons. They also needed to know when they should record the data. Moreover, they needed to have special skills in passing the message to the pupils so that pupils would take serious in doing the assessment tasks. Additionally, giving and writing comments on individual pupils was time consuming. Moreover, those teachers who practised individual oral feedback in class had to prepare themselves for heavy

workload.

The Basic Competency Assessment (BCA) emerged at the education system level that aims to examine the essential knowledge and skills acquired by pupils in English, Chinese and Mathematics had impact on the work of using alternative assessment approach in the school. The formal criteria for pupil performance provided by the BCA had affected their assessment criteria. The teachers attempted to make change of these criteria so as to meet the demand of BCA. They also tried to model the assessment modes and the assessment items used in the BCA in their assessment activities. The reason for this change was to help their pupils to get familiar with the approaches adopted by the BCA so that they were psychologically prepared for the assessment process.

Discussion and Conclusion

This case study has provided a basic understanding of the characteristics of school-based formative assessment practised in a primary school. The two major assessment methods were individual, face-to-face, oral feedback in class and assessment paper review with follow-up remedial work. The teachers regarded these methods were useful in helping their pupils to improve continuously in their learning. In the implementation process, challenges were met including teachers' lack of professional knowledge and skills in formative assessment, the inconsistencies of assessment modes adopted in different class levels and subjects, the result of heavy workload from the individual oral feedback, and the impact of Basic Competency Assessment on school-based formative assessment.

It is obvious that the teachers in the case study school followed the two models of formative assessment (i.e. planned formative assessment and interactive formative assessment) identified by Bell & Cowie (2001). In the process of assessment paper review with follow-up remedial work, the teachers firstly used assessment papers to collect information about pupils' performance of pupils in their subject areas. Then they used two working days to sit together to mark the papers and interpret the results with reference to the learning targets they expected their pupils to achieve. Based on the interpreted results, they could provide the required remedial work for the purpose of improving their pupils' learning. This assessment process is closely associated with the model of planned formative assessment. For individual, face-to-face, oral feedback in class, the teachers had to interact with individual pupils in their class work and to provide constructive feedback to the relevant pupils. With the provision of this immediate advice, the pupils could modify the work they had just done. This assessment process is similar to the model of interactive formative assessment.

Significant insights are obtained from the findings of this case study. These insights may be generalized to other schools in which formative assessment is to be implemented. The first significant insight is related to the professional development of teachers. With reference to the teachers in the school, they had been involved in developing school-based curriculum

materials with the associated assessment methods. Thus those schools which plan to use formative assessment should equip their teachers with the required knowledge and skills in assessment designs. In adopting the planned and interactive formative assessment models, the teachers need to have collaborative abilities in analyzing the assessment results and the skills to provide immediate and constructive feedback to their pupils in order to help them to improve learning. School-based professional development is the appropriate approach to achieving these purposes. The second significant insight is the conditions conducive to the organization of school-based formative assessment. In the case study school, the teachers adopted a small class teaching approach at the lower class levels where interactive individual oral feedback was used. This was regarded as the key to success because through a small class teaching approach, the teachers could have the time and space to understand and respond to the learning needs of individual pupils.

Assessment reform policy which advocates the adoption of formative assessment approach to improve pupil learning in schools has just been introduced in Hong Kong. Some advanced schools have already piloted the use of this assessment approach in their teaching and learning processes. The results of this pilot use have just been reported in this research study. In order to encourage more schools and teachers to practise this approach, it is important to invest more effort in further research so that databases of best practices are available for school reference. The following are the awaiting research to be done. Firstly, as the assessment practice in the school tended to follow the requirements of Basic Competency Assessment, it is worth to explore the levels of impact of this public assessment scheme on the implementation of school-based formative assessment. Secondly, Hong Kong schools are full of pupils with individual differences. Some of them also practise inclusive education with a number of pupils with special needs, further research could focus on how this formative assessment approach helps to improve the achievements of these pupils with different learning needs. Thirdly, for supporting the implementation of individual feedback in formative assessment, research on useful types of oral feedback would be helpful for teachers. The outcomes of these research studies could develop a database that serves as a bridge to build up policy with school practices. The major purposes are to help pupils to improve their learning and to develop their learning-to-learn abilities for life long learning purpose.

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