

Formative Assessment in General Studies Classrooms

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Abstract

In the era of education reform in Hong Kong, on various government documents, different concepts and functions of assessment were introduced to the community. The importance of formative assessment was emphasized. This paper aims to study the student teachers' implementation of formative assessment in General Studies lessons during their teaching practise. Commonly used assessment methods, alignment of learning and assessment activities, student teachers' intervention after receiving feedback from pupils, difficulties encountered, perception of the student teachers on formative assessment and pupils' feedback are reported in this study. It is hoped that the study will provide insight into the practice of formative assessment in primary General Studies classrooms as one aspect of the professional development of General Studies Teachers.

INTRODUCTION

As the new educational goals of Hong Kong schooling are to enhance student-centred learning and pupils' ability to learn how to learn (Curriculum Development Council, 2001; Education Commission, 2001), this calls for reform in the assessment system. Ridgway (1998) commented that appropriate assessment scheme can be powerful levers to support reform; assessment schemes that do not reflect new educational ambitions are barriers to progress. Different concepts and functions of assessment were introduced to the community on recent education reform documents (Education Commission, Sept 2000; Curriculum Development Council, 2001). Assessment was proclaimed as an integral part of education process. The formative assessment was stressed as a way to improve teaching and the learning of pupils.

Research on formative assessment provides examples of how learning and teaching was improved (Black, Harrison, Lee, Marshall & Wiliam, 2003). The aim of the present study is to examine the student teachers' implementation of formative assessment in General Studies lessons during their teaching practice. It is to study student teachers' perception of formative assessment after the conducting formative assessment in General Studies lessons, the commonly used methods of formative assessment, the alignment of assessment activities with learning activities, student teachers' intervention after receiving feedback from pupils, difficulties encountered in the classrooms and feedback from their pupils. By studying the implementation of formative assessment in local primary school classrooms, it is hoped that the present study will provide

some insight for the practising teachers when they plan to conduct formative assessment in General Studies lessons as one aspect of their professional development in order to enhance the learning of the pupils and their own teaching.

SUMMATIVE VS FORMATIVE ASSESSMENT

Assessment is conducted to serve different purposes: supporting of learning, reporting the achievements of individuals and satisfying demands for public accountability. Formative assessment serves the first purpose while summative assessment serves the latter. It is important to match the selection and the use of assessment methods to the particular purpose which the assessment is to serve (Black, 1998).

Bloom, Hastings & Madaus (1971) defined 'summative evaluative tests' as the assessments conducted at the end of units, mid-term or at the end of a course. They were designed to judge the extent of students' learning of the material in a course for the purpose of grading, certification, evaluation of progress or even for researching into the effectiveness of a curriculum. Moreover, aggregation of the results of pupils' performance in various public examinations also serves as an economic way to show the public that the schools do promote the learning of their pupils (Black, 1998).

On the other hand, teachers have the need of constant information about what the students know and the strategies being used to process and comprehend new concepts (Shepard, 1992). Formative assessment provides short term feedback to teachers so that learners' strengths and weaknesses in relation to their progression can be identified. Then teachers can use the feedback

in planning what to do next in order to enhance learning as well as teaching. Hence, formative assessment is essential to effective teaching and learning (Black, 1993).

Formative assessment is carried out by all the agents in the classroom. A pupil needs to know where she/he is and understand, where she/he wants to be and also how to "fill the gap" between her/his current knowledge and understanding and the desired level. This involves both the teacher and the pupil in a process of continual reflection and review about progress (Qualifications and Curriculum Authority <http://www.qca.org.uk/ca/5-14/afl/>). Thus, formative assessment focuses on dialogue between the teacher and the pupils.

Torrance (1993) suggested that formative assessment fits into the constructivist approach to learning with the teacher-pupil interaction supporting the pupils in moving towards Vygotsky's zone of proximal development (ZPD). Black & Wiliam's finding (1998a) reported a strong link between effective formative assessment and an appropriate and supportive pedagogy. The essential elements of any strategy to improve learning through the implementation of formative assessment are the setting of clear goals, the choice, framing and articulation of appropriate learning tasks, the deployment of these with appropriate pedagogy to evoke feedback and the appropriate interpretation and use of that feedback to guide the learning trajectory of pupils. Teachers should therefore involve pupils in the process of self- and peer-assessment, underpinned by a constructive approach to learning. That is, teachers should make use of the previous knowledge of the pupils to design different learning activities to help pupils to construct knowledge, provide assessment activities to assess the learning of the pupils, and provide feedback to pupils and intervention when necessary.

Stiggins (2001) remarked the artistry of classroom assessment requires teachers to orchestrate a careful alignment among purposes, achievement targets and methods. In this way, the relation among teaching, learning and assessment was emphasized. The alignment of teaching objectives, learning and assessment activities, and intervention conducted by the co-researchers are reported in this study.

Stiggins (2001) introduced four basic classroom assessment methods: selected response assessment, essay assessment, performance assessment and assessment that relies on direct personal communication with pupils.

Selected Response Assessment

This includes all of the objectively scored paper and pencil written formats. Format options include multiple choice items, true/false items, matching exercises, short answer fill-in items, and different sorts of worksheets with an inquiry nature. The index of achievement is the number of questions answered correctly. The teacher is not to give grades or marks but to give descriptive comments on the answers or the work of the pupils.

Other types include the following:

“Quick Check-in” (Trimarchi, 2002)

The teacher hands out slips of paper in the middle of the lesson and asks pupils to answer a probing question directly related to the discussion. The papers are written anonymously and collected immediately. The teacher examines the papers, reads aloud examples of correct answers, picks out misconceptions and addresses them on spot.

“Teacher Letter” (Trimarchi, 2002)

The letter includes the following items:

- Here is what I understood to be the MAIN IDEA of today’s class.

- These are a few IMPORTANT POINTS I learned about the main idea.
- These are things you talked about today that I DID NOT “GET”.

Pupils write it at the end of the lesson and the teacher responds to the letters the following day, reading aloud correct answers and correcting misconceptions.

Essay Assessment

Pupils have to prepare an original written answer to questions about the content knowledge or provide an explanation of the solution to a complex problem. The teacher reads the original written response and evaluates it by applying specified scoring criteria.

Performance Assessment

Pupils carry out a specified activity under the watchful eyes of the teacher. Performance assessment can be based either on observation of the process while pupils demonstrate skills, or on evaluation of products created, e.g. debate, role play, mini survey, case study and presentation, or carrying out a laboratory experiment, etc. The purpose is to let pupils show different abilities and learning outcomes. Scoring guides may be negotiated with pupils.

Personal Communication as Assessment

One of most common ways that teachers gather information about day-to-day pupils’ achievement in the classroom is talking to them. This includes questions posed and answered during instruction, interviews, conversation, listening during class or group discussion, oral examination and conferences with pupils after lesson. Pupils’ responses and answers can show their understanding; therefore teachers should ask more open-

ended questions and allow more time for pupils to respond (Black & Wiliam, 1998b). This is also classified as interactive formative assessment (Bell & Cowie, 2001) which takes place during the pupil-teacher interactions. Teacher and pupils interact in the whole class, the small group and one-to-one situations.

Each of the above methods provides its own special form of evidence of pupil proficiency, such as knowledge and understanding, reasoning proficiency, performance skills, ability to create products and dispositions (e.g. attitudes, values, interests, self-concepts and motivation) (Stiggins, 2001). This study is to examine the common assessment activities employed by the student teachers and difficulties they encountered in General Studies classrooms.

SELF-ASSESSMENT AND PEER ASSESSMENT

The development of formative assessment implies changes in roles for both teachers and pupils. Self-assessment and peer assessment of the pupils are the major characteristics of the formative assessment. Therefore, they should be promoted among pupils to enhance effective learning. Self-assessment involves both reflection on one's learning strategies, and analysis or critique of one's work. In order to make self-assessment successful, not only the teachers but also the pupils should hold the belief that the process of assessment helps learning (Sutton, 1995). Thus teachers should train pupils on self-assessment, explain the learning objective(s) of each task and provide encouragement to pupils through planned strategies and dedicated time. On the other hand pupils may work in pairs or in groups, make suggestions about each other's work, or ask questions about the peer's thinking or reasoning (Qualifications and Curriculum Authority

<http://www.qca.org.uk/ca/5-14/afl/>). Rubrics of assessment may be negotiated with pupils in order to promote learning. Pupils' feedback on the assessment activities and the student teachers' perception on formative assessment are also reported in this study. In short, teachers should align the assessment activities with learning activities in order to help pupils achieve the learning objectives that include the acquisition of knowledge and skills, and value learning. This not only helps to promote the learning of the pupils but also the teaching.

General Studies

General Studies, an integration of Science, Health Education and Social Studies, was introduced in 1995. It is proclaimed in the syllabus for Hong Kong General Studies (Primary I-VI) (1994) that through meaningful activities children understand the inter-relationship and interdependence between people, things and their environment. They are also helped to develop values and attitudes in order to become rational and responsible citizens. The curriculum consists of four strands, i.e. healthy living, living environment, natural world, and science and technology. The integrated approach claims to allow pupils to look at issues from different perspectives, hence making their learning experiences more holistic and less fragmented (Curriculum Development Council, 1994, 1997).

In the era of education reform, the new curriculum (Curriculum Development Council, 2002) moves away from content-focused approach to a learner-focused approach. It emphasizes the enhancement of pupils' inquiry and investigative skills for construction of knowledge. Schools are encouraged to adapt the central curriculum in developing their school-based curriculum and promote life-wide learning. Teachers are encouraged to use different modes of assessment and provide quality

feedback on the strengths and weaknesses on pupils' learning in order bring about improvement in learning and teaching.

Co-researchers

Oldfather (1997) invited the student participants of his study of student motivation (Oldfather, 1993) to be engaged as co-researchers. The study, interpretive study, was based on the interactions which took place between the students and the researcher in order to construct understanding about the research questions. It was reported that the explicitly collaborative relationship in the inquiry increased students' sense of ownership and involvement, therefore led to greater depth in the findings.

Simpson (1998) also involved his students in the research, participatory research, of the Contemporary Aboriginal communities in Canada as the philosophy of adult education places learners in the center and focuses on the learners' control over their learning process (Tandon, 1988). It is trusted that experiential knowledge is valid as people best know their own situations and can best solve their own problems (Colorado, 1988)

RESEARCH ON FORMATIVE ASSESSMENT IN GENERAL STUDIES CLASSROOMS - OBJECTIVES AND METHODS

The research was conducted to see how formative assessment was conducted in General Studies classrooms in primary schools. Nine student teachers of the Post Graduate Diploma in Education (Primary) (Full-time) programme were invited to be co-researchers

of the study. During their teaching practice the co-researchers planned and wrote the lesson plans to show how they aligned the assessment tasks with the learning activities. They also wrote weekly reflection reports to report the following:

- Events in which they succeeded in helping pupils to understand the lessons.
- Difficulties that they encountered in implementing "Learning, Teaching and Assessment" during the week.

During the whole teaching practice block, they videotaped a lesson with the focus on the study of the interactive formative assessment. By the end of the teaching practice block each of the co-researchers interviewed five of their pupils in order to collect feedback on their learning and the teaching of General Studies in the classrooms. They asked the pupils the following questions:

1. Did you like General Studies lessons? Why?
2. What activities did you like most in the lessons? How did they help your learning?
3. Did you answer any questions in the lesson? How did it help your learning?
4. Did you know how to do the worksheets in the lesson? If you did not know how to do, what did the teacher do?

Furthermore, after their teaching practice, the co-researchers were interviewed by the researcher so as to make supplements on their weekly reflection reports. They answered the following questions:

1. Please tell your learning experience of formative assessment in your previous education and your ideas of formative assessment. What are the methods to implement formative assessment?
2. During the teaching practice, how did you prepare the lessons (learning activities, assessment activities)?

3. What learning activities and assessment activities did you provide to your pupils?
4. When did you use questioning to assess the learning of your pupils? Did you ask probing questions? Did you provide enough wait time? If yes, how long was it?
Did you name pupils to answer your questions? Did you ask those who raised their hands? Did you ask those who did not raise their hands? If yes, what were their responses?
5. When did you use worksheet to assess the learning of the pupils? Did you give them grades, marks, or comments only?
6. Did you encounter any difficulties? If yes, what were they?

Transcription of the interviews with the pupils and the co-researchers were made by the researcher so that their identities were kept anonymous.

FINDINGS

During the teaching practice, the co-researchers taught the following units: Leisure Activities (Primary 2), Basic necessities of Life (P3), Electricity and Life (P4), The History and Geographical Setting and History of Hong Kong (P4), Reproduction (P 5) and Environmental Protection (P6).

The findings reveal the co-researchers' perception on formative assessment, the commonly used methods of formative assessment, the alignment of learning and assessment activities, intervention undertaken and the difficulties encountered during the implementation period. Finally, pupils' feedback is reported in this study.

The Co-Researchers' Perception on Formative Assessment

During the interview, all the co-researchers claimed that they did not have any experience of formative assessment in their previous education. They stated that formative assessment was different from summative assessment. It could be conducted at different intervals of the lesson. For example, when it was conducted at the beginning of the lesson, the purpose was to test pupils' previous knowledge or misconceptions. It may be conducted after a teaching point was taught in a lesson. At the end of a lesson it is to test the understanding of the pupils and to provide help if the pupils did not learn the major concepts in the lesson. On the video-taped lesson, a co-researcher tested the previous knowledge of her pupils when they started to learn leisure activities. After pupils shared their experiences, she made use of the matching activity to collect feedback from the pupils in order to assess the learning of her pupils so that she might either provide help to them or proceed to the other activity. By the end of the lesson, most co-researchers provided a worksheet to assess pupils' learning of the lesson.

A co-researcher remarked that the self assessment activity helped pupils to assess their own learning after learning a unit. The peer assessment activity helped to assess and promote the attitude and the skills needed in the group work.

Some commonly used methods of formative assessment

Among the four basic classroom assessment methods proposed by Stiggins (2001) which were mentioned in

the earlier section, all the co-researchers often used personal communication with pupils which includes questioning, observation, and conference during recess or lunch time, selected responses assessment in the format as a worksheet, and performance assessment which mainly included pupils' presentation or role play after group discussion, and matching task on the blackboard. Essay assessment was not employed because in Primary General Studies lessons, pupils were helped to develop knowledge, generic skills, and values and attitudes (Curriculum Development Council, 2002). Therefore, essay assessment was not considered to be an essential element in the classroom assessment of General Studies. The following will explain the methods commonly employed by the co-researchers.

Direct personal communication with pupils: Questioning

During the interview, most co-researchers stated that they made use of questioning to assess the previous knowledge of the pupils at the beginning of the lesson. In the lesson after pupils doing various learning activities, such as observing diagrams of the world population, photos of the animals and plants, studying cases or newspaper cut-outs on different kinds of pollution in Hong Kong, they frequently asked pupils questions or discussed with the class, especially in the lower primary, to help them assess their own learning. When they had to be in a hurry to finish the lesson, they asked questions to consolidate the learning of the whole lesson.

When pupils could not answer the questions or could only give partially correct answers, the co-researchers raised probing questions to help pupils learn. For example: in a video-taped lesson, a co-researcher asked her pupils, "Was the pair of scissors drawn to the magnet?" She did wait about 5 seconds

for pupils to answer. When the pupil frowned, she probed, "Which part of the scissors was drawn to the magnet?" As the pupil did not provide any answer, she allowed him to sit down and asked the other pupil to answer. Usually the wait time worked well because most pupils could give correct answers with the help of the teacher or the classmates. It was also found on a video-taped lesson that the pupils were too enthusiastic that they shouted the answers without waiting for their classmate to answer. The situation was discussed with the co-researcher during the interview. She confessed that at the beginning of the teaching practice block she accepted the shout-out answers because she did not want to discourage the pupils from providing responses. Without responses from the pupils, it would be difficult to have interaction with them and collect feedback from them. After she was more acquainted with the pupils, she trained them to show respect and patience with the classmates so that everyone in the class did think about the questions and waited for the invitation to answer questions. Furthermore, when the other pupils were answering, they had to assess the answers to see whether they could provide supplements or different opinions. Afterwards, the performance of the class was very satisfactory.

Most of the co-researchers remarked that they did call names to invite pupils to answer questions. Usually at the beginning of the teaching practice block, they called those who raised their hands or those at the front because they did not know the pupils well. Later, when the pupils were accustomed to their styles of teaching, they called those who did not raise their hands to answer to check their understanding and the efficacy of their teaching. Some of them could give correct answers; they had been very attentive in the lesson so they were encouraged to raise hands to answer questions. But some of them could not; the co-researchers had to ask probing questions to help them. One co-researcher reported that

in the middle of the teaching practice block, some who had not raised hands did put up their hands to answer, because they knew that they would be called upon during the lesson. She found it encouraging as pupils learned to take an active role in the lesson.

Direct personal communication with pupils: Observation

All the co-researchers did observe the pupils to assess their learning. They observed the pupils when they were answering questions, doing matching activities on the blackboard or role play, holding group discussions or doing group activities. During questioning, they observed the whole class or individual pupil to see if they should ask any probing questions to inspire the thinking of their pupils. During group activities, e.g. the classification activity, they circulated in the classroom, listened to the pupils, offered advice if they sought help or clarified their misconceptions. They usually provided feedback on the performance and achievement of the pupils after the group presentation or role play in order to encourage the pupils to learn effectively and continue to do well.

Most co-researchers reflected that it was easier to observe individual pupil during group activities than during the whole class activities. They developed better relationship with the pupils while moving around, assessing pupils' learning and providing them with immediate assistance.

Direct personal communication with pupils: Conferences with pupils after lesson

During the interview, most of the co-researchers reported that it was difficult to cater for individual differences in the whole class activities. In order to conduct the lesson smoothly, when they noticed only a

few pupils had not learned the concept, they conferenced with them during recess or lunch time to assess their learning and provide immediate intervention when necessary.

Selected response assessments:

Doing worksheets

During the interview, all the co-researchers reflected that providing worksheets to pupils was another common method to conduct formative assessment. Pupils were asked to do worksheets after doing or observing experiments during the lesson. They also completed worksheets after learning some major concepts or at the end of the lesson. Most co-researchers reported that on the worksheets they gave grades and wrote remarks to encourage pupils to do better the next time or commented on the misconception of the pupils. Only two co-researchers did not give grades or marks on the worksheets; they just wrote comments, e.g. very creative, good work, etc. They considered that would help the pupils more. Furthermore, the grades on worksheets were not counted in the formal assessment.

One co-researcher stated that some of the pupils did not like to do worksheets too often. They complained, "Worksheets again!" On the reflection report, she confessed that sometimes she provided two to three worksheets in a lesson. Therefore she designed different types of assessment activities, e.g. matching activity, role play or group presentation, to assess the understanding of the pupils and pupils welcome such changes. Another co-researcher reflected that she did ask pupils to do a lot of explanation in black and white when they learned the problem of solid waste. After listening to the feedback of the pupils, she made a change by asking pupils to just present their ideas about noise pollution to the class. During the group presentation on her video-taped lesson, two pupils were

holding an A3-size sheet of paper on which major points were written while the third pupil was presenting their ideas on the solution to the noise pollution problem to the whole class. The pupils appeared to enjoy this kind of writing and presentation and the class atmosphere was very good.

Performance assessments

Most of the co-researchers remarked after group discussion if there was sufficient time, they invited the pupils to present their ideas to the whole class. On a video-taped lesson, pupils made use of the microphone to do their presentation and the presentations were well received by the class. When learning how to care the toys, a co-researcher asked the pupils to present their ideas in a role play. In learning the science topics, such as magnets and electricity, the pupils did the experiment and completed worksheets. Pupils also did experimental activities on filtering the polluted water and reproduction of plants, and then they reported the results to the class.

Self and peer assessment

On the video-taped lessons, all the co-researchers provided pupils group discussion/work so that they could assess each others' understanding and provide a better learning outcome, e.g. presentation. During pupils' presentation, matching or classification work on the blackboard, the co-researchers also asked the other pupils to assess whether they would make some

supplements or corrections so that all the pupils were engaged in such activities.

Only one co-researcher invited pupils to fill in the self-assessment form after finishing a unit. They were asked to state the major points that they learned and what they did not understand, and evaluate their own performance in the lessons. She also invited the group leaders to conduct the peer assessment. They had to assess the performance of the group members during the group discussion. The assessment items included group members' participation, cooperation and understanding of the discussion question and observance of discipline. The co-researcher reported that the whole class performed well during the discussion and presentation. It is trusted that in doing the self and peer assessment, pupils started to think about their learning and learn to manage themselves which helped to enhance pupils' learning.

Aligning assessment activities with learning activities

All co-researchers tried to provide different learning activities to help pupils to learn the major concepts. In preparing a lesson, they first read the textbooks to check what should be taught. Then they read other textbooks and references to see what learning activities the pupils should undergo. In order to check whether the pupils learned the major concepts or not, then they aligned the assessment tasks with the learning activities. Table 1 shows the alignment of learning and assessment activities.

Table 1 The alignment of learning and assessment activities

Learning Activities	Assessment Activities
Group work, e.g. matching activity	Matching activity on the blackboard and explanation to the class
Group discussion	Pupils' presentations or role play
Doing experiments or watching teacher's demonstration	Doing worksheets
Observing photos, pictures, diagrams or maps	Questioning or class discussion, or colouring the map
Studying cases / newspaper cut-outs	Doing worksheets and pupils' presentations or class discussion

All the co-researchers also checked the learning of individual pupils by marking answers on worksheets, their textbooks or workbooks which were completed after doing experiments, observing the demonstration or finishing a chapter.

Intervention

Intervention is an important element in formative assessment. All the co-researchers remarked that when they found most of the pupils did not understand, they told other examples or cases and discussed with the class, drew a simpler map and explained to them, did another demonstration or gave hints and asked them to try again, showed other photos or newspaper cut-outs and explained once again to the pupils. They also asked them questions in order to clarify their alternative

concepts. One co-researcher stated that she changed the lesson plan of the next lesson when she found most of the pupils did not grasp the major concept.

Difficulties encountered when implementing formative assessment in General Studies lessons

On the Reflection Reports the co-researchers stated difficulties they encountered when they carried out formative assessment activities in General Studies lessons. These include the difficulty in assessing individual pupils, different agendas of the teacher and the pupils, classroom management problem and tight teaching schedule.

Difficulty in assessing individual pupils

One co-researcher stated that she often asked some pupils questions in the classroom. It was only when she marked pupils' workbooks, she found that about one third of the class did not grasp the concept. She reported that it was difficult to ask all the thirty-five pupils questions and assess their learning in a lesson of thirty minutes. Several co-researchers remarked that they noticed that some pupils did not participate in the group discussion even when they had urged them to take part in the group activities. These pupils might be intimidated by the more assertive pupils, therefore the group report was only the contribution of some active members and it did not effectively assess the learning of the other pupils. Sometimes, they were busy in managing the class and helping some other active pupils. Thus, they were not sure whether each pupil of the group understood and heavily depended on the worksheets to assess the learning of individual pupils.

Different agendas of the teacher and the pupils

During the interview, one co-researcher reported that during recess one girl told her that she preferred to sit in her place and listen to the teacher. Another co-researcher also stated that some of her pupils did not like the activities and complained that their classmates were too noisy in doing the activities. These pupils of upper primary were accustomed to the traditional way of learning - listening attentively to the teacher to “receive” knowledge and work hard to complete the workbooks. They considered that was all that they had to do to be good pupils. It was witnessed from a video-taped lesson, the pupils were very excited and noisy in making a periscope. According to the experience of the co-researcher, the noise level was acceptable but the pupils might not be accustomed to these kinds of learning and assessment activities.

Classroom management problem and tight teaching schedule

Several co-researchers stated that the classroom management problem and the tight teaching schedule affected the implementation of assessment activities. They found it difficult to manage thirty five pupils in the classroom. All co-researchers remarked that the major difficulty was the time constraint. They found that they had to be in a hurry in order to finish the topics assigned by the Supporting Teachers because it took time to allow pupils to do different learning and assessment activities. Therefore, it is not surprising that only one co-researcher invited pupils to fill in the self and peer assessment form after finishing a unit. One co-researcher remarked that because of the tight teaching schedule and his inexperience in time management in the classroom, by the end of the teaching practice block

some major teaching points on the textbook were just told to the pupils and only a few questions were raised to assess pupils’ learning.

Feedback from pupils

When interviewed by the co-researchers, most pupils could tell the major topics that they learned in the lessons. They all claimed that they liked General Studies lessons because there were different types of activities in the lesson, e.g. group discussion and presentation, doing experiments, etc. In all the video-taped lessons, most pupils actively participated in various activities, such as doing experimental activities or class discussion.

Some pupils claimed that they understood the lesson because they could answer the questions raised by the teacher. Some said that when they had revision with their mothers at home, they could answer the questions. Most of the pupils remarked that the questions raised by teachers helped them to think, to know more about the lesson, and to be brave and to have more confidence in answering questions. When they did not know the answers, the teachers helped them or asked others to answer. Some pupils disliked writing too much but enjoyed different designs of activities on the worksheets.

IMPLICATIONS AND CONCLUSION

This paper reports the implementation of formative assessment in General Studies lessons by the student teachers, the co-researchers of this study, during their teaching practice in local primary schools. When they planned the lessons, they aligned assessment activities with learning objectives and activities. The assessment

activities included direct personal communication with pupils, selected response assessment, performance assessment, self-assessment and peer assessment. Most co-researchers admitted that they became more aware of the effectiveness of the learning of the pupils when they implemented formative assessment in their day to day teaching in the classrooms. Although formative assessment was advocated in the education reform documents as the essential element in learning and teaching, difficulties encountered by the co-researchers illustrate that conducting this new assessment practice is not a simple or easy task.

In order to make the implementation, first of all, there should be reform in pedagogy and curriculum as formative classroom assessment is learner-centred (Boyd, 2001). Thus, The practice of school-based curriculum, which was advocated in the education documents, may be adopted so that the rich content of General Studies may be trimmed down according to the abilities and needs of the pupils. Then in the lesson, teachers can provide pupils with various learning activities in line with the inquiry approach (Curriculum Development Council, 2002), have more interaction with the pupils, and carry out different assessment tasks to evaluate individual pupils not only on knowledge and understanding but also on skills, values and attitudes (the Curriculum Development Council, 2002). Furthermore, teachers should also be empowered to have the freedom and flexibility to make adjustment to the 'agreed' teaching schedule so that they can take interventions or re-design the lessons according to the information collected in order to enhance the learning of the pupils.

Therefore, such educational change cannot be implemented successfully by individual subject teacher in the school. As professed by all the co-researchers that they did not have the knowledge and experience of

formative assessment in their previous education, all the subject teachers should be supported by different staff development programmes so that they may receive on-going support from experts to learn and challenge the conceptual bases behind intended reforms (Shepherd, 1995) and re-visit their views and beliefs about their role in the classroom. When they have the shared vision to promote the learning of the pupils who should play an active role in the learning process, they may plan the implementation with great care and thus make the implementation successful. "Schools should have the culture that there is joint lesson preparation in alignment of learning, teaching and assessment. Teachers worked together to decide the major teaching points to be covered, design worksheets to assess the learning of pupils," remarked by a co-researcher who witnessed the teachers preparing lessons together during her teaching practice. Black and Wiliam (1998b) highlighted that the success of formative assessment needs the contribution of all teachers.

Secondly, when formative assessment is accepted and to be implemented by all teachers in a school, school heads and teachers should educate the pupils about the major characteristics of formative assessment, especially their role in the process of learning. Thus, as the pupils proclaimed in the present study, they not only enjoy and learn through the different activities in the lesson, they also realize an active role in their own learning. In the lesson, teachers should also inform pupils the learning goals of different activities and to discuss with them the criterion of good work or show them the exemplars of good learning outcomes. Then pupils know how to take the initiative to learn and answer questions during class discussion, do the worksheets and cooperate with their peers in various group work. Furthermore, after receiving quality feedback on learning from teachers, pupils can make adjustment to

their learning approaches or skills so that they can learn better and fill the gap between their current understanding and the desired level. Gradually, pupils may change their mindset and become an active agent in the learning process. They may see the benefits they receive from the practice of self and peer assessment, not just by filling in the assessment forms but also during the group work/presentation, and some assessment activities on the blackboard. In this way, assessment becomes an integral part of the learning-teaching-assessment cycle (the Curriculum Development Council, 2002).

Thus, the effectiveness of implementation of formative assessment depends on the involvement of different agents in the school, i.e. teachers, school heads and pupils. As mentioned at the beginning of this section, the implementation is not a simple or easy job, teachers may work together to conduct the action research to study the abilities and needs of their pupils, their implementation practice, the difficulties they encountered in their classrooms or school context. Then they can make improvement accordingly, and share their experience with other subject teachers when they start to conduct formative assessment in their own subjects.

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