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Building Teachers' Capacity in Formative Assessment: the Singapore Example

Abstract

The objective of this study is to contribute to the knowledge base of teacher professional development and formative assessment using Singapore as an example. The study was carried out through an exploratory case study in a Singapore school. Our study shows that while the teachers find formative assessment beneficial, they do not have sufficient knowledge of it and face the challenges of heavy workload, time pressure and lack of confidence. The results serve to inform policymakers and educators of the need to provide effective and sustained teacher professional development in formative assessment as well as continual teacher support and collaboration.

Keywords: *formative assessment, Singapore, teacher professional development*

Introduction

One of the most important strategies is for teachers to use effective classroom assessment that measures what students are learning and how they are learning it. At the same time, teachers are expected to use the assessment information to plan and adapt instruction. In other words, classroom assessment should be integrated with the instructional process for teachers to understand and reinforce student learning. These are the key principles of assessment for learning or formative assessment as advocated by many assessment experts (Black & Wiliam, 1998; Shepard, 2000).

Research Problem

Despite the importance of teacher professional development in assessment, there is also limited empirical evidence documenting teachers' perceptions

of formative assessment, especially in theAsian context. Using Singapore as an example, this paper critically discusses the issues and challenges faced by teachers in implementing formative assessment. The paper begins by highlighting the need to build teachers' capacity in formative assessment, followed by a discussion of an empirical study conducted in a Singapore school.

Research Focus

An integral part of teacher professional development is to equip teachers with formative assessment or assessment for learning practices. Formative assessment or assessment for learning can be used to facilitate learning by providing students with opportunities to judge their own work and learning progress based on feedback to various kinds of teacher-made tests and performance tasks such as student portfolios. A shift in focus from rote learning and the memorisation of the content of core subjects to the mastery of higher order thinking skills as well as self-directed learning skills such as learning how to learn is also driven by the need for 21st century skills, knowledge and competencies (Boud & Falchikov, 2006; Shepard et al., 2005; OECD, 2005).

Black and Wiliam (1998) point out that the absence of formative assessment in the classroom has contributed to ineffective teaching, self-doubt amongst low achieving students and potential adverse effects on students' self-esteem and motivation. Stiggins (2002) reiterated that the raising of standards through standardized testing does little to encourage students with already low academic achievement and low self-efficacy to try harder. Whilst accountability through infrequent standardized testing provides information for policy makers and educators to make informed decisions, the student as an active user of assessment information is ignored. Classroom support in the form of formative assessment crafted by teachers provides regular if not daily information for the students to plan, monitor and evaluate their own learning. Classroom environments in which students use assessment to understand what success looks like and how to do better encourage students to attribute academic success to individual effort.

There is a need to build teachers' capacity in formative assessment practices because such an innovation is relatively new to many teachers who may not have received any formal assessment training in their pre-service teacher education programs. According to Dede, Korte, Nelson, Valdez, and Ward (2005), no educational improvement effort can succeed without building teachers' capacity to innovate. Likewise, Wiliam and Thompson (2008) point out that developing the capability of the existing teaching workforce is far more effective than reducing

class size or hiring new teachers to replace the old ones in the effort to improve educational outcomes.

Research Methodology

General Background of Research

This study explores the Singapore teachers' experiences with and perceptions of formative assessment, as well as the challenges they face in implementing formative assessment in the classroom. A brief introduction to assessment in Singapore is helpful here. Prior to the 1990s, assessment in Singapore schools was predominantly summative in nature, with all students having to sit for national terminal examinations at the end of their primary, secondary and junior college education (for details, cf. Lim & Tan, 1999). A turning point was in 1997 when the Singapore Ministry of Education aimed to reform the nation's education system so that holistic development of a new generation of students can be made possible through high quality teaching, assessment and learning (Goh, 1997, PERI, MOE 2009; SERI, MOE 2010).

Among the educational reforms in Singapore an emphasis is placed on going beyond purely summative assessment towards formative assessment. This was manifested in the introduction of performance assessment for coursework in subjects such as Design and Technology, Art and Computer Applications, as well as the implementation of a new subject known as Project Work since 2003 (Chong, 2009). The most recent reform in education is evident in the Primary Education Review and Implementation (MOE, 2009), in which the semestral exams for Primary 1 and 2 are replaced with bite-sized modes of assessment, such as topical tests, to provide regular feedback on pupils' learning to parents. The PERI Committee recommended that assessment should support the holistic development of pupils and the school-based assessment and feedback system should be adjusted to focus more on developmental objectives. It should also encourage the balanced development of knowledge, skills and values in children.

Research Sample

An exploratory case study was conducted in a secondary school in Singapore. We conducted professional development workshops on formative assessment with the participating teachers in the respective school. A focus group interview was conducted with three of the participating teachers to understand their learning

experiences and constraints. Pseudonyms have been given to both schools to ensure anonymity of the subjects interviewed.

Instrument and Procedures

Sample

The sample comprised 30 mathematics and science teachers from Princess Alice Secondary School. The school is an autonomous government-aided secondary school that caters for diverse learners from three main academic streams, namely express, normal academic and normal technical. Currently, the school is classified as a Band 5 school (out of 9 banded schools) for the express stream and a Band 1 school (out of 5 banded schools) for the normal academic stream by the Ministry of Education.

Context

One of the strategic thrusts of the school is holistic education, and in recent years, there has been a paradigm shift from conventional classes to differentiated classes to better meet the myriad academic dispositions of pupils that attend the school. Along with these major curricular changes, the school leaders felt that there is a need for changes in assessment, albeit the traditional paper-and-pen assessment is still the dominant assessment mode.

Professional Development

Due to the curricular changes, a 2-day professional development workshop on formative assessment was conducted in November 2009. On the first day of the workshop, the teachers were first tasked to reflect on their current assessment practices, after which, they were introduced to, discussed and shared in groups the definitions of formative, alternative and authentic assessment. The major part of the workshop focused on the concepts and ideas of formative assessment as well as the five formative assessment strategies. Once the teachers were exposed to the ideas and strategies of formative assessment, they worked in teams to identify whether their current assessment practices were formative in nature. Toward the end of the workshop, the teachers worked in teams again according to their teaching subjects to re-visit their current curriculum and highlight some possible areas in which assessment can be formative. They then discussed in general how they would implement different strategies of formative assessment in their classes.

On the second day of the workshop, the teachers were introduced to crafting rubrics and giving formative feedback. About half of the day 2 workshop was set aside for the teachers, in their teams, to work on the rubrics that would complete their plan of formative assessment for their classes. The different teams of teachers used the remaining time of the workshop to share their ideas of formative assessment with the big group so that the other teachers could critique and learn from each other.

Data Analysis

A focus group interview was conducted with three teachers in a meeting room within the school compound on 31 May 2010. The interview was audio-recorded and transcribed verbatim. The discussion sought to understand whether they benefited from the 2-day workshop and whether they had implemented what they planned. Any issues and problems they faced in implementing formative assessment in the classroom were also surfaced. The three teachers were invited as follows:

- Teacher C was a biology and principles of accounts teacher
- Teacher D was a mathematics and physics teacher
- Teacher W was a chemistry and mathematics teacher

All the three teachers have at least 5 years of teaching experience and have taught across grade levels (Secondary 1 to 5).

Research Results

When asked about their formative assessment practices, all the three teachers stated that they had not used any formative assessment in class so far. Only Teacher W had used journaling but did not use it as formative assessment and the journaling assignment was not accompanied by a set of rubrics. When the teachers were asked why they did not use formative assessment in class, several issues emerged from the interview data.

Definition. While all the three teachers found the workshop an eye-opener, and said that it was effective in exposing them to other modes of assessment besides the traditional pen-and- paper test, not all of them were clear about the definitions of formative, alternative and authentic assessment.

'OK, actually I still don't really understand what formative assessment is so I don't think I can give much.' (Teacher W) 'For me, I think, it is like giving a class

test or common test, I mean, not at the end of the year but throughout the year, after every chapter just to check their understanding.' (Teacher C)

It appears that although the workshop was introductory, it did not fully manage to weed out the underlying misconceptions of formative assessment. Teachers W and C had likened formative assessment to bite-sized tests. This is similar to what has been proposed in PERI.

Teaching workload. The discussion of teacher workload was noteworthy. Two of the three teachers attributed their inability to use formative assessment in class to their overwhelming teaching workload. Teacher W mentioned that "time" was a critical factor in implementing formative assessment in class.

'I think it is because when the time pressure is there to complete the syllabus, you will always go back to a form of assessment or even teaching that you are most comfortable with…. if I were to do formative assessment, maybe that particular half a year, I should have maybe 1 or 2 classes fewer.' (Teacher D)

Teacher D further suggested that the implementation of formative assessment is currently an add-on burden, and that nothing has been done by the school administrators to reduce teachers' workload.

Teacher beliefs. All the three teachers stated that they believed in the value of formative assessment and how it can assist students in learning.

'Formative assessment is the assessment of students at different stages of their learning, so it allows them to have intervention at appropriate moments so that their learning is more holistic.' (Teacher D)

'I think I will definitely implement it because there is definitely some usefulness in doing it but I will do it in a very scaled down version…' (Teacher W)

These beliefs, however, were apparently weighed down by their workload, time pressure and their lack of confidence in implementing formative assessment in class.

'… I also don't have the confidence in implementing it across the classes.' (Teacher W). 'Because at the end of the day, let's be very frank, I'm not very confident of implementing formative assessment and I happen to teach 3 classes, and if I do it one shot with 3 classes, it is going to be… all 3 will not get it right.' (Teacher D)

Students' perceptions. There was a concern that if the teachers implemented formative assessment this year, their students might not understand the rationale behind it. This might be detrimental to their learning as they might resist that type of assessment and request paper-and-pen tests instead.

'Students are also new to this formative assessment. So if we just bring in something at this level, there will definitely be tension because students' focus is just

doing well in their N and O level exam at the end of the year and they might be wondering why we do journaling, projects, portfolios and all these and how this will help them.' (Teacher W)

The discussion further suggested that it could be more beneficial if formative assessment was introduced to students as early as the secondary 1 level.

Support. Teacher C highlighted that there could be more professional support if teachers were required to implement formative assessment in class.

'For me, it will be teacher support. Maybe not so much like Teacher Aide but more like real professional teachers doing the same thing, and thus when we make mistakes we make the same mistakes.' (Teacher C).

This suggests that building sustainable school-embedded TLCs is of paramount importance. Besides the professional support that was discussed, Teacher D also linked teacher support to lesser workload.

'If I can off load some of my classes to another capable teacher, then why not?' (Teacher D)

Stakeholders' expectations. The issue of the value of marks from traditional high-stake assessment came out relatively strongly. It was emphasised that if marks were still what is expected from the stakeholders and industry, formative assessment may not outweigh paper-and-pen tests.

'However you put it across, they (students) know that at the end of the day, O levels are just going to be marks. So if we were to implement it now, it will be very tough…. They (students) want to see some kind of marks that can be objective. And to them, one thing that gives them the greatest assurance and objectivity is pen and paper.' (Teacher D)

'I think as much as teachers, we want our students to learn and develop not just in the academic aspect, we want them to also leave the school with good character, being critical thinkers, and have skills that can help them through the greater part of their lives in future when they work as 21st century workers, learners. But at the end of the day, I think marks are still important because that is what everybody looks at unless this whole thing is taken away and there is a whole new way of grading.' (Teacher W)

Teacher D also emphasised how schools offering the integrated programme, where students need not sit for the 'O' level national examination, are more able to engage in more formative assessment. Teacher D's responses suggest that he held a misconception of the purpose and function of formative assessment.

Policy. Despite teacher beliefs and all other resistance, the teachers agreed that if one component of their appraisal and ranking consisted in whether the teacher had conducted formative assessment in class, they would definitely implement

formative assessment. This suggests that the teachers' mind-set or beliefs are driven by accountability demands in a performative culture.

'For me, if I am ranked, then I will. If not, then I will maybe still just try.' (Teacher C)

Teacher D highlighted that if formative assessment was done because of directives, it would not be done so much for student learning, but rather for the ranking of teachers.

Discussion

Our study of a school in Singapore has pointed out that the teachers generally recognize the merits of formative assessment in helping their students to learn better. However, they face the main challenges of time constraint as they juggle multiple responsibilities, their own insufficient knowledge of and confidence in implementing formative assessment, and their concern that their students lack the ability to perform formative assessment. There is therefore a need for policymakers and educators to provide effective teacher professional development in formative assessment supplemented by continual teacher support and collaboration so as to equip them with the wherewithal and confidence to implement such a form of assessment.

The professional development for teachers to improve their assessment literacy should go beyond techniques and skills in carrying out assessment to interrogating the teachers' beliefs on teaching, learning and assessment. Guskey (2002) points out that teachers' formative assessment practices are influenced by their beliefs about student learning and their assessment literacy. These beliefs in turn may relate to their experiences with student success due to formative assessment practices. It is also important to measure the impact of formative assessment practices on student academic performance in terms of learning gains and changes in teachers' attitudes towards formative assessment practices and how they are related to student learning gains. The ultimate goal of formative assessment is to guide students toward the development of their own 'learning to learn' skills or metacognitive or 'control' strategies (OECD, 2005). Students who acquire 'control' strategies are equipped with their own language and tools for learning as well as their own strategies for problem solving (OECD, 2005). Professional development of teachers should shift from technical training for specific skills to opportunities for intellectual professional growth (NRC, 1996, p. 58). When teachers have the time and opportunities to describe their own views about learning and teaching,

and to compare, contrast, and revise their views, they come to understand the nature of exemplary science teaching (NRC 1996, p.67).

Teacher professional development should be supplemented with continual teacher support and collaboration in the school. Research on teacher professional development has consistently pointed out that teachers learn and work best in a community of practice. Wenger, McDermott and Snyder (2002) define a community of practice as a set of people who 'share a concern, a set of problems, or a passion about a topic, who deepen their knowledge and expertise in this area by interacting on an ongoing basis' (p. 4, as cited in the Author). Comprising an informal aggregation, it is defined not only by its members but also by the shared manner in which they do things and interpret events (Brown & Duguid, 1991; Eckert, 1993; Lave & Wenger, 1991). Such a community, according to Lave and Wenger (1991, p. 98), is "an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage". The 'interpretive support' includes the dimensions of culture, technology, economy and politics.

Conclusion

Using Singapore as an example, this article highlights the potentials and challenges in building teacher capacity in formative assessment. Addressing these challenges requires not just structural changes in the school (e.g. lighten the teachers' workload to solve the issue of workload and insufficient time) and ad-hoc workshops on formative assessment for teachers. Rather, there is a need to improve teachers' assessment literacy and support teachers in a continuous and sustained manner through teacher professional development and teacher collaboration.

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