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## **Formative Assessments of Literacy and Numeracy in Primary Grades**

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Keywords: Assessment, Literacy, Numeracy

### ***Objectives:***

This paper will report the results of a study of assessment practices in literacy and numeracy in lower elementary classrooms in Singapore. Specifically, we will provide data on the kinds of summative and formative assessments that the teachers use in the classrooms to guide their instruction and to report progress. We will also report the students' and parents' responses to the assessments. The findings from the project will be presented with regard to reform movements in Singaporean schools, as well as with relevance and implications for international research on assessment practices, particularly formative assessments in grades 1 and 2.

### ***Perspective:***

Classroom assessment that is connected to instruction and aligned with pedagogical practices to enhance learning can provide crucial information for teachers and students (Carless, Joughin, Liu, & Associates, 2006). In educational systems nationally and internationally, there has been a greater call by policy makers and governments, for assessment to be used as accountability and performance measures (Berliner 2009). Berliner (2009), for example, found that the over dependence on high-stakes testing has narrowed the curriculum in the USA and contributed to teaching to the test. Similarly in Singapore, high-stakes testing has been in use for decades with schools

being benchmarked against each other nationally. However, assessments can be framed in particular ways, depending on the underlying rationales, ideologies, and assumptions about what purposes they serve. Assessment can be for learning or of learning according to the Primary Education Review and Implementation Committee (PERI) report (2009) in Singapore. The Ministry of Education has recommended shifting Singaporean classrooms to greater use of assessments for learning.

According to Shepard (2000), effective classroom assessment should be dynamic and ongoing; it should assess prior knowledge, provide feedback, teach for transfer, include explicit criteria, and encourage student self-assessment. These strategies will be most effective if they are part of fundamental shifts in classroom assessment practices in cultures where assessment is often perceived as high stakes, summative, and aimed toward assessment of learning rather than assessment for learning. This paper reports a baseline study of classroom assessment practices in Singapore, conducted in response to the PERI report, and as a foundation for national reforms in formative assessments in literacy and numeracy throughout primary grades.

Paris, Paris, and Carpenter (2002) reported findings from a survey of teachers' perceptions of assessment in early elementary grades. The assessment survey was a part of a large CIERA survey of elementary teachers who taught in "beat the odds" schools to determine their practices and views. The survey showed that K-3 teachers used a variety of assessments in their classrooms daily and also showed the variety of tools available to teachers and the large variation among teachers in what they used. In general, teachers reported that teacher-designed, informal assessments had more positive effects on

students, teachers, and parents. Conversely, teachers believed standardized and commercial assessments had a higher positive effect on administrators.

Black and William (1998) called for raising educational standards through classroom formative assessment. They suggested that formative assessments that are undertaken by teachers and their students provide useful information for revising teaching and learning activities. In an extensive review of more than 250 articles on formative assessment, they found evidence that (a) improving formative assessment helped low achievers more than other students and (b) providing frequent assessment feedback improved learning of all students. Their findings indicated that student self-assessment is an essential part of formative assessment and that students should have a clear picture of the targets of their learning. Dialogue among teachers and students should be thoughtful, reflective, focused to evoke understanding, and conducted so that all students have opportunities to express their ideas. Their review provides guidelines for evaluating formative assessment practices.

Brookhart, Moss and Long (2008) documented the benefits of formative assessment on teachers and students when a rural district encouraged teachers to focus on the use of formative assessment. Formative assessment, unlike conventional assessments that are judgemental, assures students that the teachers want to understand what and how they think, rather than if they know the “correct” answer. Students thus feel encouraged to think for themselves and to share their understandings openly and they, in turn, become their own driving force in their own learning. The target district’s focus on formative assessment has led to “increases in achievement, motivation, time on task, and engagement for students working with participating teachers” (p. 54) as well as having

positive effects on students' sense of competence and students' perceptions that they have the necessary tools to advance their own learning (Brookhart, Moss, & Long, 2008).

**Methodology:**

The purpose of this study was to survey and evaluate the classroom assessment practices of teachers in first and second grades throughout Singapore. In 2009, we sampled randomly and interviewed approximately 160 teachers in grades 1 and 2 and 640 students from a representative sample of 40 schools in Singapore. Prior to the interviews, we gathered background information from teachers and asked them to collect 10-20 samples of classroom assessments they had used during the year for literacy and numeracy. The interviews with both teachers and students were focused on a discussion of the artifacts (e.g., worksheet, spelling tests, quizzes, tests, book logs, etc.) that teachers collected. There were parallel questions to teachers and students that focused on the following dimensions of formative assessments: purpose, frequency of use, criteria for evaluation, use of the data, feedback to students, reactions of students and parents, and alignment with instruction. Outlines of the interview protocols are included for illustration of the types of questions we asked teachers and students. Similar questions were asked about numeracy assessments for both teachers and students.

Teacher Interview: Assessment Artifacts - Literacy Tasks

Conceptual Criterion	Questions About Literacy Artifacts
Variety of tasks	Please describe the assessments you collected for me. Let's focus on the literacy assessments first.
Formative functions	Which of these tasks do you use for formative purposes, such as deciding what instruction is appropriate for a specific student?
For EACH task, ask:	
Purpose	Why do you use this task?
Frequency	How often do you use it? When?
Evaluation	How do you evaluate students' performance on this task?

Feedback	What feedback do you provide to each student?
Use	How do you use the results?
Impact on students	How do students react to this task?
Impact on pedagogy	How does this task fit into your curriculum and instruction?

Student Interview: Assessment Artifacts - Literacy Tasks

Conceptual Criterion	Questions About Literacy Artifacts
Variety of tasks	Please describe these different tasks and how they are used.
For EACH task, ask:	
Purpose	Why does the teacher give you this task?
Frequency	How often do you do this task?
Evaluation	How is your performance evaluated on this task?
Feedback	What kind of feedback does your teacher give you on this task?
Use	How does your teacher use the results?
Impact on students	Do you like this task? Is it easy or hard? How do you feel when you finish it?
Impact on pedagogy	How does your teacher help you get ready for this task? Is it connected to other things you do in class?

Following the interviews, the artifacts were evaluated by a panel of three teachers according to a set of rubrics. The purpose was to assess the validity, reliability, consequences, and quality of the formative assessments for enhancing teaching and learning. This method has been used before to evaluate assessment artifacts in Singapore and (a) the moderated judgment of the panel is effective and (b) similar methods allow us to compare the results of assessments in first and second grades in this study with the artifacts in fifth grade analyzed in a previous study (Koh, Lee, Tan, Wong, & Guo, 2005). The grade 1 and 2 teachers' beliefs, perceptions, teaching practices as well as assessment practices on literacy and numeracy were also gathered through an online survey.

**Findings:**

Preliminary results from the teacher survey on literacy and numeracy indicates that teachers acquired their knowledge about assessment practices largely from in-service professional development or from existing school practices. The results indicated that

teachers used a variety of formative assessments that we identified as: unit/lesson tests, writing assignments, worksheets, self-assessments, teachers' observations, performance-based assessments (e.g., oral reports), and portfolios. The identification of purposes, frequencies of use, and feedback were generally consistent between reports of teachers and students. However, students were relatively unaware of the reasons for assessment, how the assessments were intended to help them learn, and how assessments supported instruction. This suggests that the teachers are not explicitly flagging assessments as formative nor did they seem to care about the differences. That implies that teachers may not be fully aware of the different functions of assessment, and thus may impede an effective implementation of assessments for learning. This also has consequences for the students because they, failing to distinguish between assessment types, may consider all tasks as performative and fail to recognise how they can promote their own learning. They 'perform' the assessments for the teachers or grades rather than to enhance learning. Further analyses of the data will be completed soon, and will be reported at the conference, along with relevance to the international research community.

***Significance of the Study:***

The findings from the study will inform contemporary research on assessment by providing a systematic model and comprehensive methods for data collection of assessment practices in elementary grades. The study will also provide input for decision making in countries that are embarking on investigations into richer understandings of classroom assessment practices, in particular the impact of formative assessments on the curriculum, the tensions between summative and formative practices, and the influence of assessment on pedagogy and classroom instruction. Finally, the study can contribute to

professional development for teachers by demonstrating effective ways that teachers have implemented assessments that support student learning directly. Although the baseline data are most relevant to Singapore, the method and framework can be used in states or countries that want to examine and reform their assessment practices.

(1657 words)

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