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# **BUILDING TEACHERS' CAPACITY IN AUTHENTIC ASSESSMENT AND ASSESSMENT FOR LEARNING**

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*This paper reports on an ongoing research project that aims to build teachers' capacity in authentic assessment and assessment for learning. Using a critical inquiry approach, five Grade 6 teachers from a charter school are engaged in reflecting on their conceptions of assessment. They are also involved in authentic assessment task design during bi-weekly professional learning community meetings. The data sources include focus group, analysis of assessment tasks and associated student work samples, teacher and student interviews. The mathematics authentic assessment co-designed by the teachers and its implications on their conceptions of assessment and on student learning will be discussed.*

Keywords: Building teachers' capacity; Authentic assessment; Assessment for learning; Assessment task design; Professional learning community; Mathematics

## **INTRODUCTION**

In the era of competency-based curriculum and outcome-based reporting, building teachers' capacity in authentic assessment and assessment for learning (AfL) is one of the key priorities in

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in-service teacher education and professional development. Authentic assessment refers to assessment tasks that replicate the real-world challenges and standards of performance that typically face experts or professionals in the field (Wiggins, 1989). AfL connotes the use of assessment to help and promote student learning (Stiggins, 2002). To help students develop the 21st-century competencies such as critical thinking, creative problem solving, collaboration, communication, and self-directed learning, teachers need to be equipped with the knowledge and skills in selecting, adapting, and designing classroom assessment tasks that are well aligned with the competency-based curriculum. At the same time, teachers are expected to be competent in engaging students in AfL, which in turn will lead to the development of dispositions such as self-regulated learning, inquiry habits of mind, and lifelong learning. Hattie's (2003) meta-analytic study has shown that the quality of teachers can make a difference to student learning and achievement. Teachers' professional learning and reflections on their classroom practices will lead to improvements only when it is done collectively with their colleagues in a collegial, non-threatening environment and when it is based on actual evidence of student learning (Hattie as cited in DuFour & DuFour, 2010; Wiliam & Thompson, 2008). This paper reports on an ongoing research project that aims to build teachers' capacity in designing and implementing authentic assessment and AfL.

To date, there are several intervention studies in the area of building teachers' capacity in authentic assessment and assessment for learning (AfL) through more sustained form of professional development (Koh, 2011; Sato, Wei, & Darling-Hammond, 2008; McMunn, McColskey, & Butler, 2004; Wiliam, Lee, Harrison, & Black, 2004). These studies have been conducted in the Non-Canadian context. The researchers have found positive effects of teachers' active involvement in designing and implementing authentic assessment tasks and AfL strategies (i.e., formative

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feedback, self-assessment, and peer assessment) on the quality of student learning and achievement. Additionally, the use of an inquiry stance for building teacher capacity is deemed to enable more effective teacher learning and professional development (Cochran-Smith & Lytle, 2009; Wyatt-Smith & Gunn, 2009).

Empirical studies in the eastern provinces of Canada have shown that the majority of teacher candidates reported a low level of assessment literacy (DeLuca & Klinger, 2010; Volante & Fazio, 2007), especially in new forms of assessment such as authentic assessment and AFL. The western provinces of Canada, Alberta included, have moved towards improving teachers' assessment literacy through school-based professional development based on professional learning communities (PLCs). However, these initiatives have not been altogether successful. Sumara and Davis's (2009) study showed that many of the school-based PLCs had failed to produce deep change in school cultures due to a lack of teachers' bottom-up initiatives.

### **The Alberta context**

Since the implementation of the Alberta Initiative for School Improvement (AISI) in the last decade, some snapshots of the evidence of AfL on student achievement have been documented in individual schools. The AISI funding ended in March 2013 due to provincial budget cuts. In the final report of the Alberta Student Assessment Study (Weber, Aitken, Lupart, & Scott, 2009), three main barriers to student assessment in the Alberta education system were identified: (1) teachers' weak understanding of fair assessment practices, (2) teachers' lack of understanding of external or perceived "high-stakes testing" purposes, and (3) the effects of inappropriate assessment of at-risk students. Many teachers in Alberta schools were also found to have limited curricular outcomes by favoring rote memorization techniques over those that promoted deep learning and student engagement.

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Under the vision of the Inspiring Education in Alberta, students in Alberta schools are expected to master literacy and numeracy and 21st-century competencies, which enable them to become engaged thinkers and ethical citizens with an entrepreneurial spirit. In line with other high-performing education systems around the world, the following 21st-century competencies are desired in the Alberta Curriculum Framework for Student Learning: critical thinking and problem solving; creativity and innovation; social responsibility and cultural, global and environmental awareness; communication; digital literacy; collaboration; lifelong learning, self-direction and personal management (Alberta Education, 2011). To be aligned with the desired educational outcomes in the curriculum framework, two new assessment initiatives have recently been introduced: (1) a replacement of the Provincial Achievement Tests (PAT) in Grades 3, 6, and 9 with Student Learning Assessments (i.e., a series of new computer-based tests), and (2) teachers' use of performance assessments in Mathematics, English Language Arts, and Science (Alberta Assessment Consortium, 2013). However, the success of these initiatives requires Alberta teachers to be competent in assessing students' mastery of core subject areas and some of the essential 21st-century competencies, such as creativity, critical thinking, problem-solving, communication, collaboration, and self-regulated learning. At the same time, Alberta teachers will need to be able to use assessment information to provide quality feedback to students and parents. Provision of quality feedback is one of the key AfL strategies (Hattie & Timperley, 2007; Sadler, 1998). These new requirements indicate that the roles of authentic assessment and AfL have become increasingly important in Alberta teachers' day-to-day instructional practices. Oftentimes, ad-hoc, one-off workshops focus only on teachers' learning of the procedural skills of task design and rubric development in a mechanical way. As a result, teachers' realizations of quality assessment in actual classrooms are limited.

## **PURPOSE OF THE STUDY**

The study aims to use a critical inquiry approach to building teachers' capacity in authentic assessment and AFL through school-based professional learning community (PLC). Specifically, five Grade 6 teachers from a Calgary charter school are actively engaged in critical inquiry of their conceptions of authentic assessment and AfL as well as assessment task design during bi-weekly PLC meetings. The PLC meetings are co-facilitated by a university researcher and a lead teacher. Teachers' awareness and engagement in assessment task design has been recognized as one of the promising pedagogical approaches in helping teachers develop an understanding of student learning (Shepard, et al., 2009). Wyatt-Smith and Gunn (2009) have used a critical inquiry theoretical framework to guide the Australian teachers to reflect upon their conceptions of assessment. During professional learning community meetings, teachers are actively engaged in critical reflections and professional conversations about task complexity and knowledge demands through the application of assessment criteria and standards. A set of reflective questions are found to be useful for enabling teachers to consider the features of quality assessment: (1) alignment with curriculum; (2) intellectual challenges and engagement; (3) assessment scope and demand; (4) language used to communicate the task; (5) literate capabilities involved in doing and completing task; (6) performance contexts; (7) knowing what is expected both during and on completion of the task; (8) student self-assessment for improvement; and (9) intended purposes of assessment information.

We intend to answer the following research questions:

1. How do teachers benefit from a critical inquiry approach to conceptualize authentic assessment and assessment for learning (AfL) in the context of professional learning community?

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2. To what extent does teachers' engagement in assessment task design contribute to their conceptions of authentic assessment and AfL?
3. To what extent does teachers' engagement in assessment task design contribute to the quality of assessment tasks and associated students' work?
4. How do students feel about authentic assessment in their learning of mathematics?

### **DESIGNING AUTHENTIC ASSESSMENT TASKS**

During the first PLC meeting, the five teachers including the lead teacher were involved in critical inquiry of their conceptions of authentic assessment and AfL. They were also involved in analyzing the quality of assessment tasks and associated student work samples using two sets of criteria for authentic intellectual quality (AIQ) (Koh, 2011; Koh & Luke, 2009; Newmann, Marks, & Gamoran, 1996). This activity has enabled the teachers to internalize the criteria for AIQ and the features of authentic assessment. Using the design principles of authentic assessment, the criteria for AIQ, the Patchwork Text Assessment strategy, and the Structure of the Observed Learning Outcome (SOLO) taxonomy, the teachers co-designed mathematics performance-based tasks for the geometry (i.e., shape, space, and angle) unit of work. The patchwork text assessment strategy enables the mapping of the assessment tasks in the geometry unit to the specific instructional objectives across five different levels of the SOLO taxonomy: pre-structural, uni-structural, multi-structural, relational, and extended abstract. In short, the mathematics assessment tasks provide students with opportunities to engage in mathematical reasoning and critical thinking, application of mathematical concepts to solve real-world problems, extended communication, collaboration, generation of new knowledge, and making connections to other subject areas. The patchwork text assessment strategy has also enabled the teachers to scaffold students' learning of

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mathematics using quality feedback across a series of assessment tasks, which vary in their levels of cognitive complexity and intellectual challenge.

The mathematics assessment tasks are currently implemented at the Grade 6 classrooms. After the implementation of the assessment tasks in classrooms, the participating teachers will also be trained to judge the quality of student work samples in relation to the assessment tasks. This will allow the participating teachers to make meaningful linkages between quality task design and student learning outcomes. In addition, a focus group will be conducted with the participating teachers to probe into their conceptions of authentic assessment and AfL. A selected group of students will be interviewed for their experiences in completing the authentic assessment tasks.

#### **INITIAL FINDINGS: BENEFITS AND CHALLENGES**

The assessment literature has shown that an understanding of teachers' conceptions of assessment in the context of professional development is of paramount importance as professional development per se will not lead to a direct change in teachers' classroom practices (Guskey, 2002). The clarification of concept of formative assessment has been a significant feature of Black, Harrison, Lee, Marshall, and Wiliam's (2003) work with the UK teachers in assessment for learning. Teachers' misconceptions or misinterpretations of formative assessment may have adverse effects on their classroom practices, which in turn lead to negative students' learning outcomes. One notable example is Singaporean teachers' misconceptions of 'bite-sized' forms of assessment in the PERI reform that lead to their adoptions of frequent topical tests. According to Klenowski (cited in Koh & Luke 2009), there is a possibility that this form of assessment could encourage performance-orientated learning to the detriment of sustained and real learning. Teachers' limited conceptions of and confidence in assessment can restrict implementation of curricula designed to achieve more ambitious learning goals.

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Some of our preliminary findings have shown that the rich professional conversations over the features of high-quality assessment tasks, the criteria for AIQ, and the identification of specific instructional objectives using the SOLO taxonomy have shed light on the teachers' understanding of authentic assessment and AfL. This has also led to their collaborative effort to co-design authentic assessment tasks or performance-based tasks for the Geometry unit of work. Our findings have shown that professional development that aims to improve teachers' assessment literacy needs to consider their conceptions of authentic assessment and AfL in addition to enhancing their skills in quality assessment task design. The latter will not only help teachers to improve the quality of classroom assessment tasks but also enable them to gain a better conception of authentic assessment and AfL. Teachers' critical inquiry and analysis of assessment task features and quality using the criteria of AIQ are found to develop their 'designers' eyes' so that they are competent to select, adapt, and design assessment tasks that promote students' learning of mathematics and the essential 21st-century competencies.

Despite our collaborative effort in the redesign of the mathematics assessment tasks, we are challenged by a busy teaching schedule and an existing reporting format in our school's rubric. Given that the benefits of co-designing mathematics authentic assessment tasks far outweigh the aforementioned challenges, we aim to sustain our school-based PLC through a negotiation with the school administrators in terms of allowing the teachers to have 'white space' so that PLC meetings can be held within the normal school hours.

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