Chapter 7
Assessment Literacy Within Middle School–Level Math Professional Learning Communities

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ABSTRACT

Professional learning communities (PLCs) have been implemented in school districts as a means to promote effective instructional policy initiatives and best practices. The purpose of this chapter is to identify assessment literacy commonalities within middle school-level math PLCs and to compare those commonalities across PLCs with different levels of student math growth. Multiple indicators of assessment literacy were used to supply rich descriptions of assessment literacy within each PLC using a procedure recommended by Bernhardt for effective data-driven decision making. Based upon the findings the researcher concluded that commonalities existed among PLCs with different levels of student math growth.

INTRODUCTION

As a result of new initiatives that have spawned from decades of educational reform, schools are required to meet the mandates of increased rigor in academic standards and improvements in student performance on state standardized assessments. The changes in standards and standardized assessments were viewed necessary in an effort to close the gap between the career and college readiness of students in the United States and students from competing nations (National Council of Teachers of Mathematics, 2013; U.S. Department of Education, 2008). Furthermore, mathematics has been identified by ACT as one of the major subjects that has hindered students’ ability to be successful in college and their careers as evidence by the achievement levels on national and international tests (ACT, 2009). Therefore, to be able to meet these goals, schools have had to be strategic in their efforts to guide their decisions regarding instruction (Stanford & Reeves, 2005). Unfortunately, these efforts have not always translated into increased student achievement (Youngs, 2013).

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Researchers have shown that schools that have been successful in increasing student achievement are schools that have employed professional learning communities (PLCs) (DuFour & Eaker, 1998). For example, in his research, Newman & Mowbray (2012) discovered a connection between high quality student learning and professional communities that exhibit that same degree of academic excellence. Likewise, Hord (2009) stated that schools that were characterized by PLCs had students that achieved greater academic gains in math, science, history, and reading as compared to traditionally structured schools.

However, choosing to implement PLCs does not necessarily guarantee increases of student achievement (DuFour & Eaker, 1998). Success is dependent on what the professional learning community does with their collective efforts (Hord, 2009). Although, it has been noted that the collective learning within a professional learning community (PLC) resulted in shared instructional practices that were tied to student achievement (Hipp & Huffman, 2010), there exists only a fraction of research that measures the impact of PLCs on student achievement (Leithwood, Patten, & Jantzi, 2010). Furthermore, one study found that PLCs were not considered a significant predictor of student achievement and suggested that further studies should be conducted to specify the factors that lead to increased student achievement (Leithwood et al., 2010). Nevertheless, it is believed that “quality teaching is not an individual accomplishment, it is the result of a collaborative culture that empowers teachers to team up to improve student learning beyond what any one of them can achieve alone” (Carroll, 2009, p.13).

The author of this chapter describes a case study that was conducted at a single, socioeconomically diverse rural school district to gain more knowledge of how individual schools use assessment literacy to promote math achievement. The study was conducted within one academic year by collecting data through observations, focus groups, interviews, and surveys of members of PLCs. The descriptive data were reported using tables and narratives, and commonalities among the data were identified. This author presents the following information in this chapter regarding the case study:

- Review of literature covering math education in middle schools, professional learning communities, and assessment literacy;
- Statement of the problem and research questions;
- Research design, including sampling, instrumentation, and methods of data analysis;
- Discussion of results and conclusions; and,
- Practical application of the study findings.

**REVIEW OF LITERATURE**

In this study the focus of the researcher was to determine if there were commonalities in the interaction of demographics, self-efficacy, competencies, and implementation indicators of the assessment literacy of school-level PLCs that experience similar growth in student math achievement. If those commonalities existed, then similarities and differences were identified among the divergent levels of growth in student math achievement. The differences in the divergent levels of student growth in math would serve as benchmarks to describe the PLC based on their outcomes of student growth in math.

As schools experience growing pressure to increase student achievement, the use of data has become essential to how many administrators assess teacher practices and observe student progress (Ball, Thames, & Phelps, 2008). Despite this awareness, there is no straightforward answer that addresses the
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