2024

Improving Teachers' Assessment Literacy: The Effects Of A Professional Learning Program

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IMPROVING TEACHERS' ASSESSMENT LITERACY: THE EFFECTIVENESS OF A PROFESSIONAL LEARNING PROGRAM

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

By Susan Bishop March 2024

IMPROVING TEACHERS' ASSESSMENT LITERACY: THE EFFECTIVENESS OF A PROFESSIONAL LEARNING PROGRAM

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Dedication

For Liam Hearn, who led me to love teaching and learning through countless moments and milestones. May you always stay curious, keep exploring, and stretch beyond your strengths to share your sparkle with the world.

Acknowledgments

I would like to express gratitude to the faculty for making this endeavor so worthwhile and especially to my dissertation committee for their guidance through the process. I'd like to extend my deepest appreciation to Dr. Gareis for introducing me to the value of program evaluation and encouraging me to think more deeply about my interests.

I would also like to thank my colleague Chris Reddam, a trusted, golden thought partner for planning everything, from wording a tricky e-mail to a large-scale system improvement. Collective *administrator* efficacy is powerful.

Finally, I extend my admiration to teacher leaders in this school district and everywhere who believe in lifelong learning and see themselves as the key to unlocking the potential in every child.

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Abstract

Teachers' assessment practices greatly influence student learning. However, the level of assessment literacy among teachers is inadequate relative to classroom assessment standards and expectations. Assessment literacy includes interpreting results of various assessments, creating assessments that are aligned to learning targets, using assessment results to understand students' gaps in learning, and adjusting instruction accordingly. This formative program evaluation used mixed methods to examine a professional learning program for teacher leaders in a public school district. Using Kirkpatrick's model, participants' reactions, knowledge and skill development, and changes in practice were evaluated to determine the effectiveness of professional learning and inform future professional learning for the district. Findings indicate that teachers enjoyed the professional learning and felt it was valuable to their practice. Participants proficiently identified the process of designing a robust classroom assessment system including developing, using, and analyzing classroom assessment and showed developing skills in identifying kinds of learning targets and defining reliability and validity. Teachers' approaches to classroom assessment did not change significantly, remaining teacher-centric and endorsing an Assessment for Learning approach before and after professional learning. Appreciative inquiry interviews with teachers revealed changes to classroom practice, confidence in using assessment to improve instruction, and the value of professional learning communities. Teachers conveyed the value of formative assessment in meeting the needs of all students and lowering students' affective filters. Results support the importance of the socio-cultural context in improving teachers' assessment literacy and provide a model for effective professional learning that improves classroom practices.

IMPROVING TEACHERS' ASSESSMENT LITERACY: THE EFFECTIVENESS OF A PROFESSIONAL LEARNING PROGRAM

CHAPTER 1

INTRODUCTION

Background

Teachers spend up to 30% of their time in assessment related functions (Stiggins, 2017). Assessment is a crucial element to the teaching process because it is used to determine the effectiveness of a lesson, evaluate student progress, and to plan future instruction. Teachers' assessment practices have been found to have a large influence on student learning and achievement (Black & Wiliam, 2009; Brookhart, 2011; Hattie, 2009). Subsequently, there has been an increasing focus on developing teachers' high-quality assessment practices (Herppich et al., 2018; Popham, 2009; Xu & Brown, 2016).

Assessment literacy, the ability to gather, analyze, and use data to measure student progress, guide instruction, and provide feedback, is an important characteristic of effective teachers (Popham, 2011). Educators with assessment literacy know what they assess, why they assess, how to assess, what the possible problems with assessment are, and how to prevent them from occurring. They are also familiar with the possible negative consequences of inaccurate assessment (Stiggins, 1995).

Building on the Standards for Teacher Competence in Educational Assessment of Students (American Federation of Teachers et al., 1990), Brookhart (2011) identified 11 competencies in educational assessment for teachers to guide preparation and professional learning. These statements incorporate skills necessary for assessment for learning and for teachers to work in standards-based reform contexts. They include communicating clear learning

intentions to students, proficiency in choosing from an array of assessment tools, constructing scoring schemes, and being able to interpret external assessments (Brookhart, 2011).

The *Classroom Assessment Standards* are intended to guide credential programs and professional learning for teachers (Klinger et al., 2015). They address the three areas of foundations (including assessment design), use (including grades and summary concerns), and quality (including unbiased and fair assessment). Gareis and Grant (2015) constructed a teacher-focused framework categorizing assessment literacy into three aptitudes for teachers and administrators. Their three suggested domains are: types of measures, quality of measures, and results and their uses. These provide a solid basis of the assessment skills required for teachers to be effective and to guide professional learning.

The Importance of Formative Assessment

Assessments can enhance instruction and, when used correctly, have the potential to double the rate of learning (Black & Wiliam, 2009). Formative assessment, also called assessment for learning, has a narrow scope, covers a few learning targets in detail, and is administered more frequently (Brookhart, 2011). An assessment itself is not formative, rather it is how results are used that makes it an effective instructional strategy. Formative assessment is a process where teachers use evidence of student learning to adjust ongoing instruction (Popham, 2009). If data from the assessment are not used to make adjustments beyond the initial assessment, then it is not formative assessment (Black & Wiliam, 2009). These adjustments can occur synchronously or asynchronously. However, if a district benchmark assessment, called a formative assessment, is administered several times a year, but the results are not used to adjust instruction, then it is not formative assessment.

Formative assessment is grounded in three key processes: Establishing where a student is

in their learning, where they are going, and what needs to be done to get there (Black & Wiliam, 2009). This information is communicated to students through timely feedback with specific information about what to do next to continue learning (Hattie & Timperley, 2007; McMillan & Moore, 2020). In contrast, summative assessment occurs when teachers gather evidence of learning when instruction is complete.

Teachers as Assessors

Viewing the teacher as the assessor requires a new way of understanding what it means to be a teacher (Xu & Brown, 2016). For the formative assessment process to improve learning, it must include quality assessments that are authentic, meaning that they are connected to learning and relevant to contexts and events in the real world (McMillan & Moore, 2020). Acquiring an array of knowledge and skills in assessment literacy is crucial; however, a complete view of assessment literacy also includes recognizing the dynamic context-dependent socio-cultural context that influences teachers' assessment identities (Coombs et al., 2018; DeLuca et al., 2019; Willis et al., 2013; Xu & Brown, 2016). A teacher's assessment identity includes knowledge and skills about assessment and an affective dimension including personal, social, and contextual factors (Coombs et al., 2018). Assessment literacy is dependent on a combination of cognitive traits, affective and belief systems, and socio-cultural and contextual influences. An example of an important contextual factor is the degree to which an assessment system is comprehensive and balanced. A comprehensive assessment system measures all learning outcomes at student, classroom, school, and district levels (Brookhart et al., 2019). A balanced assessment system provides an adequate amount of information to the intended stakeholder, with the most detailed information for students and teachers. Formative assessments to improve student learning are an important part of assessment systems. However, most student assessment systems are neither

comprehensive nor balanced. This contextual factor can constrain teachers' assessment literacy.

Socio-cultural influences also contribute to teachers' assessment identities. When teachers engage in conversations with peers about readings, assessment scenarios, and dilemmas of practice, they introduce multiple perspectives and broaden their understanding of educational assessment (DeLuca et al., 2013; Gareis & Grant, 2015). Professional learning communities (PLCs) are an example of collaborative professional learning that use collective inquiry to examine student learning and make instructional changes. Through collaboration in PLCs focused on student learning, teachers activate and share knowledge of reliable, valid assessment practices. Collaboration around formative assessment provides a process for teachers to improve teaching and learning.

Considering personal factors that contribute to teachers' assessment identities, teachers' perceived self-efficacy strongly influences self-reported assessment literacy (Schneider et al., 2021). Additionally, when teachers experience success in classroom assessment, their perceived self-efficacy increases. Ultimately, teachers must be effective creators of assessments, consumers of assessments, and be able to communicate about assessments (Gareis & Grant, 2015). Personal and socio-cultural factors combine dynamically with teachers' knowledge and abilities to comprise assessment literacy.

The Need for Improved Assessment Literacy

Assessment literacy provides the link between teaching and learning. The process of formative assessment ensures that teaching leads to learning. When common formative assessment is used within a grade, department, or school level, then it can have profound effects on student achievement (Hattie, 2009). Evidence of learning is essential for teaching; teaching does not occur without learning (Guskey, 2015). Teachers must be able to interpret results of

various assessments, create assessments that are aligned to learning targets, use assessment results to understand students' gaps in learning, and adjust instruction accordingly to be effective teachers.

Despite the importance of formative assessment in supporting student learning, most teachers would benefit from a greater understanding of assessment to fully use assessment to facilitate learning (DeLuca et al., 2016; Volante & Fazio, 2007; William et al., 2019). Teachers generally believe their own tests are more valuable than standardized or statewide assessments (Darling-Hammond & Falk, 2013). If their classroom assessments are not valid or effective, they may not be accurately assessing student learning and making incorrect judgments about student learning and adjustments to instruction.

Most teachers do not use assessment data to make adaptations to instruction and regulate students' learning (Schneider & Andrade, 2013). Without adequate knowledge and skills in assessment, educators risk making incorrect inferences about student learning that lead to incorrect decisions about access to programs. Whether by overestimating student learning and resulting in lost time and self-confidence for students or underestimating student ability that leads to wasted instructional time and demoralized teachers, inadequate assessment literacy costs time and money (Rees & Wynns, 2023). However, when teachers use classroom assessment as intentional regulation of learning, it has the potential to counter the unintended effects that arise from teacher biases based on student background, aptitude, or demographics (Andrade & Brookhart, 2019).

Challenges Associated With Improving Teachers' Use of Formative Assessment

Many in-service teachers use assessments only to determine grades and do not use formative assessment in their classrooms (Popham, 2009). Advocating for teachers to use

assessment for learning is easier than bringing about that change. To change their practices, teachers must admit that they could perform more effectively if they use information from classroom assessments strategically. They are far more likely to implement such changes in activities with their colleagues, highlighting the importance of the sociocultural context of practice in teachers' assessment identities (Charteris & Dargusch, 2018).

Professional learning in assessment literacy must acknowledge the variability in teachers' approaches to assessment and assessment identities (Coombs et al., 2018). Considering the importance of the socio-cultural context, it should use collaborative inquiry groups, such as PLCs, and allow teachers to personalize their learning. For example, teachers who are hesitant to use formative assessment and view assessment as irrelevant require a more structured professional learning approach and perspective building conversations (Coombs et al., 2020).

The considerations inform professional learning to improve teachers' assessment literacy. In this program evaluation, I investigated the effectiveness of a structured professional learning experience and determine its effects on teachers' conceptions of assessment. I focused on common formative assessment as a component of overall assessment literacy. Findings provide information about how in-service teachers' assessment literacy develops and guide further professional learning.

Program Description

Well-developed PLCs have a positive effect on teaching practice and student learning (Vescio et al., 2008). Effective professional learning is job-embedded and dependent on the socio-cultural context (Learning Forward, 2022). This professional learning program provided to teachers emphasized both individual and organizational change and gave teachers opportunities to talk about their work and participate in decision making (Learning Forward, 2022). The

district has selected a provider of professional learning to continue PLC development with a focus on assessment literacy. The evaluand was a 3-day professional learning program that was provided to a group of teacher leaders from each of four school sites and their principals. Teacher leaders participated in weekly PLCs throughout the school year.

Context

The context for this program evaluation was Green Valley School District (GVSD, pseudonym), a suburban K-8 district in California. GVSD consists of three elementary schools and one middle school. Together, these four schools educate 1,724 students: 50% White, 17% Asian, 19% two or more races, 9% Hispanic or Latino, and 1% African American (California School Dashboard, 2022). Two percent of students are English learners, 4% are socioeconomically disadvantaged, and 11% are students with disabilities. In 2022, 80% of 3rd-8th grade students met or exceeded standards in English-language arts on statewide testing, 67% met or exceeded standards in math, and 70% met or exceeded standards in science. GVSD reports very low chronic absenteeism at 1.8% and a very low suspension rate at 0.5%. There are 78 teachers, all of whom are fully credentialed and teaching in their subject areas. The average class size is 26 students.

The district dedicates 5 days per school year to professional development; however, classroom assessment has not been addressed in the professional development days in at least the past 7 years. Professional development topics are determined by changes and needs in curriculum, instruction, and assessment. Past professional development efforts have been evaluated solely through teacher reactions via survey. In the 2022-23 school year, GVSD initiated a schedule with 80 minutes of weekly dedicated collaboration time for PLCs in an effort to provide embedded, collaborative professional learning for educators. A group of 12 teacher

leaders and four site administrators attended 4 full-day professional learning sessions aimed at understanding the four fundamental questions of PLCs: (a) What do we want students to learn? (b) How will we know if they have learned? (c) What will we do if they don't learn? and (d) What will we do if they already know it? (DuFour et al., 2016). As PLCs consider these questions through cycles of inquiry, they increase collaborative focus on evidence of student learning and make necessary adaptations to instruction. Throughout PLC collaboration time and district professional development days, teacher leaders and their colleagues reviewed the California State Standards and identified essential standards that identify what they want students to learn based on *readiness*, *endurance*, *assessed*, and *leveraged* criteria (Many & Horrell, 2022). This process guides teacher teams in prioritizing standards that are essential to subsequent classes or grade levels, will be important for future learning, included in statewide assessments, and useful across disciplines. Through this work, teacher teams have answered the first fundamental question of a PLC.

To address the second fundamental question of PLCs, professional learning for the 2023-24 school year focused on common formative assessment. This provided PLCs with knowledge and skills necessary to determine how to employ a robust and balanced assessment system at the classroom level by accurately designing and effectively using collaborative formative assessment.

Description of the Program

The duration of the professional learning program was August 2023 to January 2024 and consisted of 3 full-day professional learning sessions for 16 teacher leaders from the elementary and middle school level and their site administrators. Weekly PLC meetings supported the professional learning sessions. The broad intended outcome of the professional learning is to

develop teachers' assessment literacy across the four schools in GVSD to support PLCs in using formative assessment practices that support student learning. Specific outcomes include alignment of common formative assessment systems including vetting of current assessment practices. Participants will build assessment literacy through shared language, beliefs, and aligned practices throughout the organization. Table 1 lists the specific intended learning outcomes and professional learning schedule.

Table 1

Professional Learning Schedule and Outcomes

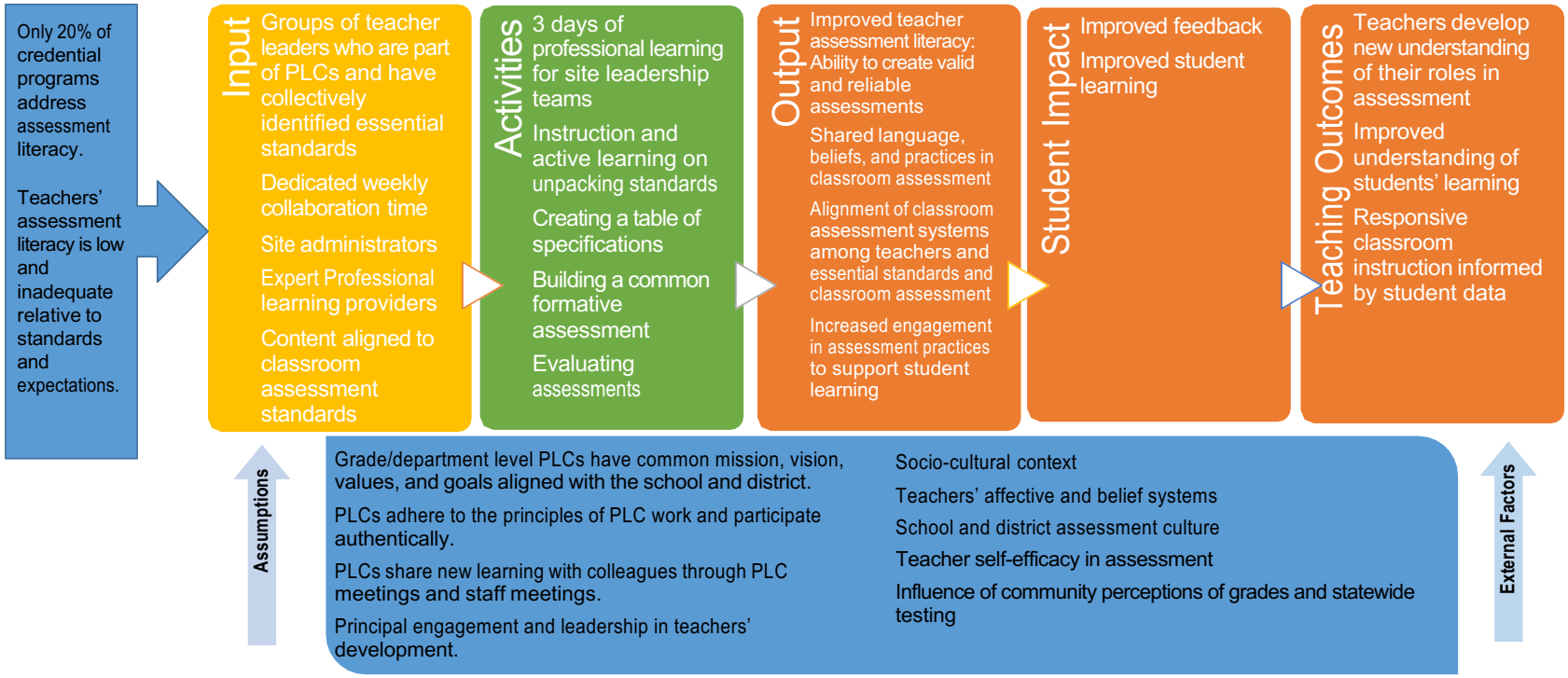
Activity	Timeframe and Participants	Learning Outcomes
Expert led professional learning	3 days (August, October, January) Teacher leaders (*n* = 10) and site principals (*n* = 4)	State that the purposes of common formative assessment are to track student progress and monitor instructional effectiveness; Identify what counts as a common formative assessment; Identify five kinds of learning targets: knowledge, reasoning, skills, product, and dispositions; List four types of evidence as common formative assessment: teacher observation, selected-response, extended written response, and performance task, and understand how they can be used with learning targets;
PLC collaboration	20 hours (80 minutes weekly; August - January) All teachers (*n* = 78)	Identify steps in the process of developing and using common formative assessments; Define reliability and validity of assessments; Identify steps in the process of effectively analyzing student assessment data and using the information to inform instruction. Apply an understanding of kinds of learning targets and types of evidence in the context of PLCs to develop quality assessments, ensure alignment with curriculum and instruction, more effectively guide instruction, involve students in their learning, and communicate learning.

Note. PLC = Professional Learning Community

The format for the 3-day professional learning included small group presentations, review of assessments, and engaging teachers in focused work and action research that involves creating and evaluating assessments that produce evidence of effective instruction. Figure 1 provides a logic model for professional learning to improve teachers' assessment literacy. The first input is groups of teacher leaders who have been part of PLCs with a shared purpose of high levels of learning for all students and collaboratively identified essential standards. All teachers have 80 minutes weekly dedicated collaboration time in their schedules. Other inputs include site principals, expert providers for professional learning, and content that is aligned to the classroom assessment standards.

Figure 1

Logic Model for Professional Learning in Assessment Literacy



Note. PLC = Professional Learning Community

Professional learning for teachers in assessment should be contextualized, skills-based, and collaborative between teachers, leadership, and experts (DeLuca et al., 2012). The primary activity was 3 days of collaborative professional learning that occur throughout the school year from August to January. Teachers need direct instruction in the practical aspects of assessment (DeLuca & Klinger, 2010; Gareis & Grant, 2015). Professional learning topics included unpacking standards, creating a table of specifications, building common formative assessments, and evaluating assessments. Participating teachers also engaged in weekly PLC collaboration with grade level or department teams. The scope of the model is 5 months.

The outputs are shared language, beliefs, and practices about assessment, and increased engagement in assessment practices to support student learning. The outputs affecting students are improved feedback and achievement. Outcomes for teaching include teachers' new understanding of their roles as assessors, improved understanding of student learning and specific challenges in learning, and responsive classroom instruction based on assessment data. This logic model is based on several assumptions. First, PLCs have a common mission, vision, values, and goals that are aligned to their school and district. PLC teams meet weekly, adhere to the principles of PLC work, and participate authentically. Teacher leaders attend designated staff meetings and professional development days to share new learning at site staff meetings. Because there are no instances where PLCs are successful without sustained, effective leadership from the principal (DuFour et al., 2006), principals will be engaged in professional learning and facilitate and participate in supporting activities. This evaluation did not examine the PLC structure or effectiveness of PLC meetings directly. Assumptions also include a school climate that is focused on reflection and learning from mistakes rather than a culture of blame (Park &

Datnow, 2009).

There are external factors that influence teachers' professional learning in assessment literacy. Teachers' practices in assessment for learning are influenced by their personal values, beliefs, self-efficacy, and growth mindset (DeLuca et al, 2019; Schneider et al., 2021; Xu & Brown, 2016). Teachers with a growth mindset are more likely to value assessment approaches that enable personalized and differentiated student learning (DeLuca et al., 2019). The influence of statewide assessment and other assessments that may be perceived as high stakes can result in a teacher centric, rather than student centric, approach to assessment (DeLuca, Rickey & Coombs, 2021). The sociocultural context also influences teachers' development of assessment literacy (Charteris & Dargusch, 2018; Coombs et al., 2018).

Overview of the Evaluation Approach

Kirkpatrick's Model of Evaluation is one of the earliest approaches to the evaluation of training programs and has been used to determine return on investment (Mertens & Wilson, 2019). It consists of four levels of evaluation: reactions, learning, behavior, and results (Guskey, 2000). In the first stage, the goal is to measure how participants feel about the professional learning program by determining how satisfied they are with it. This includes affective reactions and utility judgments. However, while participants' reactions are important for learning, they are not measures of student learning. Level 2 focuses on evaluating the knowledge, skills, and attitudes participants acquire as a result of the professional learning experience. This is often the most direct measure of learning (Praslova, 2010). These first two levels are known as internal as they focus on what occurs within the professional learning program. The third stage evaluates the application of new knowledge to regular practice by participants and whether the new learning is being used by teachers in students' everyday environments (Guskey, 2000). Evaluation at the

third stage should determine the type and degrees of change that occurred in teaching. The last stage, also the most challenging, measures the effects of professional learning on the organization's performance, which is often the goal of the program. These last two stages are external to the professional learning program and are subject to influences outside of the professional learning program (Praslova, 2010).

This evaluation was formative in nature and used a developmental approach to inform continuous improvement of professional learning and teachers' learning in assessment literacy. The developmental approach provided actionable information for district leadership to adjust the program and plan future professional learning.

Purpose of the Evaluation

The purpose of this evaluation was to assess the effectiveness of professional learning by determining the skill development, knowledge gain, and practice changes by participants in classroom assessment. It was formative in nature and will help determine future efforts to develop assessment literacy in teachers. Due to the relatively short duration of 5 months, it was not intended to directly measure student learning outcomes. However, I measured teaching outcomes connected to improvements in student learning.

The audience for this evaluation is GVSD's leadership team, which includes cabinet members and site leaders. The results from this program evaluation can be used to plan future professional learning using rich information about teachers' conceptions of assessment literacy and factors that influence their development.

Focus of the Evaluation

This developmental program evaluation focused on the 3 days of professional learning and outcomes of the professional learning program to determine whether the program was

effective and to inform future professional learning for teachers.

Evaluation Questions

To determine the effectiveness of professional learning, I addressed four questions related to teachers' reactions, knowledge, use, approaches, and perceptions of assessments.

1. What are participants' reactions to a professional learning program on common formative assessments?
2. To what degree are participants able to identify the process of designing a robust classroom assessment system, including accurate design and effective use of collaborative common assessments?
3. What is the nature of any changes in teachers' approaches to classroom assessment?
4. Through appreciative inquiry, what are teachers' perceptions of their understanding of assessment for learning, use of assessment for learning, and degree to which they think their use of it has value in terms of student learning?

These questions align with Kirkpatrick's model of evaluation. The first question will address Level 1. The second question will address Level 2. The third question will focus on application of new knowledge and determine Level 3. The last question will use teachers' perceptions to address Levels 2, 3, and 4 through appreciative inquiry interviews.

Definitions of Terms

- accountability: the responsibility to demonstrate that students, teachers, or schools are performing satisfactorily (Popham, 2011).
- assessment: an attempt to determine a student's status with respect to an educational variable of interest; test (Popham, 2007).
- assessment as learning: student-centered assessment that focuses on how a student is

learning by providing feedback that fosters the student's metacognitive abilities and learning skills (Barnes et al., 2020).

- assessment for learning: commonly interchanged with formative assessment (Popham, 2009).
- assessment of learning: assessment that is summative in nature and administered at the end of a unit of instruction for the purpose of categorizing the performance of a student or system for decision making such as assigning grades or awarding or denying a diploma (Andrade & Cizek, 2009).
- assessment literacy: the ability to gather, analyze, and use data to measure student progress, guide instruction, and provide feedback (Popham, 2011).
- classroom assessment: a process through which teachers and students gather, interpret, and use evidence of student learning for a variety of purposes, including diagnosing student strengths and weaknesses, monitoring student progress toward meeting desired levels of proficiency, assigning grades, and providing feedback to parents (McMillan, 2013).
- common formative assessment: assessments used by all teachers in a grade level or subject area team with collective responsibility for the learning of a group of students who are expected to acquire the same knowledge and skills (Bailey & Jakicic, 2023).
- formative assessment: evidence about student achievement that is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited (Black & Wiliam, 2009).
- professional learning community (PLC): a group of teachers committed to working

collaboratively in ongoing processes of collective inquiry and action research to achieve better results for the students they serve. Teachers address the following questions: (a) What do we want students to learn? What should each student know and be able to do as a result of each unit, grade level, and/or course? (b) How will we know if they have learned? Are we monitoring each student's learning on a timely basis? (c) What will we do if they don't learn? What systematic process is in place to provide additional time and support for students who are experiencing difficulty? (d) What will we do if they already know it? (DuFour et al., 2016).

- summative assessment: Assessments of learning conducted at the end of a unit of instruction when ready to move onto new learning (Chappuis & Stiggins, 2020)

CHAPTER 2

REVIEW OF RELATED LITERATURE

In this literature review, I explored the role of assessment in teaching and learning, assessment literacy as a teacher competency, professional learning communities and the role of teacher collaboration around assessment and developing teachers' capacities for using assessments for learning.

The Role of Assessment in Teaching and Learning

In the early 20th century, assessment was viewed as separate from instruction, corresponding to social efficiency and a behavioral theory of learning (Charteris & Dargusch, 2018). As social-constructivist theories of learning emerged, the importance of the alignment of curriculum, instruction, and assessment influenced the approach to assessment, shifting to a didactic, dynamic relationship between student and teacher. Assessment as a practice to retrospectively rank and sort students gave way to the newly understood power of assessment practices to deepen and personalize student learning, provide students with more feedback and ownership of their learning, and create more equitable outcomes (Lewis-Charp et al., 2020).

Comprehensive and Balanced Assessment Systems

Sound assessment systems have clear purposes for each assessment, precise learning targets, and quality assessment items aligned to learning targets that minimize bias. Additionally, sound assessment systems communicate information effectively and in a timely manner and motivate students to support learning (Stiggins, 2017). Through various levels of assessment, dependable evidence of student learning is collected and clearly communicated.

School district assessment systems should include short-, medium-, and long-cycle formative assessments, classroom summative assessments, and district level summative and state accountability assessments (Brookhart et al., 2019). Teachers, students, and families should be most concerned about short- and medium-cycle formative assessments that produce evidence of learning and classroom summative assessment, also known as grades. Long-cycle formative assessments, administered 2–3 times yearly, and annual assessments are more important for school district administrators. Most importantly, the components of a school district's assessment system must comprehensively address all intended learning outcomes and provide balanced information that is meaningful, relevant, and appropriately conveys quality and quantity of information on student learning (Brookhart et al., 2019). Teachers are responsible for alignment among their classroom assessments, intended learning outcomes, and the approach to learning in their context. The accountability movement, beginning with the No Child Left Behind Act (2002), places greater pressure on teachers through use of statewide assessments (Coombs et al., 2018). But if teachers only use assessments to evaluate or grade students, they are profoundly underutilizing the assessment process (Popham, 2009). A hyperfocus on accountability can discourage the use of assessment to promote learning in favor of assessment to measure learning. If assessment is solely used for accountability purposes, it can have a reductive effect on teaching and learning (Charteris & Dargusch, 2018). Instead, effective teachers assess student knowledge before instruction and use assessment data to adjust instruction. They engage in an iterative process acting on data in ways such as adjusting the pace of instruction, differentiating instruction for students, and refining pedagogy (Stronge, 2008).

Improving assessment systems involves ensuring clear learning goals and a clear purpose for each assessment, critically evaluating whether assessments provided the necessary

information in a timely manner to the right people and ensuring that staff have the skills to gather and interpret assessment data. Without foundational competencies in assessment literacy, teachers are unlikely to be able to adequately gather and use assessment data to improve learning.

Classroom Assessment

The process of classroom assessment includes formative and summative assessments and has four purposes: Determining students' current status, monitoring students' progress, assigning grades, and monitoring one's own instructional effectiveness by monitoring student progress and adapting instruction accordingly (Popham, 2007). Assessment of learning, also known as summative assessment, occurs after learning has occurred and provides information about a student's performance relative to educational objectives. In contrast, assessment for learning, also known as formative assessment, includes activities conducted by teachers to provide feedback to students and adapt teaching to students' needs (Speckesser et al., 2018).

Teachers have traditionally assigned greater importance to summative assessment because they are generally used for grading purposes (Stobart, 2008). However, formative assessment is more critical for student success because it provides more timely information and involves students (Black & Wiliam, 1998; Hattie, 2009; Willis, 2010). Students benefit from teacher feedback as they learn new concepts before their work is graded. Students can also benefit from formative use of summative assessments (Black & Wiliam, 1998). When teachers use the formative assessment process, they can double the rate of student learning and reduce the achievement gap for low achieving students and students with disabilities. However, it is commonly the weakest component of district assessment systems (Brookhart et al., 2019). Given the relative weakness of formative assessment in district assessment systems, GVSD has decided

to focus professional learning on this area.

Formative Assessment

Formative assessment consists of five key strategies: Clarifying and sharing learning criteria, engineering effective classroom activities that elicit evidence of student understanding, providing feedback to move learners forward, activating students as instructional resources for each other, and activating students' ownership of their learning (Black & Wiliam, 2009; Wiliam et al., 2019). Formative assessment provides rich, actionable information to teachers on how students are thinking about lessons and learning targets, rather than simple judgments of whether a student's answer was correct or incorrect.

The process of formative assessment can include informal methods, such as asking questions and observing students, and more formal methods, such as classwork and homework that is not graded (Brookhart et al., 2019). Short and medium-cycle formative assessment most directly involves students as compared to other parts of an assessment system. When this process is underutilized, the link to students is weakened or broken. The primary purpose of formative assessment is to promote student learning. The components of assessment for learning that involve students in their learning are referred to as assessment as learning. Assessment as learning is supported by the concept of assessment as co- regulation whereby students practice and develop metacognitive skills to support their learning, suggesting the importance of classroom assessment in the learning process (Andrade & Brookhart, 2019). DeLuca (2021) considered the COVID-19 pandemic as an opportunity for deep reflexivity about how curriculum and assessment can compassionately support students. Rethinking assessment as necessary to support learning rather than simply quantifying learning requires empowering teachers and hearing their voices to envision innovative possibilities in assessment.

Assessment Literacy as a Teacher Competency

The Joint Committee for Standards on Educational Evaluation identified classroom assessment standards for prekindergarten through 12th-grade teachers in the areas of foundations, use, and quality (Klinger et al., 2015). The standards were created by an international task force using feedback from practitioners and researchers in the field of classroom assessment. A suggested use of the classroom assessment standards is for PLCs to evaluate their practices and share ideas for improvements in practices.

The classroom assessment standards emphasize that assessments should be aligned with curriculum and used to inform instruction. This includes involving students and families in the purposes and uses of assessment. The standards also emphasize the need for adequate resources, including time, for students and teachers to prepare for assessments. The use standards provide guidance that assessment results are analyzed and yield meaningful information to guide teaching and learning. Teachers must provide timely, useful feedback to students and instruction that supports ongoing student learning. The quality standards provide guidance for assessment practices that are fair, accurate, and dependable. This includes addressing reliability and validity, bias, and accommodations for assessment when appropriate (Klinger et al., 2015). The outcomes for this professional learning program are aligned to the classroom assessment standards.

Classroom assessment is frequently included in other standards related to effective teaching. For example, the National Board for Professional Teaching Standards (2012a, 2012b) include assessing children's development and learning. These standards provide for setting clear assessment purposes, selecting and using different assessments, interpreting and communicating assessment data, using assessment data to inform teaching and learning, and addressing issues surrounding mandated assessments. Accomplished teachers assess students for an array of

purposes including understanding mastery of subject matter and progress over time, to identify possible concerns, and to set goals. They use pre-assessments, rubrics, checklists, formative assessments, and summative assessments and know when to choose standardized assessments or performance assessments. Assessments may need to be adapted and teachers strive for equitable assessment practices that meet the unique needs of every student. After assessing, accomplished teachers collaborate with colleagues to interpret data, and they are cautious about overgeneralizing or making decisions on limited information. Next, teachers communicate with the educational team and families about the assessment findings and subsequent goals. They are careful to use assessment as a starting point instead of an endpoint, meaning that they adjust their instructional strategies based on results. Finally, accomplished teachers critically analyze the best use of mandated assessments, such as statewide testing, to ensure decisions that affect students are made using the most reliable and valid information.

To support the core purposes of deepening learning, working toward equity, and fostering student agency, the Assessment for Learning Project (2019) identified principles that support assessment for learning. First, assessment must shift from an isolated to an integrated process. Instead of an isolated event, assessment becomes a continuous process that begins with clarifying learning targets for students. This is dependent on coherence among curriculum, instruction, and assessment and teacher expertise. Next, the priority of assessment must shift from evaluation to reflection and feedback. When reflection and feedback are prioritized, gaps in student learning are revealed sooner and with more detail. This shift requires a trusting, inclusive learning culture, specific feedback, and student participation. The third shift is from a score as a product to a body of evidence to show learning. Grades are often viewed as a currency in schools and a primary motivation for learning and completing work. But they often do not provide enough information

for the next steps in learning. The shift to students demonstrating learning in varied, rich ways requires a different view of success that is often more complex. Lastly, the purpose of assessment must shift to enacting equity rather than just exposing inequities. Through richer, student-centered assessment, we can evaluate student learning in more culturally sustaining ways and provide students with greater opportunities to further their learning.

Teachers' identity as professionals, beliefs about assessment, dispositions toward the task of assessment, and perceptions of their role as assessors are all significant for their assessment work and contribute to their assessment identities (Looney et al., 2017). Assessment identity represents a dynamic construct that includes not only assessment knowledge and skills but also an affective dimension that includes priorities and interests relative to assessment (Coombs et al., 2018). Pastore and Andrade (2019) developed a three-dimensional model of assessment literacy with conceptual, praxeological, and socio-emotional domains that connect with local contextual factors, including teachers' professional wisdom and practice, and classroom context. This model highlights the importance of conceptual and socio-emotional aspects when developing teacher assessment literacy. Teachers' contexts and cultures are important aspects of professional learning for teachers in assessment.

PLCs

Most teachers admit that they learned more in their first year of teaching in the classroom than in their preservice coursework (DuFour et al., 2006). PLCs are grounded in experiential learning, the idea that active engagement in hands-on authentic exercises facilitates new learning (DuFour et al., 2006). Key features of a PLC include a focus on learning, collaborative culture, collective inquiry, action orientation, continuous improvement, and results orientation (DuFour et al., 2006). When teams are clearly focused on student learning rather than teaching, they share

collective responsibility for helping all students learn and adopt a culture of learning themselves. A collaborative culture surrounding classroom practices provides a systematic process for teachers to work interdependently in ways that affect their classroom practices. Collective inquiry is a process whereby new skills and capabilities are developed by examining current practices and student achievement. An action orientation ensures that PLCs act if they are seeking different results relative to student achievement. With a commitment to continuous improvement, teams create conditions for perpetual learning. Finally, a results orientation ensures that success is measured by student learning outcomes. Although PLCs can provide a context for educators to learn about formative assessment, they require adequate time and resources such as administrative support to function with fidelity. Various factors such as programs with competing interests and teacher turnover can detract from effective PLCs adequately using the formative assessment process.

The Role of Classroom Assessment in PLCs

PLCs are an important mechanism for creating and using common formative assessment. Schools who use formative assessment in collaborative teams to identify students who are experiencing difficulties and create goals and interventions report unprecedented student achievement gains (DuFour et al., 2006). For example, in Levey Middle School outside Detroit, the percentage of students who met standards in reading increased from 40% to 87% in 4 years following the implementation of PLCs to use student assessment data to guide instruction and goals for students (DuFour et al., 2006).

When PLCs focus on assessment for learning and collaborative inquiry, teachers develop professional learning skills and negotiate their own learning, which is foundational to the practices of assessment for learning and assessment as learning (DeLuca & Volante, 2016).

Teachers collectively agree on formative assessments that serve to monitor whether students are learning. The use of data builds shared knowledge, often the impetus for changing practice. Evidence of student achievement helps teachers see the strengths and weaknesses in their own teaching practices and share ideas with colleagues to improve their practice (DuFour et al., 2006).

Common formative assessments are given by teams of teachers at the same grade level or subject area who assume collective responsibility for their students (DuFour et al., 2016). Teachers discuss what proficiency in common learning targets should look like. They use common criteria or rubrics and collaborative scoring to ensure consistent results. There are several benefits of common formative assessments for students and teachers (DuFour et al., 2016). First, the process promotes efficiency for teachers through a systematic, collective response to students who are struggling. Collaboration around formative assessment results is an effective strategy for determining whether students are learning the core curriculum, informs the practice of individual teachers, and builds a team's capacity to improve its program. For students, the common formative assessment process offers more equitable outcomes by ensuring students will learn the identified learning targets regardless of which teacher they have. This improves articulation between grades by eliminating the need of a teacher to catch up or fill in for unlearned material in a previous class. Through a team approach to intervention support and adequate time for interventions, more equitable outcomes for students are achieved.

PLCs are important for assessment leadership among teachers (Volante, 2009). Although teachers note tension between formative assessment and an overemphasis on summative assessment, they do endorse a common assessment framework that still allows for classroom autonomy. When PLCs focus on formative assessment, teachers develop professional learning

skills and benefit from an array of experiences (DeLuca & Volante, 2016). The tension between formative and summative assessments can be mitigated by consistent use of assessment systems and methods across classrooms (Volante, 2009).

Developing Teachers' Capacity to Use Assessment for Teaching and Learning

Both teachers and their supervisors tend to lack appropriate training in assessment literacy (Brookhart et al., 2019). Approximately 20% of educator preparation programs in the United States adequately address assessment topics to ensure that teachers will be able to assess students and use results to improve instruction (Greenberg et al., 2013). Most teachers' confidence in assessment is obtained through their practicum experience, which is dependent on the knowledge and skills of the consulting teacher, and may be incomplete, outdated, or biased (DeLuca & Klinger, 2010). The level of assessment literacy among teachers is inadequate relative to classroom assessment standards and expectations (DeLuca et al., 2013; Xu & Brown, 2016). A primary reason for this is a lack of coursework in teacher preparation programs (Volante & Fazio, 2007; Xu & Brown, 2016). Teacher candidates' self-efficacy for assessment literacy is low throughout their preparation programs and they rely mainly on summative assessment (Volante & Fazio, 2007). Fear of assessment and evaluation, insufficient time to assess well, and public perceptions of the state of assessment practices contribute to low assessment literacy (Stiggins, 1995). Thus, there is a gap between best practices established through research and actual teaching practices.

Many teachers still hold associationist views that learning occurs as a result of a stimulus response or teacher-centric views that assessment is something that we do to students rather than viewing students as active participants in the assessment and learning process (Brookhart et al., 2019). Similarly, many teachers hold a mixed mindset of student ability that is correlated with

less use of assessment for learning and assessment as learning (DeLuca et al., 2019).

Teachers in the early stages of their careers are navigating inherent tensions between assessing all students in the same way and assessing each student differently based on individual needs, whereas established teachers have resolved this tension through years of classroom experience (Coombs et al., 2018). Teachers with classroom experience, as compared to teachers at the start or end of their pre-service programs, have experienced the complexities associated with reliability and validity in daily practice and have developed personal approaches that address practical considerations associated with measurement theory. Yet beginning in-service teachers were statistically more likely to support assessment for learning and assessment as learning than established in-service teachers (Coombs et al., 2018). This indicates that assessment literacy is both learned and contextually dependent and influences such as an accountability context with emphasis on summative assessment may contribute to underutilization of the formative assessment process.

Barriers to Developing Teachers' Assessment Literacy

Barriers to integrating formative assessment include misalignment in educational and assessment priorities, conceptual confusions, differences in the letter and spirit of formative assessment, teachers' and students' perceptions of formative assessment, and practical barriers to integration (DeLuca et al., 2012). Assessment priorities reflect individuals' beliefs about the purpose of schooling. Accountability, reform, and an overemphasis on statewide or standardized tests can undermine formative assessment by focusing on student achievement on summative assessments. If formative assessment is perceived to be disconnected from or misaligned with summative assessment, teachers are less likely to use formative assessment to shape teaching and learning.

Marshall and Drummond (2007) distinguish between teachers who embrace the spirit of assessment for learning and those who just follow the letter of assessment for learning. Teachers who embrace the spirit of assessment for learning involve students more fully and authentically in the assessment process, affecting pedagogy and students' approach to learning. The theory of apprenticeship of observation states that teachers rely on their experiences as students to inform their teaching practices (Lortie, 1975). Many teachers may not have had experiences with formative assessment to involve them in their learning experiences. Teachers need positive experiences with formative assessment that result in successful outcomes for their students to change their attitudes and beliefs (Guskey, 2020).

Secondary to a school culture focused on accountability, students are susceptible to a learned dependence where they rely on a teacher-centric dynamic and complete only what is necessary between given boundaries (DeLuca et al., 2012). Finally, practical barriers such as time and class size influence integration of formative assessment practices. Teachers must have adequate resources to create and refine assessments, examine student work, and adapt instruction. For this professional learning program, teachers were provided 80 minutes weekly collaboration time within their workday. Of the above-mentioned barriers, only the misalignment of educational priorities falls outside of teachers' locus of control. Thus, professional learning for teachers can enhance integration of formative assessment (DeLuca et al., 2012).

Influences on Teacher Assessment Literacy

Teachers' individual beliefs as well as their sociocultural contexts influence assessment literacy. Formative assessment is influenced by teachers' personal values such as empathy and composure (Schneider et al., 2021). Teacher educators must determine teachers' assessment beliefs and skills and use this information in supporting and developing robust assessment for

learning practices (Charteris & Dargusch, 2018). An understanding of teachers' individual approaches to assessment and assessment literacy skills is essential to providing targeted, differentiated professional learning (DeLuca et al., 2018). There is also a correlation between teacher self-efficacy and use of formative assessment. This information suggests that leveraging teachers' values may improve assessment literacy and practices.

Teachers' assessment practices and conceptions are constrained by various contextual factors and require the support of many stakeholders, such as students and families, administrators, policy makers, and the public (Xu & Brown, 2016). Mandated curriculum, standards, and assessment influence teachers' knowledge and use of assessment. The variation in practice architectures or school ecologies are a possible explanation of difficulty with developing assessment literacy in preservice teachers (Charteris & Dargusch, 2018). School ecologies, where teachers' actions are based on their environments, highlight the interconnectedness of teachers' practices and the importance of collaboration around formative assessment practice.

Considering teachers' approaches to classroom assessment, there are five types of teachers: Teacher-centric assessors (use formative assessment to guide teaching); hesitant assessors; moderately student-centric assessors; highly student-centric assessors (build student agency and metacognition); and eager assessors (endorse all assessment practices, even if contradictory; DeLuca, Searle, et al., 2021). Knowledge of individual teachers' approaches to assessment is useful to guide professional learning. For example, teachers who view assessment as irrelevant need a more structured approach to assessment education and perspective building conversations (Coombs et al., 2020). This evaluation will use survey information to involve teachers in reflecting on their approaches to classroom assessment.

A Professional Learning Continuum

Teachers acquire assessment literacy over the span of their careers. DeLuca et al. (2019) proposed a professional learning continuum in assessment for learning with five sequenced themes: Learning the letter, practicing the letter, responding to the letter, adopting the spirit, and leading the spirit. Teachers' progression across this continuum is not linear, nor is it correlated to years of teaching experience. Moving along the continuum represents a fundamental shift in how teachers conceptualize assessment relative to teaching. While not all teachers will reach the leading the spirit stage, the teacher leaders who do are crucial to championing assessment literacy in their contexts (Gareis & Grant, 2015). By working collaboratively in PLCs, teachers who are earlier in their progression will benefit from the knowledge and skills of their more advanced colleagues.

Professional Learning to Address Assessment Literacy and Use of Formative Assessment

Professional learning in assessment literacy should focus on three areas: Basic mastery of assessment knowledge, interconnectedness of assessment, teaching, and learning, and identity as assessor or self-directed awareness (Xu & Brown, 2016). Action research, or inquiry cycles, and communities of practice are viable methods of professional learning to address teachers' integration of formative assessment (DeLuca et al., 2012). Active learning that is ongoing, contextualized, process-based, and reflective supports teachers' use of the formative assessment process (DeLuca, Rickey & Coombs, 2021; Xu & Brown, 2016). When teachers learn actively, they connect new ideas deeply to their everyday experiences and have opportunities to reconstruct their assessment identities. Embedded professional learning allows for application, experimentation, and adaptation of new knowledge. This is particularly salient when teachers collaborate with their colleagues. Reflexive practice and collaboration are essential for teachers to develop assessment literacy (Xu & Brown, 2016). Inquiry cycles and reflection will be

embedded in PLC activities to provide teachers opportunities to improve formative assessment practices.

Sustained professional development can improve in-service teachers' assessment literacy (Koh, 2011). Teachers need direct instruction in assessment, including developing constructed-response items, understanding reliability and validity, reporting achievement, modifying assessments, and communicating a philosophy of assessment. Their learning must include unpacking learning targets and the use of a table of specifications to ensure alignment of curriculum, instruction, and assessment (Gareis & Grant, 2015). Three days of active professional learning will provide a forum for these activities with expert guidance and feedback.

Four pedagogical conditions support preservice teachers' learning about assessment: Perspective-building conversations, connecting theory to practice, modeling, and critical reflection and planning for learning (DeLuca et al., 2013). When teachers engage in conversations with peers about assessment in practice, they gain greater perspective. The use of guides to structure their discussions ensures teacher learning in the areas of assessment theory, terminology, and practice. One example of a perspective building activity involves teachers writing keywords associated with fairness in assessment before a presentation, then discussing in small groups to classify their keywords into areas of reliability, validity, and bias. Finally, a whole group discussion involves clusters of all keywords, so participants visualize their learning relative to the whole class. An assessment portfolio is an opportunity for teachers to document their learning about assessments and can include a table of specifications with standards and a pedagogical plan. These activities facilitate assessment literacy including reflection on further learning needs.

Extant research shows mixed results in improving teacher assessment literacy. For

preservice teachers, sound design of assessments and communicating results were relatively low skill areas that improved following coursework but still remained low (McGee & Colby, 2014). Teacher candidates' approaches to assessment did not vary at different points in their credential programs and student teaching (Barnes et al., 2020). A review of 12 programs designed to improve assessment literacy in preservice teachers found that half of the programs effectively improved teachers' perceptions of assessment, confidence, and assessment skills. However, only four programs improved teachers' assessment knowledge (Oo et al., 2022). There was no difference between integrated curriculum courses, standalone courses, or workshops, meaning that these modalities were equally effective.

For improving assessment literacy of in-service teachers, sustained professional development significantly improved the assessment literacy of science, math, and English teachers in the second year (Koh, 2011). Well-developed PLCs affect teacher practice and student achievement (Vescio et al., 2008). A collaborative approach in planning professional learning among teachers, instructional leaders, and experts in assessment is recommended to address the importance of context and potential barriers to integrating formative assessment and improving teachers' assessment literacy (DeLuca et al., 2012). Therefore, sustained, quality professional learning with collaboration among teacher colleagues may improve in-service teachers' assessment literacy.

Summary

"Almost every district in the country needs to increase time, money, and professional development resources to raise both the quantity and quality of formative assessment in classrooms and to make appropriate use of this vital information" (Wiliam et al., 2019 p. 24). However, solutions to improve assessment literacy in teachers must be contextual and consider

the various influences and barriers to integrating formative assessment in teachers' practices (Xu & Brown, 2016). Teachers need opportunities to develop knowledge and skills associated with assessment and realize that assessment is part of their responsibilities. They will benefit from direct instruction in areas of assessment such as reporting achievement, modifying assessments, developing constructed-response items, reliability, validity, and articulating a philosophy of assessment (DeLuca & Klinger, 2010). PLCs provide the collaborative, reflexive structure for teachers to effectively develop assessment literacy and use the process of formative assessment more fully.

CHAPTER 3

METHODS

To gain rich insight into how professional learning affects teachers' knowledge, attitudes, skills and conceptions of assessment literacy, this research employed a convergent mixed methods design. Qualitative and quantitative data were collected, then analyzed separately before comparison (Cresswell & Cresswell, 2018). Quantitative data was complemented by qualitative data to evaluate how professional learning shapes teachers' conceptions of assessment. This research addressed three questions about the professional learning program.

Evaluation Questions

1. What are participants' reactions to a professional learning program on common formative assessments?
2. To what degree are participants able to identify the process of designing a robust classroom assessment system, including accurate design and effective use of collaborative common assessments?
3. What is the nature and degree of any changes in teachers' approaches to classroom assessment?
4. Through appreciative inquiry, what are teachers' perceptions of their understanding of assessment for learning, use of assessment for learning, and degree to which they think their use of it has value in terms of student learning?

Program Evaluation Approach

This research aligns with the pragmatic paradigm focused on the evaluation of professional learning to improve teachers' assessment literacy (Mertens & Wilson, 2019). The focus was to generate useful information that can be shared with stakeholders to inform future professional learning. A mixed methods approach allowed professional learning to be evaluated using rich information about teachers' unique approaches to assessment.

A developmental program evaluation is based on the premise that schools are dynamic and need to continuously adapt (Mertens & Wilson, 2019). By taking this approach, district and school leadership received ongoing feedback for improvement. Innovations, such as a focus on collective teacher efficacy to use assessment for learning, must be supported by quality data to guide the process. Stakeholders require information to support the implementation of new ideas while considering the viewpoints of teacher participants, their sociocultural contexts, and barriers to changing practices. Therefore, this program evaluation was formative to allow for the ongoing nature of the development of teachers' assessment literacy.

Role of the Researcher

As an Assistant Superintendent in GVSD, I recognized the potential power imbalance presented by my role as a researcher. Although I did not directly evaluate or supervise any of the participating teachers, I do hold beliefs about classroom assessment and recognized this presents a possible bias. I mitigated bias related to institutional knowledge and my beliefs through reflective journaling during the program evaluation process. By also engaging in reflective journaling before and after professional learning sessions, I processed my opinions and separated these from my role as a facilitator and observer. During the professional learning sessions, I joined teacher teams and participated in the activities. Additionally, I used an external reviewer

for exit ticket and interview analysis. This reviewer also attended the professional learning sessions and participated with teacher teams in activities. The external reviewer also attended individual interviews and provided feedback on rubric scoring of exit tickets and coding. This provided consistency and interrater reliability for interpretation of results.

Participants

The professional learning program included 10 teacher leaders who are fully credentialed and permanent. Table 2 outlines the participants' grade level assignment, subject area expertise, and years of experience.

Table 2

Teacher Participants

Teacher	Subject and Grade Level	Years of experience
ES1>10	1st	20
ES2>10	2nd	28
ES3>10	3rd	24
ES4<10	4th	4
ES5<10	5th	8
ES5>10	5th	22
ES SpEd>10	Elementary Special Education	17
MS Eng/SS>10	6th, English/Social Studies	28
MS Sci<10	7th and 8th, Science	8
MS SpEd<10	Middle School Special Education	10

Data Sources

Three data sources were used to evaluate the effectiveness of professional learning on assessment literacy: teacher exit tickets for each professional learning session that addressed attitudes, knowledge, and the degree to which new skills have been implemented; the *Approaches to Classroom Assessment Inventory* (ACAI); and an Appreciative Inquiry interview protocol.

Data Source 1

Each of the three professional learning sessions concluded with an exit ticket for participants to complete via an electronic form. The exit ticket consisted of short answer questions to determine reactions and learning outcomes. Two questions focused on teachers' enjoyment and perceived utility of the learning session using a 5-point Likert scale to indicate agreement where 1 meant *strongly disagree* and 5 meant *strongly agree*. The remaining questions consisted of short answer content from the learning session aligned to the outcomes. The expert presenter reviewed the exit ticket content and scoring rubric for accuracy and alignment to learning outcomes. The exit ticket items are listed in Appendix A.

Data Source 2

"The link between teachers' approaches to assessment and student learning is profound" (DeLuca et al., 2019, p. 166). The ACAI was developed as an assessment literacy instrument that is aligned with the Classroom Assessment Standards (DeLuca et al., 2016; Klinger et al., 2015). Although it was not explicitly aligned to the professional learning program, it provided reflective feedback to teachers on their approaches to classroom assessment and instructional practice. Teachers completed the survey individually through an internet link and received feedback on their responses upon completion relative to their approaches to classroom assessment. ACAI

identifies 12 approaches to assessment within four dimensions: Assessment Purpose, Process, Fairness, and Theory. These approaches are listed in Table 3. Assessment Purpose examines how teachers select the appropriate form of assessment to meet their instructional goals. Assessment Process examines different aspects of design, use, scoring, and communicating information about assessments. Assessment Fairness examines how teachers cultivate fair assessment conditions for learners. Assessment Theory examines how teachers balance consistency and contextual factors in assessing student learning.

Table 3

Approaches to Assessment in the ACAI

Dimension	Approach	Description
Assessment Purpose	Assessment of Learning	Teachers' use of evidence to summarize student learning and assign a grade in relation to achievement of learning objectives.
	Assessment for Learning	Teachers and students use evidence to provide feedback on progress toward learning objectives.
	Assessment as Learning	Teachers and students focus on how the student is learning through feedback or experiences that foster metacognitive abilities.
Assessment Process	Design	Teachers emphasize development and design of reliable assessments and questions to measure learning.
	Administration and Scoring	Teachers focus on adjustment and use of scoring protocols and grading schemes.
	Communication	Teachers prioritize interpretation of assessment results and feedback to communicate to students and parents.
Assessment Fairness	Standard	Teachers use equal assessment protocols for all students.
	Equitable	Teachers differentiate assessment protocols for formally identified students using accommodations or modifications.
	Personalized	Teachers individualize learning opportunities and assessments to address each student's unique learning goals.
Assessment Theory	Consistent	Teachers ensure reliability through consistent scoring, design, and administration of assessments.
	Contextual	Teachers ensure assessments align with curriculum and instruction and purposefully consider learning context when interpreting results.
	Balanced	Teachers consider reliability and validity of assessments.

The ACAI consists of three parts: Background information, classroom assessment scenarios, and questions about classroom assessment practices and professional learning. Each scenario presents an assessment dilemma in which several defensible actions can be taken. Participants considered each scenario relative to their contexts and responded to a list of 12 actions with a 6-point Likert scale where 1 means *highly unlikely* and 6 means *highly likely*. Each one of the actions aligns with the 12 approaches to assessment. A teacher's approach was determined by averaging support as measured by Likert scale score for each dimension across the four scenarios. When teachers' responses were analyzed across the four dimensions, assessor types emerge (DeLuca et al., 2021). Table 4 describes five assessor types relative to ACAI findings.

Table 4

Assessor Types From ACAI

Assessor Type	Description
Teacher Centric	High endorsement of assessment of learning and assessment for learning, design, consistent, and standardized approaches. Low endorsement of assessment as learning, administration and scoring, communication, and personalized approaches.
Hesitant	Unlikely to endorse any approach to assessment. May mistrust assessment to improve learning and create credible evidence of learning.
Moderately Student Centric	Relatively higher endorsement of assessment for learning, assessment as learning, communication, and balanced approaches. May adhere to policies but do not feel strongly about assessment's role in teaching and learning.
Highly Student Centric	Highly endorsed assessment as learning, assessment for learning, design, communication, equitable, personalized, and balanced approaches.
Eager	Highly endorse all assessment approaches, despite possible contradictions in approaches.

Note. ACAI = Approaches to Classroom Assessment Inventory

Data Source 3

Appreciative Inquiry is a process used for organizational planning and development that highlights positive traits within systems to foster self-determined change and cooperatively search for the best practices within a setting (Whitney & Trosten-Bloom, 2010). As an approach to individual and organizational change, it is based on the ideas that people have unique gifts, skills, and contributions that, through social processes, shape action and attention to form possibilities for the future. Because Appreciative Inquiry is dependent on a dynamic, sociocultural context, it aligns to the nature of teachers' assessment literacy (Charteris & Dargusch, 2018; Pastore & Andrade, 2019; Xu & Brown, 2016).

The process of Appreciative Inquiry has many benefits to teachers, including reminding them of their capabilities, generative optimism, cultivating resilience and encouraging creative thinking and flexible mindsets (Tschannen-Moran & Tschannen-Moran, 2020). It provides an alternative route to systems improvement through discovery and cooperation (Whitney & Trosten-Bloom, 2010). Because relational trust is essential for school change, Appreciative Inquiry is a successful method to build capacity through distributive leadership (Willoughby & Tosey, 2007). Its underlying principles are positivity to generate an upward spiral of learning and growth, constructionist to highlight the importance of the social context, simultaneity to reorient conversations toward a positive future change, anticipation to inspire creative problem solving, and poetic by focusing on great details.

Appreciative Inquiry employs a 4D cycle: discovery, dream, design, and destiny (Whitney & Trosten-Bloom, 2010). Discovery leads to a map of an organization's positive core and a means to share best practices and collective wisdom. The dream phase is generative and practical and helps identify opportunities and elevate purpose. Design provides a space for

participants to describe elements in detail of what could be. Destiny is the last phase where the inspiration begins to turn to action.

The Appreciative Inquiry interview protocol uses a structure with four types of questions: Best experiences, core values, and supporting conditions (Tschannen-Moran & Tschannen-Moran, 2020). This protocol helps teachers remember, connect with, and discover aspects of a topic that are most important to them and that they have experienced success with. Individual interviews were conducted to determine teachers' perceptions of the professional learning, to allow for a focus on strengths in assessment literacy, and to inform next steps. Given the potential for assessment to be a sensitive topic due to accountability and high stakes testing, Appreciative Inquiry provided a data collection method that can empower teachers to realize the value of assessment in their classrooms. The interview protocol for assessment literacy can be found in Appendix B.

Data Collection

Exit ticket and ACAI data was collected electronically. Teachers completed exit tickets at the end of each day of professional learning in August 2023, October 2023, and January 2024 via an online form. Data was collected on a spreadsheet with identifying information and kept confidential. Teachers responded to the ACAI before professional learning sessions began in August and again following the end of the professional learning program in January. A private link reserved for this study was sent to teachers via email. The survey was introduced to teachers as an exercise for reflection on their approaches to classroom assessment. They received feedback on their responses through the Classroom Assessment Research Team's online software. Electronic data were collected on a spreadsheet with identifying information and kept confidential. Interviews were conducted individually with 10 participants after the end of the

professional learning program. Interviews were audio recorded and transcribed electronically for analysis.

Data Analysis

Evaluation questions and corresponding data sources and means of analysis are outlined in Table 5. Data from exit tickets were separated by teachers' reactions (enjoyment and utility) and learning outcomes. Reactions and learning outcomes were analyzed using descriptive statistics to determine the degree to which the professional learning achieves Kirkpatrick's Level One and Two, reactions and learning. Mean, median, mode, and range of responses were calculated to allow analysis of participants and sessions. Participants were assigned a code to ensure confidentiality and anonymity.

Table 5

Evaluation Questions and Corresponding Data Sources and Analysis

Evaluation Question	Data Sources	Data Analysis
What are participants' reactions to a professional learning program on common formative assessments?	Exit tickets (3)	Descriptive statistics for each professional learning session, summative inferences across three sessions
To what degree are participants able to identify the process of designing a robust classroom assessment system, including accurate design and effective use of collaborative common assessments?	Exit tickets (3)	Descriptive statistics for each professional learning session, summative inferences across three sessions
What is the nature of any changes in teachers' approaches to classroom assessment?	Approaches to Classroom Assessment Inventory (ACAI)	Descriptive statistics
Through appreciative inquiry, what are teachers' perceptions of their understanding of assessment for learning, use of assessment for learning, and degree to which they think their use of it has value in terms of student learning?	Appreciative Inquiry individual interview protocol	Open Coding Axial Coding

Teachers' responses to the ACAI were analyzed using descriptive statistics to determine teachers' approaches to classroom assessment and any changes following professional learning. Descriptive analysis provided information on the distribution and mean of the assessment purposes and processes as listed in Table 3. It also allowed for analysis of assessor types as listed in Table 4. Comparative analysis using paired sample t-tests provided information on how teachers' approaches to assessment changed or remained the same following professional learning.

Interview data were analyzed using Cresswell and Cresswell's (2018) procedure to validate the accuracy of the information by organizing and preparing raw data for analysis, reading through all data, coding the data, identifying themes, and interpreting the meaning of the themes. First, the audio file was uploaded for transcription. Next, the transcript was read. Then, the initial coding cycle was completed using open coding. Next, second cycle coding will be conducted using axial coding. Axial coding involves identifying categories from the initial cycle and linking them with each other and creating subcategories (Saldaña, 2021). This process identified contexts, conditions, interactions, and consequences related to teachers' positive experiences and aspirations related to classroom assessment. Throughout the coding process, analytic memo writing was conducted to capture reflections and emergent themes and patterns. Analytic memo writing is a critical component of axial coding and helped define codes and categories and connections to each other through contexts, conditions, interactions, and consequences (Saldaña, 2021). It provided analysis of significance of codes and themes.

Evaluation Question 1

To determine teachers' reactions to and perceived utility of the professional learning program, I analyzed responses to the first two questions of three exit tickets completed at the end

of each session. Descriptive statistics provided information about teachers' enjoyment and perceived utility as reactions to the professional learning.

Evaluation Question 2

To determine the extent to which participating teachers can identify the process of designing a robust classroom assessment system including the use of common formative assessments, I analyzed short answer responses to exit tickets. Table 6 provides the table of specifications for the intended learning outcomes and exit tickets. Answers for each exit ticket were scored according to the rubric in Appendix A and assigned a rating of emergent, developing, or proficient. I analyzed the results overall to make inferences about participants' learning.

Table 6

Table of Specifications for Learning Outcomes and Exit Tickets

Learning Outcomes	Exit Ticket – Item Number
State that the purposes of common formative assessment are to track student progress and monitor instructional effectiveness;	1-3, 3-3
Identify what counts as a common formative assessment;	1-10, 1-11
Identify five kinds of learning targets: knowledge, reasoning, skills, product, and dispositions;	1-4, 2-3
List four types of evidence as common formative assessment: teacher observation, selected-response, extended written response, and performance task and understand how they can be used with learning targets;	1-5, 1-8, 1-9
Identify steps in the process of developing and using common formative assessments;	1-6, 1-7, 2-4, 2-5, 2-6, 2-9
Define reliability and validity of assessments;	2-7, 2-8
Identify steps in the process of effectively analyzing student assessment data and using the information to inform instruction.	3-4, 3-5, 3-6

Evaluation Question 3

To determine the nature and degree of changes in teachers' approaches to classroom assessment following the professional learning program, I analyzed the ACAI results. Descriptive results for the participants' approaches for each domain of assessment literacy were collected in table format. I analyzed survey responses from pre and post for each participant and overall to make inferences about any changes.

Evaluation Question 4

To determine teachers' perceptions of assessment for learning, I used Appreciative Inquiry interview transcripts. This process provided information on various influences and possible barriers to integrating formative assessment in teachers' practices. Table 7 provides a table of specifications for the interview questions.

Table 7

Table of Specifications for Appreciative Inquiry Interview Protocol

Evaluation Area	Interview Question
Teachers' perceptions of their understanding of assessment for learning	Q1, Q3
Teachers' use of assessment for learning	Q1, Q3
Degree to which teachers think their use of formative assessment has value in terms of student learning	Q2, Q4

Delimitations, Limitations, and Assumptions

Delimitations

This professional learning program relied on PLCs to work on common formative assessment practices between the three full day sessions. This evaluation does not address the

fidelity of teachers' implementations of PLCs or their practices as a group. PLCs met weekly during the 2022-23 school year while participating in professional learning for identifying and unpacking essential standards. This evaluation is limited to the professional learning occurring during the 2023-24 school year and does not attempt to evaluate the effectiveness of any learning by teachers during the prior year.

The professional learning providers and principals are important parts of the professional learning program; however, this evaluation is limited to teachers' reactions, learning, behaviors, and results relative to the organization. Data from the professional learning providers and principals are not included in this evaluation.

Finally, in examining the effects of professional learning, this evaluation will involve teachers' perceptions of student learning, not actual data to reflect student progress. Further research should consider directly evaluating student learning outcomes as a result of professional learning and teachers' use of formative assessment.

Limitations

This research was conducted with a small sample of teachers in a specific population and the findings may not translate to other settings. Because of the limited size of the sample, a major limitation is the non-generalizability of the findings. The participants were limited to elementary and middle school teachers and findings may not generalize to elementary or high school. The researcher is an administrator in a supervisory role, although not a direct supervisory role. This study attempted to mitigate any bias by presenting this professional learning as voluntary and not connected to any evaluation process.

Assumptions

This professional learning program assumed that teachers met in PLCs weekly as they

were provided time within their contracted workday to do so. It also assumed their participation in professional learning sessions and sharing of information learned with their PLCs.

Ethical Considerations

This program evaluation adhered to the Program Evaluation Standards (Yarbrough et al., 2010) of utility, feasibility, accuracy, and propriety. By providing relevant information for all stakeholders, meaningful processes and product, and concern for consequences and influence, I ensured utility standards are met. This evaluation ensured feasibility with respect to project management, practical procedures, contextual viability, and use of resources. Every effort was made to ensure accuracy of information represented about elements of the evaluation and findings.

Considering propriety standards, this evaluation attempted to be transparent, responsible, and free of conflicts of interest. To ensure that the participants are protected before, during, and following the study, I shared clear objectives, data collection procedures, and sources with participants (Creswell & Creswell, 2018). Participants had the opportunity to ask questions before providing informed consent to foster transparency. Informed consent was obtained using the form in Appendix C.

I ensured confidentiality by de-identifying survey and interview data and ensuring records of interview transcripts and survey data do not contain identifying information. Data was be stored electronically without identifying information of teachers or students. Approval from the William & Mary Education Institutional Review Committee (EDIRC) was obtained before beginning. The results of this study will be shared with participants.

CHAPTER 4

FINDINGS

The purpose of this mixed methods program evaluation was to determine the effectiveness of a professional learning program on developing teachers' assessment literacy. It was aligned to Kirkpatrick's levels of evaluation: reactions, learning, behavior, and results. As a developmental evaluation, this evaluation provided information to inform ongoing professional learning in classroom assessment. In this chapter, I present the findings for each of the following evaluation questions.

1. What are participants' reactions to a professional learning program on common formative assessments?
2. To what degree are participants able to identify the process of designing a robust classroom assessment system, including accurate design and effective use of collaborative common assessments?
3. What is the nature of any changes in teachers' approaches to classroom assessment?
4. Through appreciative inquiry, what are teachers' perceptions of their understanding of assessment for learning, use of assessment for learning, and degree to which they think their use of it has value in terms of student learning?

Attendance at Professional Learning Sessions

The overall attendance rate across professional learning sessions was 83%. Participants who were absent for a session, either due to illness or lack of substitute coverage, did not miss

more than one session. Table 8 shows teachers in attendance for each session. Participants are listed by their teaching assignment and years of experience as explained in the note in Table 8.

Table 8

Participants' Teaching Assignment, Years of Experience, and Attendance at Professional Learning Sessions

Session 1	Session 2	Session 3
ES1st>10 yrs. Exp.	ES1st>10 yrs. Exp.	ES1st>10 yrs. Exp.
ES2nd>10 yrs. Exp.	ES2nd>10 yrs. Exp.	ES2nd>10 yrs. Exp.
ES3rd>10 yrs. Exp.	ES3rd>10 yrs. Exp.	ES3rd>10 yrs. Exp.
ES4th<10 yrs. Exp.	ES5th<10 yrs. Exp.	ES4th<10 yrs. Exp.
ES5th>10 yrs. Exp.	ES5th>10 yrs. Exp.	ES5th<10 yrs. Exp.
ES SpEd>10 yrs. Exp.	MS Eng/SS>10. Yrs. Exp.	ES SpEd>10 yrs. Exp.
MS Eng/SS>10 yrs. Exp.	MS Sci<10 yrs. Exp.	MS Eng/SS>10 yrs. Exp.
MS Sci<10 yrs. Exp.		MS Sci<10 yrs. Exp.
MS SpEd<10 yrs. Exp.		MS SpEd<10 yrs. Exp.

Note. Elementary School (ES), Middle School (MS), Special Education (SpEd), English/Social Studies (Eng/SS), Science (Sci)

Evaluation Question 1

To determine participants' reactions to the professional learning program, I analyzed the first two questions of all exit tickets. All teachers reported high perceptions of value and enjoyment across three professional learning sessions, indicating that they either agreed or strongly agreed that they enjoyed the professional learning session, and it was useful to their teaching practice. The second session had the lowest scores, but also the lowest attendance.

Reduced scores may be due to teachers' lower perceptions of value and enjoyment when colleagues are not in attendance.

Participating teachers completed an exit ticket for each of three professional learning sessions. Across professional learning sessions, 25 exit tickets were completed by 10 participants. Table 9 shows teachers' reactions to the professional learning sessions in terms of enjoyment and utility. Teachers responded using a 5-point Likert scale to indicate agreement where 1 meant *strongly disagree* and 5 meant *strongly agree*. Higher scores indicate greater enjoyment and perceived utility.

Table 9

Exit Ticket Reactions to Professional Learning Sessions

Session	Enjoyment				Utility			
	M	*Mdn*	Mode	Range	*M*	*Mdn*	Mode	Range
1	4.9	5	5	4 - 5	5.0	5	5	4 - 5
2	4.7	5	5	4 - 5	4.7	5	5	4 - 5
3	4.9	5	5	4 - 5	5.0	5	5	4 - 5
Overall	4.8	5	5	4 - 5	4.9	5	5	4 - 5

Evaluation Question 2

To evaluate teachers' learning, I analyzed responses on exit tickets for each session relative to learning outcomes. Participants demonstrated a developing to proficient ability to identify the process of designing a robust classroom assessment system including the use of common formative assessments. All mean responses to exit tickets were within the developing and proficient range, with no participants scoring in the emerging range. Session 2 had the lowest mean score, while Session 3 had the highest. Teachers' short answers to exit ticket

content questions were scored according to the rubric in Appendix A on a scale of 0 = *emerging*, 1 = *developing*, and 2 = *proficient*. Across professional learning sessions, 10 participants completed 25 exit tickets. Descriptive statistics for each session and overall are presented in Table 10.

Table 10

Exit Ticket Content Scores for Professional Learning Sessions

Session	M	Mdn	Mode	Range
Session 1	1.5	2	2	0-2
Session 2	1.3	2	2	0-2
Session 3	1.7	2	2	0-2
Overall	1.5	2	2	0-2

Participants' responses indicated the ability to identify the process of designing a robust classroom assessment system. However, there were differences among the learning outcomes. I analyzed participants' responses to exit ticket content items relative to learning outcomes on a scale of 0 = *emerging*, 1 = *developing*, and 2 = *proficient*. Analysis of the median and mode scores indicated consistently proficient scores. However, not all teachers provided answers in the proficient range, as shown by the range of responses from 0-2. Comparing exit ticket responses to aligned learning outcomes, listing types of evidence as common formative assessment and how it can be used with learning targets yielded the highest score. Identifying steps in the process of developing and using common formative assessment and identifying steps in the process to analyze student assessment data to inform instruction also yielded mostly proficient responses. Conversely, identifying kinds of learning targets, what counts as common formative

assessment, and defining reliability and validity of assessments were learning targets with the weakest responses. This indicates that knowledge regarding aligning rigor of common formative assessments (CFAs) with instruction is emerging and developing. Rubric scores were checked by an external reviewer to provide interrater reliability. The findings are summarized in Table 11.

Table 11

Descriptive Statistics for Exit Ticket Rubric Scores

Learning Outcomes	M	Mdn	Mode
State that the purposes of common formative assessment are to track student progress and monitor instructional effectiveness;	1.6	2.0	2.0
Identify what counts as a common formative assessment;	1.1	1.0	1.0
Identify five kinds of learning targets: knowledge, reasoning, skills, product, and dispositions;	0.2	0.0	0.0
List four types of evidence as common formative assessment: teacher observation, selected-response, extended written response, and performance task and understand how they can be used with learning targets;	1.0	2.0	2.0
Identify steps in the process of developing and using common formative assessments;	1.8	2.0	2.0
Define reliability and validity of assessments;	1.1	1.0	2.0
Identify steps in the process of effectively analyzing student assessment data and using the information to inform instruction.	1.7	2.0	2.0

Evaluation Question 3

To evaluate the nature of changes in teachers' approaches to classroom assessment, I analyzed data from the ACAI. The ACAI identifies 12 approaches to assessment within four dimensions: Assessment Purpose, Process, Fairness, and Theory.

ACAI Response Rates

The ACAI survey was conducted through the Classroom Assessment Research Team,

which provided a unique website link for participants in this study, compiled results on a spreadsheet, and sent them to me. All 10 teachers participated in the ACAI survey prior to professional learning. For eight participants, the link captured detailed responses on a spreadsheet that the Classroom Assessment Research Team provided to the researcher. The other two participants' responses were not captured, but they voluntarily provided their results summary directly to me, thereby allowing me to review the classroom assessment profile for each of the four dimensions. However, the summary report for these two participants did not provide detailed responses. Participation in the ACAI survey after professional learning declined, with only 60% of teachers completing the survey. The researcher requested results summaries from the remaining participants but did not receive them. Therefore, results about the effects of the professional learning program should be interpreted with caution. Participants completed three sections of the ACAI: background information, classroom assessment scenarios, and questions about classroom assessment practices and professional learning.

Teachers' Reported Preparation in Assessment

The ACAI provided information on participants' preparation in assessment as part of their preservice teacher education programs. All participants were full time, credentialed, in-service teachers. Teachers were asked to indicate the level of preparation in assessment they received as part of a preservice teacher education program. Most participants did not remember any formal preparation in assessment. For the remaining teachers, their preparation varied. One participant had two or more full-semester courses, one had a one semester course, one had a short course, one had a separate module, and one had assessment topics included in a methods course. Responding teacher participants' reported preparation in assessment is summarized in Table 12.

Table 12

Participants' Reported Preparation in Assessment

Preparation	Participants	
	No.	%
Two or more full semester courses in assessment	1	11.1%
One semester course in assessment	1	11.1%
Short or mini course in assessment	1	11.1%
Module in assessment	1	11.1%
One or more methods courses with assessment topics integrated	1	11.1%
Do not remember	4	44.4%

Teachers' Perceived Importance of Sources of Improving Practice in Classroom Assessment

Participants rated the importance of various sources in deepening knowledge and practice of classroom assessment on a four-point scale ranging from 1 = *not at all important* to 4 = *very important*. Before and after the professional learning sequence began, all participants responding indicated that their classroom experience was very important to deepening their knowledge (M = 4). Before the professional learning 75% of participants indicated that professional learning communities, personal learning, and conversations with peer(s) were very important. Following the professional learning, the percent of teachers indicating that PLCs and personal learning were very important decreased slightly. However, following the professional learning, all teachers responding indicated that conversations with peer(s) were very important. Similarly, the percent of respondents who felt conversations with administration were very important increased following the professional learning. These results are summarized in Table 13.

Table 13

Participants' Perceived Importance of Sources of Improving Practice in Classroom Assessment

Source		Mean	Median	Mode
PLCs	Pre (n=8)	3.75	4	4
	Post (n-5)	3.60	4	4
Workshops	Pre	3.25	3	3
	Post	3.60	4	4
Classroom experience	Pre	4.00	4	4
	Post	4.00	4	4
Self-study and/or personal learning	Pre	3.75	4	4
	Post	3.40	3	3
Conversations with peer(s)	Pre	3.75	4	4
	Post	4.00	4	4
Conversations with administration	Pre	3.13	3	3
	Post	3.80	4	4

Note. PLC = Professional Learning Community

Findings indicate that teachers perceive several sources to be important in improving their classroom assessment practice. They consistently rated their classroom experience as very important to improving classroom assessment practice. Following professional learning, teachers valued PLCs, workshops, and conversations with peers and administration highly. As the professional learning used a workshop model with conversations with peers and administration, these findings support the perceived value of the professional learning to teachers' practices in classroom assessment. This is consistent with teachers' ratings of utility of the professional learning in Table 8.

Teachers' Approaches to Classroom Assessment

The four domains examined by the ACAI include Assessment Purpose, Process, Fairness, and Theory. Assessment Purpose refers to how teachers select the appropriate form of

assessment to meet their instructional goals and includes Assessment of Learning, Assessment for Learning, and Assessment as Learning. Assessment Process addresses different aspects of Design, Scoring, and Communication of information about assessments. Assessment Fairness refers to how teachers cultivate fair assessment conditions for learners and includes Standard, Equitable, and Personalized approaches. Assessment Theory refers to how teachers balance consistency and contextual factors in assessing student learning and yields approaches of Consistent, Contextual, or Balanced.

Teachers' responses to scenario questions determine their approaches in each of the four domains. If a teacher's responses equally factor on two approaches, it is considered a hybrid approach. For example, a teacher's approach to Assessment Process may be a hybrid Design and Scoring, indicating equal focus on designing reliable assessments and use of scoring protocols and grading.

Overall, teachers' approaches to classroom assessment as measured by the ACAI remained similar after participating in the professional learning program. Before professional learning, teachers primarily used an Assessment for Learning approach, a Design approach to Assessment Process, and a hybrid approach of Equitable and Personalized assessment protocols. Teachers' approaches to Assessment Theory varied the most, with all approaches endorsed. Following professional learning, most teachers continued to endorse Assessment for Learning and a Design approach to the assessment process. These outcomes are consistent with the content of the professional learning focused on designing common formative assessment. As a group, teachers' approach to Assessment Fairness shifted from a hybrid Equitable and Personalized approach to a Personalized approach. Their approaches to Assessment Theory continued to vary, with each teacher endorsing a different approach and or a hybrid of approaches. Participants' responses were consistent with teacher-centric assessors before and after the professional

learning program.

Table 14 shows the changes in the percent of teachers' assessment approaches after participating in the professional learning program. Prior to participating in professional learning, all teachers showed Assessment for Learning as their purpose for classroom assessment, with 50% of teachers' responses consistent with a hybrid approach of Assessment as Learning and Assessment of Learning. The survey yielded similar results following professional learning with 50% of teachers using an Assessment for Learning approach. The remaining teachers' approaches were consistent with a hybrid of Assessment as Learning and Assessment for Learning. The predominant approach of Assessment for Learning indicates that teachers use evidence of learning to inform their next steps for learning and instruction and provide feedback to students.

Table 14

Teachers' Approaches to Assessment Before and After Professional Learning

Theme	Approach	No. Before	% Before	No. After	% After
Assessment Purpose	Assessment of Learning (AoL)	0	0%	0	0%
	Assessment for Learning (AfL)	5	50%	3	50%
	Assessment as Learning (AaL)	0	0%	0	0%
	AoL & AfL	0	0%	1	17%
	AfL & AaL	4	40%	2	33%
	AoL, AfL, & AaL	1	10%	0	0%
Assessment Process	Design	6	60%	4	67%
	Administration and Scoring	0	0%	0	0%
	Communication	1	10%	1	17%
	Design & Communication	3	30%	0	0%
	Design, Administration and Scoring, & Communication	0	0%	1	17%
Assessment Fairness	Standard	0	0%	1	17%
	Equitable	2	20%	2	33%
	Personalized	3	30%	3	50%
	Equitable & Personalized	4	40%	0	0%

	Standardized & Equitable	1	10%	0	0%
Assessment Theory	Consistent	3	30%	1	17%
	Contextual	3	30%	1	17%
	Balanced	3	30%	1	17%
	Consistent & Contextual	1	10%	1	17%
	Consistent & Balanced	0	0%	1	17%
	Consistent, Contextual, & Balanced	0	0%	1	17%

Note. $n = 10$ pre professional learning; $n = 6$ post professional learning

Results for the theme of Assessment Process were also similar before and after professional learning, with most teachers focused on a Design approach. However, one participant's approach was a hybrid of all three approaches and another focused on Communication. Teachers' priority of assessment design indicates their emphasis on CFAs that are aligned to learning outcomes, reliable, and valid. Teachers' approaches to Assessment Fairness showed an increase in Personalized assessment, increasing from 30–50%. Before professional learning, more teachers showed hybrid approaches of Equitable, Personalized, and Standard, whereas after professional learning, they chose Standard and Equitable. There was not a clear majority among teachers in indicating an approach to Assessment Fairness. This variation shows that some teachers are using a standard assessment protocol for all students, while others are differentiating and individualizing assessments based on students' needs. Approaches to Assessment Theory showed the most variation before and after professional learning and shifted slightly to more hybrid approaches of Consistent, Contextual, and Balanced following professional learning. More teachers indicated hybrid approaches to Assessment Theory than any of the other themes. Most teachers' responses indicated a Consistent approach, showing a focus on reliability through design, administration, and scoring of assessments.

Most teachers did not submit a free response to the scenario questions, which did not allow for meaningful comparison. The first scenario received the most ($n = 4$) responses before

professional learning. However, this scenario only received one response after the professional learning program. While this did not allow for meaningful comparison relative to the effects of professional learning, the extra responses did allow validation of teachers' approaches based on their ratings. For example, a participant who showed a Design approach responded with, "Once results in, analyze to determine trends of misconceptions and examine for any test design flaws, reteach concepts with focus on main concept struggles w/ opportunities for feedback throughout independent work after lesson. Then re-assess." A participant with a Personalized approach to Assessment Fairness added to the scenario regarding plagiarism, "I would look deeply, why the student plagiarized, if it could be related to learning disability, and if the student had learned the content, despite their inability to put it in their own words."

There were four teachers who completed both the pre and post ACAI survey to allow detailed comparisons. Table 15 shows the changes in participants' approaches to classroom assessment. Due to the small number of participants and relatively high standard deviations, the findings must be interpreted with caution. Teachers' approach to Assessment Purpose as Assessment of Learning and Assessment for Learning increased following professional learning. Their focus on the processes of Design, Administration, and Scoring increased following professional learning. Considering the predominance of hybrid approaches and variation in responses for Assessment Fairness and Theory, there are no clear patterns for approaches among the teachers. Although the professional learning was not explicitly aligned to this survey as it did not provide in-depth learning on each purpose or approach to classroom assessment, the changes indicate shifts in teachers' approaches and practices in classroom assessment.

Table 15

Frequency of Endorsements for Approaches to Assessment

Approach	Before *M(SD)*	After *M(SD)*	Change
Assessment of Learning (AoL)	3.48 (1.73)	3.71 (1.73)	0.23
Assessment for Learning (AfL	4.92 (1.32)	5.22 (0.95)	0.30
Assessment as Learning (AaL)	4.13 (1.45)	4.08 (1.50)	-0.05
Design	4.75 (1.22)	4.92 (0.93)	0.17
Administration and Scoring	3.96 (1.88)	4.17 (1.71)	0.21
Communication	4.67 (1.31)	4.30 (1.52)	-0.37
Standard	3.45 (1.63)	3.17 (1.80)	-0.28
Equitable	4.71 (1.63)	4.17 (1.90)	-0.54
Personalized	5.09 (1.16)	4.58 (1.41)	-0.51
Consistent	4.71 (1.63)	4.58 (1.53)	-0.13
Contextual	4.26 (1.60)	3.88 (1.45)	-0.38
Balanced	4.46 (1.47)	4.67 (1.43)	0.21

The ACAI also provided information on teachers' beliefs about assessment. Teachers responded to the statements in Table 16 on a scale of 1 = *strongly disagree* to 6 = *strongly agree*. Before professional learning, teachers' responses indicated positive views of classroom assessment. Teachers disagreed that classroom assessment is of little use to teachers on a day-to-day basis ($M = 1.25$). They also disagreed that classroom assessment interrupts students' learning ($M = 1.75$) and takes time away from teaching (M = 2.50). However, they had more negative views for statements about students. They disagreed that assessment is a positive force for

improving the social climate in class (M = 2.50) and that assessment is enjoyable and engaging for students (M = 2.75). They somewhat disagreed that classroom assessments motivate students (M = 3.00). They strongly agreed that assessment is stressful for students (M = 5.25).

Table 16

Teachers' Mean (standard deviation) Responses on Beliefs about Assessment

Belief about assessment	Before	After	Change
Classroom assessment is of little use to teachers on a day-to-day basis	1.25 (0.50)	1.25 (0.50)	0.00
Classroom assessment interrupts students' learning	1.75 (0.95)	3.25 (1.50)	1.50
Assessment is a stressful activity for students	5.25 (0.95)	4.67 (0.58)	-0.58
Assessment takes time away from teaching	2.50 (1.29)	3.50 (1.73)	1.00
Teachers use too many assessments	3.50 (1.29)	3.25 (0.96)	-0.25
Assessment is a positive force for improving the social climate in a class	2.50 (0.58)	2.75 (1.50)	0.25
Classroom assessments motivate students to do their best	3.00 (0.82)	3.50 (0.58)	0.50
Assessment is an engaging and enjoyable experience for students	2.75 (0.96)	2.50 (0.58)	-0.25

Note. 1 = strongly disagree, 6 = strongly agree

There were small changes in teachers' beliefs about classroom assessment following professional learning. Due to the small number of participants and relatively high standard deviations, the findings must be interpreted with caution. Teachers agreed to a greater degree that classroom assessment interrupts student learning (M = 3.25) and takes time away from teaching (M = 3.50). Although these beliefs are not aligned with assessment for learning, they could be due to teachers reflecting on the time required to learn and implement new classroom practices in CFA. They indicated greater agreement that classroom assessment motivates students to do their

best ($M = 3.50$). Teachers continued to believe that assessment is stressful for students, but to a lesser degree ($M = 4.67$).

Evaluation Question 4

I conducted ten teacher interviews in person between January and February 2024. To determine changes to teachers' behavior and results following the professional learning program, I analyzed interview transcripts using open and axial coding. Overall, there was a high degree of agreement among participants about themes in responses, with many teachers sharing similar experiences and values. Table 17 summarizes the themes that emerged from the interviews.

Table 17

Themes from Appreciative Inquiry Interviews

Evaluation Area	Theme (*f*)
Teachers' perceptions of their understanding of assessment for learning	Professional learning and PLC collaboration facilitate unpacking standards, which leads to valuable changes in instruction (5) Essential standards instead of curriculum drive assessment (2) Visible evidence of student learning becomes driver of instruction instead of textbook/curriculum (7) Reliance on PLC to perfect assessments and review data (5)
Teachers' use of assessment for learning	Using shorter, more frequent assessment in new ways (10) Grouping students for small group instruction based on data (4) Enables strategic, flexible grouping of students among teacher teams for instruction (5) Clarity for planning and designing instruction (6) Actionable feedback to teachers on pace of instruction (4)
Degree to which teachers think their use of formative assessment has value in terms of student learning	Allows instruction, reteaching to be more focused on student need (6) Especially helpful in class with wide variety of needs, ensuring nobody is left behind (4) More authentic, positive feedback to students (4) Opportunities to celebrate student learning, builds student confidence, supports perseverance/growth mindset (5) Students more involved in their learning (6) Reduced student stress and anxiety, lowered affective filter (5) Reduces competition and grade obsession among students (3) Facilitates parent communication about learning; parents appreciate information on learning more than grades (3)

Through Appreciative Inquiry interviews, teachers were positive about the professional learning and resulting changes to practices in their PLCs and use of classroom assessment. They conveyed a high degree of understanding of the process of assessment for learning and frequently discussed the importance of starting with essential standards and learning targets. This aligns with the degree to which they demonstrated understanding of the learning targets on the exit tickets related to identifying steps in the process of developing and using common formative assessments and effectively analyzing student assessment data and using the information to inform instruction. Teachers relayed challenges related to aligning the rigor of common formative assessments with instruction. This is consistent with the lower degree of understanding of reliability and validity of items according to the exit ticket responses.

Teachers' reported use of assessment for learning emphasized the changes to instruction they enacted following review of student data, including small group instruction, flexible grouping among teacher teams based on instructional strengths of individual teachers, and adjustments to the pace of instruction. They reflected on challenges with having enough time to work with their teams and coordinating the timing of common formative assessment, PLC meetings, and flexible grouping.

Teachers conveyed the value of common formative assessment relative to meeting the needs of all students, especially students with learning differences. They reported that students received the changes to classroom well, exhibiting more engagement and confidence in learning. Most teachers discussed the lowered affective filter for students that resulted from the use of assessment for learning. They noted less stress, anxiety, competition, and fixation on grades among students and felt this had a positive effect on their learning. Interview findings address Evaluation Question 4 about teachers understanding, use, and the degree to which they think

assessment for learning has value for their students as described in Table 16.

Teachers' Understanding of Assessment for Learning

Teachers were confident in their understanding of assessment for learning. They relayed experiences with successful classroom assessment used to improve teaching and learning and identified elements that made the process successful. Five teachers referenced experiences unpacking standards as essential in developing common formative assessment and leading to powerful changes in instruction. Participant MS SpEd <10 said, "It's easier just to say, well, the kids don't learn it. I've got to move on. It's a lot harder to say, I've got to figure it out. We've got to figure it out." Participant MS Eng/SS>10 said, "The power of unpacking the standard is something that gets glazed over a lot of the time and it's time consuming. But I think that leads to the more explicit, better teaching."

Seven teachers reflected on the shift from the curriculum to visible evidence of student learning as the driver for instruction. In speaking about how her PLC experienced success, participant ES2>10 said,

> Let's see if we can just let go of Math Expressions units and to see how they fit in. And at that point, I feel like we started to understand and talk more effectively about CFA's and essential standards for what they were versus for being part of a math expression unit.

Five teachers noted challenges in understanding formative assessment from their work developing assessments with their PLCs such as designing assessment items with specificity and aligning assessment rigor with instructional rigor.

Teachers' Use of Assessment for Learning

Two clear themes emerged from interview discussions regarding teachers' use of assessment for learning: Using shorter, more frequent assessment in new ways and changes in

instruction that resulted from reviewing formative assessment data. Teachers shared how their practice of assessment had changed from a focus on summative or unit tests to shorter assessments that could include exit tickets or observations with checklists and could be used before and after instruction. Participant ES3>10 said, "I see CFAs when I walk around the room." They appreciated the clarity afforded by assessment data in planning and pacing instruction. Most teachers (60%) discussed using data to inform how students were grouped for instruction and 50% discussed flexible grouping, where PLCs planned small group instruction among teachers based on patterns in data and individual teachers' instructional strengths. Participant MS Eng/SS >10 said, "Assessment is almost like just really good teaching, if you're really aware of what you're doing and how your students are performing."

Five teachers noted related challenges with assessment for learning, including making and protecting the time required to have deep discussions about student work and learning and coordinating PLC meeting time with CFA administration and reteaching promptly. Two participants wished for a binder of complete assessments, rather than participating in the ongoing work with their PLCs. A third participant commented on this wish, stating that having a complete binder would be a hindrance to doing the work together and would not inform instruction as robustly.

Teachers' Perceived Value of Formative Assessment

Teachers' perceptions of the value of formative assessment in terms of student learning formed two clear themes: More effective instruction and feedback to students and a lowered affective filter for students. Teachers conveyed that common formative assessment reduces subjectivity about learning and allows a deeper knowledge of students and the ability to reach struggling students more rapidly. Participant ES2>10 said, "We are truly setting up this belief

system that everyone in this district believes you are a learner." Teachers felt that more authentic, positive feedback to students provides opportunities to celebrate student learning, builds students' confidence, and supports perseverance. Participant ES5>10 stated that she deeply valued classroom assessment for its ability to show individual student growth while building confidence in learners. She discussed the value of "using the assessments to identify students who learn differently." Six teachers felt that students were more involved in their learning as a result of CFAs. However, ACAI responses regarding the belief that classroom assessment motivates students were mixed.

Half of the teachers noted reduced stress and anxiety among their students that they attributed to shorter, more frequent, often ungraded assessments. As a result, they felt students were less competitive and focused on grades. Participant ES5<10 stated,

> It was a success because I didn't see kids that were lost or nervous to even try the problems. They quickly got to work because they knew that this was the problem. This is all they had to do, and they were able to move on.

Participant ES3>10 connected the social-emotional benefits with learning, "Kids will learn from people that they know care about them. So, when you're sitting there and asking them questions and working so closely in small groups and so forth, that's been just lovely." When compared to the ACAI results regarding teachers' beliefs about assessment, they continued to agree that assessment is stressful for students but felt this way to a lesser degree following professional learning.

Summary of Findings

Findings indicate that teacher leaders who participated in the three-day professional learning program while engaged in PLCs enjoyed the learning and felt it had value to their

practice. Participants were able to demonstrate knowledge of a robust classroom assessment system. Their learning was strongest for the purpose and process of formative assessment, including alignment with learning targets, types of evidence, and the process of analyzing results to inform instruction. Relative weaknesses in knowledge acquired included types of learning targets relative to rigor and reliability and validity of assessment.

Teachers' approaches to classroom assessment according to the scenarios presented in the ACAI did not change greatly following the professional learning program, with a focus on Assessment for Learning as the Assessment Purpose and a Design approach to Assessment Process. Approaches to Assessment Fairness and Theory varied more among teachers. Appreciative Inquiry interviews provided rich information on changes teachers had implemented during and following professional learning, including more frequent use of shorter assessments, collaboration with PLCs, and changes to instructional models and pacing. Teachers conveyed a deep appreciation of student-centered value of common formative assessment, including a lowered affective filter for students, increased engagement, and greater emphasis on learning.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

Discussion of Findings

This research provided an evaluation of an ongoing, job-embedded professional learning program intended to improve teachers' assessment literacy and use of common formative assessment. Direct measures of participants' reactions and learning indicate that the professional development program was effective in improving assessment literacy of teacher leaders through their knowledge and use of assessment for learning. Teachers applied knowledge of assessment for learning to their classroom practice and PLCs, showing that the professional learning was effective in improving their classroom assessment practices. There is tentative evidence that the professional learning program provides a model of an effective approach to improving teachers' assessment literacy.

Due to the small number of participants, the findings and recommendations are limited and do not provide information to generalize beyond this setting and group of teachers. This evaluation did not examine the PLC structure or effectiveness of PLC meetings; however, based on teacher interviews, it is assumed that teachers met weekly in PLCs to discuss standards, learning targets, and classroom assessments. Through a developmental approach to program evaluation, this research identified elements to support continued innovation in formative assessment. Findings provided guidance to administration and staff in leveraging successes and addressing barriers to changing practices while considering the complex nature of assessment literacy. Recommendations are outlined in Table 18.

Table 18

Recommendations for Continued Professional Learning, Evaluation, and Development of Assessment Literacy

Recommendation	Source
Maintain or increase teacher leadership, continuing to include special educators.	ACAI, Interviews, (Friziellie et al., 2016)
Develop a written protocol for assessment for learning within PLCs.	Interviews, (Fisher & Frey, 2014)
Consider expanding collaboration time for PLCs.	Interviews, (Johnston & Berglund, 2018)
Formalize principals' assessment leadership in facilitating PLC work, including establishing a regular structure and trust within teams.	ACAI, Interviews, (Stiggins & Duke, 2008)
Focus future professional learning on reliability, validity, and aligning rigor of assessment, student centered assessment and a balanced assessment system.	Exit tickets, ACAI, Interviews (Link, 2019; Wiliam, 2019)
Continue evaluation of professional learning in assessment literacy.	

Note. PLC = Professional Learning Community, ACAI = Approaches to Classroom Assessment Inventory.

Benefits of Common Formative Assessment for Students

Findings showed that participants emphasized the value of common formative assessment in terms of benefits to students, including the ability to provide more authentic, positive feedback, support growth mindset, improve engagement, and lower stress and anxiety about grades. Teachers continued to believe that assessment was stressful for students following the professional learning, as shown in the ACAI results in Table 16 ($M = 4.67$, decrease of 0.58), but conveyed a decrease in stress and text anxiety for students in interview discussions. They

expressed appreciation for the low stakes nature of CFAs in a context with high academic pressure. They also valued the ability to provide personalized instruction, especially for more diverse learners. These findings are consistent with the importance of the socio-emotional domain of teacher assessment literacy, which includes student engagement, emotional dynamics, the relationship between motivation and learning, and test anxiety (Pastore & Andrade, 2019).

Teachers' responses about their beliefs that assessment motivates students were mixed, with some teachers agreeing and others disagreeing. This may indicate varying views on the role assessment plays in student motivation. Classroom assessment is a powerful way to increase student motivation through productive feedback that moves them forward (Stiggins, 2006). Effectively and positively communicating assessment results and feedback to students is important to motivating students for continued success. According to participants' ACAI results, a communication approach to the assessment process was not emphasized as much as the design approach. This may indicate that teachers are presently focusing on design over communication. Perhaps a greater focus on communication as part of the assessment process in the future would shift teachers' beliefs that classroom assessment is motivating to students.

Teachers' reported increase in use of classroom assessment amidst these impressions is consistent with Guskey's (2020) Model of Teacher Change that shows changes in student learning outcomes must precede changes in teachers' attitudes and beliefs. Although ACAI results did not show major shifts in teachers' approaches to classroom assessment, teacher interview responses heavily focused on academic and nonacademic benefits to students, discussing individual students, groups, and whole classes. Through interviews, teachers conveyed satisfaction with their changes in practice such as collaboratively developing and using shorter, more frequent assessments aligned to learning targets, reviewing data, and adapting instruction accordingly. Teachers noted improved engagement in learning and confidence among students.

For example, one teacher spoke about the benefits of the CFA process to two students with disabilities in class, including improved mastery of grade level content. As much of the informal checking for understanding in classrooms is ineffective, without formative assessment, classroom instruction is aimed at the middle and not tailored to students' unique needs (Fisher & Frey, 2014). As assessment systems become more balanced and motivational to students, teachers will realize profound learning gains, especially for low achieving students (Stiggins, 2006).

Benefits of Common Formative Assessment for Teachers

Teachers conveyed personal benefits to their practice following increased use of classroom assessment. They felt that the actionable feedback received from common formative assessments provided clarity for planning more strategic instruction. Several teachers spoke about skipping content following a CFA that showed class mastery and revisiting other topics more in depth following a CFA that revealed gaps in learning. Teachers perceived the value of CFA as allowing instruction to be more focused on student need. Consistent with the praxeological dimension of assessment literacy (Pastore & Andrade, 2019), these findings support the value of integrating CFA in practice as teachers manage the teaching-learning process. As teachers continue to participate in professional learning on assessment, their professional competence will improve (Stiggins, 2006).

Importance of PLCs and the Socio-Cultural Context

Throughout the interviews, teachers emphasized the importance of collaboration with colleagues within a PLC for technical assistance with standards work and perfecting assessment items. They also relied on colleagues for flexible grouping of students for instruction following analysis of CFA results. These findings are complemented by the ACAI responses that indicate teachers value conversations with peers and administrators for improving classroom assessment

practice. This is consistent with the importance of practice architectures and the socio-cultural contexts in which a teacher's assessment literacy develops (Charteris & Dargusch, 2018).

This finding may explain why teachers' approaches according to the ACAI did not change greatly following professional learning. Because the ACAI was completed individually by teachers and features hypothetical scenarios, it may have been perceived as disconnected from their PLC practices and professional learning work. This may also account for the decreased response rate on the post survey. Another possible reason for the lack of responses on the post survey could be teachers' perceptions of value of the profile results teachers receive upon completion of the survey. During appreciative inquiry interviews, teachers did not discuss ACAI results as impactful or contributing to their successes with classroom assessment. It could be helpful to review and discuss ACAI results collaboratively in the future to help teachers connect the survey to their PLC work and classroom practices.

Recommendations to Support Assessment Literacy and PLCs

Findings indicate that the professional learning was well-received by teachers and effective in improving their knowledge and skills with assessment for learning. Given these initial positive effects, it is important to continue to support their ongoing learning and scaling assessment for learning within PLCs. Recommendations below address maintaining teacher leaders, developing a written protocol for assessment for learning. ensuring adequate collaboration time, using principals more fully as assessment leaders, future professional learning, and progress toward a balanced assessment system.

Ensure Continuity of Teacher Leaders in PLCs

Strong ongoing teacher leadership is important to scaling professional learning and ensuring fidelity of the CFA process. Following professional learning, all teacher leaders felt that

conversations with peers were important to improving practice in classroom assessment. Additionally, teacher interviews revealed a reliance on PLCs to develop and adapt classroom assessment, review data, and adjust instruction. ACAI results showed teachers felt that classroom assessment was useful on a day-to-day basis. Three teachers lamented the lack of a complete binder of CFAs to reference, but felt that with their PLCs, it was possible to attain more proficiency with developing CFAs. This shows teachers place value on collaboration within their PLCs to accomplish work relative to classroom assessment that they find useful to their daily work.

The current teacher leaders who participated in the professional learning include two or three teachers per school site as resources to PLCs during staff meetings, professional development days, and weekly PLC collaboration time. Two to three teacher leaders per site is minimal given the support required to share best practices with PLCs and serve as site resources for Assessment for Learning. It is recommended that teacher leadership be increased to three to five teachers per site, depending on enrollment.

Considering attrition of teacher leaders due to retirement and staff turnover, the district should develop a system to maintain teacher leadership at each site. Currently, with nearly all grade levels and subjects represented in teacher leadership, there is solid teacher leader support for professional development day activities among all four schools. The district should consider increasing the number of teacher leaders who participate in ongoing professional learning and share information and guide the practice of their PLCs.

Considering the slight decline in reactions about enjoyment and utility for the second session in addition to a decline in attendance, scheduling professional learning sessions should avoid times during the year with increased workload for teachers, such as conference week.

Additionally, avoiding scheduling professional learning sessions adjacent to report card deadlines or holiday breaks may improve attendance and reactions.

Develop a Written Protocol for PLCs Outlining Assessment for Learning

A group of teacher leaders and principals should develop a written protocol that details the processes PLCs use to delve into standards, identify essential standards, and unpack standards for learning targets. The protocol should also include guidance for developing CFAs and analyzing results and student work collaboratively. This protocol will provide a framework for intentional and targeted teaching (Fisher & Frey, 2014).

Continue Special Educator Professional Learning in Assessment Literacy and Collaboration with PLCs

Special educators bring important knowledge and skills about diverse learners and personalized instruction to the group of teacher leaders. Interview responses with special educators showed perceived benefits to their participation in classroom assessment, such as improved alignment between essential standards and Individualized Education Plan goals and better ability to report meaningful progress to families and teachers. At the middle school level where special educators serve as case managers and work with several subject area teachers, one participant shared that CFA improves consistency of assessments and grading among teachers. They also conveyed the benefit of CFA for classes that have greater variation in student skills. Special educators' involvement in PLCs and CFA can improve coherence of special education services and learning in the general education classroom by ensuring a commitment to standards-based instruction for students in special education (Frizielliie et al., 2016).

Improving the use of formative assessment can provide important benefits to students with disabilities. As noted by Fuchs and Fuchs (1997), the effectiveness of instruction in

classrooms is not constant. Identification of learning disabilities is dependent on the classroom environment and methods for measuring academic achievement and progress. Systematic use of formative assessment data can provide easier distinction between ineffective instruction and inadequate individual progress of a student.

Special education teachers should continue to be actively involved and supported in their collaboration with classroom teachers. Special educator involvement in PLCs and professional learning for teacher leaders provides a means for breaking down barriers between special education that occurs in a separate setting from the classroom and general education and promotes collective responsibility for the learning of all students (Friziellie et al., 2016). Special educator teacher leaders should develop a system to share their knowledge and recommendations for teacher collaboration with their department colleagues.

Protect and Consider Expanding Collaboration Time

Only 31% of teachers nationwide report that they have enough time to collaborate with other teachers (Johnston & Berglund, 2018). The findings from this study indicate that teachers rely on PLCs to unpack standards, develop CFAs, and plan instruction using flexible grouping of students. ACAI results showed that teachers valued conversations with peers and administrators to a greater degree following professional learning. As PLC structure becomes well established and learning teams continue ongoing work, the district should consider whether the current collaboration time is adequate. Teacher interviews revealed concerns about the volume of work involved in unpacking standards, especially for newer teachers. Participant MS SpEd <10 said, "There are just a lot of challenges, like not having the time to meet and get into those deep discussions." Investigating demands that interfere with teams' collaboration about student learning will be important to determining whether the current amount of time, 80 minutes per

week for elementary and 90 minutes per week for middle, is adequate.

Additionally, teachers stated challenges with coordinating flexible grouping where students are grouped according to instructional need as an intervention following review of CFA data. This requires teachers to schedule time for students to move between classrooms. Teachers were excited about the opportunity to use each other's instructional strengths but felt that disparate schedules sometimes prohibited this type of collaboration. The District should examine elementary master schedules and explore common blocks of instruction, or time periods scheduled among teacher teams dedicated to a particular subject, that facilitate flexible intervention grouping among teachers in a team.

Formalize Principal Leadership for Assessment Literacy

Although teacher leaders model practices in assessment for learning to PLCs in staff meetings and professional development days, there is no formal system to support PLCs during weekly collaboration time. Principals have participated in professional learning sessions and are important to ensuring and scaling best practices for PLCs and assessment for learning. The principal plays a vital role in instructional leadership, which requires assessment leadership (Stiggins & Duke, 2008).

ACAI results showed that teachers valued the importance of conversations with administration to developing their classroom assessment practices to a greater degree following professional learning. Principals' own professional learning in the areas of PLCs and classroom assessment should continue alongside teachers (Stiggins & Duke, 2008). Strong leadership plays a crucial role in continuous improvement efforts within an organization, such as increasing teacher assessment literacy (Guskey, 2009). District administration should consider a program to train new principals who may not have experience or skills in instructional leadership for PLCs

and classroom assessment. This will provide continuity of instructional leadership for ongoing gains in assessment literacy and teacher collaboration.

The district should clearly outline principals' responsibilities for PLCs, including supporting a consistent structure and protocol for meetings and facilitating trust and an open exchange of ideas. One challenge teachers noted was getting timely feedback on CFA results. Principals should provide guidance to PLCs in planning timing of assessments and interventions. Teachers feel that grade level and department teams benefit from collaboration among PLCs to augment their regular collaboration. For example, a fifth-grade team at one school appreciated collaboration with the fifth-grade team at another school. Principals should be empowered to establish a regular structure to facilitate this collaboration. Additionally, principals should develop a system for highlighting successes of teams and students, whether at staff meetings or through regular communication. Because teachers' beliefs and practices change when they experience student success (Guskey, 2020), this will promote a common understanding of success relative to student learning outcomes.

Focus Future Professional Learning on Student Centered Assessment

Ongoing professional learning for teacher leadership should focus on benefits and practices associated with student centric assessment to increase teachers' understanding of Assessment as Learning. Leveraging the benefits to students realized in the socio-emotional domain of assessment literacy (Pastore & Andrade, 2019), professional learning in this area should address feedback and communication to students and involving students in setting and reaching learning goals. Suggested learning outcomes include identifying elements of a student-centered culture of assessment, including student-friendly language for learning targets, use of examples and rubrics, and creating opportunities for students to create goals and act on CFA

results (Bailey & Jakicic, 2023).

The professional learning program provided three full day sessions over 5 months, which was adequate timing given the content covered and amount of time between sessions for teachers to implement practices. Spacing professional learning days approximately evenly throughout a school year may be an effective way to systematically introduce new learning while allowing for teachers to integrate practices and receive feedback. As future professional learning incorporates lesser held approaches, such as Assessment as Learning and a Communication approach to Assessment Design, it will be important to include explicit discussions about assessment identities and approaches. Discussion of the ACAI results during professional learning sessions will be helpful to teachers in connecting assessment approaches to classroom examples. The expert presenter should be encouraged to complete the survey to help facilitate this discussion.

Use Formative Assessment as a Foundation for Work Toward a Balanced Assessment System

Formative assessment is the foundation for a comprehensive, balanced assessment system and helps ensure that assessment is supportive of learning (Wiliam, 2019). Development of knowledge, skills, and practice in formative assessment is a first step toward a balanced assessment system. Findings from this evaluation show a high level of regard among participating teachers for the role of the student in assessment. Findings from teacher interviews showed that they felt assessment for learning has value to student learning and other direct benefits to students, such as greater confidence and involvement in their learning and less stress and anxiety. Additionally, they felt classroom assessment was useful to their teaching on a day-to-day basis. Teachers' perceptions of the value of assessment to students and teacher will be important to continued, necessary work to ensure alignment between classroom assessment and district interim or benchmark assessments. Teachers should be actively involved in any future

changes to the district's assessment system.

Interim or benchmark assessments are considered long-cycle formative assessment (Wiliam, 2019) and are primarily used in this district to identify students in need of intervention. As use of common formative assessment improves, the district should evaluate alignment between interim assessments and CFAs and consider whether the interim assessments offer value to the assessment system. If the use of interim assessments is promoting over reliance on interventions that occur outside the classroom and detracting from the power of common formative assessment, the district should consider eliminating the interim assessments or redesigning them to be aligned with CFAs (Wiliam, 2019).

Teachers at both the elementary and middle school levels conveyed relief that CFAs provided a means of assessment that furthered teaching and learning and offered less pressure than grades. This study did not directly examine the relationship between classroom assessment and grading, nor did it examine teachers' practices or beliefs about grading. However, teachers conveyed wonderings about whether they were permitted to have ungraded assignments or assessments. They also conveyed frustration about students' overemphasis on grades as interfering with learning. Instructional leaders must engage teachers in discussions about effective grading that is supportive of learning and ensure that grading policies and practices are consistent, meaningful, and valid (Link, 2019). Teachers' grading practices are often inconsistent, lack reliability and validity, and can also be biased. Enablers for effective grading practices are principal communication, teacher collaboration, and direct training (Link, 2019). The district should plan to address teachers' grading practices as part of its assessment system. A first step is to engage teachers and teacher leaders in examining grading practices and beliefs, such as the purpose of grades. Specifically, the district should examine standard A-F grading at the middle

school level to determine whether it is supportive of student learning and is in alignment with classroom assessment.

Recommendations for Future Evaluation

The District has not previously engaged in evaluation of professional learning beyond the level of teachers' reactions. As future professional learning is provided in assessment literacy, it is important to evaluate its effectiveness. The district will benefit from both formative and summative evaluation of professional learning to guide pacing and allocation of resources to support teachers' learning in this area. Directly examining student learning as part of the results will provide a more in-depth evaluation of the effectiveness of the professional learning and teachers' use of assessment for learning. Future evaluation should also consider the degree to which weekly PLC meetings support the use of formative assessment.

Considering the methodology used in this evaluation, appreciative inquiry interviews provide valuable feedback on all levels of evaluating professional learning. Ensuring common understanding of intended learning outcomes is essential, especially between the district and a contractor providing learning sessions. The use of surveys, such as the ACAI, should be connected to teachers' practices and learning teams and discussed collaboratively, as they may be perceived as isolated when administered individually with hypothetical scenarios. ACAI information may be helpful in planning professional learning outcomes. The ACAI may be helpful to continued evaluation of effectiveness of professional learning in classroom assessment. Given the small changes in teachers' approaches over the course of this professional learning program, the ACAI should be used at a longer interval of a year or more. This will allow more time for teachers to implement new learning, possibly see changes in students' learning, and adjust their approaches. The ACAI could be completed by all teachers in a PLCs and teams

could discuss results collaboratively. PLC discussions about assessment approaches based on survey results can serve has discussion topics to build trust and establish decision making practices among teams. Used by districts as a formative tool, it could be expanded to include more scenarios and provide guidance for ongoing professional learning.

Summary

Comprehensive professional learning programs that improve teachers' assessment literacy and use of assessment for learning are an essential solution to the gap in professional competence of teachers (Stiggins, 2006). As a foundation to a balanced assessment system, formative assessment is important to motivating students and ensuring achievement. Teachers' preparation and approaches to classroom assessment vary. Therefore, evaluating professional learning in assessment literacy is vital to planning ongoing learning and determining effectiveness.

Findings from this program evaluation indicate that professional learning on common formative assessment has positive effects for students and teachers. Teachers rely on the socio-cultural context of PLCs to identify learning targets and design and use common formative assessment. The District has begun important work in assessment for learning and assessment literacy. Within the PLC context and with adequate ongoing support, the current structure of teacher leaders and collaboration will be effective to increasing teacher assessment literacy.

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Appendix A

Exit Tickets and Scoring Rubric

Session 1

1. I enjoyed today's professional learning session.

   Strongly Disagree 1 2 3 4 5 Strongly Agree

2. Today's professional learning was useful to my teaching practice.

   Strongly Disagree 1 2 3 4 5 Strongly Agree

3. What are the purposes of common formative assessment?

4. A team develops discussions, activities, and tasks that elicit valid and reliable evidence of student learning. They provide timely feedback to students and use the assessment data to adjust instruction. They also involve students in modulating their learning and as resources for one another. What step did they omit?

5. Give an example of an activity that activates students as owners of their own learning.

6. What are five kinds of learning targets?

7. What are four types of evidence of student learning that can be used in common formative assessment?

8. Give two examples of learning targets and types of evidence that are a good match

9. What is one advantage and one disadvantage of a performance task as an assessment item?

10. When is it acceptable to use assessment items from a textbook or other source?

11. If a team decides to use observations as a common formative assessment, what must they establish?

Session 2

1. I enjoyed today's professional learning session.

   Strongly Disagree 1 2 3 4 5 Strongly Agree

2. Today's professional learning was useful to my teaching practice.

   Strongly Disagree 1 2 3 4 5 Strongly Agree

3. Because learning targets are cumulative, asking students to create a product also requires___

4. How can a team determine when to schedule common formative assessments?

5. How can teams use end-of-unit assessment information?

6. Why might a fifth-grade team include lower-level cognitive demand tasks on a formative assessment?

7. When is an assessment reliable?

8. When is an assessment valid?

9. How many learning targets should be covered by a common formative assessment? Why?

Session 3

1. I enjoyed today's professional learning session.

   Strongly Disagree 1 2 3 4 5 Strongly Agree

2. Today's professional learning was useful to my teaching practice.

   Strongly Disagree 1 2 3 4 5 Strongly Agree

3. What is Tier 1 classroom instruction driven by?

4. What is one way that PLC teams can foster trust while reviewing student assessment data?

5. What is an advantage of looking at actual student work instead of just grades/scores in a spreadsheet?

6. If a team administers a formative assessment and groups students who have difficulty in a skill, what is their next step?

	0	1	2
1-3 What are the purposes of common formative assessment?	Does not mention tracking student progress or evaluating effectiveness of instruction	Mentions either tracking student progress or evaluating effectiveness of instruction but not both	Mentions two purposes: To track student progress and effectiveness of instruction
1-4 A team develops … What step did they omit?	Includes a step already listed in the prompt or not part of formative assessment	Mentions learning targets but not the importance of clarifying and sharing with students	Mentions clarifying and sharing learning targets with students
1-5 Give an example of an activity that activates students as owners of their own learning.	Example does not clearly motivate or engage students by involving them in their own learning	Example is designed to motivate or engage students but does not clearly have students taking ownership of their learning	Shares a concrete example that engages and motivates students by having them take an active role in their learning
1-6 What are five kinds of learning targets?	Lists 1-2 of the following: Knowledge, reasoning, skills, product, dispositions	Lists 3-4 of the following: knowledge, reasoning, skills, product, dispositions	Lists all five: Knowledge, reasoning, skills, product, dispositions
1-7 What are four types of evidence of student learning that can be used in common formative assessment?	Lists 1 of the following: Teacher observation, selected-response, extended written response, and performance task	Lists 2-3 of the following: Teacher observation, selected-response, extended written response, and performance task	Lists all four: Teacher observation, selected-response, extended written response, and performance task

1-8 Give two examples of learning targets and types of evidence that are a good match.	Does not list any acceptable match between learning target and type of evidence	Lists one example that does not include: knowledge/performance assessment, skills/selected response or extended written response, product/observation or selected response	Lists two examples that do not include: knowledge/performance assessment, skills/selected response or extended written response, product/observation or selected response
1-9 What is one advantage and one disadvantage of a performance task as an assessment item?	Does not list an accurate advantage or disadvantage	Lists either an advantage or a disadvantage from the following Advantage: Often most accurate, Disadvantages: take more time to administer, can be more subjective	Advantage: Often most accurate, Disadvantages: take more time to administer, can be more subjective
1-10 When is it acceptable to use assessment items from a textbook or other source?	Answer does not mention alignment to either learning target or rigor	Answer mentions either alignment to learning target or rigor	Answer indicates that the items must match the learning target and rigor
1-11 If a team decides to use observations as a common formative assessment, what must they establish?	Answer does not include success criteria/rubric or team collaboration on criteria	Answer mentions success criteria or a rubric but not the importance of creating the criteria as a team	Answer includes the process of collaboratively identifying success criteria or rubric
	Emergent 0-5	Developing 6-12	Proficient 13-18
2-3 Because learning targets are cumulative, asking students to create a product also requires_____	Lists one of the following: knowledge, reasoning, skills	Lists two of the following: knowledge, reasoning, skills	Lists the need for students to have knowledge, reasoning and skills
2-4 How can a team determine when to schedule common	Mentions lesson planning without considering	Mentions unit planning but does not include collaboration with PLC	Describes collaborative unit planning and/or backward planning based on learning outcomes

formative assessments?	whole unit or references external calendar or timing		
2-5 How can teams use end-of- unit assessment information	Answer reflects identifying students for external intervention or other action external to the classroom	Indicates utility of end-of-unit information for reflection, but does not specify subsequent action(s)	Understands that summative information can be used formatively, describes analyzing data to determine students who met proficiency standards and how to those who will need additional support
2-6 Why might a fifth-grade team include lower-level cognitive demand tasks on a formative assessment?	References lower expectations for students or student group	Answer mentions the need to pre-assess what students have already learned or determine if students have gaps in prerequisite knowledge	Answer considers the process of pre-assessing what students have already learned/prerequisite knowledge and determining gaps in learning
2-7 When is an assessment reliable?	Does not mention dependability or consistency	References dependability or consistency	Explains that the assessment dependably and consistently measures learning across students
2-8 When is an assessment valid?	Does not mention that assessment measures what it is intended to measure	Explains that the assessment measures what it is intended to measure	Explains that the accurately measures intended learning target and rigor
2-9 How many learning targets should be covered by a common formative assessment? Why?	Does not indicate a maximum of 3 or give reason connected to analyzing and responding to data	Approximately three, but no reason given	No more than 3 to allow teachers to analyze and respond to data collected in a timely manner
	Emergent 0-4	Developing 5-9	Proficient 10-14

3-3 What is Tier 1 classroom instruction driven by	References scope and sequence of curriculum or assessment calendar	References essential standards or learning targets	States that formative assessment drivers Tier 1 classroom instruction
3-4 What is one way that PLC teams can foster trust while reviewing student assessment data?	Answer suggests anonymous process of reviewing data	Answer references PLC norms but only in general	Lists one of the following: Remain judgment/blame free, rely on facts, learn from assessments
3-5 What are advantages of looking at actual student work instead of just grades/scores in a spreadsheet?	Includes a reason unrelated to looking at student work to determine their thinking	Includes one of the following: Student work reveals student thinking/problem solving/misconceptions and strengths	Includes two of the following: Student work reveals student thinking/problem solving/misconceptions and strengths
3-6 If a team administers a formative assessment and groups students who have difficulty in a skill, what is their next step?	Answer includes referral to external intervention or special education	Answer includes gathering more information and/or brainstorming	Answer includes brainstorming instructional strategies and planning how and when to respond through classroom instruction
	Emergent 0-3	Developing 4-5	Proficient 6-8

Appendix B

Appreciative Inquiry Interview Protocol

Instructions: Thank you for participating in this interview about your experiences with professional learning on common formative assessment. Your responses will be used to determine effectiveness of the program and help inform future professional learning.

1. Tell me about your best experience using assessment in your classroom to support teaching and learning after participating in the three-day professional learning and PLCs. What made it so rewarding? What were the outcomes? What allowed you to be successful in that situation? Describe the experience in detail.
    a) Role of PLC in success
    b) Role of professional learning in success
    c) Impact on students
    d) Administrative support
    e) ACAI results
2. Tell me about the things that matter most to you about classroom assessment. What do you value most deeply about your teaching, your relationships with students, and your work?
3. Tell me about when you were in an environment where you were doing your best work with classroom assessment and using results from student assessments to further learning and adapt your teaching. What were the key ingredients, both internal and external, that brought out the best in your classroom?
4. Tell me about your hopes and dreams for formative assessment. If you could make three wishes for your PLC and common formative assessments that would have positive effects on students and teachers, what would they be?

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Master of Science (M.S.) Speech-Language Pathology University of South Florida May 2002

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