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Using Assessment for Learning to Support Numeracy Development in a School Division

by

Sandra Scott-Wilkes

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Abstract

A divisional leader can use the Assessment for Learning framework to increase student achievement in numeracy. Assessment for Learning includes defining clear learning goals, co-constructing criteria around quality and success, engaging in all forms of feedback for learning, collecting evidence of learning, and using information to guide the next learning steps. The Assessment for Learning framework can foster the essential elements necessary for a district leader to enhance numeracy development in students in the division. The aspects essential for a district leader to increase student numeracy are discussed in this paper in four areas. The first is enhancing assessment literacy, including understanding learning progressions and using evidence of learning to increase student achievement. The second is incorporating generative leadership practices to increase professional growth. The third is using collaboration and feedback to increase the culture of professional growth as a collective. Finally, supporting student engagement is discussed with an emphasis on using assessment to motivate students, including all students in the learning process, and incorporating building effective relationships with students to increase engagement and achievement in numeracy. By using the Assessment for Learning framework and focusing on increasing numeracy attributes and skills of students, divisional leaders can enhance assessment literacy and raise student achievement.

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A district leader responsible for increasing numeracy through assessment literacy must first engage the teachers they work with by demonstrating a passion for increasing student achievement and professional growth. Lambert (2003) summarized the motivating effect a leader may have by referring to the dream to make a difference, stating, "a teacher leader may be seen as a person in whom the dream of making a difference has been kept alive, or has been reawakened by engaging colleagues and a professional culture" (p. 422). Therefore, a division leader must engage in professional culture to inspire colleagues to enhance pedagogy and student achievement. The professional culture can be cultivated by building trust, collaboration and open dialogue for feedback and communication.

Increasing student numeracy capacity can be achieved by increasing capacity for effective teaching and assessment practices and by inspiring all students to succeed through collaboration and relationship-building. Having a vision of sound assessment is like a focusing guiding light. The light serves to focus direction, illuminating a path for others to follow. Cranston (2018) discussed leadership credibility and the ability to make others follow. He stated, "effective school leaders see what others cannot see because they are constantly looking for it" (p. 19). By looking at assessment through the lens of effective teaching practices, ensuring the assessment is fair, appropriate for the specific learner's needs, and based on the best evidence gathered leads to increased student achievement (Assessment Reform Group, 2008; Black, 2015; Black & Wiliam, 2018; Brookhart et al., 2006; Moss et al., 2013). The aspects essential for a district leader to increase student numeracy are enhancing assessment literacy, generative leadership, collaboration, and supporting student engagement. This capstone paper will explore

how these aspects can be developed through an Assessment for Learning (AfL) framework to increase students' numeracy knowledge and skills in the division.

What is Numeracy?

To begin, it is essential to define numeracy, as leadership practices must aim to increase numeracy in students. Alberta Education (2022) has defined numeracy as "the ability, confidence and willingness to engage with quantitative and spatial information to make informed decisions in all aspects of daily living." Therefore, students must develop numeracy skills and attributes to become successful tomorrow's citizens. Figure 1 below shows a Venn diagram of the codependent elements of numeracy from Alberta Education (2017).

Figure 1

Numeracy Fact Sheet (Alberta Education, p. 1, 2017)
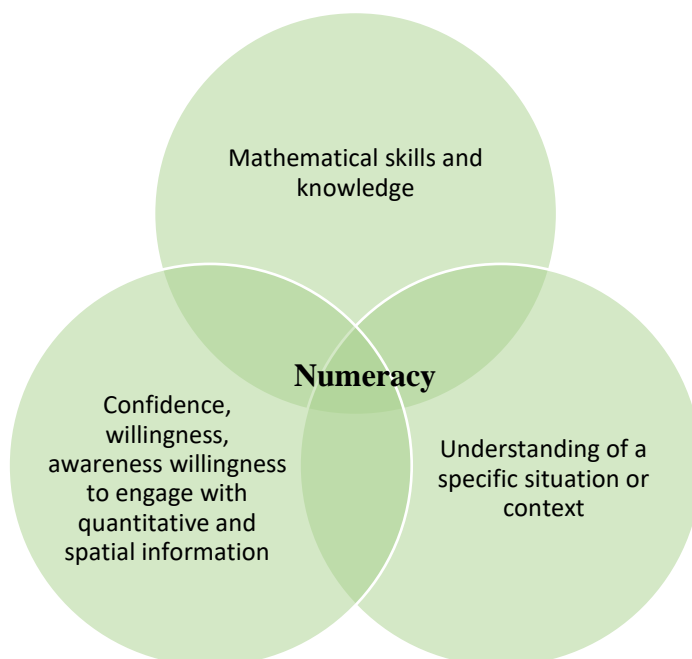
The Peace River School Division (PRSD) (2022) has stated in goal two of its' *2021-2024 Education Plan: Year Two*, "All students are numerate," with the outcome: "All students are

performing at or above grade level in numeracy or meeting their individualized program goals"

(p. 4). Therefore, this paper will address various ways a division leader can use the framework of

AfL to increase numeracy in students.

Assessment for Learning as a Conceptual Framework

The conceptual framework for this capstone paper will use the tenants of Assessment for

Learning (AfL) as the lens through which the aspects of leadership will be explored, leading to

increased numeracy. In a study by Davis et al. (2014), the AfL framework was the method of

delivery used by positional leaders and the goal of implementation in classrooms. The five

tenants of AfL used for the process of supporting AfL implementation include:

- clear learning goals

- co-constructing criteria around quality and success

- engaging in all forms of feedback for learning

- collecting evidence of learning

- using information to guide the next learning steps (p. 568).

Davis et al. (2014) reported using AfL as a powerful tool for student learning and for

adult learning by system leaders as well. They researched leaders by examining their practice,

and "researchers sought to understand more fully the power of Assessment for Learning to

support all learning" (p. 568). The modelling and coaching set the expectation AfL would be as

valuable to leaders as it was in the classroom, further embedding the AfL into the school

system's culture. The feedback component of AfL is as valuable to teachers as to students.

Learners of all ages benefit from using data to determine if goals are being reached and as

evidence of learning. Davis et al. purported division leaders "exert their leadership in incredibly

impactful ways. [It] is not only the change; it is also the process for change and for enacting leadership" (p. 589). This is an essential insight into achieving full implementation of AfL in schools. A division leader can use the AfL framework to enhance assessment literacy, develop generative leadership, foster collaboration, and support student engagement to increase students' numeracy in the division.

Enhancing Assessment Literacy

Enhancing assessment literacy is the foundation of increasing student achievement (Brookhart, 2013; Davis et al., 2014; DeLuca et al., 2019; Harlen & Crick, 2003). It is an aspect of the Leadership Quality Standard (LQS) (Alberta Government, 2020) in competency six, Providing Instructional Leadership (g), which states, "ensuring that student assessment and evaluation practices are fair, appropriate and evidence-informed" (p. 4). The seminal work regarding formative assessment in the classroom is from the article by Black and Wiliam (1998a), where they review and synthesize 250 research articles and classroom evidence to propose implications for practice. The first section of their article summarized classroom evidence from students' and teachers' perspectives, concluding the "consistent feature across the variety of these examples is that they all show that attention to formative assessment can lead to significant learning gains" (p. 17). The learning gains in numeracy can be achieved through the division-wide implementation of AfL practices.

Formative assessment evidence, used effectively in the classroom, is the most powerful way to enhance student learning and motivation and is widely reported in research studies (Black & Wiliam, 1998a; Brookhart et al., 2006; Popham, 2008). Assessment for learning (AfL) is an enhancement of formative assessment, and research shows implementing AfL in the classroom is a challenge for most teachers (Cooper et al., 2017). DeLuca et al. (2019) identified a critical need

to understand the development of AfL literacy in teachers and how doing so can lead to adopting the spirit of AfL in the classroom.

McMillan (2013) suggested it is necessary to establish classroom assessment principles to enhance and document student learning. Classroom assessment is an essential tool teachers use every day to make judgements about what students know and understand. It is essential to get this right for both students and stakeholders. According to Cauley and McMillan (2010), "formative assessment is currently a 'hot topic' among teachers and administrators and is now recognized as one of the most powerful ways to enhance student motivation and achievement" (p. 1). The problem is that formative assessment methods are not widely used in classrooms. This problem was the focus of a study by Box et al. (2015), and it highlighted despite the evidence of its effectiveness, classroom teachers have not embraced formative assessment. The case study revealed teacher knowledge was critical in their ability to convert theories to actual classroom practices. Therefore, a division leader must help teachers understand and foster the implementation of AfL practices to increase student numeracy development. According to Black (2015), for many teachers, adopting formative assessment practices is problematic because it involves a radical change in how they relate to their students and how they behave in the classroom. What is called for is nothing less than a change in how they perceive and strive to implement their role as teachers. Black suggested that discussing classroom experiences promoted change amongst teachers.

The role of the division leader can foster collaboration opportunities for teachers to talk about assessment and lead to change. A division leader can travel to various schools in the division and see teachers in classrooms. Through this process, they can identify classrooms with successful assessment practices and increased student numeracy. The teachers from these

classrooms can be informal mentors or a source of support for other teachers in different schools. When teachers see successful practices in other classrooms, it can inspire change in their classrooms as we strive for enhanced numeracy for division students.

In the introductory study by Black and Wiliam (1998b), the two critical components of formative assessment include descriptive feedback without grades and student self-assessment. The feedback teachers provide should help the student learn how to improve and avoid comparing to other students. The combination of formative and summative assessment a teacher practices and how these are presented to students form the classroom assessment environment (Brookhart, 2013). Black and Wiliam (1998b) also stated the tension between formative and summative assessments would remain as long as there were external summative assessments. Increasing assessment literacy can lead to increased performance in numeracy on these external assessments. Alberta's provincial achievement tests and diploma exams are examples of external assessments. Black and Wiliam (1998b) concluded by saying there is no one model for formative assessment and reform will take a long time, requiring support from practitioners and researchers.

Twenty years after the initial publication, Black and Wiliam (2018) wrote another article to close a gap noted in the 1998a article; building a theory around formative assessment would be difficult. In the article, Black and Wiliam (2018) "propose that formative assessment cannot be fully understood except within the context of a theory of pedagogy" (p. 552). They are convinced any approach to improve classroom practices must deal with the integration of formative and summative assessments. The model for assessment in relation to pedagogy they have developed includes: pedagogy and instruction, theories of learning, context (subject discipline, social, political and cultural), planning and design, the implementation by teachers

including both formative and summative assessments, and external summative testing. This complex model has cyclic interactions between the components and provides a way to analyze the role of assessment in improving education. Black and Wiliam (2018) concluded by stating their framework illuminates the importance of all types of assessment in the classroom. Despite the overabundance of evidence AfL increases student learning and achievement (Black & Wiliam, 1998a; Black & Wiliam, 2018; Box et al., 2015), there is a lack of realization of AfL theory into practice across Canada (Cooper et al., 2017).

Assessment Definitions

The definition of formative assessment used in this paper is the one proposed by Popham (2008), which describes formative assessment as "a planned process in which assessment-elicited evidence of students' status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their current learning tactics" (p. 6). The focus on formative assessment must be goal-orientated, direct student actions to improve and provide instructional opportunities for improvement (Bonner, 2013). Summative assessment includes work completed in class for marks and used for a student's grade calculation. Summative assessment is defined by Moss (2013) as assessment that determines a student's overall achievement in a specific subject at a particular time. The definition from Davis et al. (2014) stated, "Assessment for Learning is formative assessment plus the deep involvement of learners in the assessment process" (p. 568). Therefore, to increase numeracy in a school division, a leader with a deep understanding of all forms of assessment can guide teachers to enhance their teaching leading to increased student achievement.

Learning Progressions

There is a growing body of research around creating learning progressions, a guide to implementing a planned process involving formative and summative assessments and analyzing students' mastery of the intended outcome (Black et al., 2011; Popham, 2008, 2011; Wiliam et al., 2004). Learning progressions can be used in mathematics classes to support numeracy development. Black et al. (2011) attempted to analyze the relationship between the role of curriculum and assessment in pedagogy and student learning progression. Black et al. stated the use of assessments could enhance students learning. However, this "requires that both formative and summative assessments be based on a common 'road map' that can serve as a 'backbone' for learning progression, and that both have been built to be consistent and supportive of that road map" (p. 72). They asserted formative assessment must be understood as one of the fundamental activities teachers undertake in the classroom. Black et al. obtained results from a test of eleven items from 665 grade eight students in San Francisco, using the Berkeley Evaluation and Assessment Research (BEAR) assessment system to provide clues about types of assessment evidence and relate observations to learning models. In the discussion section of their article, Black et al. concluded, "coherent and supportive relationship between the two uses of assessment, that is, to serve both formative and summative purposes, can only be achieved if the same underlying map of progression in learning is adopted for both assessment for learning and assessment of learning" (p. 107). The prevailing perception is both formative and summative assessments need to be used in the classroom and can be used to support each other.

Popham (2008) supported this notion when he proposed the practical way to help teachers reduce the gap in assessment literacy is by creating a learning progression. A learning progression integrates formal and informal formative and a summative assessment in a planned

process for a specific learning objective from the curriculum, including skills and knowledge acquisition and building in checks along the way for concept attainment. Popham (2011) stated a learning progression is a blueprint for effective formative assessment. The learning progression model can help teachers struggling with numeracy development and give them the practical side of implementing formative assessment in the classroom.

Evidence of Learning

Teachers regularly use a variety of assessments to drive our practice and report to stakeholders. Teachers spend much of their time on classroom assessment activities, from making and grading assessments to planning for instruction based on previous assessments. Improving classroom assessment practices can tremendously impact teaching and learning (Black & Wiliam, 2018). There is a clear link in the evidence formative assessment practices have a profound impact on student achievement (Kingston & Nash, 2011; Wiliam et al., 2004)

Teachers need to develop a process of eliciting and interpreting evidence of student learning because students do not always learn what they are taught (Black & William, 2018). Therefore, we must draw conclusions about what the students have learned, not what we think we have taught them. Black and Wiliam (2018) also stated all assessment is about producing valid inferences about what students have learned.

Summative assessment determines the students' overall achievement of a learner outcome at a specific time. Moss (2013) declared, what teachers assess, and how and why they assess it, sends a clear message to students about what is worth learning, how it should be learned, and how well they are expected to learn it. The accuracy of summative judgements depends on the assessment's quality and the assessors' competence. Assessing the Alberta curriculum outcomes

to the best of our ability is vital. The summative assessments must accurately measure what the students can demonstrate they understand for all stakeholders involved.

Division leaders need to implement research on assessment practices in numeracy. Principals and central office staff can perpetuate mediocre assessments or spearhead quality classroom assessment practices (Moss et al., 2013). District Leaders can create a culture of high-quality numeracy assessment by analyzing the evidence of student learning gathered from various classrooms and schools and by sharing practices among teachers. Teachers can learn from each other and create a collaborative community of shared practice through the division leader.

Moss et al. (2013) found if there was no administrator support, the change from conventional evaluation-focused classrooms did not occur in most schools. For formative assessment to become a regular practice in schools, division leaders must be able to coach teachers in its practical use. They must also lead a school culture focused on learning rather than evaluation. The study concluded by saying to raise district formative assessment practices, administrators and instructional leaders must "intentionally build cultures of evidence-based practice" (Moss et al., 2013, p. 217). This means school leaders promoting formative assessment as a school goal is the most effective way for educators to ensure it happens in classrooms.

In a study by Mombourquette (2017), he stated, "schools categorized as high performing were all led by principals who clearly articulated vision, mission, and goals that emanated from personal beliefs about student learning and the role of the school's programme played in helping students to learn" (p. 19). The vision and mission of the district leader can lead to the division-wide implementation of successful classroom assessment practices relying on evidence gathered about the numeracy knowledge and skills of students. Within the division, teachers can

collaborate and develop valuable resources to share in cultivating a classroom climate of best assessment practices. Woodland and Mazur (2019) summarized the role of district leaders is to set up, support, resource, and supervise with the expectation collaboration between teachers will lead to improvements in instruction and, therefore, student achievement. This collaboration can be focused primarily on forms of assessment, how to implement the different types of assessment in a variety of classrooms and how to increase the validity of grading practices.

Research in the field acknowledges there are difficulties with implementation (Black, 2015; Box et al., 2015; Cooper et al., 2017; DeLuca et al., 2019). "Based on its [formative assessment] effectiveness in the classroom and on improved standardized test scores, many prominent educational entities have initiated reform efforts to promote the use of formative assessment, yet these practices have not been embraced by classroom teachers" (Box et al., 2015, p. 956). Cooper et al. (2017) conducted research in Ontario to understand how teachers incorporate current research in classroom assessment into their practice. They found implementing the evidence-informed classroom assessment policies has yet to be realized. There is a need for capacity building and conditions to meet the current best practices standards. There were barriers to implementation, such as lack of time, limited assessment literacy, and the expertise of how to put theory into practice.

Cooper et al. (2017) suggested teachers need to see the value of implementing the new research because:

> [Teachers] will not engage with research without a clearly defined goal. By placing students at the center of improvement planning for knowledge mobilization, teachers will more likely see the value of engaging with research for a targeted purpose – to improve teaching and learning for students. (p. 197)

The framework starts with the source of knowledge; most teachers get their knowledge from personal experience and colleagues. The evidence gained through formative assessment needs to be transformed into practice rather than merely summarized.

Generative Leadership

The primary purpose of generative leadership is to optimize student learning (Townsend & Adams, 2009). There are several links to the LQS (Alberta Education, 2020) addressed by using generative leadership. In modelling commitment to professional learning, (a) states "engaging with others such as teachers, principals, and other leaders to build personal and collective professional capacities and expertise…(b) actively seeking our feedback and information from a variety of sources to enhance leadership practices" (p. 3). In addition, the section on providing instructional leadership includes (h) "interpreting a wide range of data to inform school practice and enable success for all students" (p. 4). These standards are embedded in the generative leadership model.

The goal of optimizing student learning in numeracy can be achieved using the seven key fundamentals of generative leadership outlined by Adams et al. (2019) in their book, *Leadership in Education: The Power of Generative Dialogue*. The seven key elements include: (a) using inquiry-informed professional growth plans, (b) frequent classroom observation, (c) reflective conservations, (d) modelling the generative dialogue process, (e) monthly central office leadership meetings, (f) shared responsibility for reflection-in-action, (g) evidence, data and research are used to drive instruction (see Adams et al., 2019, for more detail). Teachers need to engage in the process of transforming their assessment practices through action research in their classrooms. The reflection and sharing process is essential for teachers to internalize the changes in assessment methods from a pedagogical perspective.

Concerning the LQS outlined by Alberta Education (2020), leaders are expected to lead a learning community, specifically by "creating meaningful, collaborative learning opportunities for teachers and support staff" (p. 4). The model of generative leadership is based on meaningful collaboration to optimize student learning. There are three areas where generative leadership and AfL have clear parallels. First, Adams et al. (2019) emphasize starting with an inquiry-informed growth plan and knowing the goals before you begin, like AfL, which begins with clarifying student learning goals. Secondly, the reflection process in generative leadership includes feedback, an essential component of AfL. Lastly, evidence of learning is used in both generative leadership and is a crucial component in the feedback loop of AfL.

Starting with Goals

The fundamental task of teaching and educational leadership is increasing student achievement (Adams et al., 2019). If you start with the end in mind, you can work backwards to develop an inquiry goal for numeracy. Adams et al. (2019) suggested teachers use collaborative inquiry to start with a guiding question, "the answer to which will provide them with evidence of the extent to which they have been able to achieve their goal or goals" (p. 142). An example of an inquiry-informed question for numeracy was given by Adams et al. as "to what extent will my use of mini whiteboards impact class participation in the formative assessment aspect of mathematics learning" (p. 145). This goal clearly indicates what the teacher is doing, why it is, and how success can be measured. It also incorporates two essentials of AfL: setting clear goals and looking for evidence of student learning.

Meaningful assessment includes criteria directly tied to curriculum, formative assessment to guide teaching and set learning goals, and including students in the process of self and peer evaluation. Beginning with evidence-based questions allows for growth from goals. Adams et al.

(2019) suggested when teachers used this method, "goal statements became more connected to professional inquiry, and a change in language marked a clear integration of goals, guiding questions, strategies, and evidence" (p. 71). This is similar to AfL criteria of setting clear learning goals and using evidence to guide teaching strategies.

Reflections and Feedback

Feedback in all forms (e.g., self, peer and from others) is one of the cornerstones of the AfL framework. Adams et al. (2019) stated, "teachers and leaders are yearning for, and appreciative of, opportunities to reflect on and collaborate about professional learning goals with other teachers and school leaders. They long for timely, useful, and generative feedback within collective and supportive learning communities" (p. 120). The purpose of reflection is to examine assumptions and challenge you to explore the validity of your actions (Dewey, 1933). Adams et al. stated, "an essential requisite of generative leadership is the ability and willingness of leaders to model reflection in their own practice, as well as to foster a culture of reflection in the organizations they lead" (p. 128). They continued to say reflection is the core differentiation between professional development and improved practice through professional learning.

Teachers need feedback and reflection as much as the student in a classroom to incorporate new learning (Davis et al., 2014). The Assessment Reform Group (2008) suggested teachers need three things to successfully implement new assessment procedures that transcend pedagogy, not merely compliance. The first is time to reflect and change their practices. The second is professional development activities spread over time, revisiting assessment strategies at meetings throughout the year, with time to practice new strategies between meetings. Finally, teachers need time to share their experiences with other teachers to develop ownership and understanding of the new assessment procedures.

Using Evidence of Student Learning

Evidence of student learning is central to both AfL and generative leadership. Within PRSD, evidence may be provided in the form of the Numeracy Common Assessment Tool (NCAT) results or Provincial Achievement Test (PAT) results. In the generative leadership model, a key element described by Adams et al. (2019) is the development of inquiry-informed professional growth plans by teachers and leaders. An example of an inquiry goal created by a teacher implementing the numeracy program stated, "in what ways and to what extent will the introduction of Daily 5 impact my weakest students' skills of problem solving?" (Adams et al., p. 71). The connection between the teacher's goal and students' learning must be explicit to know if the goal was achieved.

The cycle of inquiry from Glickman et al. (2018) also used the gathering of data to increase reflective dialogue, leading to action to improve teaching. As part of a peer coaching model, they stated, "when participants select a focus during the preconference and use data gathered during the classroom observation to inform reflective dialogue in the postconference, culminating in an action plan to improve teaching" (p. 451). This is like Adams et al. (2019) generative leadership framework, which includes four questions a district leader should ask at every monthly meeting with teachers:

- What did you do since our last visit (professional growth related)?

- What did you learn?

- What evidence do you have to support the learning?

- What are you going to do in the next seven days or 30 days? (p. 75)

The inquiry cycle and guided questions are useful templates for division leaders to focus monthly meetings with teachers about teaching numeracy and effective assessment practices.

This dialogue can help teachers examine and reflect on their practices, guided by the experience of the division leader.

Collaboration

Collaboration is fundamental in AfL through co-constructing criteria, feedback, and generative dialogue. Collaboration is mentioned several times in the LQS under the sections of fostering effective relationships, embodying visionary leadership, and leading a learning community (Alberta Education, 2020). In addition, Moss (2013) highlighted the importance of collaboration and stated, "collaboration increases professional assessment language and dispositions toward reflecting during and after assessment practices events to help teachers recognize how assessments can promote or derail student learning and achievement" (p. 237). Collaboration is necessary at all levels of leadership, but most importantly for division leaders to foster increased numeracy of students in the classroom.

According to Glickman et al. (2018), supervision aims to improve instruction and, as a result, student achievement. They recommended "effective teachers think about what they are currently doing, assess the results of their practice, explore with each other new possibilities for teaching students, and consider students' perspectives" (p. 83). Glickman et al. suggested the term supervision is interchangeable with instructional leadership, which is the glue for successful schools.

In contrast, Blasé and Blasé (2000) concluded, "our findings also emphasize that effective instructional leadership integrates collaboration, peer coaching, inquiry, collegial study groups, and reflective discussion into a holistic approach to promote professional dialogue among educators" (p. 136). The critical components discussed by Wahlstrom and Louis (2008) of professional communities include supportive interactions, including mentor, mentee

relationships and shared values focused on student learning. Wahlstrom and Louis concluded, "when teachers share ideas about practice, discuss them, or demonstrate them regularly, they may have decreased dependence on their principal as a direct source of expert knowledge" (p. 483). They also suggested this teacher–teacher relationship leads to school improvement. Glickman et al. (2018) summarized shared leadership as providing time and opportunities to engage in leadership activities and teachers working together to help each other become better teachers to benefit students. Sharing and discussing the actual practice may be more powerful for learning and increased numeracy. For example, a divisional leader can bring small groups of teachers together to discuss pedagogy for numeracy development, using evidence from classrooms and assessment data to support teacher-to-teacher collaboration.

Adams et al. (2019) argued it is more commonly accepted school leaders do not have all the answers but rather increase teamwork within the school. Distributed leadership is more common because school principals are no longer expected to be the sole leader. Instead, they generate collaboration. An increase in collaboration has empowered teachers to explore new ways to raise student achievement. However, the benefits of distributed leadership can be limited if the relationship of trust is not cultivated with a new administrator. As stated by Harris (2013), "successful distribution of leadership depends upon the firm establishment of mutual trust – this is the glue that makes all highly effective organizations perform at their highest level" (p. 12). Therefore, when a district leader joins a division team, time will need to be invested in building a culture of trust for collaborative structures' effectiveness to continue improving student performance.

Feedback Loops

As Black and Wiliam (1998b) pointed out, if the substantial rewards promised are to be realized, they will only come about if each teacher finds ways of incorporating the lessons and ideas into their patterns of classroom work. This can only happen relatively slowly through sustained professional development and support programmes. Change is hard. According to Black (2015), for many teachers, adopting formative assessment practices is challenging because it involves a radical change in how they relate to their students and how they behave in the classroom. What is called for is nothing less than a change in how they perceive and strive to implement their role as teachers. Black also suggested the opportunities for teachers to talk about their experiences were a powerful factor in leading to change.

The key is to create collaborative learning opportunities within the division. Professional growth does not happen in isolation but as a collective. Adult learners, like teachers, learn in similar ways to students. The learning must be meaningful, relevant, involve talking about the teaching, and engage with other teachers to provide feedback on implementing what's been learned. Adams et al. (2019) contended meaningful growth is composed of four principles, including "the value of collaboration, the centrality of teams, the importance of relationships, and, above all, the power of inquiry" (p. xvi). Opportunities for collaboration can be cultivated by a divisional leader by meeting with teams of teachers regularly, asking questions to promote reflection, and providing feedback for professional growth.

Cooper et al. (2017) found teachers want to implement current research on AfL into their practice but often lack the knowledge of how to implement the research in concrete ways in the classroom. Cooper et al. suggested building capacity in teachers by increasing their professional knowledge will help in the implementation process.

The goal of collaboration is to improve teaching and student learning. "Improving student learning is the primary goal that drives meaningful and purposeful collaboration. But without emphasis on teacher learning, it is hard to get there" (Datnow & Park, 2019, p. 32).

When focusing on assessment, critically analyzing the teaching of the curriculum at the same time is essential. Robinson (2009) stated, "collaborative opportunities for professional learning are most likely to deliver benefit for students when they are characterized by an intensive focus on the relationship between teaching and learning, and collective responsibility and accountability for student achievement and well-being" (p. 120). Sometimes the best way to increase teaching efficacy is by collectively working towards success with our most challenging students (Robinson, 2009). Therefore, district leaders encourage the reflection on teaching practices and formative and summative assessment practices as part of the same conversation.

Supporting Student Engagement

Student engagement is a complicated and diverse concept, including the aspects of motivation, the inclusion of all students in the learning process, and building effective relationships. These can be found in the competencies of the LQS. A district leader has the responsibility to provide visionary leadership. The LQS competency within Embodying Visionary Leadership states, "a leader collaborates with the school community to create and implement a shared vision for student success, engagement, learning and well-being" (Alberta Government, 2020, p. 3). Under Fostering Effective Relationships, the teachers must demonstrate "empathy and a genuine concern for others; and creating a welcoming, caring, respectful and safe learning environment" (p. 3). A leader should understand the dynamics of engagement concerning enhanced student learning.

Motivation

Classroom assessment is one of teachers' most essential and complex tasks. How a teacher assesses in the classroom can significantly impact a student's motivation to learn and the teacher's judgement of student achievement (Brookhart et al., 2006). The term motivation, as described by Harlen and Crick (2003) stated:

Motivation is not a single or a simple concept and so it is necessary to consider the range of factors which constitute motivation for learning, and the kind of motivation that is needed for learning how to learn and for lifelong learning. (p. 173)

Based on personal classroom observations, there seems to be a growing number of students who lack motivation and a low perception of their ability to succeed in the classroom. Moss (2013) summarizes research on assessment and grading by stating, "what teachers test and how they test over time, creates a unique classroom climate that either fuels motivation to learn or derails it" (p. 244). Individual teachers' perception of the purpose of classroom assessment can affect student motivation and achievement. As an accurate and meaningful analysis of student learning is essential to effective teaching and meaningful learning, it is vital to develop effective assessment practices for teachers and students.

What seems most important is formative assessment techniques are used by the teacher to guide teaching and learning (Assessment Reform Group, 2008; Black, 2015; McMillan, 2013; Popham, 2008). Used effectively, these techniques can increase student effort and motivation. In contrast, "using grades as rewards and punishment both decrease student motivation to learn and harms the learning itself" (Moss, 2013, p. 238). The most recent research implies a synergy between formative and summative assessment practices and purposes, and the planning of a learning progression can integrate these methods for optimal learning and motivation.

Classroom assessment can have an impact on student motivation, and Brookhart et al. (2006) found ample evidence that a classroom environment exists. This environment is where students learn and perform, "both the descriptive and inferential results of this study are consistent with the theory that classrooms differ with respect to how assessments are handled and how students' motivation and effort are engaged (p. 174). Brookhart et al. asserted the classroom environment is clearly defined by students' perception of the importance of the assessments and mastery of the target objective. "This study's results present evidence that the environment has profound effects on student achievement" (Brookhart et al., 2006, p. 176). A future research implication suggested by Brookhart et al. is to test the effects of specific kinds of classroom assessments which improve student motivation.

There are many theories in research around student motivation for learning. Harlen and Crick (2003) suggested motivation is very complex, stating, "motivation is considered as a complex concept, closely aligned with 'the will to learn', and encompassing self-esteem, self-efficacy, effort, self-regulation, locus of control and goal orientation" (p. 169). The aspects attributed to motivation can vary from classroom to classroom and teacher to teacher. In a study conducted by Gan et al. (2019), they found the best predictors of student motivation were teacher-student interactive-informal assessments and student self-assessment. "These findings are congruent with a growing recognition in research that meaningful assessment is at the heart of effective classroom teaching and learning" (p. 796). The teacher in the classroom profoundly impacts whether students want to learn. The converse is also true. If students are not motivated, they are missing a crucial factor enabling them to learn, succeed, and persist.

Schurmann et al. (2020) recognized the consequences of lack of motivation. "Students who are not motivated to learn might not live up to their potential in academic achievement" (p.

740). There is a detrimental effect if teachers are unable to raise and maintain motivation. Another aspect of motivation is the student's perception of control over their own learning. Schurmann et al. said, "self-determination theory is a vital topic in teacher training" (p. 741). They used self-determination theory as part of their study because it highlights the teacher's essential role in creating an environment supporting self-regulated motivation in students. Teachers who can motivate their students might contribute to the solution of the lack of motivation in struggling high school students.

Robinson (2009) reflects on how leadership and collective responsibility relate to student achievement and well-being, as teachers are collectively responsible for the success or failure of their teaching. "The implication is that teachers have confidence in their ability to help all their students succeed-not just those who are more able and/or motivated" (p.123). We see a variety of students have varying degrees of ability and motivation. Not all students are intrinsically motivated to be successful in school. A district leader works with teachers to inspire all students to reach the best of their ability. Using a summary of the information above on motivation, the district leader needs to help teachers understand the critical role of meaningful assessment in motivation, the importance of believing all students can learn and inspiring that in students, and including the student's autonomy.

Inclusion

The achievement gap between various groups makes the need for distributed supervision obvious and relates to the purpose of supervision, the success of all students. Glickman et al. (2018) stated teacher leaders could help identify problem areas and use strategies to foster equity for [LGBTQ+] students, indigenous students, and marginalized students, depending on the school's needs. Successful educational leadership includes achievement for all students,

including those with disabilities. Goor et al. (1997) purported the success of a program is dependent on the principal's attitude toward it, stating, "this is particularly true in the administration of special programs" (p. 133). Goor et al. presented a staff development model to prepare principals for special education leadership. He stated one of the central values included the belief system in student possibilities, not limitations. The model included components of developing skills, knowledge, reflective behaviours, and challenging essential beliefs.

However, as Adams et al. (2019) suggested, you do not have to have all the answers. The ability of a leader to engage in thought-provoking questions and allow for reflection is at the core of generative dialogue. Using questions can help teachers become aware of biases, implications or possible solutions to inclusive education and success for all students. According to Adams et al. (2019), one aspect of generative dialogue is to begin with a shared vision. They stated, "[growth] begins with creating an aligned system and school vision and mission that communicated broad community values, beliefs, and aspirations for and about student learning" (p. 8). How a teacher views students, either conscientiously or unconsciously, affects how they teach and assess students in their classroom.

In a study by Riley and Ungerleider (2012), they investigated how educational decisions are influenced by race and class regarding Aboriginal students in an urban Western Canadian setting. They found teachers are unlikely to change their behaviours in the classroom unless they recognize the need for a change. Personal experiences were the most significant motivators for change, but teachers were not always aware of their biases or influence on students. They stated, "teachers who are able to identify a reason for changing their behaviour as well as for being able to see the positive influence their behaviour modification has upon their learners may be more inclined to modify their behaviour accordingly" (p. 319). This opportunity to see other teachers

achieving success in Indigenous student achievement encourages collaboration and working as a collective for the benefit of all students.

Enhancing teacher effectiveness is a critical ingredient to improved Indigenous student learning. Teachers may feel they are not biased, racist, or do not hold stereotypes, but students are very perceptive and can recognize different attitudes toward themselves and non-Indigenous students. Rubie-Davies et al. (2006) concluded "students are well aware of teachers' expectations and may respond accordingly" (p. 442). Therefore, it is necessary to teach theories of stereotyping explicitly. Riley and Ungerleider (2012) echoed this sentiment by concluding, "awareness of how combined theories of stereotyping and attribution operate may help teachers to examine their decisions and their reasons for those decisions" (p. 320). Regular, critical self-reflection and professional development focused on highlighting stereotypes need to happen every school year. If teachers' expectations of Indigenous students are lowered, it will limit the opportunity for students to learn.

A different perspective is discussed in the article from Gorski (2016) on equity literacy. He purported we need to focus on equity rather than culture, constructing a framework keeping racism, and heterosexism at the center of the conversation rather than cultural diversity. Although the focus should be on equity, and discussions including racism need to be at the forefront, our Indigenous students come from a unique culture, which cannot be ignored either. Teachers working together have a greater chance for success than working in isolation. The power of collaboration is highlighted in the conclusion from Paquette and Fallon (2010) in their book about moving forward in Indigenous education in Canada. They stated, "we believe that the ability of teachers to learn from one another and to contribute to each other's professional growth in powerful and positive ways is a sadly underdeveloped resource for positive change in

aboriginal education" (p. 368). The ultimate goal, "education must engage students. It must convince them that an interesting and inviting intellectual future is possible for them, because of, not in spite of, their aboriginal heritage and culture" (Paquette & Fallon, 2010, p. 330). Teachers must also have this belief; if they are to inspire students to believe anything is possible.

Building relationships

Student learning, achievement, and success begin with engagement (Goulet & Goulet, 2014). This comes from creating relationships with students and having faith in their ability to succeed even if they do not. The most important thing a teacher can build is positive relationships with students. Students want to be at school when they feel respected, heard, seen, and valued. In her research on education for Indigenous students, Steinhauer (2019) suggested students' basic needs must be taken care of before they are ready to learn. In addition, the students must want to be at school, so create an environment that makes learning fun. Goulet and Goulet (2014) highlighted a case study of an educator whose success in educating Indigenous students involved getting to know them and their families, validating their spirituality, listening, and encouraging them often. This does not just apply to Indigenous students but all students and teachers.

Summary

The capping paper aimed to shed light on how Assessment for Learning (AfL) can support numeracy development in a school division. AfL includes setting clear learning goals, co-constructing criteria around quality and success, engaging in all forms of feedback for learning, collecting evidence of learning, and using information to guide the next learning steps. This framework can be used to enhance the assessment literacy of teachers in the division. Other

elements necessary for numeracy development include generative leadership to increase collaboration and support student engagement.

The PRSD has made increasing numeracy a priority in the division, as stated in one of the goals in the three-year education plan. (Peace River School Division, 2022). When AfL has been used in the classroom, it has shown an increase in student achievement (Black & Wiliam, 1998a; Brookhart et al., 2006; Popham, 2008). Therefore, division leaders can utilize the AfL framework to enhance numeracy skills and foundational knowledge in classrooms across the division.

Starting with enhancing assessment literacy as the most effective mode of change (Davis et al., 2014), division leaders work closely with mathematics teachers to provide expertise and guidance on proven AfL strategies, leading to increased implementation in the classrooms. Using learning progressions to set a clear learning path incorporating a variety of formative and summative assessments along the way (Popham, 2008) can increase numeracy skills. When division leaders encourage teachers to rely on evidence of student learning to inform instruction, insight can be gained about the effectiveness of the instruction.

Using generative leadership to create dialogue and collaboration builds teams focused on meaningful growth (Adams et al., 2019). For example, division leaders work with teachers to create numeracy-based goals and incorporate reflection, feedback, and evidence of student learning through monthly meetings. The meetings focus on asking questions about what was learned and set a goal for the next meeting to foster a deeper understanding of assessment practices.

Strategies focused on increasing student achievement in numeracy skills include supporting student engagement to increase motivation. Including all students in the learning

process is essential, with the foundation of building relationships. The framework of AfL is the underpinning of increasing numeric development when it includes all the elements presented in this paper.

Implications For Practice

The goal of increasing numeracy attributes and skills of students in the PRSD is an important one for divisional leaders. This can be achieved by enhancing teaching strategies, assessment practices, collaboration, and relationship-building. As explained by Davis et al. (2014), AfL includes: defining clear learning goals, co-constructing criteria around quality and success, engaging in all forms of feedback for learning, collecting evidence of learning, and using information to guide the next learning steps. They found:

> When leaders employ the tenets of Assessment for Learning as their leadership stance and action, they exert their leadership in incredibly impactful ways. In other words, Assessment for Learning is not only the change; it is also the process for change and for enacting leadership. (p. 589)

Divisional leaders can use the same tenants of AfL to increase numeracy skills and knowledge in students by employing an AfL framework with teachers in the division. Division leaders can define clear learning goals for increasing numeracy, collaborate with teachers to examine what is working well and areas of improvement, and use evidence gathered from classrooms to inform the next steps in instruction. Built into the framework of increasing assessment literacy, a divisional must also impress upon teachers the importance of meaningful assessment to increase motivation, including all students in the learning process and keep in mind the critical need for building relationships with students.

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