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Using Formative Assessment of MAP Data to Shape Instructional Practices

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This is to certify that the doctoral study by

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Abstract

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MS, Texas Tech University, 2012

BS, Texas Tech University, 2007

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Abstract

A school district in the Southwestern United States identified gaps in student performance on 3rd grade math standards and implemented the Measures of Academic Progress (MAP) provided by the Northwest Evaluation Association so that K-2 teachers might better inform their instruction of math standards. The problem was that the district needed to determine the ways in which MAP has changed formative assessment practices. A qualitative case study was conducted using the 5 components of formative assessments identified by Laud and Patel as a conceptual framework. The research questions asked about how formative assessment of students reflects the 5 components in the framework and the manner in which the formative assessment of data informs the types of professional development of teachers at the campus. Interviews with 7 teachers and 2 administrators and observations of local campus data meetings were collected and analyzed using a combination of open and a-priori coding techniques. Results indicated that some teachers had effectively incorporated some of the critical components of formative assessment, while others held beliefs about students and assessments that prevented them from being effective. Furthermore, most teachers used data other than MAP to assess students partially due to lack of knowledge about MAP. A 3-day professional development (PD) for teachers was created to inform the formative assessment of student data for the campus as the MAP assessments are implemented. Implications for social change include that formative assessment practices developed during the PD can be implemented at the research site, the district, and possibly further, thus improving academic performance and growth, particularly for students from low socioeconomic backgrounds.

Using Formative Assessment of Student Data to Shape Instructional Practices

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Section 1: The Problem

As demonstrated by the Trends in International Mathematics and Science Study (National Corporation for Education Statistics, 2015), an international standardized test ranking countries around the world in math and science, performance gaps exist, and in some instances are increasing, between socioeconomic subpopulations across all grade levels (Henson, 2015; National Corporation for Education Statistics, 2015). Extensive studies have been conducted attempting to isolate what about schools and teachers has the greatest impact on student achievement (Bacher-Hicks, Chin, Kane, Staiger, & Society for Research on Educational Effectiveness, 2015; Baird, Engberg, Hunter, & Master, 2016; Hattie, 2016). According to those studies, two of the factors that have the largest influence on student achievement are the teacher's instructional practice in general and how the teacher utilizes formative assessment practices to change instructional strategies, in particular.

A local West Texas school, Oak Hills Elementary (pseudonym), has identified gaps in student performance in third grade specific math standards. Table 1 shows gaps in performance across three major subpopulations at the elementary campus with low socioeconomic status students underperforming white students by 13%. These standards shown in Table 1 are those that are directly vertically connected to corresponding standards for grades kindergarten through second (TEKS Resource System, 2017). Differences in specific Texas Essential Knowledge and Skills (TEKS) indicate that students with low socioeconomic underperform white students by as much as 34%.

Table 1

*Percentage of Students Performing at "Basic Level" and "Advanced Level" on Third Grade Math STAAR Overall with Target Standards at a Oak Hills Elementary (2016)**

	Overall math %	Advanced math %	3.2B	3.4E	3.5B	3.8B	3.9A
All students	94%	45%	46%	64%	61%	61%	61%
White	96%	51%	50%	66%	64%	77%	64%
Hispanic	87%	30%	30%	57%	46%	48%	43%
Low SES	83%	17%	23%	43%	43%	47%	30%

**Note.* The scores presented in Table 1 are cumulative across two test administrations in March and May of 2016.

These gaps in performance across the subpopulations illustrate the presence of a gap in formative assessment practices in mathematics in the K-2 classrooms. Because the STAAR test is not administered to students until the third grade, the district began searching for a formative assessment process that K-2 teachers might use to better inform their instruction while holding teachers accountable for the math standards on which third grade students are struggling.

The Local Problem

During the 2016-2017 academic school year the district implemented a trial version of Measures of Academic Progress (MAP) provided by the Northwest Evaluation Association (NWEA) in order that K-2 teachers might better inform their instruction of the math standards on which third grade students are struggling. To date no evaluation of the use of the MAP program is in place. In particular, after the first year of implementation, the district needs to determine the ways in which MAP has changed teachers' and administrators' use of formative assessment practices in their classrooms (Deputy Superintendent, personal communication, April 8, 2017) and for the purpose of

designing future professional development that is appropriate to teacher needs (NWEA, 2015b). Research shows that the MAP assessments, when used appropriately at strategic times in the school year, can be accurate measures of student performance throughout the year and serves as an accurate indicator on the performance of students on the end of year standardized state test (Ball, 2016; January & Ardoin, 2015; Klingbeil, McComas, Burns, & Helman, 2015). The assessments also provide targeted data that helps to pinpoint specific weaknesses in student performance that can be utilized in small group professional development to generate changes to instructional practices.

Research shows that teachers' instructional practices influence student performance more than any other factor (Jacob, Hill, & Corey, 2017). Furthermore, instructional practices can be developed through the proper use of assessment programs followed by local professional development designed for small teams of teachers to identify problems, set goals, share results, and discuss collaborative efforts to improve instruction (Ciampa & Gallagher, 2016; Lynch, Smith, Provost, & Madden, 2016). At the local site it is unknown whether or how teachers are using these interim assessments to alter their instructional practices nor how administrators are using the assessments to create local professional development. Hence, there is a need investigate the ways in which teachers and administrators are using formative student assessment practices, via the MAP assessments, to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site.

Rationale

Evidence of the Problem at the Local Level

Although it is known that the teacher and the formative assessment practices that they use have large impacts on student performance (Hattie, 2016), little is currently known about the formative assessment practices at the individual, teacher level for Oak Hills Elementary (Deputy Superintendent, personal communication, April 8, 2017). At the campus level, data show a need for a focus in third grade mathematics. Students continue to show gaps in performance with some of the core skills in lower grade levels required to advance to higher math concepts in upper elementary (see Table 1). In response to this need, the district has implemented the MAP Assessments to provide additional information and specific data to teachers that can be used to inform instructional practices in the classroom. It is not yet known how, if at all, the impact that the MAP assessments has had on campus level practices at the research site (M. Satterwhite, personal communication, April 8, 2017).

Evidence of the Problem from the Research Literature

Research shows that the formative assessment of students is necessary as part of an ongoing cycle of feedback on student performance (Box, Skoog, & Dabbs, 2015; Hattie, 2016). While there are many influences on student performance, including the home, school and classroom climate, the teacher, and curriculum, Hattie (2016) showed that feedback has one of the largest influences on student achievement. However, Hattie's analysis on student feedback throughout the years shows that feedback can vary from effective to ineffective. One of the most effective ways of creating positive, timely, and

informative student feedback is through a targeted approach to the formative assessment of students (Brink & Bartz, 2017). Formative assessment allows the teacher to set goals, establish a baseline of knowledge and comprehension for the students, and if used appropriately, inform decisions on curriculum, and instructional strategies (Brink & Bartz, 2017; Hattie, 2016; Nagro, 2016; Schoenfeld, 2015).

The use of an academic universal screener as a formative assessment tool to determine how students were learning over time is a growing trend in the field of public education (Klingbeil, Nelson, Norman, & Birr, 2017). For this study, a case study of the research site is needed to determine the current implementation practices of the MAP assessments, as formative assessments of student progress, and how they are being used by teachers and administrators to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site.

Campuses or districts that properly utilize case studies, sometimes in the form of ongoing action research, can better explore decision-making in context (McEntarffer, 2012). When implementing something new, often teachers and administrators (a) rely on blanket conclusions from meta-analyses of instructional practices, such as those conducted by Hattie or Marzano, or (b) say various practices are appropriate without providing any foundational information on how those practices should look on individual campuses (McEntarffer, 2012; Oneal-Self, 2015). When implementing something such as the MAP assessments as a formative assessment tool to measure student progress, it can be of benefit for teachers and administrators to conduct or participate in a case study to

better understand the effect of a given practice on students or to better stimulate an intended effect by adjusting practices over time.

Despite the research showing the positive influence that formative assessment practices have on student performance, there is a continuing struggle for teachers to use formative assessment in effective ways to improve student achievement (Brink & Bartz, 2017). Schools or districts that choose to conduct or participate in a case study of their implementation of assessments, curriculum, or instructional tools, tend to make larger gains in student performance than schools that do not by allowing the researcher to focus on specific data relevant to the site while not becoming overwhelmed by the larger body of research on a given topic (Merriam, 2009; Yigit & Bagceci, 2017).

For this local research site, a case study was needed to investigate the ways in which teachers and administrators are using formative student assessment practices via the MAP assessments, to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site. Knowing the ways in which teachers and administrators use formative student assessment practices via the MAP assessments provides a knowledge baseline of practice at the site that can be used to better implement the MAP assessments in order to provide the campus with better opportunities to utilize the critical components of effective formative assessment to improve student performance (Box et al., 2017; Laud & Patel, 2013). Without this study, the district would not be able to form and establish implementation practices of the MAP assessments as formative assessments to guide instruction and develop local professional development.

Purpose

The purpose of this qualitative case study was to examine the instructional practices associated with the formative assessment of student data. In particular, the focus of this project study was to investigate the ways in which teachers and administrators are using formative student assessment practices, via the MAP assessments, to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site. In this study, I identified the ways in which teachers and administrators use formative student assessment practices via the MAP assessments to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site.

Definition of Terms

Data driven decision making: the process by which student data is used to "diagnose student needs, implement targeted supports, and design school improvements" (Pak & Desimone, 2017, p. 37).

Formative assessment: Assessment strategies utilized by teachers to gauge student comprehension and mastery of a skill or idea. Within the context of this study, formative assessment of student data refers to a teacher's or administrator's analysis of student data to identify gaps in student outcomes (Andersson & Palm, 2017).

MAP: Measures of Academic Progress are a series of adaptive assessments created by NWEA and administered locally at campuses through online interfaces through tablets or computers (NWEA, 2015b).

PLC: A Professional Learning Community (PLC) is a structure used by teachers and other education staff that allows teachers to analyze formative and summative assessment data. Decisions about instructional practices are made based on the results and discussion held (Dufour, 2015).

STAAR: State of Texas Assessment of Academic Readiness. This is the acronym for the standardized state assessments provided by Texas to students in grades 3-8 math and reading, fifth and eighth grade Science, fourth and seventh grade Writing, 8th grade Social Studies, and EOC (End of Course) in Biology, English I, English II, U.S. History, and Algebra I (Texas Education Agency, 2018a).

TEKS: Texas Essential Knowledge and Skills are the curriculum standards that Texas teachers are required to teach. They are created by the Texas Education Agency and specify the content that should be taught for each grade level and subject area from Kindergarten to Grade 12 (Texas Education Agency, 2018b).

Significance of the Study

There is a gap in practice at the local setting. Although research supports the use of formative assessment data to alter teacher practices it is unknown how teachers are modifying their instruction based on MAP (Ainsworth & Viegut, 2015; Laud & Patel, 2013; Wagaman, 2015). I investigated the ways in which teachers and administrators use formative student assessment practices via the MAP assessments to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site. The study revealed gaps in teacher professional development practices and/or teacher implementation of such practices that allow for the

student demographic groups to show differing outcomes. This study is important for classroom teachers and administrators at the local setting because results may directly inform professional development and implementation practices at the local site of the study. These practices may then be used to target campus level intervention strategies connected to implementation practices at each campus and to improve classroom instruction practices and student achievement in order to guide future implementation efforts. Understanding the ways in which formative assessments, specifically the use of the MAP assessments, are used to inform classroom practice will assist the district in future development plans, campus improvement plans, teacher evaluation initiatives, and the continued effort to improve student learning. Changes in practices at the local level may be instrumental in bringing about social change as the practices will inform national training through the NWEA for future districts and campuses implementing the MAP assessments; specifically, to create methods to develop more appropriate skills required to use the formative assessment of student data to drive professional development. This study may also lead to changes for districts that choose to implement data driven development programs to affect targeted student outcomes.

Research Questions

The overarching research question was: In what ways are the formative assessments of students being used to improve instruction? The following research questions guided the study:

RQ1: According to teachers and administrators, in what ways do the formative assessment of students at the campus reflect the five critical components of formative assessment as outlined in the conceptual framework?

RQ2: According to teachers and administrators, in what ways does the use of student formative assessment data drive the kinds and types of professional development of teachers at the campus?

Review of the Literature

In response to education legislation, attention has been focused on improving assessment and instructional practices in the classroom. Terms such as "formative assessments" have become embedded into the vocabulary and performance of many educators around the country (Wagaman, 2015). Data driven decision-making processes have also come to the forefront of efforts to improve achievement. These efforts have led to researched practices in each area of formative assessment practices (Andersson & Palm, 2017).

Formative assessment is not a new term as it relates to education and classroom practices. Efforts to improve test scores have been linked to leveraging formative assessment practices and providing authentic learning experiences (Ainsworth & Viegut, 2015). These practices are continually informed through cycles of the formative assessment of the resulting student data from assessment practices (Furtak et al., 2016). Data-driven instruction leverages data collected from formative and summative assessments to create individualized instruction approaches for teachers, commonly called differentiated instruction (Tomlinson, 2016). When data-driven instruction and

formative assessments align themselves with standards-based instruction, teachers are able to make informed decisions about their own instructional practices. To improve results even further, Dufour (2015) advocates that teachers also focus time and energy into improving student motivation and confidence through self-driven data tracking and goal setting. All of these practices require teachers to be informed and knowledgeable of students' learning needs, performance, and abilities in the classroom. The ultimate goal of formatively assessing students and using the data to inform and change instructional practices is to help students learn and improve teaching.

In this section I will review literature on the fundamental pieces of formative assessment as proposed by Laud and Patel (2013) which include standards based formative assessment, detailed and specific feedback, student directed goal setting, leveraging data to inform decision-making processes, and leveraging results to improve student confidence and motivation. Additionally, there is a review on the available literature on the MAP assessments and their use and effectiveness in various school settings as a tool to improve instructional practices.

The search terms used to conduct this literature review are as follows. Each query included the search criteria of being peer reviewed and falling within the timeframe of 2015 to present, thus meeting the academic recency requirements of Walden University. The search terms included: *formative assessment in mathematics, math achievement (refined: intervention and achievement gains), professional learning communities (refined: and math), data driven decision making and elementary education, project based learning and math,* and *targeted intervention.*

Conceptual Framework

Many approaches to improving student achievement center around the well-established constructs of teacher leadership, vision, and efforts to improve teachers through evaluation methods (Lynch et al., 2016). Some recent research has begun to connect the importance of formative assessment practices in improving student achievement in mathematics (Scammell, 2016). Laud and Patel (2013) outlined a conceptual framework that included five critical components of formative assessment to improve student achievement by using student data to improve or alter teaching practices and to set goals to help focus learning. According to Laud and Patel (2013) the five critical components of formative assessment are that the assessments (a) are standards based, (b) utilize detailed and specific feedback, (c) involve student directed goal setting and feedback, (d) use formative assessment data in data-based decision-making (what Laud and Patel call "informing next-steps"), and (e) using results to improve student confidence and motivation.

Formative assessments are assessments, often created by teachers designed to provide specific kinds of feedback to students about their performance and understanding of the content (Andersson & Palm, 2017; Brink & Bartz, 2017). Many states and districts employ content standards that are used to provide a scope and sequence for the delivery of content throughout the year. When formative assessments are standards based the resulting data is more likely to be specific for a particular learning standard and can guide consistent student progress towards grade level content knowledge (Laud & Patel, 2013; Sharma, 2015).

The feedback provided by the formative assessments helps to give direction to instruction. However, feedback can vary in its usefulness depending on the level of clarity, specificity, and detail for the student. Vague feedback often does little to improve student performance (Harbour, Evanovich, Sweigart, & Hughes, 2015; Laud & Patel, 2013). Providing students with detailed and specific feedback from formative assessment data allows the teacher to have a clear picture of where the students are in relation to the content and allows the student to make informed decisions about their own progress in retaining and understanding the content (Hattie, 2016; Laud & Patel, 2013).

The third critical factor requires that the formative assessments involve students in their own goal setting. Hattie (2016) found that students tend to have larger increases in academic performance when they are involved in their own goal setting and when allowed to provide feedback to their peers. Laud and Patel (2013) postulated that the effectiveness of formative assessment is improved when allowing for students to set their own goals and periodically assess their attainment of those goals.

Informing next steps, or data-driven decision making, has been an increasingly important part of campus improvement and improving student achievement for a number of years (Datnow & Hubbard, 2015). Laud and Patel (2013) further support the data-driven decision-making process in their framework for formative assessment of student data. This suggestion is to use the data to guide the decision making process in adjusting teaching practices, particularly as they relate to actionable recommendations to instructional strategies. Often, these strategies are created or developed by local data-

based decision-making teams or leadership through professional development (Laud & Patel, 2013).

Laud and Patel (2013) state that the final aspect of the formative assessment process is to use it to improve student confidence and motivation. Hattie (2016) supports this idea particularly by having students track their own data in journals or notebooks. When students are able to visualize their growth over time, their motivation to engage in curriculum and content improves as their confidence in their ability improves (Hattie, 2016; Laud & Patel, 2013). Laud and Patel (2013) suggested that giving positive feedback to students as a part of a classroom culture can also help to foster student confidence and motivation. Student confidence in their own ability has been shown to improve student performance (Gelderblom, Schildkamp, Pieters, & Ehren, 2016; Gutierrez de Blume, 2017; Laud & Patel, 2013). Overall, if a student feels confident in their ability to perform, they will try harder and be motivated more to continue to grow and succeed.

These five critical components of assessment were used to shape the research questions, as well as to guide the formation of interview questions for teachers and administrators; in particular, to examine the ways in which the formative assessments are standards based, include student directed goal setting and feedback, are informing next steps in the professional development cycle, and the ways in which the revised teaching practices improve student confidence and motivation.

Review of the Broader Problem

Standards based formative assessment. Standards based assessment in the United States has been a topic of research and practice for long enough that the practice is mandated by national law (Department of Education, 2015). At its core, Standards Based Assessment is a system of measurement that compares student progress based on pre-determined, often research based, sets of learning standards for students. Government institutions such as the U.S. Department of Education or the Education Agencies of the local State often set the standards. When practiced appropriately, standards based assessment helps to facilitate learning and improve learning through a cycle of feedback and reassessment (Sharma, 2015).

Specific data practices and how accountability influences those practices can vary widely. In some instances, structures can range from the very prescriptive with the use of specific diagnostic assessments to group students, to structures that focus on differentiation strategies based on data, results, and a PLC, and still others focusing more on a blended PLC and independent learning approach (Hjalmarson, 2017; Konstantopoulos, Miller, van der Ploeg, & Li, 2016). Rangel, Monroy, and Bell (2016) argued that the body of research that exists on data use by teachers is plentiful, but there is little that focuses on the practices of data use in specific content areas. Alternatively, Scammell (2016) worked with National Council of Supervisors of Mathematics (NCSM) and the Association of Mathematics Teacher Educators (AMTE) to develop a succinct series of suggestions to better inform education stakeholders on the importance of research-based formative assessment practices and found that the growing body of

research supports the use of formative assessment to improve student achievement, specifically in mathematics. Additionally, the body of research shows the importance of students reflecting on their own performance data in improving student achievement. Proper analysis and use of the student data by the teachers depends on the kinds of data that teachers use for formative assessment of student performance and data management systems that facilitate analysis (Foegen et al., 2016; Rangel et al., 2016; Van der Kleij, Vermeulen, Schlidkamp, Eggen, & Theo, 2015).

In order to use assessments that are standards based, the teachers need to understand the content, or the standards, that the assessments are designed to measure (Floden, Richmond, & Andrews, 2017). Floden et al. (2017) conducted a literature review following the broad release of new content standards for K-12 education around the United States. Much of the literature spoke towards the requirements that the new standards created on student comprehension, including a needed push to emphasize the importance of increased rigor that these new standards brought. Due to this increase in rigor, Floden et al. (2017) stated that there would be a needed push to improve teacher content knowledge in order to adequately measure student progress towards mastery of the standards.

As such, teacher content knowledge is another factor that mediates classroom practices and has an impact on student outcomes. Gess-Newsome et al. (2019) describe the importance of teacher content knowledge in the conceptual understanding of students in content. Their investigation of mathematics content knowledge among 50 high school teachers showed a strong correlation between a teacher's content knowledge, pedagogical

knowledge, and student achievement. Participating in a two-year development model designed to improve teachers' mathematics content knowledge and pedagogical knowledge resulted in significant gains in student achievement. The implication is that teaching requires a knowledge base and approach that needs to be informed by ongoing professional development in both content knowledge and pedagogical knowledge, particularly as it relates to assessment, while simultaneously being founded in the state standards (Gess-Newsome et al., 2019; Ottmar, Rimm-Kaufman, Larsen, & Berry, 2015; Stein, Smith, Henningsen, & Silver, 2009).

Research shows that the MAP assessments are aligned to the state standards (Li & Tran, 2017). The adaptive nature of the MAP assessments responds to a student's demonstrated abilities. As the student answers questions correctly, the test responds by providing more rigorous questions or questions further along in the scope of the TEKS. Similarly, if the students are responding incorrectly, the test provides questions that are further back on the scope and sequence of the TEKS. This process is designed to pinpoint the actual ability of the student which may be above, below, or on grade level (Li & Tran, 2017; NWEA, 2019a, 2019b). Figure 1 shows a graph created by NWEA to show how the test responds when students get questions correct or incorrect, narrowing in on the actual performance of the student as the test continues. When teachers see questions beyond the scope of the standards for their grade level, they are confusing the adaptive nature of the test with being "not aligned" to the TEKS. Understanding the adaptive nature of the assessment and connecting that concept to specific data reports can help teachers make differentiation decisions for the individual needs of their students.

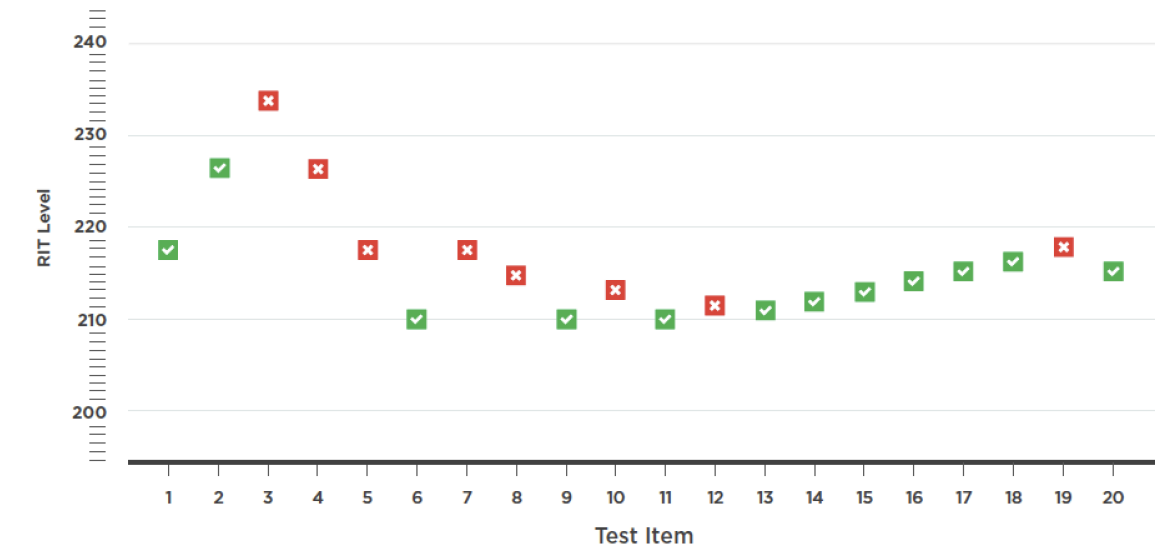

Figure 1. MAP Growth's Adaptive Test Structure (NWEA, 2019a).

Additionally, it should be noted that the MAP assessments have a built-in projected proficiency measure. The alignment to the TEKS is strong enough that a study conducted by NWEA on their own assessments showed a greater than 84% accuracy when predicting student's performance on the STAAR test (Li & Tran, 2017).

Informing next steps. In a follow up study to their original, outlining the critical components of formative assessment, Patel and Laud (2015) supported the utilization of student data is an important aspect of the data-driven decisions-making process, or using data to inform next steps. The follow up study, Patel and Laud (2015) investigated a system for formative assessments with seventh grade teachers providing instruction on a language arts unit. They found that utilizing a systemic approach to formative assessment allowed for teachers to make more informed decisions in choosing instructional strategies and remediation (i.e., informing next steps).

There are many existing and identified factors that impact student achievement such as strong leadership, vision, and methods to improve teacher performance through evaluation cycles (Meyers, Graybill, & Grogg, 2017). However, there is a need to increase the capacity of teachers to utilize and interpret data from a variety of assessments. Of particular note, Lynch et al. (2016) found that fewer but quicker data collection tools are more valuable in teacher decision-making than large, one-time assessments. The MAP test provides a formative assessment platform that provides more frequent formative assessments as opposed to the large-scale summative assessments, like state level assessments. Using frequent formative assessments like MAP can help provide that targeted, frequent data set, perhaps provided before or after state level exams, needed to make appropriate data decisions (Adesope, Trevisan, & Sundararajan, 2017; Meyers et al., 2017).

Another aspect that has an influence on utilizing data driven decision-making processes for student achievement is using the data to create professional development at the local level that informs teacher instructional practice (Marsh & Farrell, 2015). Research has shown that teachers' instructional practices have a large impact on instruction (Jacob et al., 2017; Polly, McGee, Wang, Martin, Lambert, & Pugalee, 2015; Wenglinsky, 2001). Jacob et al. (2017) conducted a multi-year study on a large-scale math-based instruction and teacher development model in a midsize district involving 30,000 students representing diverse cultural and socioeconomic backgrounds. Their study found that quality professional development practices and fidelity to the resulting teaching strategies and practices has a large impact on instructional practices in the

classroom. Teachers that maintain fidelity to locally created professional development practices and adopted curriculum are important to teacher perceptions of the level of impact that the development has on their instructional practices. Being aware of teacher perceptions before implementation of an instructional strategy or intervention can help educational leaders focus their approach to delivery of development to be more explicit on the desired outcomes, the researched importance, and the link to adaptive approaches for various student-learning abilities. Furthermore, quality professional development has been shown to have an impact on teacher instruction that lasted into subsequent academic years following the development (Cowen, Barrett, Toma, & Troske, 2015).

When teachers use data driven decision-making to change instruction, teacher self-efficacy in instruction and assessment will play a role in student success (Althauser, 2015; Ciampa & Gallager, 2016). Althauser (2015) conducted a series of surveys that quantitatively showed a correlation between elementary teachers' self-efficacy in math instruction, teachers' assessment practices, and student outcomes. Results showed that a teacher's self-efficacy, particularly with content alignment, delivery, and assessment, and student socioeconomic status predicted student achievement in math and supported the conclusion that job-embedded and sustained professional development can lead to improvement in student outcomes in mathematics. Ciampa and Gallager (2016) also show that teacher self-efficacy had a large impact on teacher motivation and reflective practices. If supported by a structured inquiry model, such as a PLC, the reflection practices of teachers can greatly impact instructional and assessment practices.

In recent years, a body of research connected the importance of utilizing a team approach through an inquiry model to improving teachers' use of instructional strategies and improving instructional practices (Dufour, 2015; Owen, 2016; Vanblaere & Devos, 2016). This inquiry approach is commonly called a Professional Learning Community (PLC). Ciampa and Gallager (2016) discussed the role of teacher self-efficacy, but their primary finding was that teachers who engaged in targeted discussion that involved identifying a problem (in the case of MAP, it assists in identifying the problem), discussing data about the problem, creating targeted instructional goals, developing formative assessments, and then discussing results and implications had improved changes to instructional practices.

Students across multiple sites in California with high levels of student poverty were able to use an equity approach to teaching and learning to improve student performance more than schools with similar demographic compositions (Wells, 2015). The key components to an equity-based approach include professional collaboration and collective responsibility, professional learning with a focus on understanding students as individual learners, developing cultural competence amongst teaching staff, and personalizing adult learning (Liggins, 2016; McCray, 2016; Wells, 2015).

Providing appropriate instructional approaches is influenced by the developmental needs of the students. Previously, it was accepted that students are more prepared for certain kinds of math instruction at particular age groups. Recent findings indicate that children are capable of far more complex thinking than previously thought through classically established research by child development experts such as Piaget. This is

achieved through the progressive construction of foundational knowledge and continued support of critical thinking skills (Kinzie, Whittaker, McGuire, Lee, & Kilday, 2015). Heatly, Bachman, and Votruba-Drzal (2015) concluded that procedural math practices seemed to have the largest impact on student achievement in math for early elementary grades. However, the results indicated that conceptual teaching practices in later elementary resulted in stronger results. This understanding should inform the direction that local professional development may need to go in the local setting after analyzing MAP data.

Using formative assessment data to improve student confidence and motivation. It has been established that formative assessments can be used to increase student motivation and confidence by using academic feedback to identify student relevancy, ensuring students understand feedback, and using feedback to measure goal attainment (Haas, Stickney, & Ysseldyke, 2016; McGlynn & Kelly, 2017; Reddy, Dudek, & Lekwa, 2017). Another way that teachers can work to generate student confidence and motivation is to create a system that allows students to see their own academic growth over time (Koenig, Eckert, & Hier, 2016). Koenig et al. (2016) suggested that having students create graphs that show their performance over time is exceptionally motivating for students. Even if the growth is incremental, students often end up internally pushing themselves to reach the next goal for the simple satisfaction of knowing that they are capable of success. Rubrics have also been shown to improve student motivation and confidence, particularly when used over time to show student growth (Brookhart & Chen, 2015).

Simply having results, or data on student performance, is not enough to create the desired improvement in student achievement. Teachers and administrators must analyze the data from student assessment to make decisions on a course of action to improve instruction, and work to change instructional practices in order provide appropriate interventions and to improve student engagement, confidence, and motivation (Gelderblom et al., 2016). Furthermore, the benefits from data analysis can be enhanced by having a clear and measurable purpose for gathering and use, regularly analyzing data, garnering data from a variety of sources, developing teacher and administrator data literacy, creating collaborative settings for data analysis and discussion, and should lead to concrete actions (Hoogland et al., 2016; Lewis, 2016).

When a teacher uses his or her formative assessments to guide instruction, a frequent problem observed by researchers is a lack of real-world connection between the assessment, the instruction, and the student. Often, the students do not see the relevancy in their own lives for why they are learning the specific content, or how it is being assessed, which has a negative impact on a student's motivation to learn (Kotkas, Holbrook, & Rannikmae, 2016). Researched teaching practices, such as providing realistic context and relevance to the content, can have a positive impact on student motivation and confidence in dealing with the subject matter (Sheldrake, 2016). The presentation of the content can create either over-confidence or under-confidence in a student's self-perception of their ability to master the content. In Sheldrake's (2016) study, providing real world utility to the content created a sense of confidence in the

students which in turn improved their willingness to problem solve and work with the content.

Student motivation can be improved through a number of ways. Recent technological advances have made it so that student interaction with content has shifted to allow more collaboration with peers, more immediate feedback from the instructor, and has positively impacted student attitudes and confidence in learning content (Al-Chibani, 2016). Essentially, the use of technology allows the teacher and the student to interact in a way that improves or streamlines the academic feedback process from formative assessments which in turn improves the ability of that feedback to influence student confidence in a timely and effective manner (Bonnett, Yuill, & Carr, 2017; Harbour et al., 2015).

Student motivation can also be improved through instructional practices that push student creativity and utilize content integration. Ludwig, Boyle, and Lindsay (2017) analyzed data compiled from over 1,600 studies that investigated content integration and its influence on student learning. Their findings demonstrated an improvement in student attitudes and motivation presented with math, science, or reading lessons integrated with the arts. Students receiving an integrated lesson helped to improve student context and provided a better foundation for concept attainment when compared to the students that received the traditional textbook and lecture style lessons. When provided with real-world relevance, lessons become less about the content and more about the experience for the students. When a lesson is experiential in nature, such as with project based learning in music or Science, Technology, Engineering, and Mathematics (STEM), it has been

shown to improve retention, mastery, and problem solving abilities with the content (Dack, van Hover, & Hicks, 2016; Han, Rosli, Capraro, & Capraro, 2016).

In the elementary math setting, it is critical to include these strategies while providing structured support for developing mathematical thinking through spatial reasoning. Cohrssen, deQuadros-Wander, Page, and Clarin (2017) demonstrated this through their study of a kindergarten classroom that utilized project based learning, subject integration, and a teaching approach that provided real world context and relevance to students. These strategies, used together, provided multiple opportunities for students to interact with the content through rehearsal and exploration, which enhanced student mastery at this foundational grade level. This foundation can be invaluable for later grades, such as third grade math for the research site.

Student directed goal setting and feedback. Goal setting requires the careful use of data analysis through specific data to improve education for students. Van Geel, Keuning, Visscher, and Fox (2016) conducted a two year study that showed that decision-based interventions had the equivalent of an additional month or more of instructional time with students identified as low socioeconomic. This approach serves to inform teachers about the individual needs of the student. However, research indicated that the data based decision-making process needs to focus on specific interventions with appropriate teacher training in adequate implementation and execution of the chosen intervention rather than blanket identification of students who need further assistance or the student performance growth is not as great (Meyers et al., 2017; van Geel, et al., 2016; van Geel, Visscher, & Teunis, 2017).

Goal setting can be a powerful tool to helping lay the foundation for focused student growth. The practice of goal setting involves setting targets for achievement, monitoring progress towards those goals, and adjusting instruction on an individual basis to facilitate students meeting those goals (Koenig et al., 2016). Haas et al. (2016) showed that students under a teacher utilizing a structured goal-setting format led to further gains than students under teachers that did not. While there are numerous other factors involved with the goal setting process (i.e., the type of content to be learned, the severity of the level of struggle for the student in attaining mastery, and determining how realistic the goal is to attain), Haas et al.'s study failed to address the process and impact of involving students in the goal setting process.

In a goal setting process studied by Burns, Martin, and Collie (2018), the involvement of students in the goals setting process was analyzed to determine the ability of the students to set and meet goals. Their study analyzed the goal setting practices of high school students across nine different schools. The results showed that students were not only able to create achievable goals in their learning and performance, they were able to improve self-efficacy in relation to the skills identified for remediation. It is also important for the goals to have a specific end-point, be measurable, and be relevant to the student's life (McGlynn & Kelly, 2017). Framing goals within a framework that makes them specific, measurable, attainable, and realistic allows for the students to benefit from the goal setting and attaining process and allows for the process to be differentiated for the specific needs of individual students (Curtis, 2016; McGlynn & Kelly, 2017)

Factoring into the goal setting process is student self-assessment of goal attainment. While students who are involved in evaluating their own growth tend to have a stronger sense of ownership of the content and tend to be more self-motivated to learn, it is also important to teach students how to analyze their growth through data tracking, target attainment, and development of feedback systems beyond the communication lines that already exist between teachers and students (Korinek & deFur, 2016; Williams, 2019).

Detailed and specific feedback. Academic growth is not possible without some level of feedback on performance and achievement. The structures that feedback can be gathered and delivered can vary from situation to situation and should be used to provide insight on student strengths and weaknesses as well as inform teacher instructional practices (Adesope et al., 2017). However, there is strong evidence to support the concept that feedback is most effective when it is timely, specific, and frequent (Harbour, et al., 2015). Additionally, feedback that is specific rather than general and were identified as positive rather than negative tend to garner higher levels of student engagement and the development of intrinsic motivation to succeed (Winstone, Nash, Parker, & Rowntree, 2016).

Other findings on feedback showed that a major component of specific academic feedback is that it be connected to something measurable and understandable by the student (Harbour et al., 2015; Reddy et al., 2017). Time on task, percentage correct are typical examples of measurable feedback. However, feedback should also be specific in that it expand beyond a simple praise for doing a good job. Feedback should state

specifically what the student did or did not do in relation to the content or desired task (Brink & Bartz, 2017; Hattie, 2016). The specificity allows the student to gauge future progress as they continue to work with the content.

In 2009, John Hattie released a meta-analysis of meta analyses that served as a pivotal benchmark on results showing the over-arching conclusions that researchers have drawn on teaching and learning. Hattie's (2016) update to his meta-analysis on the most effective practices on student learning concluded that feedback should also clarify the learning goal for the students. To achieve this, the teacher should spend some time ensuring that the students understand the feedback (Hattie; 2016; Ruegg, 2017). Frequently, teachers are used to giving quite a bit of feedback, but from time to time the student may fail to understand what the feedback means and how to apply that to their learning. By providing specificity, the teacher is able to create a content mastery climate and students are better able to interpret the feedback and apply to their own learning (Chepko & Doan, 2015; Hattie, 2016). Furthermore, increasing specificity on academic feedback can become more effective when students perceive the feedback to be useful to their learning (Nunez-Pena, Bono, and Suarez-Pellicioni, 2015). Academic feedback had positive correlations to improved attendance and grades when teachers provided the opportunity for students to dive deeply into detailed and specific feedback and apply it in meaningful ways to their own work (Nunez-Pena, Bono, and Suarez-Pellicioni, 2015).

Effectiveness of the Measures of Academic Progress (MAP)

The MAP assessments are an adaptive student assessment program that can be utilized to accurately measure student's ability in math, reading, and science in multiple

grade levels from Kindergarten to 9th grade. In an effort to validate the accuracy and utility of the assessments, several studies have been conducted to investigate the system. Ball and O'Connor (2016) conducted a multiple regression analysis that showed that MAP scores were a significant predictor of student performance on state standardized achievement tests in Wisconsin, which at the time of the investigation was the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; 6th edition), in third grade reading. January and Ardoin (2015) determined that MAP Ready for Instruction Today (RIT) scores were a valid assessment as a screener to determine how students were learning over time. While this does not speak specifically to the correlation to the State of Texas Assessment of Academic Readiness (STAAR) test in Texas, nor to math, it does provide a foundation for the connection between using MAP as a predictive measure on state standardized tests.

In a study conducted by the NWEA (2015), the organization that created the MAP assessments, one private, catholic school in Indiana developed a data rich culture over time that helped improve student performance. The school was suffering from a revolving door of administrators and was experiencing a demographic shift that resulted in 40% of their student population receiving ELL services. The winter assessment had varied results with teachers showing a wide array of comfort levels with the new assessment tools and how to use them. Some classrooms were experiencing large gains while others were not. Teachers that tend to struggle were described as moving from struggling with the process to learning and utilizing the system to create large gains in student performance by using the data to adjust and increase student engagement, growth

reinforcement and implementing formative assessment strategies to monitor and adjust instruction “on the fly” (NWEA, 2015a, p. 2). Moving teachers along this path of attitudinal transformation relies on emphasizing the importance of creating a data rich culture in the school (DuFour, 2015; Wagaman, 2015).

Lekwa, Reddy, Dudek, and Hua (2019) conducted a study investigating the correlation between instructional and management practices and the utilization of MAP assessments with over 130 campuses where 50% of students or greater were identified as poverty status. Findings showed that student’s academic achievement and growth was higher when effective behavior management and instructional techniques were used in conjunction. Some of the instructional practices described included personalizing instruction for groups of students by leveraging data from MAP assessments and analyzing instructional and behavior management practices on a nearly daily basis with a data driven approach. MAP data can be used to improve student outcomes by formatively assessing students and targeting professional development and instructional changes.

When used in various combinations, screening measures can be used to predict end-of-year reading comprehension performance for students on state level exams (Klingbeil et al., 2015; Salinger, 2016; VanDerHeyden, Codding, & Martin, 2017). While predictions are more accurate when combining multiple measures, the time and resource requirements to conduct more than one is unfeasible for many districts with limited funds. The MAP assessment was identified as a valid resource when used independently to measure student growth and pinpoint specificity (Klingbeil et al., 2015).

Implications

I investigated the ways in which teachers and administrators are using formative student assessment practices, via the MAP assessments, to inform the creation of local professional development designed to effect instruction at the research site. Initial stages of conducting the research at the local site informed the level of implementation of the five tenants of formative assessment practices by teachers and leaders outlined by the conceptual framework. The formative assessment of student data practices already in place at the local site informed the next steps of the research and guide the level and depth of the research questions and subsequent follow up questions.

Already existing practices in the areas of data analysis and PLC organizations also informed the direction of the study. The research site has periodic grade level meetings to discuss student data. MAP data has been a part of those discussions, but not in any uniformly structured method (Campus Principal, personal communication, April 28, 2017). Investigating the existing practices for the 2016-2017 year and comparing them to the developed practices for the 2017-2018 school contributed to suggestions on continued practices or changes to practice.

Existing practices and instructional practices as it relates to its relationship to the formative assessment of student data also weighed heavily on the direction of this qualitative study. There is the potential for teachers on the campus to already practice well established formative assessment analysis techniques while some others have little to no established practice. The level of existing practice amongst teacher groups impacted the direction of questioning and ongoing background research on the problem.

Results indicate that a series of professional development sessions are required to help develop formative assessment practice capacity as it relates to the use of MAP data. Teachers will receive specific development in how to organize, analyze, and identify key learning targets for students from MAP assessment data and how to search for and implement teaching strategies to address student learning deficiencies in mathematics, science, and reading.

Teacher practices can also be further developed in the use of student data analysis in the classroom. The implementation of student data folders where students keep track of their own outcomes on various formative assessments will improve student efficacy, confidence, and goal setting. Development in this area will require that teachers not only provide the opportunity for students to analyze their own progress, but should also allow for facilitated time for students to craft personalized goals to motivate continued progress in identified deficits in content knowledge and math practices.

The deficits identified with low socioeconomic students specifically may also require a shift in practice in the classroom. After the formative assessment of student data has been conducted using MAP results, teachers will need to incorporate instructional practices that provide rich experiences for students. This practice combined with the use of personalized student data tracking and goal setting could help overcome some of the deficits that low socioeconomic students experience.

Summary

There is a gap in practice at Oak Hills Elementary School. Although research clearly supports the use of formative assessment data to alter teacher practices it is

unknown how teachers are modifying their instruction based on MAP at the local site. The school had identified deficits in math performance at the third grade level, specifically between student demographic groups with low socioeconomic status students showing the largest gaps. Initial data of state standardized test scores indicated that the majority of the deficits occurred on specific math standards identified in the TEKS. The campus has implemented the MAP assessments in order that K-2 teachers might better inform their instruction of the math standards on which third grade students are struggling. I explored how the implementation of MAP is being utilized to change instruction at the local site in order to inform the creation of local professional development designed to effect instruction and provide suggestions and implications on continuing and developing those practices.

The conceptual framework identifies the five critical components of formative assessment as (a) being standards based, (b) utilizing detailed and specific feedback, (c) involving student directed goal setting and feedback, (d) informing next-steps, and (e) leveraging results to improve student confidence and motivation. Each of the five components have established research that provide suggested “best” practices in order to create a data rich environment that can be used to inform local professional development.

Discussed further in the next section are the anticipated methods of data gathering and analysis, including a description of the local site and participants for the interview process. Results will include a discussion on the limitations of the study and a conclusion that describes an appropriate application of results to inform future practices for the research site and the broader community that utilizes MAP assessments.

Section 2: The Methodology

Research Design and Approach

The research design for this study was a qualitative case study. In qualitative studies the researcher collects data from a rich dialogue created through conversations, observations, and documentation collection and analysis (Lodico, Spaulding, & Voegtle, 2010). Utilizing qualitative research methodology, the researcher's role is to create a deep understanding of a social phenomenon and to provide a voice to what is being observed or recorded (Merriam, 2009). One of the strengths of using qualitative research is the ability of the researcher to uncover data that might otherwise go unnoticed without the focus on observed practices and behaviors (Maxwell, 2008).

A qualitative study was chosen for this investigation because of the nature of the problem and the research questions asked. Using the framework established by Merriam (2009), this case study was a bounded system within Oak Hills Elementary in West Texas ISD that has implemented the MAP assessments. Conducting a case study allows for an inquiry approach to capture evidence that answers how or why research questions (Yin, 2003). In this case, the emphasis was to identify the ways in which formative assessment practices adhere to the five critical components of formative assessment outline in the framework, how data from those assessments inform instructional practices, and how professional development is informed or created from the use of formative assessment of student data. The research questions were open ended in nature and require subsequent questioning to also allow for open responses without limiting interviews and surveys to quantifiable responses such as Likert scales. Limiting responses to a quantitative scale

would create gaps in the narrative provided by the participants as they describe the ways in which the formative assessment of student data, both MAP and other data sources, has influenced their instructional practices. Providing a quantitative measure for teachers to describe this impact would not allow for a rich description of the potentially many different forms of formative data and teacher actions taken as a result of the formative assessment of that data which could be missed by pre-defining those outcomes or actions. To adequately gather the required information for this case study, narrative data through observations of data team meetings were gathered, and rich interviews were conducted to collect candid responses on classroom practices such as formative assessment techniques and data sources; these methods required the observation of a natural setting rather than the quantitative questioning of practices through something like a survey.

A case study was selected as the most appropriate qualitative research approach because it allows for a study of a phenomenon within the specific context provided by the research site (see Stake, 1995). I was interested in understanding the formative assessment of student data practices utilized in the school, both performed independently by individual teachers and in data analysis groups, and the subsequent professional development that might be created by the administration of the campus to impact instructional practices. The other six qualitative research approaches were considered before selecting a case study. A phenomenological study was not appropriate for this study because in phenomenology, lived experiences of participants are investigated from the perspective of the individual or group and requires prolonged engagement in the field (Creswell, 2012; Patton, 1990). I was not trying to understand the lived experiences of

the teachers and administrators of the campus, but rather the formative assessment of student data practices and the resulting impact on instruction. An ethnographic study was not appropriate for this study because I did not wish to investigate a specific culture (Lodico et al., 2010). According to Strauss and Corbin (1990) grounded theory requires the development of a theory. Because I am looked through the lens of an established conceptual framework, grounded theory was not the best fit for this research. A narrative analysis was not appropriate because I did not attempt to describe participant's stories in narrative form (Chase, 2005). Critical research was also not appropriate because I did not wish to validate or criticize an established theory or set of beliefs held by the participants. A case study, in particular, was supported rather than another type of qualitative research methodology because case studies are appropriate when attempting to understand a phenomenon, in context, from particular participants' perspectives (Merriam, 2009). Therefore, a qualitative case study was the most appropriate approach for this study.

Although the literature review suggested that MAP assessments are strong tools for accurately predicting student outcomes on standardized state level assessments, there is little to support how the use of MAP has informed and changed professional development and teacher instructional strategies. I investigated the ways in which teachers and administrators use formative assessment of student data via the MAP assessments to change instruction and inform professional development at the research site.

Participants

The participants in this study were drawn purposefully from 27 kindergarten through third grade teachers and two administrators working at the elementary campus in a West Texas Independent School District. Grades K through third grade were targeted because the district of the research site had identified that performance in third grade math standards was continually showing gaps, particularly between student subpopulations. Specifically, the pool of participants consisted of the seven kindergarten, seven first grade, seven second grade, and six third grade teachers who administer the MAP assessments to their students at the research site. There were also two potential campus administrators and one district level administrator responsible for conducting campus level professional development that could participate.

Initial contact with prospective participants was in a staff meeting in the research site campus library. All kindergarten through third grade teachers that were present were provided with a copy of the consent form and observed a 15 minute presentation on the information found in the consent form. An opportunity to ask questions was provided. There were six kindergarten, six first grade, five second grade, and five third grade teachers, totaling 22 teachers, in attendance for this general information meeting. A drop box was set up in the front office for participants to turn in consent forms at their leisure should they agree to participate.

Two district administrators and eight teachers agreed to participate in the study. Of the 10 participants, there were two teachers from first grade, three teachers each from second and third grades, one campus administrator, and one district administrator.

Participant classroom experience ranged from one year to 25 years. Ages of participants ranged from 23 to 55 years. One administrator had one year of experience and the other had six.

Justification for the Number of Participants

In qualitative research, the number of participants in the study depends on the depth of inquiry conducted (Creswell, 2012). Having too few participants provides insufficient data to address the problem. Conversely, having too many participants can cause the depth of the inquiry to be insufficient for each participant. For this study, I included participants from the kindergarten, first, second, and third grades from the research site to describe the formative assessment practices of student data used by the campus and the resulting professional development created by administrators to change instructional practices. The inclusion of these grades provided sufficient data to address the problem. Although no participants came from the kindergarten grade level, the spread of participants across the first, second, and third grades provided an appropriate depth from the interviews to uncover a rich narrative on the formative assessment practices of the campus across multiple grade levels. The observation of the campus data meeting and interviews with administrators also provided sufficient data to describe the professional development practices of the campus and how they relate to the use of the MAP assessments to formatively assess student progress. Participation from the administrators helped to better understand the creation of professional development and the role that the data meetings play in the formative assessment of student data. Their participation also

provided further insight into future plans for the implementation of the MAP assessments.

Researcher-Participant Relationship

Establishing a researcher-participant relationship required that I establish my role as a researcher separate from that as a district administrator. To do this, my first interaction with possible participants was during a faculty meeting. I presented to the attendees a short slideshow that detailed the purpose of my research with the teachers, the goals of the research, how I would interact with the staff, and outlined participant protections including confidentiality, security processes for gathered data, the risks involved with participating, and their rights as research participants. I also provided them with a copy of the informed consent form that described all of the aforementioned information. A level of trust was cultivated and maintained. I established set times and expectations where I adhered to the guidelines established by the informed consent and ensured confidentiality of participants, the campus, and the district. Conversely, my existing relationship with staff members through my role as a district administrator helped with familiarity levels and comfort with interactions. Although I work in the district in which this study occurred, I am not responsible for the evaluation of any potential participants for retention or promotion. My presence on the campus was already established and did not interfere with the daily operations of the building, nor the classroom operations of the teachers that agreed to participate. Furthermore, I communicated to potential participants that participating in this study would not have any impact on their status within the district.

Participant Protections

Measures were taken to protect the identity and rights of the teachers and administrators participating in this study. Any data associated with the study was properly stored and saved in my personal home office in a locked drawer or digitally under password protection. Permission to conduct this study was acquired from the deputy superintendent of the school district and the administration of the research site.

Initial contact with participants was through an invitation sent to the teachers to attend a face to face contact during an after-school meeting. The invitation was sent by the principal to potential attendees so as to avoid any unnecessary collection of personal information, like emails, of people not wishing to participate. Initial contact with potential teacher and administrator participants included an invitation to attend this meeting. Potential participants were given an informed consent document to be signed at a later time after they had the chance to review the letter. Letters were returned to a designated campus mailbox in the front office. Participants turned in their consent forms directly to the mailbox personally and not to any other individual. This mailbox was only accessible by the researcher. Potential participants that could not attend the meeting but contacted me via email indicating a desire for more information were met with individually. Any contact included adequate explanation on the purpose and goals of the study, how information would be gathered, information regarding participant confidentiality, and potential impacts the study may have on local practice. Teachers were notified that participation was voluntary and no compensation would be provided. Teachers that chose to participate in an interview were required to provide signed consent

to have their data included in the results of the study. Once given the forms, participants were given at least 24 hours to review the study requirements and sign the consent form. Forms were to be returned to a pre-defined campus mailbox for collection and given to me. The observation of campus data meetings required the consent of the campus principal.

Once data was collected from participants a coding system was used to protect participant's identity and confidentiality. Names were removed from data (such as interview transcripts) and hence were not included in the analysis or findings phases. Audio files were stored on my computer or smart phone under password protection. Data will be stored for a minimum of 5 years while maintaining participant confidentiality.

Data Collection

Two types of data were gathered on the ways in which the use of MAP is being used as a formative assessment to change classroom practice and inform professional development for teachers: (a) Participant interview data, and (b) observations of campus data meetings.

Interviews

I contacted participants by email to schedule a meeting for each interview. Interviews took place beginning one week after the initial information meeting and continued throughout the next three months as schedules allowed. Each interview was conducted in the participant's classroom and lasted between 25 and 50 minutes. Each interview was audio recorded using an iPhone with password protections.

Each interview conducted was one-on-one and was comprised of open-ended questions. The open-ended nature of the questions allowed the participant to respond about their perceptions and experiences without constraints on the way that their response was created (Creswell, 2012). The purpose of the teacher interviews was to gather participants'perceptions and experiences of using formative assessment of student data and the ways in which it changed has their instructional practices (RQ1). The purpose of the administrator interviews was to gather their perceptions on how teachers were using formative assessment of student data (RQ1) and how this was being used to inform professional development (RQ2).

An interview protocol for the teachers and a separate one for the administrators was developed in order to guide the interview process (see appendices B and C). These interview protocols were adapted from an instrument developed by Wagaman (2015) which consists of 17 open-ended questions. Each question addressed participant experiences with and perspectives about data driven assessment practices, as it relates to data driven decision-making in the elementary school setting. Wagaman (2015) conducted a field test of the interview protocol to check the validity of the interview questions with four field experts. Additional questions were added to target aspects of the conceptual framework on the five critical components of formative assessment. Appendices B and C show the final list of interview questions.

Each interview lasted between 25 and 50 minutes and was conducted in the participant's classroom after the work day had concluded. I reviewed the purpose of the research, the structure of the interview, the interviewees rights as a participant in the

research, the confidentiality of the data, and reiterated that participant would have no impact on their employment. To ensure privacy during the interview, the classroom door was closed. Upon completion of the interview, audio recordings were transferred to my personal computer and placed under password protection. Each participant's audio file was stored in a password protected folder holding collected data until analysis could begin.

Observations

Observation data from grade level meetings were used to further answer RQs 1 and 2 and were used as a means of triangulating findings from the interview data. Specifically, the grade level meeting provided data related to how participants made plans to change instructional practices. Although grade level data meetings were scheduled to be observed multiple times through the school year, only one such meeting occurred in the time frame of the study. The grade level meeting data were used to describe the professional development practices of the campus.

An adapted version of an observation protocol designed by Wagaman (2015) was used to gather and record information related to the types of student data discussed, results of the discussion, decisions made for the campus or the team as a result of those discussions, and the intended impacts on teacher instructional practices (see Appendix D). Figure 2 shows the observation protocol items that were added to address the ways in which the use of teacher formative assessment changes instructional practices. I intended to continue making observations as subsequent data meetings occurred to document

results of these intended changes over the short term from meeting to meeting. However, only one such meeting occurred in the time frame of the study.

a. Where there any decisions regarding instruction made based on the data? [Prompt: If so, what were the decisions and how were they made?]

b. Were any goals for classroom practice determined based on data? [Prompt: If so, what were the goals and why?]

c. Were instructional practices discussed? [Prompt: If yes, how was instruction changed or influenced based on data?]

Figure 2. Sample observation protocol items.

Observation data was recorded on the observation protocol as it unfolded during the observed grade level meeting. Each grade level was assigned a folder that was stored in the password protected data folder on my personal laptop until data analysis could occur. To ensure confidentiality, teacher names were not recorded during the meeting. Only the grade level, duration, number of participants, and what was said or reviewed during the meeting was recorded.

Access to Participants

Prior to the start of the investigation, permission to approach teachers was gathered from the district deputy superintendent and the campus principal. Both the deputy superintendent and campus principal signed letters of cooperation indicating that they would allow access to teachers so that I may approach them to participate in this study. A letter of agreement to participate in the study was obtained from the deputy superintendent to conduct research within the district. Data collection did not begin until institutional review board (IRB) approval was finalized through Walden University (# 06-12-19-0495742). Upon completion of the IRB approval process, I reached out to the

principal to inform him that I was ready to begin my research. We then worked collaboratively to arrange a time for me to meet with his staff.

This type of study required my presence on the research site to observe and record data on the ways in which the professional development practices use formative assessment of student work to improve instructional practices. My role as an observer required that I develop a working relationship with the staff of the campus before inputting myself into their data meetings. This took little time as I am a current employee of the district and familiar with the administration and some of the staff.

Role of the Researcher

My role in the district is Director of STEM and Advanced Academics. I have been in this position with the district for three years and one month as of August 2019. On this campus I have had a previous working relationship with the principal. Over the last three years as a director in the district, I have worked with the science department, particularly in third through fifth grade as the science coordinator. That relationship included classroom visits for the purpose of providing positive feedback on teaching practices and working collaboratively on unit assessments. This relationship continued through the duration of the study. While this relationship may have helped garner initial trust in initiating conversations about conducting this research with administrators, they did not weigh into the decision to execute the research process. Any existing relationship with the K-2 teachers and 3rd grade math teachers is the result of my interactions with other staff members on the campus and not through any intended direct contact that would be required to perform their duties.

For the 2017-2018 school year, I was the evaluator for a fifth grade science teacher in the building. This teacher was not a part of this study because his teaching position is outside of the K-3rd grade focus for participants. I have not been involved in making decisions as they relate to any participant's job performance or employment status with the district.

As an established central office level employee in the district, there was an inherent possibility that my role and working history with the campus staff would have an impact on the study as it relates to gathering participants and data collection. These concerns were kept in the forefront of all interactions with each staff member with the expressed knowledge that participation has absolutely no impact on job security, evaluation, or any other aspect of their job. Contact with participants happened in person or through Walden University provided media such as Walden email so as to further distance my role in the district from my role as researcher. Any and all activities associated with my role as a district administrator were noted with participants well in advance of my arrival on campus to work with a teacher. Similarly, interactions with staff members as a researcher were also noted with participants well in advance of my arrival on campus. Every effort to communicate the voluntary nature of the study to potential participants were made verbally and in writing, via the consent to participate, to avoid potential feelings of coercion to participate.

Data Analysis

Analysis occurred immediately after data were collected. This helped ensure that useful data were not lost or skewed due to prolonged time between the interviews and the

analysis and it also strengthened the trustworthiness of findings (Merriam, 2009). The first step in the analysis process was to prepare the data for coding. Interview data were prepared by generating rough draft transcripts using Otter Voice Notes, a secure transcription service. Each transcript was reviewed and edited twice for accuracy. During the transcription process, each participant was assigned an identifier to ensure confidentiality of responses. Each identifier was a letter followed by the word "Teacher." For example, the first teacher that was interviewed was assigned "Teacher A" as an identifier. The administrators were identified as "Admin 1" and "Admin 2."

To prepare the data for analysis, I copied the transcribed teacher and administrator interview data from the transcription service to a password protected Word document. Next, I typed up the written transcript from the data meeting observation protocol in a second password protected Word document. Coding took place the day after the data were prepared to better inform any emerging themes and to help with recall and data organization. I reviewed the audio recordings of interviews and the resulting transcripts multiple times to ensure accuracy and totality of responses.

To determine the ways in which the formative assessment practices of teachers and administrators reflect the five critical components of formative assessment, I first coded the interview and observation transcripts using the a priori codes determined from the conceptual framework: student directed goal setting, leveraging results for student motivation and confidence, informing next steps, standards based assessment, and detailed and specific feedback. Beginning with the teacher interviews, I carefully read the transcripts and highlighted the text associated with each a-priori code that occurred in a

different color. A sample of the color coding can be found in Appendix E. I then transferred these level one coded text pieces to separate tables in a new Word document, for example one named Student Directed Goal Setting. I made additional tables that listed each formative assessment component, along with the teachers that used that component and a representative example of that coded component. After completing the teacher interviews, the same process described above was used for the administrator interviews.

When sorting data by a priori code from the administrator interviews, the administrators revealed data indicating that teacher interview data could be sorted into teachers that already participate in a practice, and teachers that do not to identify emerging patterns. For example, Admin 1 indicated a desire to see student centered goal setting that incorporated a student to teacher interaction in the goal setting process. A desired outcome was specifically for "information to be shared with the students so that the student can set their own goals so that the student can be aware of 'this is where I am…roughly in relation to my peers nationwide.'" Additionally, Admin 2 stated that student growth would be factored in, starting this academic year, into the teacher's evaluation cycle, further indicating that student directed goal setting is a common goal between the campus and the district. This indicated that a beginning step in finding a pattern within the a priori code, "student directed goal setting," that teachers could be sorted into teachers that already participate in this practice, and teachers that do not to identify emerging patterns. Where appropriate, each response was sorted within each a priori code utilizing relevant information from administrator interviews. This was done to determine if there were any existing patterns of practice within each grade levels or

reasonings as to why particular teachers did not adhere to the formative assessment practice. A representative instance of two responses that were coded ‘Student Directed Goal Setting’ are given in Table 2.

Table 2

A Sample of A Priori Code: Student Directed Goal Setting from the Interviews

A priori code	Description from framework	Example response that adhered	Example response that did not adhere
Student directed goal setting	The practice of student directed goal setting involves the student in setting the targets for achievement with the student involved as part of the goal setting process, monitoring progress towards those goals, and adjusting instruction on an individual basis to facilitate students meeting those goals.	Teacher G: And then we can tell them that the next time this is what we think that they are capable of getting, or asked them what did they think they're capable of getting, where would they like to see their scores? And we try to ensure that it's a reasonable thing. We don't want them to think that they read about space, and now that can be an astronaut tomorrow. We want it [to be] realistic goals, like stepping stones and kind of making it more like it's their decision.	Teacher C: I don't [use student directed goal setting] I mean honestly, I haven't ever done it. Something I'm wanting to do. I wanted to try to do that more this year. I've used MAP mainly just for me. I just don't know if seven-year olds are gonna understand that this is what I got. Oh, I need to try to get better next time.

Both example segments coded in Table 2 were discussing Student Directed Goal Setting, one described how the participant used it, the other why the teacher did not.

I then went back through the entire coded data set and used sub coding or secondary coding (Gibbs, 2007; Miles & Huberman, 1994; Saldana, 2016). This secondary open coding technique is used to look for emerging codes within a priori coded data. The open codes for the interviews were done using sub coding or secondary coding (Gibbs, 2007; Miles & Huberman, 1994; Saldana, 2016). According to Saldana (2016), sub coding is appropriate in studies in which there are a variety of data sources such as interviews, observations and documents, as well as when nuanced data analysis is

indicated. The secondary codes were assigned after the a priori first order code to detail the entry. As an example of sub coding, the comment made by Teacher C in Table 2 was coded as “age appropriateness” and the comment by Teacher G was coded as “reasonableness of goals set by students.” This process continued until no new emergent codes were found. A sample of this organization can be seen in Table 3. Different a priori codes revealed similar or overlapping emergent codes from the entirety of the interview and observation data. While patterns are difficult to see in the sample provided, the entirety of the document across multiple teacher responses shows patterns that are more easily discernable. Refer to Table E1 and Table E2 in Appendix E for an extended example.

Table 3

Sample of Emergent Code Organized Responses

Emerging code	Example response	A Priori Code	Theme
Age appropriateness	Teacher C: I don't. I mean honestly, I haven't ever done it. Something I'm wanting to do. I wanted to try to do that more this year. I've used MAP mainly just for me. I just don't know if seven-year olds are gonna understand that this is what I got. Oh, I need to try to get better next time.	Student directed goal setting	Teacher concerns about student directed goal setting
Age appropriateness	Teacher B: Honestly for first grade, they're very egocentric little people, it's all about them. And it's hard to tell with some kids, because some of them are super confident and just write down the most insane things that are not right. But I don't know how much it plays at this grade level. Think as we go on it will confidence will play a bigger role. But right now, no, they all think they know it all.	Student confidence and motivation	
Reasonableness of goals set by wtudents	Teacher G: And then we can tell them that the next time this is what we think that they are capable of getting, or asked them what did they think they're capable of getting, where would they like to see their scores? And we try to ensure that it's a reasonable thing. We don't want them to think that they read about space, and now that can be an astronaut tomorrow. We want it [to be] realistic goals, like stepping stones and kind of making it more like it's their decision.	Student directed goal setting	

Using the initial analysis of the interviews, I created a code tree connecting each a priori code to the emergent codes. I then used those codes to analyze the observations.

Observations were coded using the same methods to analyze the intent of professional development practices as they related to each a priori code.

Once these stages of coding were completed, themes were identified using coding practices established by Merriam (2009) and Creswell (2012). Themes were identified after coding was organized into patterns of responses to reflect what was revealed about the formative assessment of student data practices at the research site. Each critical component of the theoretical framework revealed patterns of thought, with the patterns often overlapping across a priori codes, amongst the participants, allowing for the identification of seven separate themes. Once themes were identified they were transferred to a separate Word file named 'themes.' An example of the first theme, "Teacher Concerns About Student Directed Goal Setting," can be seen from the sample in Table 3. For a visual example of the two levels of coding, see Figure 3. Reading from left to right, the first level of coding by a priori code leads to emergent codes and connects to the themes.

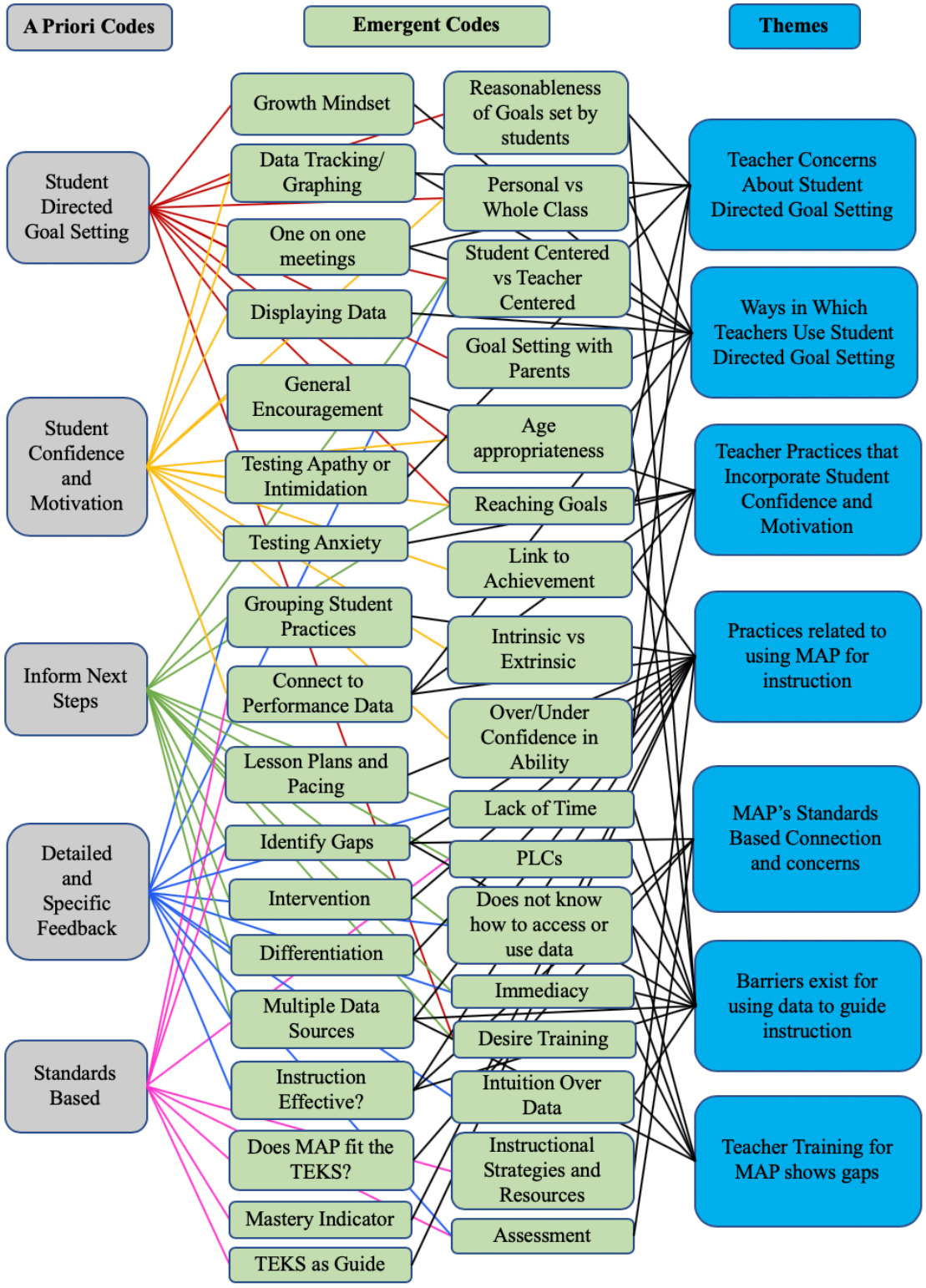

Figure 3. Flowchart of first and second level coding to reveal themes.

Trustworthiness

Lincoln and Guba (1985) established an evaluation criterion that determine the worth of the findings of a research study. The criteria of trustworthiness are: credibility, transferability, dependability, and confirmability. Leung (2015) suggested that asking participants to verify the findings specific to their responses is a good means of improving qualitative research credibility and confirmability. Review of the findings provides a level of support through independent verification of quotes and results from the source of the data. Participants were offered the opportunity to meet with me to review the findings from their interviews if desired. Doing so served as an external member check on the accuracy, trustworthiness, and dependability of the findings as they apply to the local setting. In addressing credibility, I also conducted a negative case analysis to identify data elements from outliers that may not support the identified themes and patterns from the data analysis from the interviews and observations. An audit trail, or samples of analysis and coding from my collected data, will leave a trail of evidence that future researchers may follow for confirmability of the study. Furthermore, data triangulation and negative case analysis provide a means of establishing credibility and confirmability of the findings. Triangulation requires two or more data sources to be collected in order to answer the same research question (Merriam & Tisdell, 2016). The findings were triangulated by having two types of participants respond to interviews, the teachers and administrators. Another form of triangulation came from collecting and analyzing both interviews and observed data meetings. The transferability of the data is assured through the development of thick description during data analysis. By describing

a phenomenon and the context with sufficient detail, readers of my study can evaluate the extent to which any conclusions formed from the data analysis are transferable to other similar situations (Lincoln & Guba, 1985).

Data Analysis Results

The data for this qualitative study were collected and analyzed concurrently. Once collected, the data were prepared as discussed above and the interview and observation transcripts were coded. The first level of coding used a priori codes. The second level of emergent coding used the sub-coding technique (Gibbs, 2007; Miles & Huberman, 1994; Saldana, 2016) which coded data within each of the a priori codes into the formative assessment and professional development practices of the participants, specifically, those that adhered to the recommended course of practice for each a priori code, and those that did not. Themes within each of the formative assessment and professional development practices were then summarized.

Findings

The open-ended interviews of teacher and administrator participants and the observations of data meetings were used to answer the both research questions.

RQ1: According to teachers and administrators, in what ways do the formative assessment of students at the campus reflect the five critical components of formative assessment as outlined in the conceptual framework?

RQ2: According to teachers and administrators, in what ways does the use of student formative assessment data and drive the kinds and types of professional development of teachers at the campus?

Level one coding, using the a priori codes taken from the formative assessment conceptual framework allowed me to establish the ways in which the participants were using the critical components of formative assessment. Level two emergent coding allowed me to understand the ways in which the practices on the campus reflect the five critical components of formative assessment. Table 4 shows which participants addressed each component from the framework in the interviews.

Table 4

Patterns of Formative Assessment Use by Participant Across Component

	T A	T B	T C	T D	T E	T F	T G	T H	Admin 1	Admin 2
Informing next steps			X			X	X		X	X
Detailed/ specific feedback			X			X	X		X	X
Leverage for motivation and confidence	X				X	X	X	X		
Student directed goal setting	X				X	X	X	X	X	X
Standards based*	X	X		X		X			X	X

**Note*. All teachers indicated that formative assessments should be standards based. Participants marked in this row did not express concern about MAP's alignment with the TEKS.

The findings are arranged by themes which are organized by research question.

Standards Based Connection Between the TEKS and MAP

While all teachers agree that the state standards, or TEKS, are the backbone of instruction and assessments, and that all formative assessments should follow the TEKS,

there is not a consensus regarding MAP's connection to the TEKS. The principal has a desire to focus on particular standards, as identified as "milestones set out from our curriculum department" and infuse those across multiple contents across the campus. Generally speaking, if the standard is weak, he wants the entire campus to work together to improve it.

Going deeper, the district administrator outlined a district expectation that the TEKS should be at the center of every instructional goal. While "the district provides support in how to group a particular set of standards together to guide instruction," and builds common unit assessments to assess mastery, the expectation is that the "implementation of teaching the standard is up to the teacher." Honoring the expertise of the teacher is the norm for the district with the provision of some training on what the standards expect. The district administrator went on to note that a truly standards-based assessment, such as the district made unit assessments, helps to identify "a teacher that was weak in…instruction, didn't really study the IFD [standards] well, or meet with grade level teams, or wasn't very intentional with vocabulary instruction." The purpose of the assessments being standards-based is to help provide data that directly informs instructional strengths and weaknesses.

The teachers' understanding that all assessments should be founded in the TEKS align well with both state and district expectations. Additionally, each teacher was able to explain the importance of some tool the district or state provided to help with the planning process, such as the TEKS Resource System, the IFD, or the YAG.

Four teachers expressed concerns with how MAP assessments aligned with the state standards. Teacher H described some of the questions, saying, “Is that a question that’s higher than third grade, third grade, or lower than third grade? It’s hard to tell.” Teacher E commented that “MAP is a national test,” and so was not sure about how well questions aligned to the state standards. Teacher C simply stated that she wasn’t sure about the alignment but said that she thinks “that the general categories go well with the overall [standards].” Each teacher that expressed concern about the alignment to the state standards stated something that demonstrated a general lack of familiarity with the MAP assessments as a whole.

For the teachers that do not utilize MAP in their instruction, there is a misunderstanding about the overall function of the assessment which has led to a misconception that the assessments are not connected to the TEKS. The adaptive nature of the exam, providing students with more difficult or higher-level content when questions are answered correctly, or less difficult content when questions are answered incorrectly, gave students questions that appeared to be above or below grade level. When the teachers saw the questions that applied outside of their scope of standards, their lack of training lead them to believe the assessment was not a fair reflection of what the students either did or did not know in relation to state expectations.

Conversely, Teacher A noted that she felt that the MAP assessments were “well aligned with the TEKS and what happens in the classroom.” The same teacher demonstrated a more formal understanding of accessing data reports with MAP and using them to identify gaps in student knowledge. She also used the data from MAP to inform

student directed goal setting and had students reflect on goal attainment to improve confidence and motivation. Similarly, Teacher F stated, “With MAP I feel like it’s a little vague, perhaps. But I don’t think that’s necessarily a bad thing. [It’s] more [about] the percentage mastering a particular objective.” While the teacher was not sure about the direct TEKS connections from MAP, she did trust that the data revealed something about where her students were in relation to the content she was teaching.

There is a direct connection between a teacher’s familiarity with the MAP assessments and the components related to data disaggregation and analysis, and the teacher’s utilization of that information in other critical components of instruction. This, combined with a teacher’s attitude about a student’s ability to perform self-reflection, set academic goals for themselves, and engage in a growth mindset allows for a teacher to utilize the formative assessment of MAP data in meaningful ways for her students.

Teachers were able to explain the role of the formative assessment process in measuring mastery of particular standards. This ability seems independent of whether or not teachers had specific attitudes related to a student’s capacity to self-reflect or set goals, and whether or not the utilized MAP data to inform next steps in instruction or remediation. Teachers that did not utilize MAP data for certain components of the formative assessment process felt that their own teacher-created assessments or district assessments provided some level of information related to a student’s mastery of the TEKS.

Practices Related to Utilizing MAP for Instruction

Both administrator participants have set goals for teachers in which MAP results are used in meaningful ways to guide and inform instruction. The campus principal described a specific time in the day where "we don't teach math [or] reading, we teach intervention on the areas that they need to grow." Ultimately, the new goal is to utilize MAP data, as well as other data, to help guide instruction during this intervention time, and to make decisions about which students should be in specific intervention groups. District administration desires MAP data to be better used informing instructional decisions on: "how they can form small groups either in their classroom or a breakout group at a different part of the day," and to differentiate instruction.

All eight of the teachers participating utilized data to guide instruction or create student groups for remediation. However, five of the eight teachers did not utilize MAP data specifically despite these campus goals to do so. According to the campus administrator, a lack of time and resistance to the need for using data are challenges that teachers may face when using MAP assessment data in their instruction. There is also a concern that some teachers feel like their experience in the classroom supersedes what formative assessment data can tell them about the success or failure of a lesson or a student.

Utilizing MAP data to inform next steps allowed two teachers to feel confident about their focus in instruction. Teacher F said, "We don't have to wonder... we can actually say, there's a problem with this [content]," helping her feel informed, and leaving all doubt aside as to what content needed remediation and with which students.

Similarly, Teacher C was able to use the MAP data to adjust her approach for the entire school year by focusing in on a "guided math routine," and Teacher G detailed how she is able to use the data in spiraling her instruction, particularly during station-oriented instruction where she can pull small groups.

Each of the three teachers that use MAP data to inform next steps were able to specify how the data is able to help them differentiate instruction, including instances where students showed gaps with specific content, or instances where students had demonstrated mastery and needed accelerated instruction. Teacher A, C, D, E, F, G, and H describe using the data to continually adjust small groups and leveraging station work to provide individualized instructional opportunities based on specific student data.

Teacher reflection on classroom practices was also evident when using MAP to inform next steps. Teacher G said,

> I use that data to see if there's a pattern. Am I teaching it wrong? Am I the issue on a certain problem? Or certain TEKS? I look [to see] if there's just certain students not getting the way I'm teaching it. How do I need to adjust the instruction for those students?

Teachers identified specific examples of lessons created as a result of reflection on the student data including character development (Teacher H), subtraction (Teacher B), rounding or simply using engaging activities like a Kahoot! or quizlet (Teacher G), and how the formative assessment of student data helped them tailor their instruction to specific student needs, though only a few used MAP specifically to do so (Teacher C, F, and G).

All three teachers that utilized MAP data to inform next steps also used additional data from other formative assessments or the district created unit assessments. Teachers described the connections they see between MAP data and other assessments to confirm student progress (Teacher F), to look for patterns of performance (Teacher G), and to use frequent data points between MAP assessments to adjust instruction (Teacher C).

Four of the five teachers not utilizing MAP to inform next steps in their own classrooms indicated that they use formative assessment data from other sources to routinely inform their next steps in instruction. All five teachers indicated that they used MAP data to help create small groups for students, specifically in instances of intervention, but not necessarily in their own instruction during class time. These groups are based primarily on ability level, or reading level. When grouped based on ability level, each teacher that is not using MAP to inform next steps tended to only adjust student grouping based on their own formative assessments.

Four of the five teachers that are not using MAP to inform next steps also tended to avoid the practice based on a lack of training or a self-perceived lack of competence or resources in how to do so. Teacher A reported,

> That's why I was nervous, because I feel like I've been trained well to use the reports... It's difficult to find the time and to group them according to that. I do like to look at the data but it usually... whenever we're in meetings.

Teacher E stated, "[The principals] selected… five staff members [the staff senate]. Those staff members were to come and train you. That did not happen all the time. It happened maybe once every semester." Teacher G echoed a need for training saying she

had “no clue” how to use some of the reports. This indicates that utilizing the staff senate to disseminate training to other staff members may not be working as efficiently as desired.

The influence of teacher preparation to utilize MAP to guide instruction is demonstrated when Teacher A admitted, “We only use [MAP data] to set MAP goals, whereas it could probably be used for more than that. We could set specific reading and math goals.” In utilizing MAP data just for goal setting, the teacher is missing several critical components of the formative assessment structure, limiting the effect that MAP could have on daily instructional decisions. Teacher C echoed a similar sentiment saying she “basically just prints a class report to see what their percentage is.” While Teacher C sees some value in at least determining where her students are holistically, her lack of preparation in using MAP data tools has hindered her ability to make specific instructional decisions.

When it came to instructional planning, Teacher A used a scope and sequence as her primary source for informing next steps and does not utilize MAP data to guide remediation or planning. Teacher D echoed a similar philosophy stating that she did not use MAP for her regular planning and instead “pulled from TEKS resource system and Lead4ward.” This shows a pattern in utilizing resources to provide solid classroom instruction founded in engaging experiences, but the MAP data is not utilized in daily instruction to identify gaps or shift instruction to meet student needs.

During the grade level data team meetings, the principal provided an opportunity to dig into the data in a structured way as a team. This “data dig” began to reveal to some

teachers how the data reports in MAP could be useful in informing instructional decisions. In some cases, specific content such as nonfiction or subtraction were identified by the teachers in the meetings as needing remediation. Before this opportunity, many of the teachers were using the data to decide whether or not students had grown and were not specifically identifying areas of weakness or strength at an individual student level. However, that impact was limited due to time restrictions for the team meeting. Throughout most of the meetings, little was discussed about what this meant in terms of instruction. More time, or another meeting specifically intended to follow up on what was found and discussed as a result of what was learned would have allowed for a more specific instructional plan to be identified and implemented.

Further, during the Kindergarten grade level data meeting, the group expressed the concern that about the accuracy of the data, implying that the data towards the beginning of the year does not register correctly due to a lack of student experience with assessments in general, student attitudes about testing, and an overall lack of attention span.

Teacher Practices that Incorporate Student Confidence and Motivation

Patterns identified in the "Student Directed Goal Setting" a-priori code linked to "Leveraging Results for Student Confidence and Motivation" since all five of the teachers that involved students in their goal setting thought that such a practice led to increased student motivation and confidence. Teacher data specific to "Leveraging Results for Student Confidence and Motivation" was sorted by whether the teacher did or

did not use student directed goal setting in their classroom to identify further patterns and themes.

Four of the five teachers (80%) that utilize student directed goal setting in their instructional practices tended to build student confidence and motivation through reflection and leveraging previous success while teachers that do not utilize student directed goal setting from MAP tend to focus on building student confidence through general encouragement. Teacher F describes building motivation in her students through "little victories." She describes a sort of domino effect when students met their goals stating, "They had this motivation of feeling confident and choosing to work harder... I think it creates their own sense of responsibility in their efforts, and their work ethic." Teacher A spoke about celebration and discussion as a part of her reflection practices with students. Teacher G goes a step further, tying student confidence with anxiety.

Three of the teachers (60%) indicated that when students underwent a student directed goal setting procedure, they noticed that students often felt more confident in themselves when they saw success. Each story provided a narrative that described students building self-actualization as a part of the process. Student growth was a common thread among teachers that practice student directed goal setting as a way to foster positive student confidence and motivation.

When celebrating "little victories," identifying individual strengths and weaknesses, and having students record their own growth over time, each of these teachers mentioned a specific, formal way that they build student confidence and, in turn, motivation to engage in the formative assessment process. While each approach was

different, each teacher communicated progress to the students which resulted in some improvement on student confidence and motivation in future assessments. Further, each teacher had the students reflect in some way, whether it was as a whole group or individually on their successes, and in turn set new goals for themselves. When the students were able to see themselves grow, they felt more confident in their abilities, and more motivated to continue to engage in the formative assessment process.

All three teachers that did not utilize a student directed goal setting approach in their classroom as a method of improving student confidence and motivation had a similar pattern of responses that showed a concern for the appropriateness of the task to the age of the students. Teacher B and Teacher C specifically identified misplaced overconfidence or under confidence as a factor related to a lack of life experience or experience with assessments in general. Lack of experience kept the students from understanding their own capabilities. As students gained experiences in those areas, their perspective shifted to allow for more realistic levels of confidence appropriate to their actual abilities.

Amongst the teachers that did not utilize student directed goal setting, Teacher C and D commented that a lack of experience with assessments led to feelings of anxiety, which impacted motivation and confidence, and in turn, performance. Anxiety was a common thread of concern for this group of teachers. Teacher D demonstrated her understanding of text anxiety for her students by saying,

> I've seen it with my own students. And with my own personal kids at home. Even the youngest of our students suffer from testing anxiety, and you can see them

> getting nervous when I start passing the test out. And [sometimes] over material that I knew the student had mastered and could do very well on an assessment. But I think because of the format and the atmosphere of an assessment that students shut down. [One] was in tears, and could not progress on the assessment... I think testing anxiety can overrule even material that they have mastered.

Teacher C expressed similar concerns over test anxiety impacting confidence and motivation stating that some students show high levels of "apprehension." Teacher E described students avoiding work in an effort to reduce the stress associated with the assessments.

Teachers linked test anxiety in students to several different sources including feedback from parents, previous teachers, and even siblings in older grades. Teacher G described how test anxiety impacts her students as it follows them up from lower grades. Teacher D described peer pressure, or "the rumor mill" as an additional source of anxiety when older students describe the MAP test as "that big one where we just sit with our headphones on and it's hard."

Strategies were identified by each teacher that could be utilized to improve student confidence and motivation. Teacher G's overall strategy is avoidance of the topic of anxiety itself. Teacher C attempts to deflate the situation by telling the students that the assessments are important, and they should try their best, but, "If you don't do well on it, that just helps me to know what all I need to teach you." Other strategies focused on building student confidence through exposure to assessments and class discussions over

time. Teacher C described building confidence through general conversations designed to "pump students up" and build excitement through encouragement.

Teacher D mentioned building confidence informally through successful academic experiences as a way to build confidence and motivation, stating, "I think that the students who have little to no anxiety over it have felt or been made to feel very successful in their academic careers." However, she did not detail a formal process for recording or analyzing those successes over time.

An overall pattern between both groups of teachers points to the importance of addressing teacher beliefs about students and their capabilities to reflect on their own performance, set goals, and engage in student-centered processes. Each teacher that expressed a concern about test anxiety also expressed a concern about the appropriateness of student directed goal setting at young ages. Teachers that participated in a student directed goal setting process connected success in goal setting and student reflection.

Teachers that participated in a student directed goal setting process generally focused their attention on the impact it had on student attitudes, growth mindsets, and using those experiences to build confidence and motivation in students. Each teacher that utilized student directed goal setting also focused primarily on building student capacity to set realistic goals rather than focusing on the appropriateness.

Ways in Which Teachers Use Student Directed Goal Setting

Four of the five teachers that utilize student directed goal setting, and one of the three that did not, indicated that they have one on one conversations with students about goal setting or growth. For example, Teacher G described her approach with her students,

stating, “We started doing goal setting with them last winter. So, after the winter test, I met with my students and I had a form that I filled out while I talked to them.” Teacher A described how she creates a poster with an example math goal and the district goal to guide students through their own goal setting individually. When the goals are either met or not met, she has students put smiley face stickers next to the written goals on the poster.

Each teacher indicated varying approaches to introducing the concept of student goal setting before the one on one conversation occurred, including whole class discussions about data, comparing personal results with average results, and providing thought provoking reflective questions before the one on one conversations began. Although each teacher did something slightly different from the other, each had a commonality in that they attempted to scaffold the conversation before the one on one conversation between the teacher and the student occurred.

Teachers also discussed some language that they implement when students did not reach a goal. Teacher G avoided negative language when looking at strengths and weaknesses with students, Teacher E focused the conversation on growth and providing encouragement to meet the next goal and prompting the students to reflect, and Teacher A celebrated effort, even when goals were not met. Most of the language was framed around providing students encouragement to keep trying and to develop a “growth mindset.”

Teachers that utilize student directed goal setting tended to record the data with the students in some way. Practices varied between teachers in how they recorded the data with the students after or during the one on one conversation.

Teacher Concerns About Student Directed Goal Setting

The concerns that the participants expressed about student directed goal setting serve to bridge the connection between the first and second research question. The concerns related to goal setting answer a portion of RQ1, how teachers use this critical component in their formative assessment practices. However, the concerns also indicate personal attitudes that create one specific barrier to embracing student directed goal setting in the formative assessment process, which is a result that could be addressed with professional development practices (RQ2).

Five of the eight participants (62.5%) reported student directed goal setting as part of their formative assessment practices with MAP data. Recall that Goal Setting refers to the setting of targets for achievement, monitoring progress towards those goals, and adjusting instruction on an individual basis to facilitate students meeting those goals. Student Directed Goals Setting is when the student is involved in their own goal setting. Four of the five teachers that utilized student directed goal setting as a classroom practice found that the strength in the practice was anchored in improving student motivation and confidence.

> I think gives them ownership. It gives them encouragement. I think it gives them a reason why, gives them...a big goal. Everybody knows education is important.

> But this gives them a video game mentality of I want to get a higher score and win. (Teacher H)

They found that when students met or exceeded a goal, students found themselves being fueled by a sense of achievement. Teacher F describes this in her students as "a commitment" and that it creates a "mindset of, 'I have to do whatever it takes to get to that next MAP scores to meet my goal.'" Teacher G described the benefit of the goal setting and reflecting processes, saying, "It helps them get more in a growth mindset than a fixed mindset." Teacher H added that goal setting "gives them ownership [and] encouragement when they meet a goal."

Despite the use of Student Directed Goal Setting practices, all five of the teachers that used this critical component cited concerns about the realistic nature of the goals set by the students. For example, Teacher F expressed this concern, saying, "We've got some kids that are not going to have a realistic goal, because they're a little immature." Teacher H, echoed this sentiment saying, "They don't understand the concept of goals." Each concern was related specifically to the appropriateness of the process as it relates to the age of the students. Similarly, all three of the teachers that do no utilize student directed goal setting showed a concern with the age or developmental appropriateness of goal setting for students who are young.

As a part of their classroom practice, these teachers discussed how they circumvented their concerns by employing various visual strategies, like a bar graph of individual student data, or a gamified approach in order to redirect the student goals to be more realistic and attainable. Other participants expressed other concerns about the

student directed goal setting process such as the amount of time between each test (Teacher C), a lack of connection in younger grades to things like the STAAR test (Teacher B), or having not executed a student goal setting process due to a lack of familiarity with the process and tools within MAP (Teacher D).

Interview responses indicated that more third grade teachers than lower grade teachers embraced student directed goal setting, despite one of the third grade teachers still expressing age related concerns. Evidence of teacher hesitancy to use student directed goal setting was found in the observation data as well. Even though the principal asked teachers to reflect on how they "can talk to kids one on one or even show parents," and asked how goal setting and resulting data would impact crew time and instruction, teachers made comments such as, "They don't understand the RIT numbers."

Following the questions, the first grade teachers felt like the students were a little young to understand goal setting and what it meant. Several teachers were said, "They don't understand the RIT numbers." One teacher pointed out after looking at the student profile that the colors and the visual nature of the increases and decreases might be good to show the kids for goal setting, stating "They understand that." The third grade team also discussed using the student profile and the color chart to have conversations with students about performance and goals.

Barriers to Using Data to Guide Instruction

The school administration has set goals for teachers to use formative assessment data to guide specific instruction, yet barriers exist to them doing so. The principal summarized his major goal in relation to MAP assessments by stating, "The component I

want to focus on this year is putting [data] in front of the kids." The principal identified a secondary area of implementation growth, stating, "If MAP can tell me that we're struggling in this area, or we haven't grown certain kids in this one area, then I want that to directly impact our lesson planning and what we're teaching in the classroom."

The district administrator echoed a similar goal stating, "this year there will be a focus [in C3s] on (asking) what are some trends we're seeing this year on our MAP data? Are we being intentional with that?" Because there is an alignment in the primary focus for the campus and district, teacher data was analyzed for the 'detailed and specific feedback' component of formative assessments through the lens of whether or not the teacher utilized MAP data in accordance with 'informing next steps.'

Although each teacher utilized data from multiple sources to provide feedback for themselves, teacher attitudes about MAP seemed to influence whether or not they use MAP data in their feedback processes both to students and for themselves. Teachers that use MAP data to guide instruction, or inform next steps, had a different attitude in what MAP is or is not telling them. For example, Teacher F stated, "we use the results from the year before and look to see where which objective they're the weakest or lowest in and try to revamp our teaching and make it stronger for the next year." This statement shows an explicit example of how the MAP data influences decisions regarding a particular set of standards or student expectations in the lesson planning process.

All three of the teachers using MAP data to guide their instruction through detailed and specific feedback also tend to revisit the data on a regular basis. Teacher F stated,

> I feel like with MAP, we're seeing the growth of this child throughout the current year... With STAAR we see how they were able to do on a test in one day, at the end of the year, and then we don't have those students anymore. You can really analyze: Did our ones that were very low, did they show growth? Were the ones that are already high, did they continue to get higher? Or did they stay stagnant?

Teacher G looked for performance patterns in her MAP data. These patterns are used to group students for remediation, groups that she describes as "fluid" because each cycle of data allows for changes to the groups and a different focus on specific content gaps.

Teacher D reported that she utilized MAP to a large degree to inform her instruction, and her interactions with her student's parents. She reflected on this, saying,

> The student profile, where it pulls up every little piece of the test... I love to send that one home with parents. They love to see it and know exactly what their child has mastered, and what they can expect their child to be working on.

She was able to identify a specific data report and detailed her structured conversations with parents about how that data influenced her instructional decisions with their students. Her attitude about utilizing data in general played a role in her acceptance of MAP data and its place in her planning for instruction.

Teacher A and Teacher G had similar adopted attitudes when it came to "teacher intuition" in regard to "knowing where a student is" in relation to their performance. Teacher A said, "MAP has such great data, but sometimes the teacher really does know better." Teacher G said, "The funny thing is usually no matter if I look at it from MAP, or I look at it from district I pretty much know my kids and know what they really are

lacking or needing. I think teacher intuition is your greatest strength, it's not the data." Interestingly, Teacher A does not utilize MAP to inform next steps while Teacher G does. Teacher G really does look at the data and analyze it, likely without even realizing that the act of using data to confirm her "intuition" on the students is a form of utilizing data to provide herself feedback on the student's performance.

Although not the norm for the group, Teacher H expressed a distaste for data analysis in general.

> Just I'm not sure it's a good use of time… Why don't you just tell us what TEKS [are weak]. Instead of spending an hour analyzing the data, all you have to say, 'Okay, let's hit 3.6 real hard this semester'. You can analyze it yourself if you're interested. But for the rest of us, we've got too much stuff to do. I don't care about analyzing all that.

This statement matches the principals concern about teacher mentality on utilizing MAP. While this round of data collection did not capture other teachers expressing similar attitudes on data gathering and analysis, there seems to be a concern that the attitude is not isolated to one, or even a handful, of teachers.

When asked how she utilized student data to promote student learning, she said, "I'm hoping to incorporate the new tracking of the MAP and the district assessments so the students can gauge where they are in the big picture." She showed that current data is useful but felt like historical student data was less valuable because of the lack of the STAAR test before 3rd grade. She immediately dismisses assessment data from previous

grades, including MAP and unit assessments, because of the introduction of the STAAR test.

Teacher B said that the intervention team would be looking into MAP data and making intervention-based decisions. This indicates that she did not look at the data to guide her own instruction. This may indicate that some of the teachers felt like students needing remediation were not their own concern, but the concern of the interventionists. This allows the teacher to embrace a sense that the MAP data has no value or sway on her day to day instructional decisions.

Three of the five teachers not using MAP as specific and detailed feedback to guide instruction have a common thread in attitude about what MAP is or is not telling them. For example, Teacher B reported, “when I was looking at the MAP [data] from last year, there was low achievement, low growth for this one little boy that I know, an excellent reader, who goofed off during MAP.” Teacher D noted a mismatch between the MAP scores and her own assessment of student reading levels. This demonstrates an understanding of a possible explanation as to why MAP scores are indicating gaps, or a lack of gaps, that other assessments may reveal. However, their approach to the data indicates a dismissal of the information. Rather than utilizing the data to identify strengths in comprehension versus gaps in fluency, the data is disregarded because it does not match or support other data sources. Each teacher indicated a heavy reliance on other sources of data.

Another pattern shows that while these teachers may not be using MAP data to provide detailed and specific feedback in daily instruction, several of the teachers are

well versed in utilizing the formative assessment of student data from other sources to a high degree. For example, Teacher D said, “I honestly don't know how I would draft my instruction without data. I need data to know where my students are performing and where their weaknesses are.” Several teachers expressed similar attitudes with different data sources such as Fontis and Panel guided reading assessments, classroom observation, small group instruction, and district assessments to shape instruction through a variety of ways. However, their practices with MAP data shows either a lack in faith in what the MAP data describes, or a lack of understanding in how best to access and use the data.

Specific and deliberate training should be delivered to those teachers that need it to help them understand the value in the formative assessment of student data from MAP and other sources. These teachers need to see the value their own perspectives bring to the table that inform what a specific number actually says before immediately dismissing it. The teachers’ perspective helps determine if a standard truly needs a significant amount of remediation over an extended period of time, or a quick fix by correcting a misconception or reteaching a vocabulary term that could take significantly less time.

The grade level team meetings revealed a pattern with teacher attitudes towards student success and growth. During the 2nd grade meeting, a performance pattern showed that some of the higher socioeconomic status students were under performing in terms of student growth. There was a discussion on finding what motivates some of the higher SES kids. One teacher pointed out, “The low-income students are excited by pencils and stickers. But the high SES kids don’t value the same thing.” There was some getting

"stuck in the mud" on this topic. The assistant principal suggested that they needed to "dig in and find what motivates these kids." Rather than acknowledging that challenge, the discussion cycled back, that it's "impossible" rather than finding a solution or ideas for creating or finding the motivation with some of these students.

This trend does not carry through with every teacher. One 2nd grade teacher stated during the grade level meeting that, "I've got some that were in the yellow box that I've already got in some groups, doing some targeted guided reading. The three that surprised me are getting their own targeted and explicit instruction during crew time." This indicated that despite some of the trends in attitudes amongst some teachers in her grade level, this particular teacher felt that the data revealed valuable information about where she could focus attention on some of her students to help them grow and improve.

Teacher Training for MAP Shows Gaps

Though observation data from grade level meetings were used to answer RQs 1 and 2, the following grade level meeting and subsequent training data is related to how the participants made plans to change instructional practices which is specific to research question two. The ways teachers and administrators reported using MAP data to change practice and drive professional development showed that there were gaps in initial training including some of the fundamentals on accessing data, a desire existed amongst teachers for more training, and there was a lack of understanding in how MAP worked as a formative assessment.

Accessing and using MAP data. Some of the teachers expressed a concern with not being able to utilize MAP data, leaning more on other sources of data, or in general

no valuing what the data had to tell them. Teacher A said, “I use this data and compare it with my MAP data to see maybe what I might have missed in the pastor what I feel like maybe the MAP might be wrong.” Teacher G’s statement seemed to contradict her practices in using MAP data as a source of feedback when she stated, “Usually no matter if I look at it from MAP [data], or I look at it from the district [data], I pretty much know my kids, and know what they are lacking or needing. I think teacher intuition is your greatest strength, not the data.” Though it is important to compare multiple data sources, it seems as though these teachers did not see the value in what MAP had to offer.

Other teachers pointed out that they did not use MAP data simply because they did not know how to access reports or make sense of what the data was telling them. Teacher D said, when utilizing MAP data that she “did not know very much about it.” Being new to MAP she felt that she “was not familiar with it and was kind of hesitant to go out on that limb with something so unfamiliar and new.” Teacher G even reported that after more than a year with working with MAP that she was “still finding [new] data pages.” Teacher C uses the MAP data periodically to try to make adjustments to her instruction, but stated, “I think there’s a lot of information there that we really haven’t been shown how to use correctly.” This indicates that while she is familiar with the process of using data for her instruction, she feels that there is more that could be done with a better understanding of how to use or access various MAP reports.

Teacher desire for more training. When discussing their perceptions on the benefit of the trainings they have received so far, several teachers expressed a desire for additional training in utilizing MAP. Teacher G stated, “I’m still finding data pages and

we had no idea that was there in MAP. So, we need updates, maybe to some other trainings." This sentiment was echoed by Teacher C, D, E, and H. Teachers C, D, and E were found to not use MAP assessment data when providing detailed and specific feedback to themselves or to their students. When reflecting on the training received so far, each of these teachers were able to determine that additional training could help them change their instructional practices as they related to MAP as a formative assessment.

Interview and observation data show that as the district implemented MAP, there were no specific sets of recommended professional development steps to be followed by the campuses. The district training focused on how to deliver the assessments, but not on how to utilize the information provided by the system in the first year of implementation. MAP was implemented without a lot of knowledge about how MAP worked and what it was capable of showing teachers and how it could be useful (Interview, District Admin). The "slow roll" on implementation, allowing campuses to decide how to utilize MAP on a campus by campus level, helped to "create a culture that treated the MAP assessments as a 'check box' rather than a growth tool." As campuses attempted to execute their own expectations for MAP, each campus did something a little different from the others in the district. At Oak Hills Elementary, the first year of implementation was treated mostly as an opportunity for staff members to become accustomed to how MAP was delivered.

In an effort to disseminate training to teachers, the campus implemented a "campus senate," a train the trainer model where four or five staff would go out to train other teachers. Teacher C commented on the staff senate, stating, "they selected just four or five staff members. And those staff members were to come and train you, that did not

happen all the time. It happened maybe once every semester." Other participants did not even mention the staff senate, perhaps pointing toward a lack of familiarity with the process, or not finding the process valuable enough to mention. This indicates that the staff senate model is not providing the training as it was intended.

After reflecting on the previous professional development practices as they relate to MAP, both participating administrators reported teachers' use of MAP data to be at a "basic level." As a result, the administration had determined that additional training was needed. In following up, a specific set of data reports were to be reviewed during the observed grade level meeting with the teachers. Teachers were instructed to use the data to inform student grouping in class and to inform what they taught during "crew time" and intervention time during Tier 1 and Tier 2 intervention in class. During the observed grade level team meetings, the K-3rd participants used MAP data to identify areas or students of concern. The principals walked teachers through accessing several different data reports including the student profile and the learning continuum. Teachers were asked to look at the projected growth for MAP versus the observed growth and identify areas that might stand out as a problem.

Developing an understanding of using MAP as a formative assessment. Interview data varied from teacher to teacher and grade level to grade level in how they understood MAP as a formative assessment and how it could be used in their classroom instruction. For example, Teachers F and G utilize in some form at least four of the five critical components of formative assessment. However, all other teachers utilized three or

fewer components for varying reasons, typically linked to a lack of familiarity with the process, component, or how MAP worked.

Grade level meetings revealed different levels of practice from grade to grade. During the meeting with the kindergarten teachers, the discussion on current instructional practices was limited to what teachers discussed during individual exploration of the data during the meeting. One teacher said that she was grouping students incorrectly according to what the data was showing her. This realization showed that the time provided to the teachers to intentionally reflect on what they were seeing allowed a teacher to pinpoint an area of growth in how she uses MAP to inform instruction in her classroom.

During the 1st grade meeting, the assistant principal pulled the interventionists to one side of the meeting room to discuss the principal's expectations. There was some emphasis in local practice to have the interventionists do a lot of the "heavy lifting" when it comes to identifying students for intervention groups. This practice served to reinforce with some teachers the attitude and acceptance of a shifted responsibility for the data to the interventionists and reinforced the lack of understanding in how MAP could be used formatively to inform and guide classroom instruction. Though this reinforcement is likely unintentional, the teachers receive mixed messages when it comes to who needs to be looking at the data and doing something with it to change their instruction.

The teachers embraced what the reports are showing them in kindergarten, first, and second grade. In contrast, the third grade participants associated students' poor performance with medical problems, forgetting medication, etc., rather than focusing on

the data to analyze student performance. Comments during the third grade data meeting included, “You tell them it’s a test, and they start clicking or they lock down,” and, “One kiddo (was) really digging in their heels and falling back on ‘I’m dyslexic, I can’t.’”, “I think she didn’t have her glasses. So, it’s as if they had some things against them. I have one that didn’t make progress and didn’t have glasses, and another that didn’t put forth effort that day,” and, “Test anxiety... they take 20 minutes, just trying to get it over with.” These comments are indicative of a potential culture problem or a lack of understanding on how to begin the formative assessment of student data. Rather than utilizing the data to identify areas of growth for students and modifications to instruction, the focus was on problems outside of the teacher’s control.

Summary

This qualitative case study was conducted for two purposes, the first of which was to investigate the ways in which teachers and administrators are using five critical components when formatively assessing students using MAP. Considering the broad scope and depth of the standards from Kindergarten through high school, it is important for teachers to adhere to formative assessment practices that follow and assess the standards assigned to their content and grade (Scammel, 2016). Additionally, teachers need to understand the content connected to the standards and that the assessments are designed to measure (Floden et al., 2017). The results of this study showed that teachers were quite knowledgeable about the standards but not about the connection between the standards and the MAP assessments, indicating a need for professional development in this area.

Results also indicated that although some teachers utilized formative assessment data from other sources, they largely ignored data from MAP to make instructional decisions. Other teachers would use intuition and informal observation of students to make intervention decisions for students. Research has indicated that the data-based decision-making process, or informing next steps, should focus on specific interventions identified with targeted data rather than blanket identification of students without a formal process (Meyers et al., 2017; van Geel et al., 2016; van Geel et al., 2017).

My study resulted in evidence that teachers were concerned with student confidence and motivation in general, especially as it relates to student effort when taking an assessment. However, they were not as well versed in utilizing formative assessment performance data to improve student confidence and motivation. Formatively assessing students and providing them with their own data can increase motivation and confidence by helping them identify personal relevancy, ensuring they understand feedback, and using feedback to measure goal attainment (Haas et al., 2016; McGlynn & Kelly, 2017; Reddy et al., 2017). As such, participants need additional training to generate student confidence and motivation through the creation a system that allows students to see their own academic growth over time (Koenig et al., 2016).

A further finding was that teachers were hesitant to include young students in the goal setting process. However, Burns et al. (2018) showed in their study that students are able to create achievable goals, even at young ages, related to their learning and performance and improve self-efficacy in relation to the skills identified for remediation. Moreover, Haas et al. (2016) showed that all students under a teacher utilizing a

structured goal-setting format, tailored to the needs and capability of the student, led to further gains than students under teachers that did not. The current practices at Oak Hills elementary indicate that teachers need development to provide them ideas and approaches for them to incorporate student goal setting in their classrooms differentiated by grade level.

The study found that teachers perceived MAP in ways that influenced its use. Students cannot achieve academic growth without some level of feedback on performance and achievement. The feedback should be gathered and delivered in ways that are specific to individual situations and used to provide insight on student strengths and weaknesses (Adesope et al., 2017). Being aware of teacher perceptions before implementation an assessment platform, like MAP, can help administrators focus their PD delivery to be more explicit on desired outcomes (Cowen et al., 2015). Through the creation and delivery of quality PD on MAP and how it can be used to provide detailed and specific feedback would help change teacher perceptions about MAP assessments and its potential use in their instruction.

In answering the second research question, identifying how use of student formative assessment data drives the professional development of teachers at the campus, the findings indicate that training efforts up to this point have had a limited influence on the teacher's utilization of MAP as a formative assessment tool. Although Administrator 1 was using feedback from teachers to create and deliver local professional development to teachers, follow through and consistency caused a problem. Available data also shows that the use of the campus senate is not currently an effective means of spreading

development to other staff members. Although a training of trainers model can be an effective method of spreading professional development to other teachers, its current implementation at the campus does not provide the structure in the schedule to make it so. Additionally, the teacher's understanding of MAP's usefulness as a formative assessment tool and administrator perspectives on maintaining district expectations need aligning. The recommendations for a project to address the problem based on these findings is given in the project deliverables section below.

Revisiting the work from Cowen et al. (2015), the staff needs an opportunity, through professional development, to address the gaps that exist in formative assessment practices and development provided up to this point. This development would help to establish a foundation for all teachers in regard to how to appropriately use MAP using the five critical components identified in the framework. Continued development could follow guidelines established by research that has connected the importance of utilizing a team approach through an inquiry model to improving teachers' use of instructional strategies and practices (Dufour, 2015; Owen, 2016; Vanblaere & Devos, 2016).

Project Deliverable

The project deliverable is based on the findings of the study and provides a three-day professional development opportunity for all kindergarten through third grade teachers at Oak Hills Elementary. This professional development will (1) provide opportunities for teachers to reflect on their beliefs about students and assessments so each teacher can implement student directed goal setting with MAP in order to build student confidence and motivation. Additionally, the training will (2) provide

opportunities for teachers to explore three critical data reports provided by MAP to build capacity in utilizing MAP data formatively for instruction, and identify the strong connections that MAP has to the TEKS. Lastly, the professional development will (3) provide opportunities for teachers to identify and examine their own attitudes about MAP as a formative assessment in order to improve their willingness to incorporate MAP assessment data into their instructional practices. Each of these three learning goals will align with the suggested formative assessment practices as outlined by the conceptual framework.

The development will be delivered in three different sessions. The first will give teachers opportunities to learn more about what MAP is and how it operates to measure student performance and growth. The goal of this first session will be to support teachers as they develop an appreciation and understanding of how MAP and TEKS are connected and how some of the reports in the MAP can be accessed to guide planning and instruction. The second and third session will involve teachers working collaboratively to build on the successful strategies that they are already using, in order to utilize the MAP assessments in instructional practices. Practical examples will be developed that are grade level specific so that teachers can take data.

Section 3: The Project

Introduction

In order that K-2 teachers might better inform their instruction of the math standards on which 3rd grade students are struggling, the district implemented the MAP assessments. After three years of implementation, no evaluation of the use of the MAP program was in place to determine the ways in which MAP has changed teachers' and administrators' use of formative assessment practices in their classrooms and for the purpose of designing future professional development that is appropriate to teacher needs (M. Satterwhite, personal communication, April 8, 2017; NWEA, 2015b). The purpose of this qualitative case study was to identify the ways in which the current formative assessment practices in this local setting adhered to the conceptual framework on the critical components of formative assessment, and how professional development is informed or created from the use of formative assessment of student data. I conducted interviews with teachers and administrators, attended campus data team meetings, and collected artifacts to gather data on the formative assessment and professional development practices of the campus as they relate to MAP. Results indicated that (a) teachers' formative assessment practices varied widely as they applied to utilizing MAP assessment data (b) there was not a consensus amongst the staff regarding MAP's connection to the TEKS, and (c) teacher attitudes about MAP impeded their willingness to embrace MAP in the formative assessment process in guiding their instruction. Therefore, the purpose of this project was to (1) provide opportunities for teachers to align their beliefs about students and assessments so each teacher can implement student

directed goal setting with MAP in order to build student confidence and motivation. Additionally, the training will (2) provide opportunities for teachers to explore three critical data reports provided by MAP to build capacity in utilizing MAP data formatively for instruction, and identify the strong connections that MAP has to the TEKS. Lastly, the professional development will (3) provide opportunities for teachers to identify and examine their own attitudes about MAP as a formative assessment in order to improve their willingness to incorporate MAP assessment data into their instructional practices

Description of the Goals

The goal of the project is to provide kindergarten through third grade teachers at Oak Hills Elementary with a three-day professional development in which they will receive additional training on the MAP assessments, addressing the three major goals identified above. The professional development will take place across three separate sessions provided on built in professional development days through one semester of the school year. The structure of the development was designed using the results from the study, literature review on best practices, district resources and requirements, and state requirements.

The five critical components of formative assessment are that the assessments (a) are standards based, (b) utilize detailed and specific feedback, (c) involve student directed goal setting and feedback, (d) use formative assessment data in data-based decision-making (what Laud and Patel call “informing next-steps”), and (e) using results to improve student confidence and motivation (Laud & Patel 2013). Laud and Patel’s work provide the theoretical framework for this project. Through the project, the teachers will

learn about the five critical components, how those components should be used with MAP assessment data, and how MAP assessment data can be used to guide and improve instruction in the classroom. Additionally, the development provided will follow the idea that professional development in formative assessment practices should be provided within the context of the specific campus to provide the best outcomes for students through improved instruction (McEntarffer, 2012; Oneal-Self, 2015). This development will be specific to Oak Hills Elementary and provide opportunities for professional learning within the identified practices on the campus and inform how those practices should look for Oak Hills Elementary.

The first session will provide teachers the needed background on the purpose of MAP as an assessment to measure student growth over time. Because all teachers agreed on the importance and role of the state standards in formative assessment practices, no time will be spent on developing teachers' understanding on the role of the standards in instruction and assessment. However, the first session will spend dedicated time on building teachers' understanding of how the MAP assessments are aligned to the state standards. Teacher attitudes on the assessment will also be addressed by dispelling accepted lines of thought that hinder teachers' willingness to embrace MAP in their own formative assessment practices. Further, the first session will establish an understanding with teachers on how two MAP data reports can be used to identify students in immediate need for remediation and which content those students need additional assistance. Time for teacher collaboration and exploration of the two data reports will be provided so teachers can identify students and content for immediate remediation.

The second session will present two of the five critical components of formative assessment; student directed goal setting and utilizing results to improve student confidence and motivation (Patel & Laud, 2015). Results from teacher interviews and the observation of data meetings demonstrated that teachers (a) either did not believe students were capable of self-directed goal setting, (b) did not know how to implement student directed goal setting in their classrooms in meaningful ways, or (c) were implementing student directed goal setting in a variety of ways. Grade level specific strategies will be presented that are appropriate to the learning and cognitive abilities of students at different grade levels. Where appropriate, the existing teacher practices that benefit the formative assessment of students in the area of student directed goal setting will be incorporated and connected to suggestions on future practices.

Results from the interviews also indicated that teachers addressed student confidence and motivation typically through general comments to provide encouragement. Often, the student's confidence and motivation were addressed as a problem when it came to taking the MAP assessments rather than how results and improvement can be used as a source to generate student confidence and motivation. Strategies for structured conversations with students, both individually and as a class, will be developed with teachers to be used as methods of leveraging results to improve student confidence and motivation. Similar to student directed goal setting strategies, the suggested practices will be specific to the cognitive and learning abilities of students in particular grade levels. Time will be provided near the end of the session for teachers to work collaboratively on developing an implementation plan specific to their classrooms

on utilizing student directed goal setting and discussing how to utilize the goal setting process in building student confidence and motivation.

The third session will help teachers develop the final three components of formative assessment as identified in the conceptual framework; standards-based assessment, informing next steps, and detailed and specific feedback. Additionally, this session will introduce the third MAP data report. Once again, because all teachers agreed on the importance of the state standards in assessment, little time will be focused on this critical component other than to remind teachers that MAP is aligned to the state standards. Data indicated that teachers lacked familiarity with using MAP data in instructional decision-making and lesson planning. To address 'informing next steps,' teachers will be guided through a lesson planning model that can be used for small group instruction, crew time remediation, and large group instruction in the classroom. The importance of utilizing MAP data in making these decisions will be discussed.

Results from the interviews and the observations varied in relation to how MAP data was utilized in providing both the teacher and the student feedback on student comprehension and concept development. Teachers need additional support in utilizing MAP data to provide feedback on the academic growth of individual students. 'Detailed and specific feedback' will be addressed by providing teachers with a background on the importance of providing students with an ongoing cycle of feedback and reassessment. Although MAP assessments are only taken three times through the year, the data from the assessments should provide feedback to the teacher and the student as it relates to growth and goal setting/attainment. During the third session, teachers will be provided with an

additional opportunity to collaborate with each other by grade level teams in accessing data provided by MAP and the newly developed understandings on the critical components of formative assessment to plan future instruction. In particular, the teachers will be asked to co-develop goal setting models/templates for students, and leverage time with the presenter to coach them through fine tuning the tool to the cognitive and learning needs of the students at each grade level. Additionally, time will be dedicated for teachers to refer to the presenter to coach them through additional support they may need (i.e., accessing or reading reports, applying data to instruction in the classroom, creation of small groups with common learning gaps).

Rationale

Professional development was chosen as the method to facilitate teacher learning so that teachers can create a foundational understanding in how the MAP assessments play a role in utilizing the critical components of formative assessment to guide instruction. Professional development that introduces teachers to new philosophies, instructional approaches, and is designed to address specific teacher attitudes is one of the most effective ways of sustaining changes to teacher practices (Kimbrel, 2018; Mohan, Lingam, & Chand, 2017; Yariv & Kass, 2019). As the campus already has six professional development days built into the school year, these days provide ample opportunity to provide the development in a structured way throughout one semester of the school year at the local site without being hindered by the already demanding expectations on teacher time. This development addresses the problem, that MAP had been implemented in part as a means to reduce gaps in third grade student achievement,

yet the gaps in student understanding remained. Student performance data showed that the students identified as low socioeconomic underperformed as compared to the white demographic by 13% in general passing rates, and 34% in advanced performance rates, and the Hispanic demographic underperformed by 9% in general passing rates and 21% in advanced performance rates. It develops the ways in which teachers and administrators are using formative student assessment practices, via the MAP assessments, to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site. If the professional development for the project is implemented with fidelity, then the student scores in question will improve over the course of the following school years.

The results from the study show that there are two areas that need to be addressed: (1) some teachers had effective ways of including students in their own goal setting that led to increased student motivation while other held beliefs about students and assessments that prevented them from being effective in this area; and (2) Most teachers used data other than MAP to assess their students partially due to their lack of knowledge about how MAP connects to the state standards (TEKS).

Many models of PD question the assumption that one can change an experienced teachers beliefs which will lead to change in practices. To create the change in beliefs a change in practice must come first (Guskey, 2002; Zambak, Alston, Marshall, & Tyminski, 2017). Essentially, this reasoning follows a “seeing is believing” method to change teacher practices. One way to create the desired change in practice is to co-create practices with the teaches and facilitate teacher implementation of presented or developed

practices in their classrooms, which would lead to shifts in beliefs after seeing the results of the change.

Leveraging the results of the findings, the first session will address teacher attitudes about MAP as a top priority. It is important to address teacher attitudes in the first session as those attitudes shape a teacher's willingness to embrace future development, especially as it relates to adjusting their instruction and classroom practices (Anderson Boaler, Dieckmann, 2018; Karolcik, Cipkova, & Kinchin, 2016). Additionally, the first session will have teachers participate in activities that link the MAP assessments to the state standards (the TEKS) and introduce teachers to two data views provided by MAP that can be used to identify students that need remediation and specific content gaps for those students.

Though the first session addresses two out of the three goals for the professional development, the last goal is the most training intensive portion. In sessions two and three teachers will participate in activities centered on the five critical components of formative assessment practices and will be provided with practical methods for implementing each component specific to grade level bands. Particularly, session two will build the teacher's understanding on how to implement student directed goal setting and using goal setting and achievement to build student confidence and motivation through MAP assessment results. During session three, the and I will co-create ways that they can use MAP results at the individual student level to inform their practice in instruction and lesson planning, particularly through small group instruction and remediation.

Review of the Literature

The purpose of this literature review is to provide a synthesis of relevant research on teacher professional development that can guide the creation of a plan to help teachers implement the five critical components of formative assessment practices as outlined by the conceptual framework as they relate to the MAP assessments at the local site. Additionally, this review will synthesize literature on how to address the teacher's concerns about the MAP assessments as a valid formative assessment of their students. The project type was selected based on the findings from the study, the following literature, existing structures at the research site, and addresses the problem, informing the ways in which teachers and administrators are using formative student assessment practices, via the MAP assessments, to both change instruction and to inform the creation of local professional development designed to effect instruction at the research site.

The literature review addresses professional development, teacher attitudes and barriers, and suggested practices within each of the five critical components of formative assessment; standards based, detailed and specific feedback, student directed goal setting, informing next-steps, and student confidence and motivation. The literature review was conducted using Walden's online database and Google Scholar. The Walden resources focus primarily on education topics including ERIC, SAGE Premier, and EBSCO Discovery Service. Search terms included: *effective professional development, teacher attitudes, student directed goal setting, student learning goals, leadership and professional development, formative assessment feedback, student confidence and motivation,* and *data and lesson planning*.

Professional Development

Teacher professional development opportunities have been identified as the best way to help teachers grow as it relates to formative assessment practices and instruction (Copur-Gencturk & Papakonstantinou, 2016; Hayes, Wheaton, & Tucker, 2019; Hilton, Hilton, Dole, & Goos, 2015; Lazarev, Newman, Nguyen, Lin, & Zacamy, 2017; Pharis, Sullivan, & Moore, 2019; Whitworth & Chiu, 2015). While professional development is well established as best practice for teacher growth, there are specific constructs of effective professional development that should be adhered to in order to make the development highly effective such as administrative support, coaching, time spent on PD, and collaboration with peers (Basma & Savage, 2018; Jacobson, 2016; Ketterlin-Geller, Baumer, & Lichon, 2015). For example, in a meta-analysis investigating an array of research on teacher perceptions on effective professional development, Surrette and Johnson (2015) found that much of the literature had little alignment in determining if online professional development was effective for teacher learning. In some instances, studies found that teachers find online professional development to be the least effective means of improving teaching practice (Surrette & Johnson, 2015). Further, Noonan (2018) found through interviewing 25 teachers from a variety of school districts in the Northeastern United States, that lecture style professional development has been found to generate little change in teacher learning. Instead, PD practices that are engaging, thorough, and adaptive result in change (Noonan, 2018; Surrette & Johnson, 2015).

Taking the teacher perceptions from the study, potential barriers identified from the data analysis of the interview and observation data, and the recommendations above

into account, adaptive professional development could be used to meet the learning needs of the staff at the research site. This literature review identifies the complex structures of effective professional development and adaptive instruction. To guide the creation of the professional development sessions, one recent study was selected that looks into the components of effective and adaptive professional development. In their framework for effective professional development, Parsons, Ankrum, and Morewood (2016) identify seven major components: ongoing and sustained opportunities, alignment with students' learning goals, strong leadership presence, implementation of practices supporting student learning, focus on teachers' learning needs, collaborative environment, and student assessment data to inform instruction. The importance of each component will be briefly reviewed, and best practices identified as they pertain to Laud and Patel's (2013) framework for the five critical components of formative assessment.

Literature on the role of leaders in professional development models for teachers outline the importance of continued opportunities for them to engage in ongoing professional development (McLaughlin & Talbert, 2001). However, recent research on the topic show that providing the opportunities need to be sustained through support, particularly in areas of experimentation, risk taking, and encouragement of teacher effort and implementation (Hilton, Hilton, & Dole, 2016; Hilton et al., 2015; Killion, 2016). Tackling an identified need for a campus or district through multiple professional developments over time help keep the training at the forefront of teachers' efforts which has been shown to improve fidelity to implementation models, creating meaningful changes to instruction (Killion, 2016; Reedy & Lacireno-Paquet, 2015). As such,

professional development created to address the identified needs of the research site in implementing MAP as a formative assessment to inform instructional practices will be provided across multiple PD days.

In two different studies involving high school algebra and geometry, teacher perceptions on the value of professional development have been shown to improve when student learning goals are incorporated into PD and a partnership is created with teachers (Johnson, Severance, Penuel, & Leary, 2016; Martin & Gonzalez, 2017). Similarly, a large study conducted by Wieczorek (2017) showed that principal perceptions across public schools in urban, rural, high instances of low socioeconomic status, high instances of high socioeconomic status, and varied minority populations indicated a critical need to have varied professional development offerings based on the specific needs and populations of the students in the school or district. Doing so requires that local level data and learning goals be incorporated into the planning of PD (Wieczorek, 2017). The partnerships created between the creators of the PD and the teachers alleviated tensions and revealed realities of the classroom that the creators may not have known to address, such as time constraints and learning abilities of students. When teachers and principals see the value of the development, fidelity to the instructional or data analysis strategies and philosophies learned have a more meaningful, positive influence on classroom instruction.

Hilton et al. (2015) followed 70 teachers and 20 campus leaders through a professional development program over 3 years. They found that if administrators are following through by visiting classrooms, holding professional development outcomes at

the forefront of their observation and feedback cycles, it communicates to the teachers the value of what was learned and the importance it holds. Further, it helps the administrator determine which educators may need more focused attention in relation to the PD goals. This allows the campus leader to maintain consistency amongst teachers which improves the effect that the professional development has on student outcomes and classroom instruction (Hilton et al., 2015; Parsons et al., 2016).

One size fits all professional development models have limited effect on teacher learning, and in turn, influence on instruction in the classroom. Adaptive professional development should support the learning needs of the students at the core of its focus, but it should also consider the learning needs of the participants; the teachers (Johnson et al., 2016). Caddle et al. (2016) found in their study of a year-long mathematics PD model, involving 54 teachers in grades five through nine across 9 different school districts across the Northeastern United States, that the needs of teachers can vary widely in terms of their own perceived needs, their motivation, content, and classroom instruction. These varied needs create a need to meet the teachers where they are rather than providing them with what instructional leaders deem important in sweeping decision models (Caddle et al., 2016). As such, administrators and other professionals should consider the perceptions and input related to the development topic from their audience (the teachers) as professional development is created.

Basma and Savage (2017) conducted meta-analysis of professional development approaches which showed a significant correlation to the amount of time spent on PD and the effectiveness of that PD on student achievement and changes to teacher practices.

Their analysis showed that the most effective PD was less than 30 total hours. As such, teachers should be provided with meaningful development opportunities while also allowing for opportunities to share and develop best practices in a structure that honors teachers' time and effort (Basma & Savage 2017; Martin & Gonzalez, 2017).

Providing time and opportunity for teachers to collaborate was shown to make teachers feel as though the strategies and skills learned from professional development had more of a positive influence on their classroom instruction (Martin & Gonzalez, 2017). Martin and Gonzales (2017) worked with high school geometry teachers teaching in high needs schools in the Midwestern United States over two years examining their perceptions on professional development interventions. They found that teachers found dedicated time with their peers to be most valuable when working in a professional development setting. Further, Sterret, Parker, and Mitzner (2018) found through a survey of over 93,000 educators in North Carolina that teachers valued time for collaboration if it was combined with constructive discourse in professional development settings. Simply allowing time to collaborate was not valued as often the time was either wasted, or devoted to other things that were not as constructive to student's learning. Collaboration can take place in two practical ways: during the professional development, and after the professional development. Each approach should include a structured environment and incorporate components of effective collaborative cultural expectations (Cuesta, Azcarate, & Cardenoso, 2016).

Teachers using student assessment data to inform instruction. Teachers need specific professional development to learn how to best utilize formative and summative

assessments as a critical component of guiding classroom instruction (Glover et al., 2016; Hattie, 2016; Laud & Patel, 2013). In their meta-analysis of the research conducted since 2007 on the implementation and effectiveness of the Student Success Initiative project, Glover et al. (2016) found that a hybrid approach to using formative and summative assessment data leads to a more comprehensive understanding of the performance of a student, teacher, and a school. As such, improvements in performance can be made when the formative and summative data are used in conjunction to make instructional decisions related to mastery and the selection of instructional strategies. However, student data also should be used to guide and inform professional development creation. In a three-year study conducted by Furtak et al. (2015) with biology teachers, it was determined that intensive development on the selection, creation, and reflection upon data from formative assessments resulted in improved instructional skills for all teachers involved versus teachers that were not involved. Student data from formative assessments helped pinpoint teacher practices as it relates to instruction for content that is being taught (Furtak et al., 2015). When analyzing student data, trends in student performance can be used to identify trends, gaps, and strengths in instruction. Instructional gaps can and should be used to identify specific needs for teachers (Glover et al., 2016; Marsh, Bertrand, & Huguet, 2015). These needs can then be addressed in professional development settings.

Rizzi (2016) investigated a data collection and reporting technique with special education students in rural school districts. Rizzi's focus on rural school districts allowed the study to focus on areas where resources, such as dedicated staff and scheduled PLC time, are often unavailable. When provided with a targeted and streamlined method of

gathering and reporting student data, and then empowering the teachers to look up and use the data themselves, performance for all students, and especially students that fall under the special education umbrella, climbed significantly. Snodgrass, Rangel, Bell, and Monry (2017) also found when working with a group of science teachers from grades 5 through 8, that teachers that utilized data themselves with little to no guidance frequently biased certain kinds of data. This diluted the positive influence that the data had on instruction in the classroom. When teachers are empowered to look up and use data themselves, it creates a sense of urgency for the teachers that motivates them to use the information in their instruction in more meaningful ways, but requires training and exposure to effective methods to implement and use the data effectively (Rizzi, 2016; Snodgrass et al., 2017). Teachers can be trained in effective data gathering and analysis practices through ongoing professional development opportunities through modeling and support from the campus leadership with a focus on this particular need.

Development should be provided to teachers on how to utilize data reports to identify student strengths and weaknesses so that students can continue to demonstrate growth on the MAP assessments. Meyers et al. (2017) concluded from their study of 34 teachers in Georgia that a more directive approach in data analysis helps all students, including advanced students, by targeting standards that show lower performance, even if they weren't considered as low as their lower performing peers. By focusing on the specific concepts that the students need to improve rather than focusing on the standards that are showing accelerated performance, the teachers can still get students to grow

without breaking district expectations (Adesope et al., 2017; Hattie, 2016; Meyers et al., 2017).

Stronge (2018) synthesized decades of education research to identify the qualities of effective teachers. In cases where students are genuinely demonstrating mastery of grade level standards, Stronge found that differentiation of instruction that challenged students to show a deeper understanding of the content is most appropriate as compared to moving on to higher grade levels. In instances where teachers need additional support in providing richer, deeper content related challenges to students who were above grade level in order that they could demonstrate growth on the MAP assessments (Stronge, 2018).

Formative Assessment Practices

Assessments have changed significantly over the last several decades of public education. The purpose of assessments can range from formal to informal but remain the same in focus: to determine what students know about what has been taught (Care, Kim, Vista, & Anderson, 2018). In recent years, further attention and emphasis has been placed on the role that formative assessments have in enhancing student learning, inform instructional approaches, and convert classroom culture. (Ainsworth & Viegut, 2015; Furtak et al., 2016; Kaur & Noman, 2019; Prashanti & Ramnarayan, 2019). Essentially, formative assessment is assessment “for” learning while summative assessment is assessment “of” learning. The practices associated with each differ, depending on the purpose and intent of the assessment. If the assessment is merely a measure of students’ mastery, it is labeled as summative. If the assessment is used to inform instruction, make

decisions, and provide feedback to the student regarding mastery, it is labeled as formative (Houston & Thompson, 2017).

The components of effective professional development detailed above will be used to guide the development of teachers learning of the fundamental components of formative assessment practices as proposed by the conceptual framework which include standards based formative assessment, detailed and specific feedback, student directed goal setting, leveraging data to inform decision-making processes, and leveraging results to improve student confidence and motivation. Within each component the professional development will identify specific strategies and suggestions the teachers can implement in their classrooms, broken down by grade level bands where appropriate, to meet the cognitive and developmental needs of students at different grades (Abawii, 2015; Aljojo et al., 2018).

Student directed goal setting. High quality, personalized goal setting has been shown to play an important role in improving student performance (Curtis, 2016; Dotson, 2016; Haas et al., 2016; Hattie, 2016; Koenig et al., 2016; McCoy, 2019; McGlynn & Kelly, 2017). Though supported by many researchers, a recent study by Garrels (2017) investigated the performance gaps associated with typically performing students and students with intellectual disabilities. They found that the content of the goals set by both groups did not differ significantly, suggesting that teachers needed additional training in working with students in developing goals. A study conducted by Rowe, Mazzotti, Ingram, and Lee (2017) on five “at risk” students showed that students considered “at risk” receive the same level of academic benefit when compared to their peers. When

considering the ability gap between a typical student and students with intellectual disabilities, or students identified as "at risk," there is no significant difference in the benefit that students receive by participating in student directed goal setting (Abawi, 2015; Garrels, 2017; Rowe et al., 2017). However, teachers' perceptions in the literature, and in the results of this study, often indicate that they feel ill-prepared to incorporate goal-setting into their lessons and serves as an important point to develop in teachers through ongoing professional development (Rowe et al., 2017).

Ugur, Constantinescu, and Steven (2015) developed a literature analysis of self-determination theory and applied it to Bloom's Taxonomy, concluding that students can build SDT through a scaffolded approach of Bloom's. This means, essentially, that students can move through the stages of self-determination theory by using Bloom's to engage in the processes of self-development. Additionally, Abawi (2015) conducted a study that investigated the inclusion model adopted in a school district in Queesland Australia that had seen an incredibly sharp rise in special education students (86 out of 630 students), yet still saw increases in student achievement. In interviewing several dozen stakeholders for the district, including teachers, parents, and administrators, it was determined that student success was largely linked to a school culture that empowers students to know how and why they learn. As such, student directed goal setting should reflect the cognitive development, abilities, and needs of the students in the classroom (Abawi, 2015; Ugur et al., 2015). As such, goal setting should look different in a Kindergarten class than it does in a third-grade class. Relatively recent research shows a connection between the self-determination theory and the ability of a child to think at

particular levels on Bloom's Taxonomy, suggesting that students in the preoperational stages tend to have mastery over processes at the lower end of Bloom's while students at the concrete-operational stages can move into the upper levels (Ugur et al., 2015). Leveraging a Bloom's Taxonomic approach to goal setting methods at different grade levels helps to determine the cognitive requirements of different approaches, as the Bloom's levels apply to the cognitive development theory developed by Piaget and Vygotsky. Structuring the learning goal tasks (or goal setting) according to the six levels of Bloom's allows the goals that are set to have meaning according to the cognitive abilities of different age groups (Ugur et al., 2015). It is also understood that the cognitive development stages are not uniform and tend to occur during age ranges. As such, suggested practice for teachers in goal setting should be tailored to the individual needs of the student.

In the creation of grade level specific student goal setting strategies and tools, specific RIT ranges and skill sets should be referenced. Doing so will specify within each grade level certain goal ranges, particularly as they pertain to RIT scores, that are realistic and attainable at each grade level. MAP provides a Norm Reference Report that shows the expected RIT ranges for students for the beginning, middle, and end of year MAP assessments for math, reading, and science in grades K - 11 (NWEA, 2015b).

By utilizing the Collaborative Environment framework for effective professional development as identified by Parsons et al. (2016), teachers can build the suggested skills detailed below for each grade level. A post-professional development approach through the observation of best practices by their peers would allow for teachers to observe best

practices by teachers who have demonstrated talent in working through the student directed goal setting process with students. Following those observations up with a structured collaboration time, such as a grade level or content PLC, would allow teachers to have conversations about the observed goal setting processes which could lead to changes in practices in the classroom (Furtak et al., 2015; Martin & Gonzalez, 2017; Parsons et al., 2016).

Kindergarten goal setting. Goal setting for Kindergarteners requires the students to set simple goals related to tasks that are connected to the content. Because the students are in the Preoperational stage of development, typically cannot write basic sentences (at least until the end of the school year), and lack logical cohesiveness of ideas, there needs to be a lot of structure, scaffolding, and effective questioning included in the goal setting process (TEKS Resource System, 2017; Aljojo et al., 2018). Conversations could happen individually or with the entire class in which specific skills are identified as critical for student success. Using Ugur et al.'s (2015) application of Bloom's Taxonomy to the cognitive ability of the students at the Kindergarten level, the goals should be at the knowledge and possibly understanding level. This implies that the students should be involved with the goal setting but should not create the goals themselves. Further, tracking the attainment of the goals should not require the students to apply or analyze information and data, but rather the teacher should use the data to help the students reflect on simple statements that can be used to determine if a goal simply has or has not yet been achieved.

An example of a standards linked goal would be for the student to be able to count to ten. In facilitating the students to set a goal, the teacher may consider hanging a poster in the room with a statement saying, "I can count to ten." Before hanging the poster, the teacher could guide the class in creating the goal through conversation. As students achieve the ability to count to ten, the teacher then has the students write their name on the poster. Having the student place their name on the poster helps to show goal attainment. Similarly, this process could be conducted with individual student sheets where specific goals are recorded for the students with a blank space next to each goal. As the goal is achieved, the students are allowed to write their name next to the goal.

Another approach would be to have the skill statements written out for the students. Next to each statement is a series of three faces: a frowny face, neutral face, and smiley face. As the student grows in their ability to achieve the skill or goal, the faces are used to indicate the student's ability or growth. At the Kindergarten level, particularly in settings where grades are not identified as letter grades or percentages, students should not participate in tracking scores or relative performance (Brookhart, Guskey, Bowers, McMillan, Smith, & Welsh, 2016). The goals and their attainment should be looked at through the lens of achieved versus not achieved.

First grade goal setting. Continuing with Ugur, et al.'s (2015) application of Bloom's Taxonomy to the cognitive ability of the students, first graders should be moving out of the knowledge level and into understanding and possibly application as it relates to goal setting and reflection. In grades as early as first, students are still developing some of the basic skills required to write and record full sentences (TEKS

Resource System, 2017). As such, students and teachers should continue to partner in the identification of specific goals. Once the goals are identified, students could be provided with sentence stems that are completed by the student. To provide a course of action, the goal should be linked to a specific plan of execution that can be used for reflection once the goal is or is not attained. For example, a sentence stem could be, "My goal is ____. My plan is to ____."

First grade is often where letter grades and percentages to describe performance is introduced to students (Brookhart, Guskey, Bowers, McMillan, Smith, & Welsh, 2016). As such, incorporating the tracking of MAP specific scores and other formative assessment scores could be a part of the goal setting and attainment cycle. Due to the limitations of the math TEKS and student's early levels of skill in reading and interpreting data representation tools such as bar graphs, the students should not create data tables or graphs independently (TEKS Resource System, 2016). However, the teacher could provide the basic structure of the data tables or graphs, and allow students to fill in numbers, or place stickers on a graph showing relative growth over time.

Second grade goal setting. Second graders should be moving out of the preoperational stage and into the concrete operations stage (Aljojo et al., 2018). As such, these students should be able to begin applying and analyzing information as it relates to goal setting (Ugur et al., 2015). The cognitive stages of students at this level allow for them to begin self-reflecting in ways that are at the beginning states of abstraction and less foundational/concrete (Aljojo et al., 2018). Students at this age can begin with the information from assessments like MAP, perhaps extracted and simplified from MAP

reports teachers see and use, in order to draw some basic conclusions about the concepts they have strength in, and concepts that have been identified as weaknesses.

Clift (2015) conducted a study on six classrooms across five elementary campuses from southern Canada to Oregon revealed a significant improvement in student performance when students participated in a goal setting process compared to a control group that did not. The study also concluded that SMART goals were highly complex for some elementary students, needing significant scaffolds to be effective (Clift, 2015). As such, providing a reflection page in which students state their strengths and weaknesses can serve as a foundation for created SMART goals. SMART goals are specific, measurable, actionable, realistic, and timely. Following these criteria for goal setting help keep the goal within reach for both the teacher and the student without risking unattainability and lacking accountability (Clift, 2015; Ross et al., 2016). As a part of that analysis, the students can then begin to formulate basic goals themselves in relation to the data they are being presented. This process requires quite a bit of scaffolding and guidance on the part of the teacher.

The connection between modeling as a method of scaffolding has been shown to bridge the link between effective teaching and learning (Campbell et al., 2015; Goodbody, 2017; Weber, Tallman, & Middleton, 2015). Weber et al. (2015) exemplified this with an experimental study utilizing teachers in a course cohort in a university STEM course in the Southwest United States. The participants learned about and then delivered instructional methods that exemplified Modeling Instruction. Their findings not only saw improvements in student's comprehension of mathematics and science concepts, but also

enhanced the teacher's understanding of connections across curriculum, encouraging growth cross-curricularly for students. Dotson (2016) conducted a goal setting study with teachers in Carter County, Kentucky and found that the goal setting process in reading elementary classes also saw significant increases in student performance. Dotson's study, however, found that it was extremely important to provide step by step support for the students, particularly when unfamiliar with the process of goal setting and analysis (Dotson, 2016). For the students and teachers at Oak Hills Elementary, utilizing a Modeling Instruction approach across all subjects when beginning the goal writing and setting process with the entire class and executing goal setting individually to identify and work on individual growth goals works best (Weber et al., 2015; Dotson, 2016). This would allow the teacher to guide the students through the application and analysis of data from basic tables or simple graphs to create their own goals.

Similar to first grade, the students can be provided with tables or graphs that they can fill in through the course of the year. As students receive performance data from classroom formative assessments and MAP tests, they can update their own data over time and draw basic conclusions about their progress. Sentence stems to allow students to begin crafting SMART goals and reflection statements related to their goals would benefit the students and guide them to logical conclusions about their own growth (Clift, 2015; Ross et al., 2016).

Examples of goals at this grade may include increasing reading fluency and expression, using punctuation appropriately, identifying the speaker in a story, retelling a

story with appropriate detail, recognizing and utilizing math vocabulary in context, calculating sums up to two digits, understand perimeter, etc.

Third grade goal setting. By the third grade, the students have fully transitioned into the concrete operational stage of cognitive development, which is typically characterized by accelerated acquisition of knowledge and increased connectivity of thoughts and logical reasoning. Children at this stage are typically able to make inferences and evaluate information for meaning (Aljojo et al., 2018). Continuing with Ugur et al.'s (2015) cognitive application of Bloom's Taxonomy, third grade students and beyond should be able to apply analysis and basic evaluative thought processes to their own data and goals. Again, creating the goals should be a process that is modeled by the teacher before asking students to do so on their own. Once students have had the chance to begin the process, individual conferences with the students to finalize the goals allows for reasonable and attainable goals to be set.

Over time, the students can analyze their own progress and chart their own progress in graphs or tables that have either been provided, or even created themselves. The process of charting progress can become slightly more abstract with third grade students, allowing for more open-ended reflection on the student's part. Furthermore, students can begin to craft different types of goals; performance goals or learning goals. Performance goals are those that are tied to specific outcomes; increasing MAP RIT score by 3 points, getting an A on the next assessment, or getting 5 more correct on the multiplication quiz. Learning goals emphasize the acquisition of new skills or knowledge; improving writing skills, learning how to solve find area or volume (Weber et al., 2015;

Dotson, 2016). Up to this point, students have been primarily creating learning goals. At this stage, students can begin transitioning into performance goals in instances where content is being mastered at basic levels. Keeping track of their own progress in student journals allows for the goal setting to be a continual part of their academic growth process.

Examples of goals for third grade may include: a fluency graph over time, increasing reading comprehension, writing a clear introduction, multiplying by 6 fluently, reading and solving word problems, etc.

MAP reports. A meta-analysis conducted by Adesope et al. (2017) showed that the use of practice tests, or formative assessments, as part of an academic feedback cycle had a larger positive influence on student performance than any other comparison conduction including restudying, rereading, and filler activities. Academic feedback is an important component to effective student growth and should be used to present to the student a general understanding of where their individual strengths and weaknesses lie as well as inform teacher instructional practices (Adesope et al., 2017). A literature review conducted by Harbour et al. (2015) highlighted the intersection between "what teachers do and how students perform" (p. 5). Their findings showed that student specific feedback can easily be tied into goal setting structures that also influence student confidence and motivation. Timely and specific feedback is also a critical piece to the feedback cycle. When the feedback is provided to the students and the teacher, formative assessments have been shown to have more of a positive influence in creating instructional changes (Harbour et al., 2015).

When utilizing the MAP data reports, teachers can pinpoint specific students and tie them to specific gaps and strengths in content as they are related to the TEKS. Though the MAP assessment portal provides many different data reports, the Class Report, Student Profile, and Learning Continuum reports provide the types of information that teachers need in identifying specific content related skills for individual students while also being requiring the least amount of data specific training and analysis skills to have large potential on informing instructional practices (NWEA, 2019c).

Nyland (2017) conducted a literature review on the types of data collected by formative assessments, how that data is processed, and how the instructor used the resulting information. His findings showed that the most effective systems gather as much information as possible, provide some kind of analysis of that data, and then present patterns of performance back to the instructor in some fashion. When utilizing formative assessment data, it can be helpful to group students that perform similarly in remediation settings to streamline effort and resources. Similarly, accessing the data through a data-mining tool (such as those provided by NWEA for the MAP assessments), allows for ease of access and analysis of student performance (Nyland, 2017). The class report breaks students into groups based on RIT performance. Students that perform in similar RIT bands are placed together and identified as being able to perform at similar levels with the content (NWEA, 2019c).

Hill and Chin (2018) conducted research that continues to support some of the assertions made by Hattie's meta-analysis of one portion of the teacher practices that result in high levels of student achievement. In Hill and Chin's (2018) study of 284

teachers from large, urban districts on the East Coast of the United States shows that teachers' knowledge of students as it relates to their performance and how it impacts instruction has a large benefit to promoting student learning (Hattie, 2016; Hill & Chin, 2018). The Student Profile is the most detailed report at the individual student level, providing the kind of information needed to help teachers create an understanding of student performance across the TEKS and compared to their peers. It provides information about the student's percentile ranking amongst other students nationally, the student's percentile in growth compared to other students nationally, provides a visual graph that shows the student's RIT over time (NWEA, 2019c).

The Learning Continuum is a hybrid between the Student Profile and the Class Report. Similar to the Class Report, the Learning Continuum breaks students down into groups based on performance. The difference between the two lies in the specificity and detail of the report. The Class report provides three categories of content for each student and the Learning Continuum breaks down the student performance by individual TEKS which have been sorted into the categories that appear on the Class Report, much like the Student Profile.

Each of these three reports will be shared with the teachers in the professional development. Each report provides teachers valuable information regarding student performance that can be used in goal setting, guiding instruction, and creating small groups for remediation purposes. Teachers will be guided through accessing and analyzing these reports step-by-step to ensure that teachers feel confident in taking MAP data and using it to inform instruction.

Project Description

A three-day professional development was created to facilitate teacher learning so that teachers can create a foundational understanding in how the MAP assessments play a role in utilizing the critical components of formative assessment to guide instruction. The goal of the project study is to provide results to the study site for the implementation of the suggested professional development. The PD is designed to be delivered over three days throughout the course of one semester on district development days. This structure would consider the timeline of the MAP assessments as they are delivered at the campus so as to support the immediacy of the development as it relates to a teacher's need to implement various aspects of the development into their classrooms. A more detailed timeline can be seen below.

To rectify the concerns teachers had related to showing growth with high performing students, teachers will be given examples such as utilizing "open middle" math problems at various grade levels, utilizing resources such as openmiddle.com as a source of inspiration to create formative challenges that require students to think more critically about the math concept. Similarly, in an ELAR setting, students can be challenged to adapt a narrative or extend a story beyond the author's original purpose or plot. For example, students in early grades could be challenged to write what happens after the story of the Three Little Pigs and apply text analysis practices to their written composition.

Findings from the study indicate that teacher attitudes to MAP and data analysis practices are a barrier that should be addressed in future teacher development. Of

particular importance to address are teachers' perceptions on the MAP Assessment's connection to the TEKS and their ability to project proficiency on the STAAR assessments. Demonstrating to teachers the accuracy of MAP's projected proficiency measure as it relates to the state of Texas and then to the district for the previous school year can help to normalize teachers' perceptions on the validity of the MAP assessments as a measure of student progress and growth.

Although it is clear how powerful formative assessments can be in providing feedback to both the teacher and the student, the participants in the study showed little to no consistency in how the MAP assessments could be used in a variety of ways to provide a variety of feedback. Accessing student performance data requires the teachers to understand some of the minor difference between the performance measures from content to content. A document created by NWEA shows the vertical scaling of questions by RIT ranges so teachers can see how the assessment questions change from level to level in rigor and expectation (NWEA, 2019d). RIT ranges do not necessarily align between contents. For example, a 207 RIT in math does not correlate to a 207 RIT in reading. Although the numbers are the same, the expectations for each content do not mirror each other. A student could be considered on grade level with a 207 RIT score in math, and a 197 in reading. Seeing a 207 in one subject and a 197 in another does not necessarily mean that the student is behind grade level expectations. A focused exploration and discussion of this document will also be incorporated into the PD.

Needed Resources, Existing Supports, and Potential Barriers

Many of the resources and supports needed to deliver the professional development already exist at the research site. Because the research site is an elementary public school, there are systems in place to provide professional development opportunities to teachers on a regular basis. Additionally, the facility itself provides an ideal setting to deliver the PD. Campus administration is supportive of providing the PD at the site. Specific resources required include: a projector, large space for the target audience, and three days of time with the kindergarten through third grade teachers. Teachers will also need access to resources they use to plan instruction including instructional focus documents, state standards, access to MAP resources online, and access to Eduphoria.

A few potential barriers to the implementation of the PD exist based on the literature review and the data collected during the study. The largest barrier is time for teacher implementation. Evidence from the study show that time, or the lack of it, is a common issue amongst teachers when implementing best practices as they relate to the formative assessment of student data. In order that teachers have the adequate time to build something they can immediately use in the classroom, the PD needs to include opportunities for teachers to collaborate and synthesize practical applications of the learning for their classrooms in order to provide the best opportunity to modify teacher practices (Parsons et al., 2016).

Similarly, a wealth of data from the literature show that teachers need support through PD for at least 30 hours for a practice to take hold and positively influence

instruction (Basma & Savage, 2017). As the PD created for this study will be delivered across 18 of those hours, there will be a barrier related to time that has to be addressed by the local site. As such, the campus leadership need to provide a strong leadership presence and ongoing and sustained opportunities for teachers through local PLC time, continually revisiting the developed skills and processes by the teachers (Parsons et al., 2016).

Another potential barrier to the implementation of new practices will be teacher attitudes. At the research site, there is an established undertone amongst some of the teachers that the MAP assessments hold no relevance to their practices in their classrooms. As such, PD must address the identified teacher concerns including the MAP assessment's connection to the TEKS, the adaptive nature of the assessment, and the creation of meaningful student goal setting practices that connect MAP to daily instruction. Showing these things will align the PD with two of the critical components of effective professional development; the implementation of practices supporting student learning and alignment of the PD with student's learning goals (Parsons et al., 2016).

Proposal for Implementation and Timeline

Conducting the professional development plan will require the appropriate timing of district professional development days and the delivery of the MAP assessments for the teachers. The first session, which deals with addressing a few of the most critical teacher concerns with MAP as a meaningful formative assessment, should be conducted during the district professional development days before the start of school in August. This will provide the necessary time for the teachers to align their attitudes and begin to

plan ideas on how they could adopt the MAP assessments as a formative assessment in their classrooms.

The second session will deal with a few of the critical components of formative assessment as identified the framework, primarily student directed goal setting. This session should be delivered right after the fall MAP assessment has been delivered so that teachers can build student directed goal setting practices together and execute those practices and strategies in their classroom. Typically, the research site has a pre-set district PD day in early October that would work well for this session.

Throughout the remainder of the fall semester, the campus leadership should conduct PLC meetings with grade level teams to provide an ongoing support for teachers in utilizing MAP reports, student goal setting structures, and eliciting feedback from teachers. Ongoing support will be needed with each PLC meeting to allow teachers to build upon their practices, identify best practices, and collaborate with each other.

The final session will cover the components of the framework for formative assessment that lend themselves to using formative data to guide classroom instruction. As teachers complete the student goal setting processes, this training will fill the gap on using MAP reports to create small groups and identify content needed for remediation at the individual student level. This session should be delivered before the winter MAP assessment, either in a late fall PD day or immediately before the start of the Spring semester. The timing of this session is important since the winter assessment will directly tie in the student directed goal setting processes from the fall assessment and provide immediately actionable information to guide teacher instruction. Similar to the fall,

ongoing opportunities to build upon best practices should be provided by the campus leadership through ongoing PLC meetings with each grade level.

Roles and Responsibilities

Delivery of the professional development could be done either by myself, or by a campus administrator. If the campus administrator leads the development, careful planning and time should be spent with me in ensuring the PD meets the objectives of this project study. Preparation for each session could occur at on ongoing basis between each session as needed. The teachers will need to: (1) attend the PD sessions and participate in all of the activities, (2) complete an evaluation after each session, (3) participating in the coaching and PLC meetings to facilitate growth, (4) implement new practices with fidelity, and (5) request help and support as needed. Ongoing support for the teachers will need to be provided by the campus leadership in the form of coaching, modeling, and PLC opportunities. Students will only be required to follow the instruction of their teachers, participate in the goal setting process, and monitor and reflect on their achievement over time.

Project Evaluation Plan

The evaluation of professional learning will occur in different stages as the development is delivered throughout the school year. An outcome-based evaluation with formative and summative components will be utilized. The formative evaluation will elicit feedback from teachers through an open-ended questionnaire delivered at the end of each session related to the learning from the PD. The summative evaluation will come from data pulled from state assessments, MAP assessments, student artifacts (student

directed goal setting documents), and observed teacher practices and PLC observations made by campus administrators.

Formative Evaluation

Formative evaluation of a project occurs as the project is taking place, informing the trainer of needed progress and providing feedback. Three questions can be used to create the criteria for a formative evaluation plan for a PD: (1) *What conditions are necessary for success?* (2) *Have those conditions for success been met?* (3) *Can they be improved?* (Guskey, 2014, p. 1220). Using these questions as guidance, the success of the PD can partially be gauged on the ways in which teacher attitudes may shift as a result of the PD. Development can be considered effective when it leads to a change in practice, which can lead to a change in attitude (Guskey, 2002; Zambak et al., 2017). As such, the questionnaire that teachers fill out at the end of each session will include some means of gauging the likelihood that each teacher will attempt to implement something from each session into their instruction. Questions on the questionnaire will include: (1) What did you find most valuable from today's training session? (2) As a result of this PD session, in what ways will your formative assessment practices change in your classroom? (3) What comments or questions do you have? Each question will help identify what teachers learned as a result of the PD over time and identify specific changes that each teacher is willing to attempt, and therefor can be intentionally observed by campus administration. The trainer can use this information to guide the ongoing opportunities for development in PLCs and future PD sessions. All responses will be confidential so as to prompt candid responses, unhindered by potential fear of reprisal.

Summative Evaluation

Summative evaluation occurs at the end of the full PD and, depending on the timing and availability of each data set, at the end of the school year. The evaluation provides the information needed for all relevant stakeholders to make decisions about the PD's effectiveness and merit as it relates to the local site (Guskey, 2014). For this project, the desired result will be improved implementation of the critical components of formative assessment, especially as it relates to the MAP assessments, which will lead to improved student achievement. To summatively assess the effectiveness of the PD, state assessment scores in math, reading, and science, and MAP scores will be compared both before and after the delivery of the PD sessions for the school year. The results will be analyzed statistically. Additionally, student artifacts through student directed goal setting pages will be gathered by the teachers to demonstrate changes in practice throughout the course of the year.

Teacher observations, conducted by campus administrators, can be used as an additional summative data source to determine if the ongoing professional development opportunities are resulting in changes in practice in classrooms. Although the ultimate goal is to change teacher attitudes and improve instruction, implementation is an important step in changing teacher belief systems. Then long-term changes to instruction will follow (Guskey, 2002; Zambak et al., 2017). The observations can pull direct evidence of teacher practices in the classroom, observed student behaviors, and teacher to student interactions. While it would be ideal to have these observations conducted at least monthly, the teacher, campus, and administrator's schedules should be considered.

Project Implications

Oak Hills Elementary has struggled in its implementation of MAP as a formative assessment since the district implemented the assessments. MAP had been implemented in part, as a means to reduce gaps in third grade student achievement, yet these gaps in student understanding continued. Before this project study was conducted no formal evaluation of the use of the MAP program was in place. In particular, the district needed to determine the ways in which teachers were using MAP effectively according to five critical components of formative assessment. Based on this study it was determined that (1) some teachers had effective ways of including students in their own goal setting that led to increased student motivation while other held beliefs about students and assessments that prevented them from being effective in this area; (2) Most teachers used data other than MAP to assess their students partially due to their lack of knowledge about how MAP connects to the state standards (TEKS); and (3) teacher attitudes about MAP impeded their willingness to embrace MAP in the formative assessment process in guiding their instruction. Specifically, teachers need additional training on the effective implementation of MAP as a formative assessment to change their instruction.

The Local Community

This training has the potential to influence the success of both the students and teachers at Oak Hills Elementary. First, the teachers have the greatest potential to experience a positive change as they are exposed to, learn, and create effective formative assessment practices and strategies as they relate to MAP in their classrooms. Though the training is specific to MAP assessments, the critical components of formative

assessments can be applied by the teachers to all formative assessments utilized in the classroom. As a result, the teachers will be better able to support the learning of their students, especially those students who are identified as having specific content gaps by the MAP assessments. If these changes persist through coming years, even if MAP is no longer formally used at the research site some years down the road, many more students will have the benefit of the teacher growth that may come as a result of this development.

The students stand to experience an impact on their experiences at Oak Hills Elementary, specifically in how their learning is adjusted or improved as a result in changing instructional practices by the teachers. As teachers train the students in becoming reflective thinkers and goal setters through formative assessment practices, the skills they will learn will continue to influence how they engage in their learning throughout the rest of their academic lives. In turn, this may result in improved student assessment scores on the STAAR, and eventually entry level college exams such as the SAT and ACT, expanding college and career opportunities.

The Larger Context

If the project evaluation shows that the professional development was effective in improving teachers' formative assessment practices as they relate to MAP, it could then be implemented in the grader scope of the research site's district and possibly further. Results can be shared with NWEA, the creators of the MAP assessments. The practices and skills learned as a result of this study could be applied to the set of developments offered by NWEA as districts agree to implement MAP assessments. As such, the

resulting influence of the study could reach any district across the country that participates in utilizing the MAP assessments to make instructional decisions.

Section 4: Reflections and Conclusions

For this project study, I chose to conduct a qualitative case study to investigate why third grade math STAAR scores had not improved after the implementation of the MAP assessments. I chose this method because I wanted to understand the ways in which teachers are using the formative assessments to change their instruction and the ways that administrators are using them to inform the creation of local professional development designed to effect instruction (Creswell, 2012; Lodico et al., 2010). I conducted interviews with participants to provide open-ended opportunities for teachers to respond about their perceptions and experiences without constraints on the way that their response was created (see Creswell, 2012). The observations allowed me to see how professional development on the campus was designed and delivered to effect instruction. After analyzing and triangulating the data, the best course of action to address the implementation barriers associated with MAP as a formative assessment was to create and deliver a professional development. Although some teachers had effective ways of including students in their own goal setting, others held beliefs about students and assessments that prevented them from being effective in this area. Additionally, most teachers used data other than MAP to assess their students and teacher attitudes about MAP impeded their willingness to embrace MAP in the formative assessment process in guiding their instruction.

Project Strengths and Limitations

The structure of the PD is a strength of the project. Delivering the PD over the course of several days throughout the fall semester allows the content to be broken into

processable pieces that address the immediate needs of the teachers on an ongoing basis (McLaughlin & Talbert, 2001; Parsons et al., 2016). Based on the results of the study, the project needed to address the teacher's attitudes about the MAP assessments before they would be able or willing to adjust instructional and formative assessment practices as a result of utilizing the MAP assessment (Caddle et al., 2016; Johnson et al., 2016).

The collaborative and interactive structure for the PD is another strength for the project. To create change through a PD, teachers need to have the opportunity to collaborate and process before they can take their learning into their classrooms (Basma & Savage, 2018; Jacobson, 2016; Ketterlin-Geller et al., 2015). In creating the PD, I tried to ensure that teachers had ample opportunity to discuss and work together in creation of strategies and tools that they could take back to their classroom and use immediately.

Another strength of the project is that it addresses the identified learning needs of the participants (Johnson et al., 2016). One thing that teachers do not value is professional development time being a waste of time. The results from the study were used to specifically target the identified learning needs of the teachers as they relate to the utilization of MAP as a formative assessment in their classrooms.

The literature shows that effective professional development also requires that teachers execute something from the PD in their classrooms before their beliefs on instruction and formative assessment practices will change (Guskey, 2002; Zambak et al., 2017). A strength of this PD can be found in the structure of follow-through. The structure of this project allows for on-site administrators to continue to work with the teachers through classroom observations and grade level team meetings throughout the

rest of the school year. Doing so will verify and support practices that match the intent of the teachings from the professional development. It will also provide the campus administration the opportunity to guide future development in formative assessment practices to keep consistent and positive change through the coming years (Hilton et al., 2015; Parsons et al., 2016).

The utilization of built in professional development days is another strength of the project. Teachers are already extremely busy and often have little time to address another mandate or implementation. However, these professional development sessions draw on pre-set development days created by the district to provide the training.

Lastly, this PD is immediately applicable for the teachers. The primary goal of a professional development for teachers is to provide something actionable that they can use to support student learning. By earmarking time in the PD to allow teachers the opportunity to dig into specific data and identify student needs from the MAP assessments, the teachers will be able to see the benefit of the learning over time (Celeste, 2016; Hattie, 2016). Additionally, ensuring that current MAP data is accessed and analyzed by the teachers during the PD allows for teachers to create something that they know is based on something directly connected to their students (Glover et al., 2016; Hattie, 2016; Laud & Patel, 2013). Each session provides a strategy, develops a skill, or allows for teachers to create something that they can take back to their classrooms and implement right away.

Although there are several strengths to this project, there are a few limitations that need to be considered and discussed. One such limitation is the limited pool of

participants in the interview data. Though the number of teacher and administrator participants meets the quality criteria for a study of this scope, there were no Kindergarten teachers that participated from the four potential grade levels involved in this study (Creswell, 2012). I would have preferred to have had their interview data for analysis, particularly as it would have informed the approach for student directed goal setting at their grade level. The follow up observations and grade level meetings will allow for the campus administrators to gather input from those teachers and use it to continue ongoing development tailored to their specific needs.

Lastly, the amount of time spent on the PD is a limitation to the project. A large meta-analysis of professional development practices showed that in order to see lasting change, a development should occur over about 30 hours (Basma & Savage, 2017). This project specifically plans for about 21 hours. Another seven or more hours will need to come specifically from the campus administration through ongoing support structures, such as classroom observation, revisiting the learning from the project in grade level meetings, and continued creation of development to address additional needs as they are identified.

Recommendations for Alternative Approaches

Determining why student achievement does not change after the implementation of a strategy or other course of action can be difficult without context. In determining how the problem of student scores remained unchanged after the implementation of MAP, it was pretty clear that more investigation would be required. MAP is only one component of a very complex system that feeds into student achievement. Other than

MAP, formative assessment practices in general, instructional strategies employed by the teachers, student attendance, staff morale, teacher attendance, classroom management, and the home lives of the students all play important roles in student achievement.

Another avenue of investigation for this particular problem would be to look at multiple factors concurrently through a mixed methods study. For example, while investigating MAP with the staff through interviews and observations as a formative assessment, numbers could have been pulled and statistically analyzed to determine potential correlations between any of the previously mentioned factors. Finding possible correlations could pinpoint areas of focus for the administration to address that compound problems that could be associated with MAP and its faults in implementation.

The study could have also been extended beyond the scope of Oak Hills Elementary. I could have done a comparative qualitative analysis of two different campuses in the district; one that was showing success after the implementation of MAP, and the other which was not (Oak Hills Elementary). In looking at two different campuses with different outcomes, it would have been possible to identify practices that occur in one campus but not in another as potential sources for the differences in performance.

One final way I could have investigated the problem would have been to expand my sample. For this study I focused on Kindergarten through third grade. Though the original problem identified areas of concern with third grade math scores on the STAAR test, I could have expanded my sample to include fourth and fifth grade teachers as well. Doing so may have allowed me to identify differences in practice at older grades. In

analyzing those patterns of practice, I could have use the data to provide a broader scope of suggestions for intentional, long term practice. It would have also potentially benefitted the participants in the lower grade levels to see possible differences in performance as students got older and participated (or not) in the various critical components of formative assessment.

Another approach I could have adopted for the project would have been to embed a coaching cycle with teacher leaders on the campus as a method of continued development over time. This approach would have created a model similar to a "training of the trainer." Teacher leaders would work with teams of teachers to check on implementation progress after initial development had been provided on using MAP as a formative assessment. This method was not used as the participant pool for the interviews was not large enough to identify a sufficient number of teacher leaders that could execute this approach, and results from the data analysis indicated that existing "training of the trainer" models on the campus were not filtering training as intended.

Scholarship, Project Development and Evaluation, and Leadership and Change

Conducting my own research and completing this project study has been a very challenging and enriching experience. Throughout my life I have always been very scientifically minded, very interested in what the "research" had to say about things, but took for granted how a lot of research, particularly in the realm of education, was conducted, verified, and written. Often, I would view research as something done in a lab, secluded from external bias and distraction. Completing this project has taught me a lot about how research really looks and feels, especially in a qualitative setting.

Undergoing this process has changed my perspective on education as a whole, informed how I view the role of the teacher in the classroom, and has completely redefined aspects of how I understand assessment.

Balancing my scholarly life with other aspects of my life was the biggest challenge for me as a researcher. The academic challenge presented during this experience has been trying at times, but ultimately fulfilling. It took six years for me to get to this point, hitting several roadblocks, including an original line of research falling apart when my research topic was abandoned by a different research site. Starting from scratch after completing so much work was the hardest thing I have had to experience in an academic setting. There were many weekends and evenings sacrificed in an effort to get to where I am today.

Another difficulty I experienced what with the data coding process. Quantitative analysis is pretty straight forward, utilizing numbers and statistical tools to describe significance of results. Conducting a qualitative study required a high level of interaction and dedication over time with my participants and the research site. Taking the data and sorting it into meaningful chunks, discovering emergent codes, and unveiling themes required a methodology that was unfamiliar at first, and cumbersome. I sometimes overexplained, providing a narrative that was difficult to read. Ultimately, with support through multiple rounds of academic feedback, the process began to make sense and resulting in meaningful conclusions that were communicated without being as bogged down by minutia.

Working on a project in my own district was also a challenge. It was interesting, as a researcher, to try to remove my own bias and perspective when analyzing and synthesizing results. Bias is one of the hardest things to overcome when it comes to scholarly work. Diving into the hard data, the actual words that were spoken and observed, and using that to draw conclusions rather than leap to what I perceive revealed things to me in this project that I would not have discovered otherwise. For example, it can be easy to overlook teacher perspectives and viewpoints on critical components of assessment because as a member of the district, my interactions with this teacher have shown me things that contradict what I find. This forced me to really reflect on what I knew versus what I now know and what was revealed from the data.

Creating the professional development for this project was also a challenging experience. Throughout my career in education I have created a large number of PD sessions for a variety of audiences across a variety of topics. However, each of those sessions rarely lasted longer than a full day, and most of them a half day or less. Creating three days of PD for teachers was difficult in that keeping teachers' interest and attention for that long on the same topic is not an easy endeavor. Compound that problem with the amount of time between each session forced me to find ways to connect the learning from session to session in ways that kept the learning meaningful and relevant. Similarly, it was a challenge creating the PD because the target audience was elementary teachers. My professional development experience up to now has been primarily focused on secondary teachers. There was a bit of a learning curve when it comes to making original products, such as the student goal setting pages, for different grade levels below my primary area of

focus. As a result, I can say with confidence that my expertise in elementary education has improved significantly.

I am pleased with the end result of my work throughout this entire process. It took years of dedicated time and effort, but my growth as a researcher, as an educator, and as a person has been significant. Throughout the interviews and observations for this study, I was exposed to personal ideologies and practices that made me understand that the surface of what is often presented does not encompass the entirety of what happens in a classroom. There were gaps in practice as they relate to formative assessment that revealed areas of concern for student learning. Creating this project to help create meaningful and lasting change to assessment practices, and in turn instructional practices, has been a fulfilling experience.

Reflection on Importance of the Work

Throughout my time in writing the proposal and the project for this study, I was in my district at a time that the MAP assessments were first being implemented in order to address a problem identified by the local leadership. I was able to see first-hand how the changing demographics of a district can reveal issues that need to be addressed, particularly with attitudes about how students learn and how to assess them (Wagaman, 2015). The formative assessment practices of the district as they related to MAP needed to be analyzed.

I learned through this process that it can become easy to embrace complacency as an educator. Shifting the issues aside, or ignoring them, can become easier than addressing them. I also found that the teachers were not eager to embrace mediocrity.

They were the victim of being in positions where it is difficult to identify and address gaps in practice without a targeted approach to investigating a problem and identifying a way to effectively address the concern (Johnson et al., 2016). The teachers I worked with through this were not happy to continue with the "status quo" and instead showed that they were hungry to learn how to use the MAP assessments to their fullest potential. They were also aware of the fact that they needed continued and sustained development opportunities in order to make formative assessment practices as effective as possible, especially as they related to the MAP assessments (Hilton et al., 2015; Hilton et al., 2016; Killion, 2016). In the end, the results of this work support that teachers, and in turn their instructional practices, are the single most important factor in a school system for making students successful (Hattie, 2016).

Implications, Applications, and Directions for Future Research

Though the project for this study has the potential to influence the practices of a very large base of students and teachers across the nation utilizing MAP assessments, the scope of this study shows that as many as 900 students could be affected at the research site. Academic achievement will improve, and students will continue to grow, potentially at previously unprecedented rates. While the practices encompassed by this project are best for all students, the highest area of impact will be for students of a low socioeconomic background (Van Geel et al., 2016). These students can benefit from the project by developing self-reflection, goal setting, and academic growth skills that will follow them throughout the rest of their lives. As such, it is possible that these students

will receive access to academic opportunities post high school that they may not have had otherwise.

One of the implications for this study is ongoing opportunities for growth and support for the teachers (Hilton et al., 2016). Though this development will help set the stage for future changes in teacher practice, the teachers will need continued and focuses support from local administration. New teachers entering the building over the years will need to receive this training. Teachers will need to be provided with ongoing learning opportunities, collaboration opportunities, and changes to revisit the learning. When teachers are afforded opportunities to revisit learning it is more likely to transfer into practice in their classroom.

Another implication for this study is how changes in practice should be communicated with parents. The results from MAP assessments are informative for student remediation and learning in the classroom and outside of the classroom. Utilizing the data from the MAP reports can help parents and teachers collaborate to provide learning opportunities for students. Communicating results and instructional efforts with parents allows for joint efforts to flourish and continue to benefit students.

This study focuses on Kindergarten through third grade. Future research should include the higher grades in elementary. Identifying and developing practices longitudinally will benefit the students as they grow cognitively. As the students continue to change developmentally, their skills in self-reflection and goal setting will continue to improve in higher grades (Aljojo et al., 2018; Ugur et al., 2015). The positive benefit of utilizing the five critical components of formative assessment becomes even more

powerful with older students. Additionally, the study could be taken into the middle school grades as they begin to implement the MAP assessments. Investigating the shift in instructional practices to more abstract concepts taught by teachers and assessed by MAP and how those practices can be influenced by the conceptual framework could benefit students in grades six through eight.

Conclusion

Formative assessment practices have long been touted as one of the most critical aspects of improving student learning (Hattie, 2016; Laud & Patel, 2013). If the critical components of effective formative assessment can be embraced when applied to the MAP assessments, their reach and ability to inform teacher instruction can become quite a bit more powerful in closing student achievement gaps. Students deserve the opportunity to identify specific strengths and weaknesses, and then develop some kind of cooperative plan with the teacher to create and meet academic growth goals. This PD can help serve that function by providing teachers the needed background in understanding what MAP is, how the assessments work, and specifically articulating how MAP results can be used to directly inform instruction and student goal setting.

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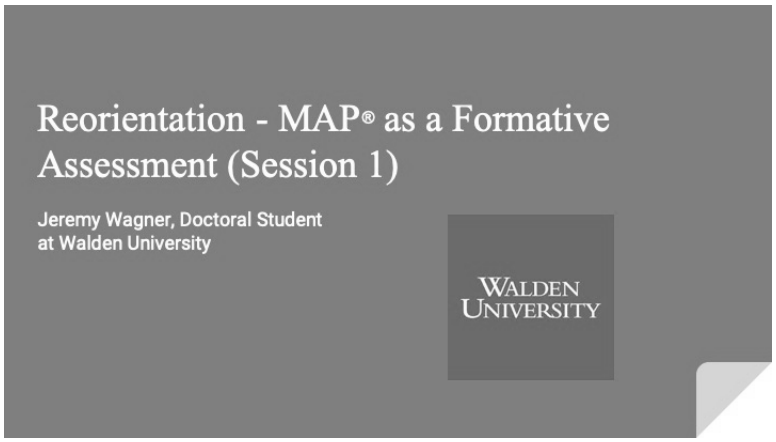
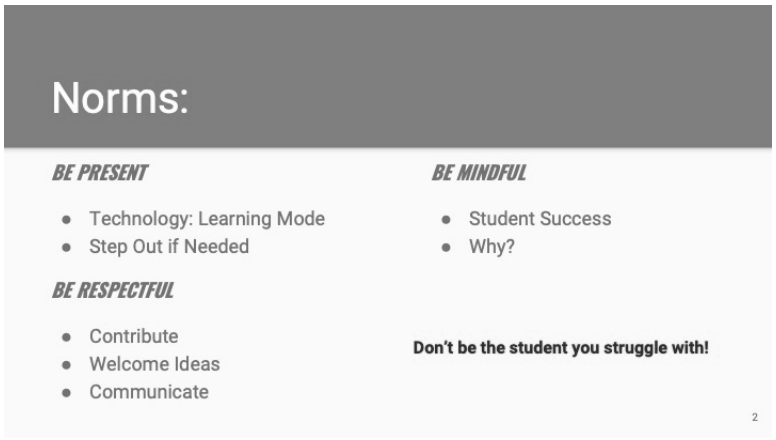
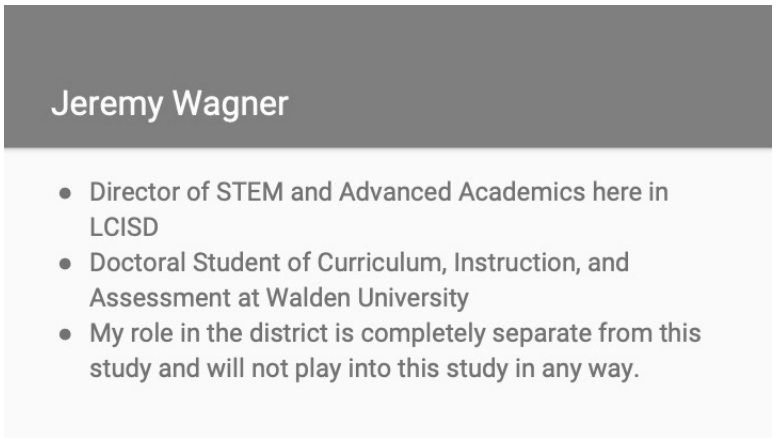
Appendix A: The Project



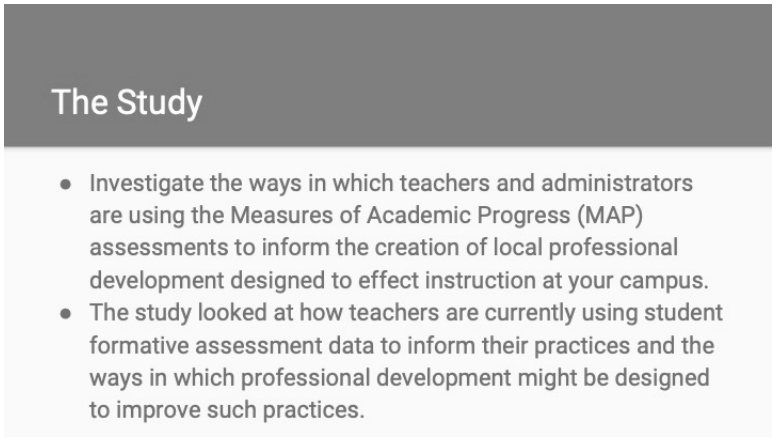
Note to the Trainer: 8:00
Welcome everyone to the session, reintroduce self. Teacher groups/seating will be established in a few slides.



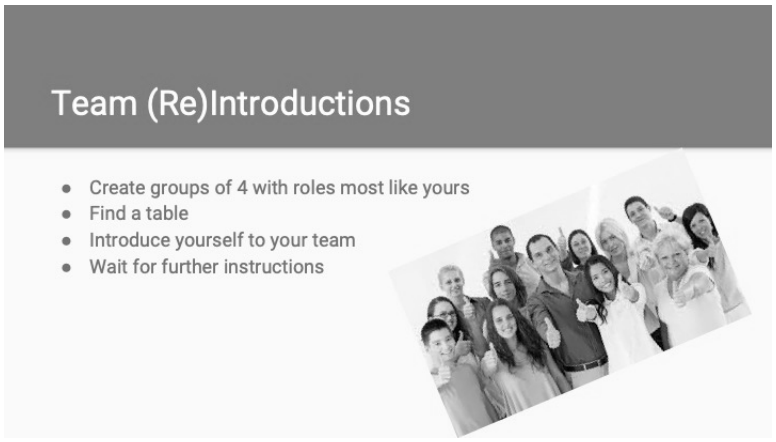
Note to the Trainer: 8:00-8:02 Go over norms for the session.



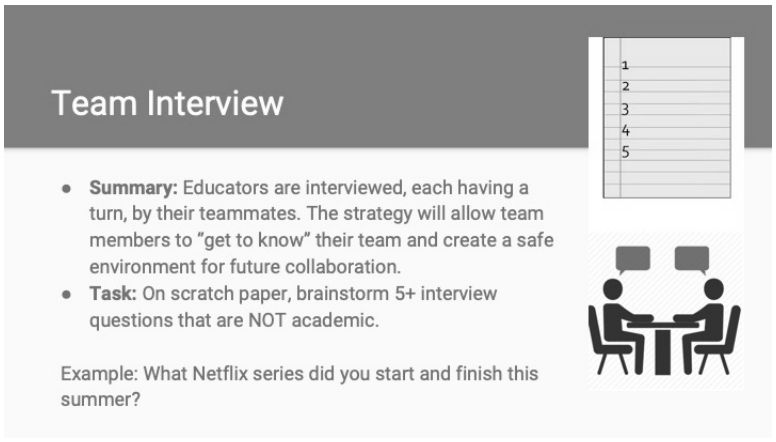
Note to the Trainer: 8:02-8:03



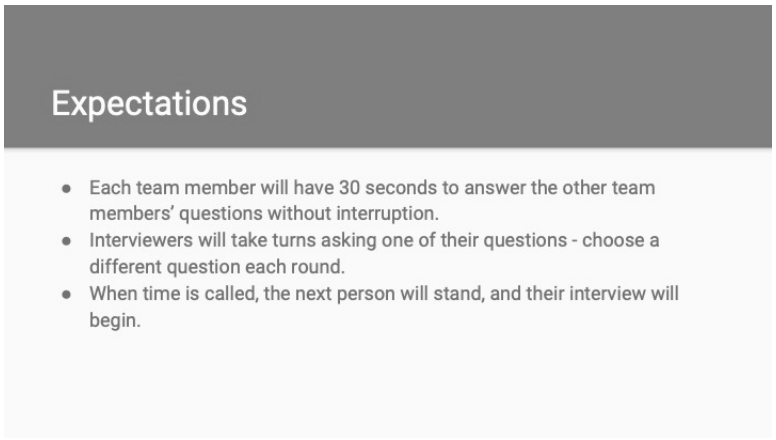
Note to the Trainer: 8:03-8:05



Note to the Trainer: 8:05-8:08
Though the staff may all know each other, particularly in grade level teams, it can help with some of the tough discussions that may come from a professional development to dig deeper, and get a little more personal. Walk the participants through the steps of the interview protocol and let them know that this is about getting to know each other better. Keep some of the best questions you hear in mind as we'll share a few of the better ones with the group.

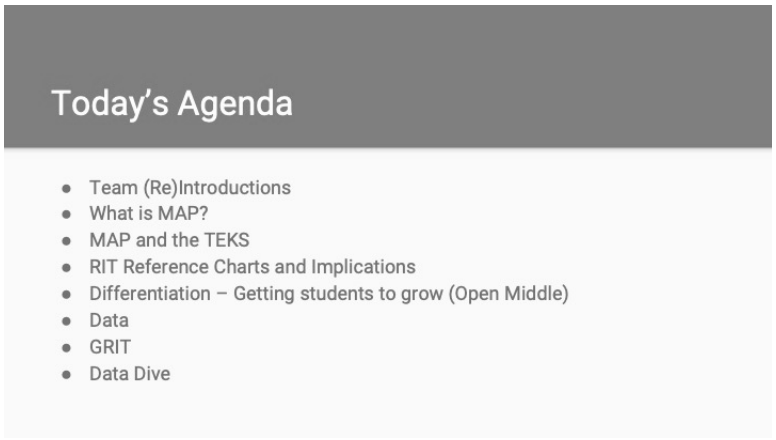


Note to the Trainer: 8:08-8:15
Allow for a little time for teachers to create their questions on scratch paper.

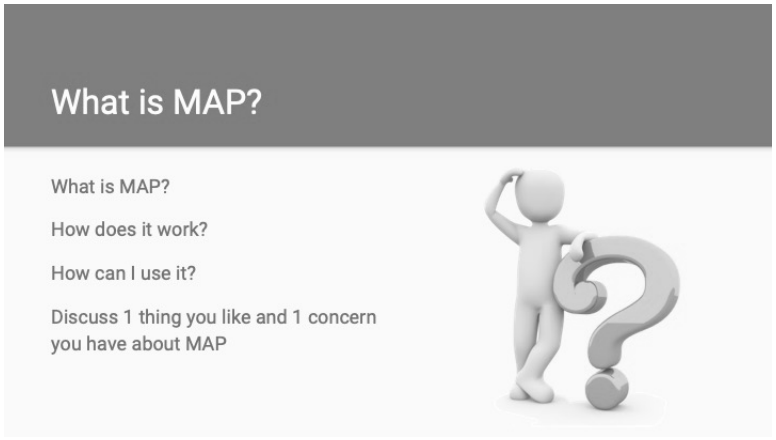


Note to the Trainer: 8:15 – 8:25
Have a timer running with a chime of some kind the entire group can hear. Set the expectation with the group that when the chime sounds, allow the next person to speak. There won't be any built in "stops" and the conversation should flow from person to person as the chime sounds.

Note to the Trainer: 8:25 – 8:30
Ask teachers to reflect upon these questions. Elicit responses from the group as needed. The main idea – getting to know each other even more allows for trust. Trust is required to have conversations about data and performance like the ones we will be having today. Remember why we're here. It's about support, students, and student achievement.

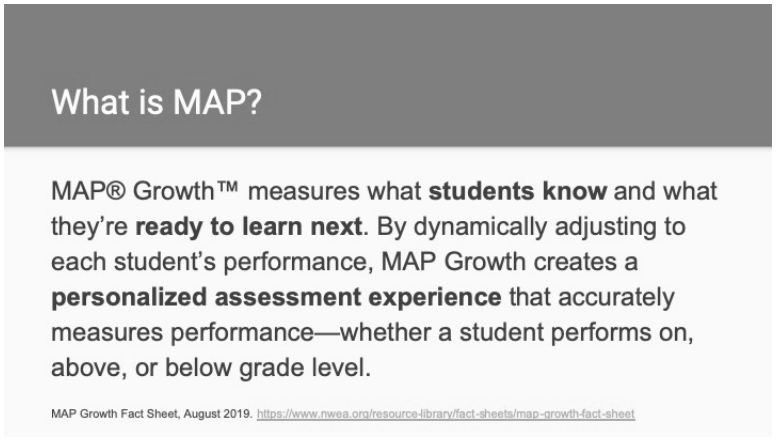


Note to the Trainer: 8:30
Spend just a few moments reviewing the order of the day's events.

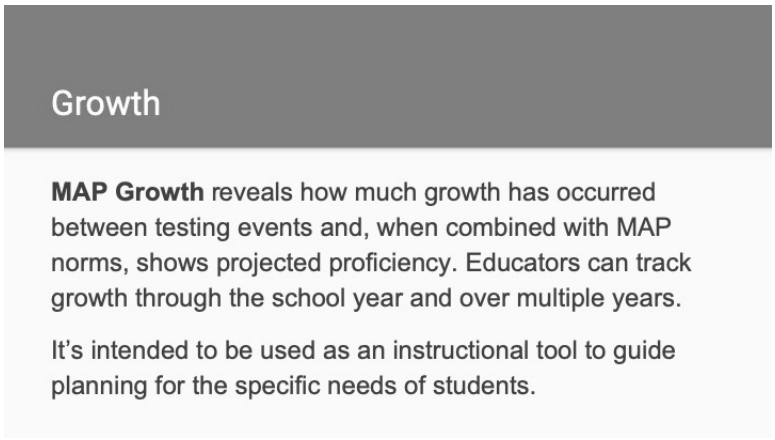


Note to the Trainer: 8:30 – 8:50
Ask these questions to the audience. Have them discuss the responses to the first 3 questions in small groups.
After the initial discussion, get some of the responses from teachers to share with the group. The intent is not to have "the right answer" as it is to get the teachers oriented towards these lines of thought.
Ask teachers to record 1 thing that they like and 1 concern that they have about MAP. These will be referenced at the end of session 1.

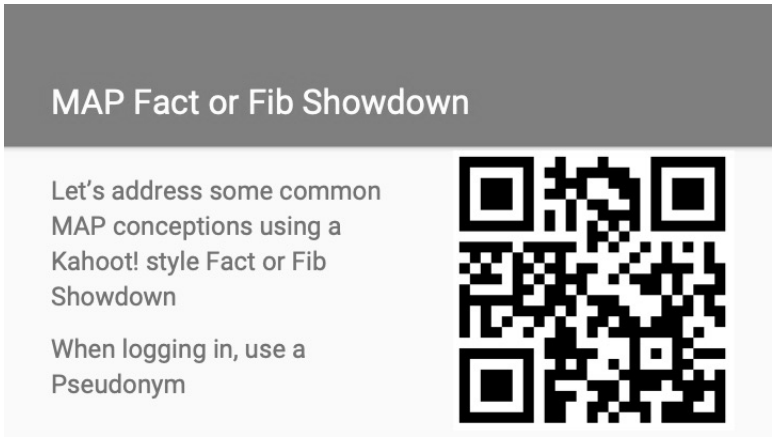
Note to the Trainer: 8:50 - 8:55
Ask teachers to add to their reflection page a few questions that they have about MAP. Briefly describe the 3 prompts as possible things they may wish to ask questions about. Allow discussion for grade leel teams to come up with common questions.



Note to the Trainer: 8:55 – 9:00
Compare this to their answer to the question previously discussed. How do they compare? What do we need to analyze and establish?



Note to the Trainer: 9:00 – 9:02
Read over the information from this slide.



Note to the Trainer: 9:02-9:30
Ask teachers to scan the QR code to participate in a Kahoot! Game modeled after the fact or fib showdown strategy. Questions and answers are below. Fact or Fib? - Student RIT bands represent roughly equal performance expectations across different content (i.e. a 131-140 in Math is about the same as a 131-140 in Reading) FIB

If a student is in the 20th percentile in the Fall, staying in the 20th percentile may mean they did actually grow. FACT

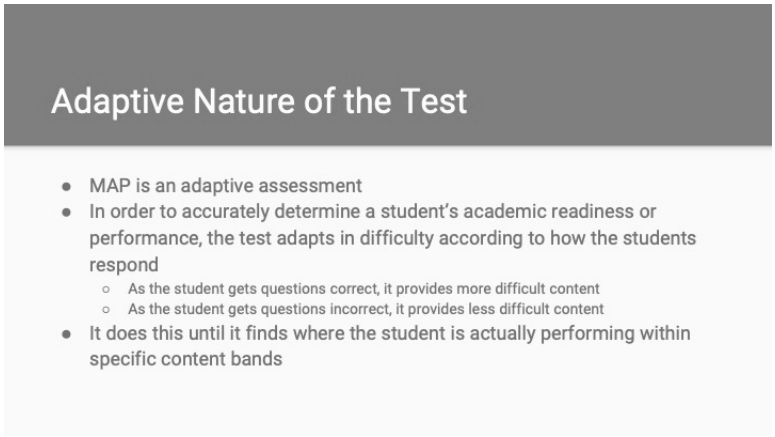
Student RIT bands in the learning continuum correspond to grade level expectations on performance (i.e. if I see 6th grade TEKS listed under the learning continuum, that student is on the 6th grade level.) FIB

If I see content or vocabulary that I don't even cover, the test is not aligned to the standards. FIB

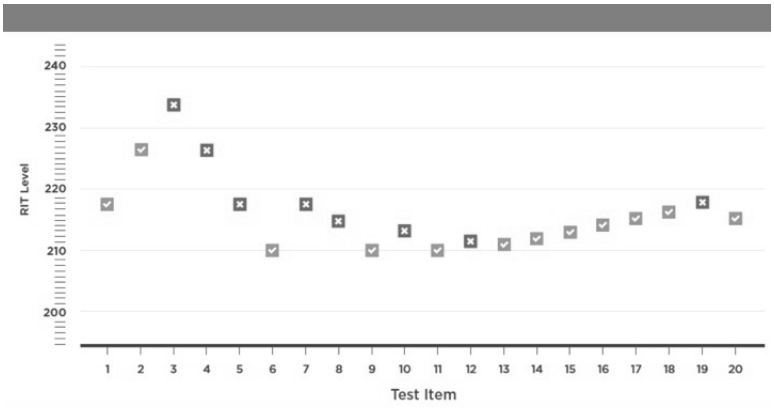
The test is not as valuable as the assessment data I get in my own classroom. FIB

If a student is in the 90th percentile or above, it is my job to ensure the student doesn't regress. FACT

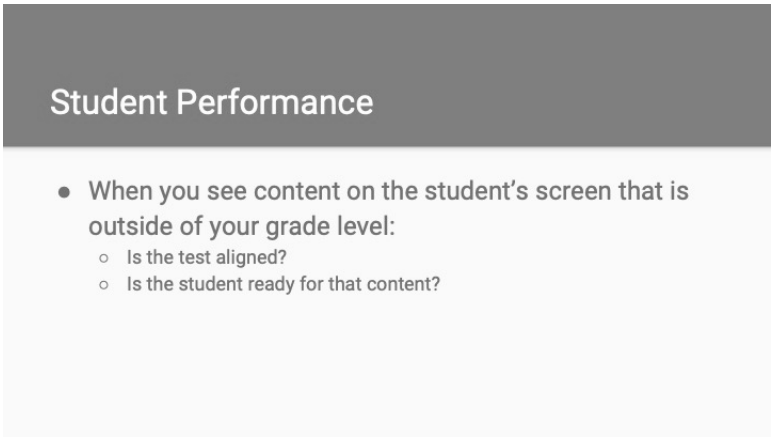
MAP does a good job predicting student STAAR performance. FACT



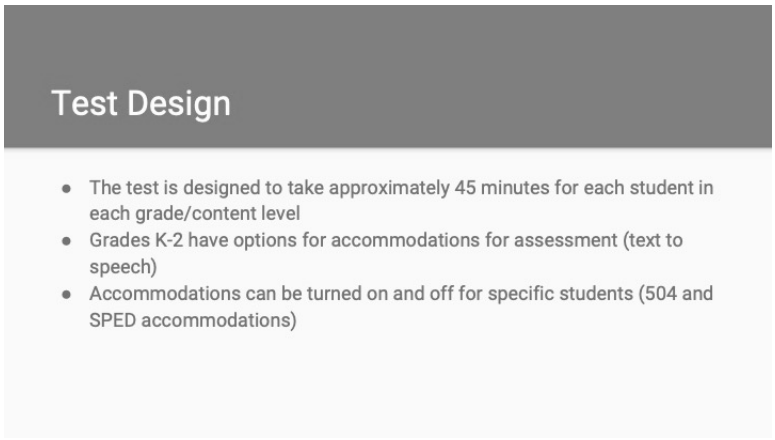
Note to the Trainer: 9:30 – 9:35
Discuss the adaptive nature of the assessment, provide examples if needed, show the graphic on the next slide that demonstrates the adaptive nature of the test.



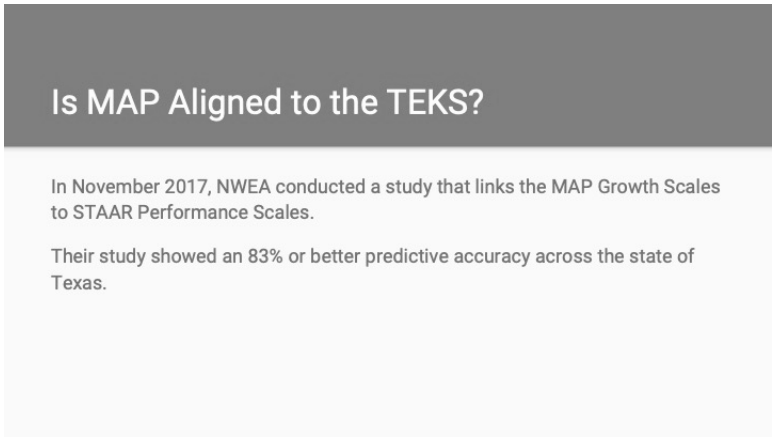
Note to the Trainer: 9:00 – 9:35
Point out the structure of the visual. As students answer correctly, the RIT goes up. As they answer them incorrectly it goes down. Eventually it begins to level off and narrows in on the true performance of the child.



Note to the Trainer: 9:35-9:40
The RIT Range is where the student was able to get approximately 50% of the answers correct. This indicates that they have a basic or beginning understanding of concepts at this level, but they are not ready for independent work at this level. Additional instruction is required. It's an indicator of what they are ready to learn, not ready to do.



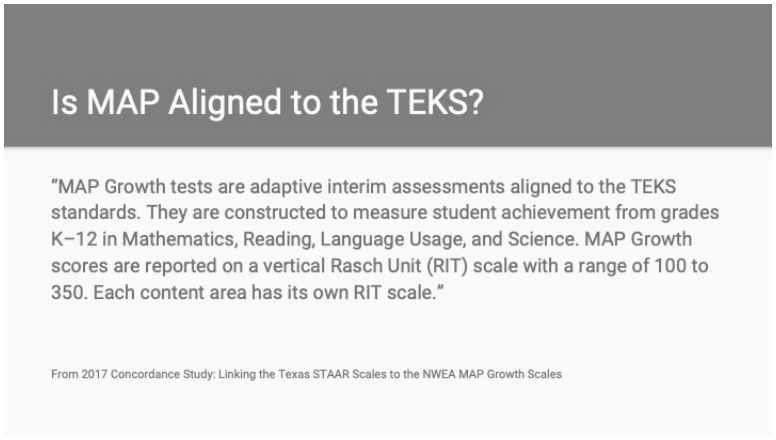
Note to the Trainer: 9:40-9:45
Take time to answer questions from the Test Design slide and the previous 3 slides talking about the adaptive nature of the test. It is critical that teachers understand that when they see content outside of their own grade level on the test while students are taking it, that it is still connected to the TEKS. They just may be TEKS beyond their own grade (either above or below) as the test is attempting to identify the actual level that the student is performing. It is also critical to note that the student may be ahead expectations with certain kinds of concepts and behind in others. If, overall, you feel like the student is behind, it is possible that the student is on level or ahead of their peers in particular aspects of your content. Rely on the reports to see what the student does/doesn't know rather than what you see on the screen.



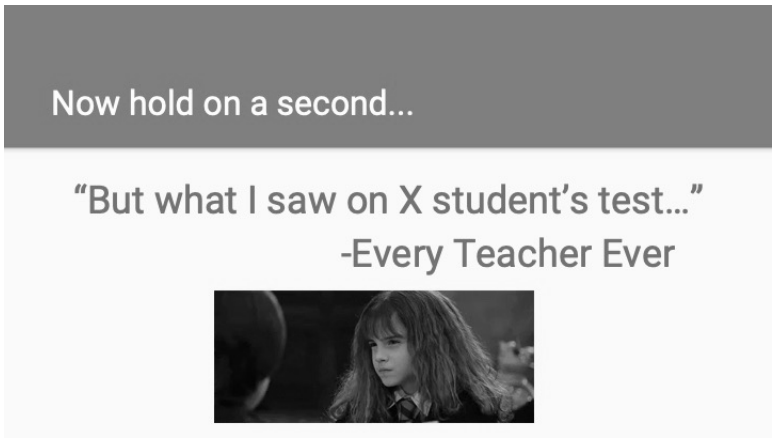
Note to the Trainer: 9:45-9:47
On many occasions, the error was in the student's favor - i.e. MAP under predicted what the student would achieve. This is likely the result of teachers utilizing formative assessment data to intervene with students.

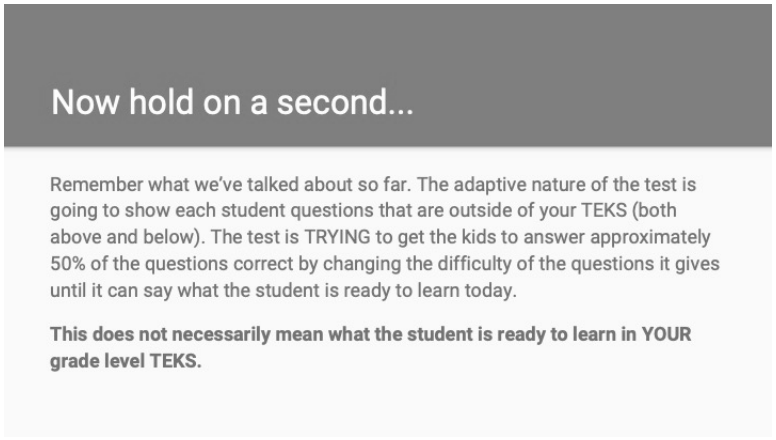
Grade/Content	Accuracy
3rd Math	87%
3rd Reading	73%
4th Math	87%
4th Reading	75%
5th Math	87%
5th Reading	77%

Note to the Trainer: 9:47-9:50
The numbers provided are the accuracy specific to Oak Hills Elementary for the previous school year. After reviewing this slide, prompt the audience to reflect on the last couple of slides. What have you learned about MAP that you may not have known before? Reference the 1 like and 1 concern page, with the questions, that we recorded at the beginning of our training. Which questions have been answered?

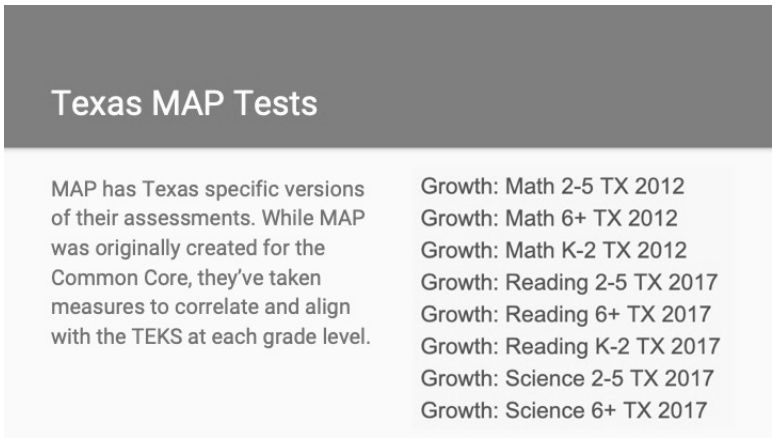


Note to the Trainer: 9:50-9:52
The next 3 slides should go one after the other.



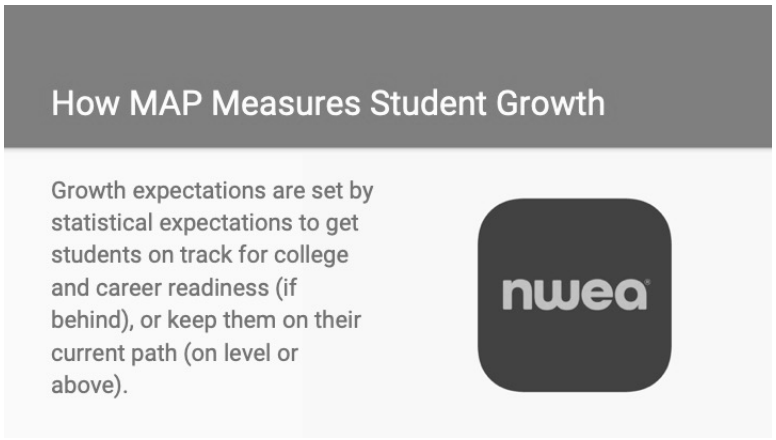


Note to the Trainer: 9:52-9:54
Read over the information on the slide. The way the test works means the assessment is attempting to figure out where the student IS within the entire scope of all of the TEKS, not just the TEKS in your grade level. You may see things above your grade level or below, depending on how the student answers. That doesn't mean the test isn't aligned to the TEKS.

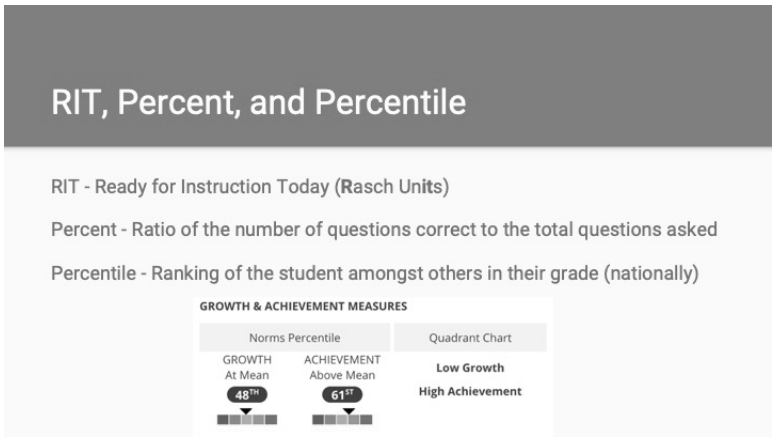


Note to the Trainer: 9:54-9:56
Have the students note that the tests listed are the state specific ones for Texas. Allow time for teachers to revisit their page with questions. Have any other questions been answered regarding the MAP assessment? Allow a quick conversation amongst the groups and questions if needed to the presenter.

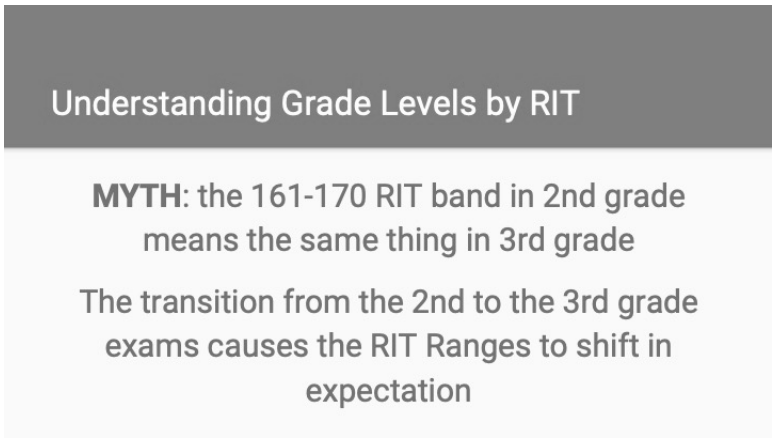
Note to the Trainer: 9:56-10:06



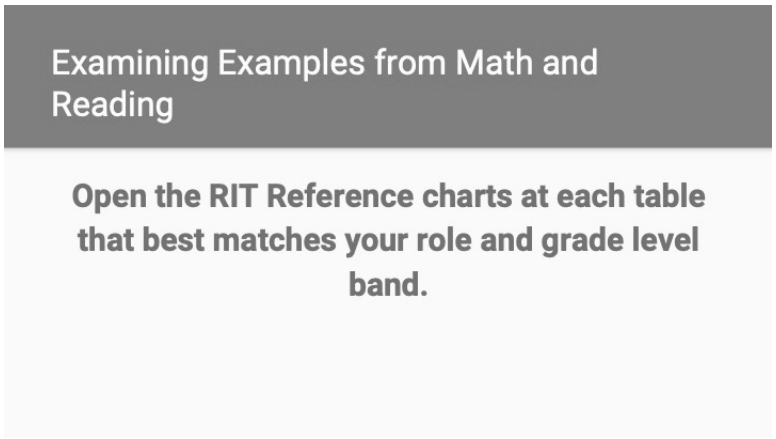
Note to the Trainer: 10:06-11:00
This may mean some students have growth expectations that look different than others, and each grade level and content has completely different growth expectations. Specific content types within each content are also taken into account. An average RIT does not necessarily mean they are on target in all areas of math or reading. The Learning Continuum report and Student Profile can help you identify individual strengths and weaknesses.



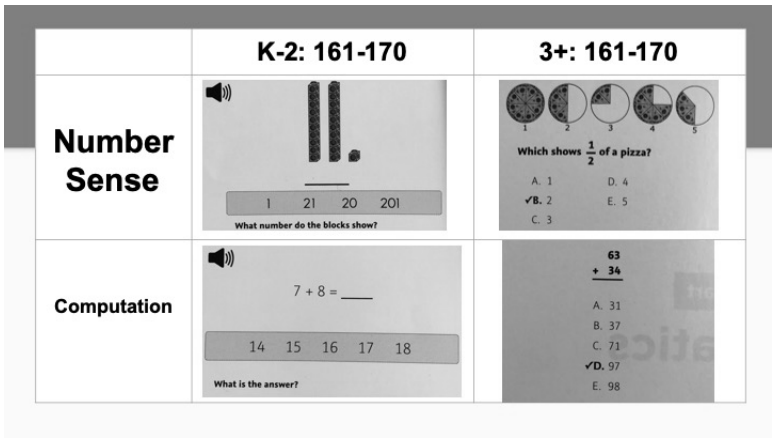
Note to the Trainer: 11:00-11:02
One common misconception when looking at student percentiles is to assume that is the percent the student got correct on the MAP assessment. That is not true. ALL students get approximately 50% of the questions correct due to the adaptive nature of the test. That's the way it's designed. Percentile is a ranking of students based on RIT scores.



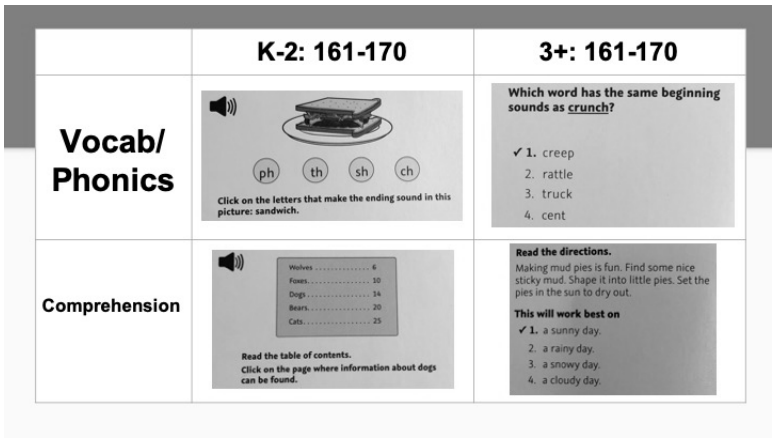
Note to the Trainer: 11:02-11:05
The presenter should let the teachers know that there's going to be a natural dip in RIT as students move from the K-2 assessments to the 2-5 assessments. For the research site, this happens from the 2nd grade to the 3rd grade year. This is normal and should be taken into consideration when looking at student data and growth over time.



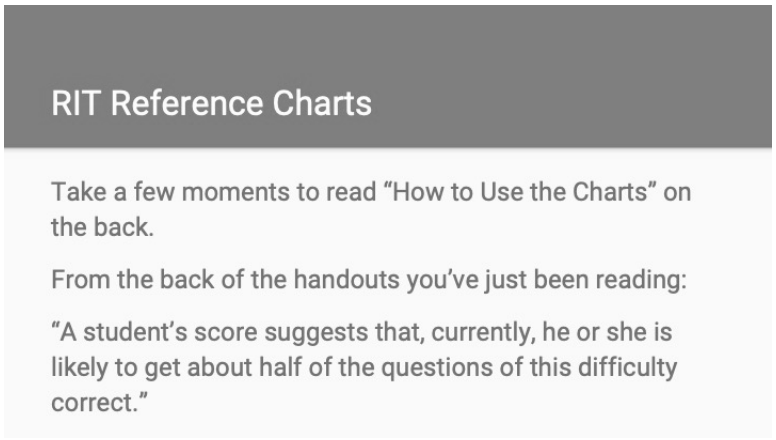
Note to the Trainer: 11:05
Instruct participants to open up the RIT reference charts.



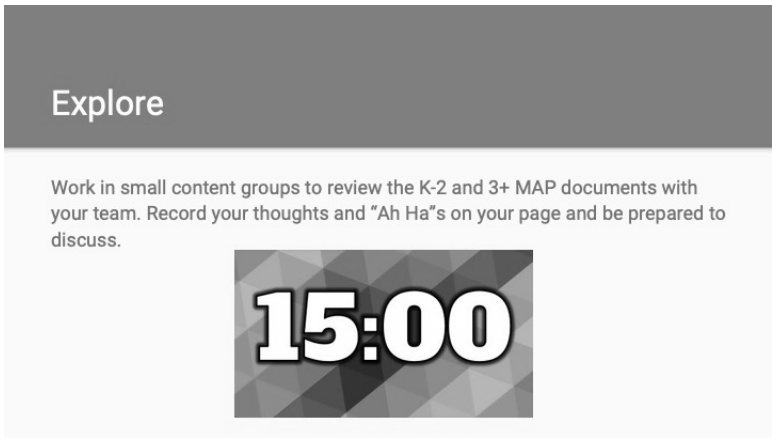
Note to the Trainer: 11:05-11:15
Point out the K-2 and 3+ question examples for similar content expectations. While the RIT bands are the same from one test to the next, the expectation is very different at a cognitive level. Prompt the teachers, when looking at the Number Sense band, at about what Bloom's Level would you expect this to be?



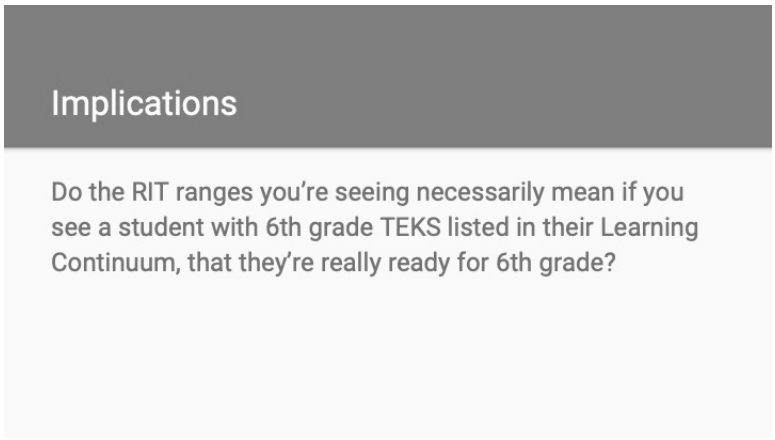
Note to the Trainer: 11:15-11:25
Similarly, allow teachers to examine the example here for Reading. While the content is the same and the RIT bands are the same, the two exams have different levels. Analogy – It's a lot like college level baseball compared to Pro Baseball. While both are played the same, the expectations are very different.



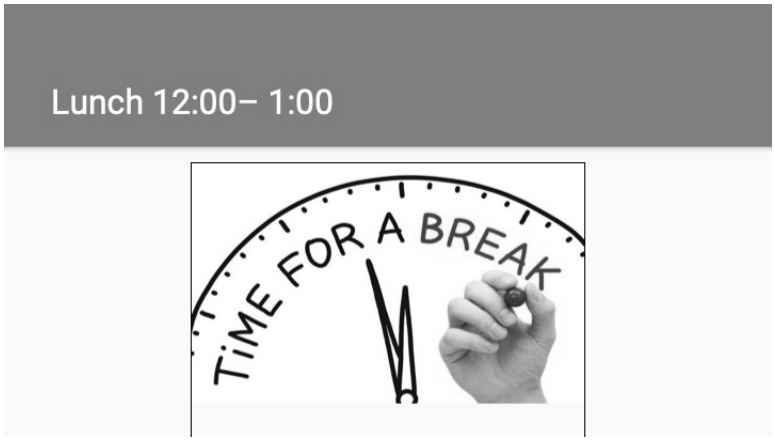
Note to the Trainer: 11:25-11:35
Allow teachers to explore the "How to Use the Charts" portion for a few moments and discuss the important things they notice. Allow for some group sharing of thoughts and observations. It is important that the audience notice the quote at the bottom and understand that the adaptive nature of the test means the students should be getting about 50% of the questions correct. That means that the student in this RIT band is ready to be INTRODUCED or DEVELOP understandings of these concepts. They have not mastered these concepts and need additional teacher support to learn them.



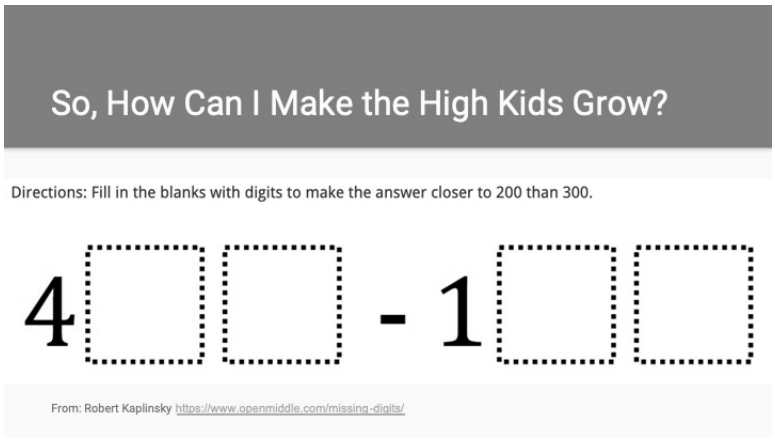
Note to the Trainer: 11:35-11:50
Allow teachers to explore for 15 minutes the RIT Reference Charts.



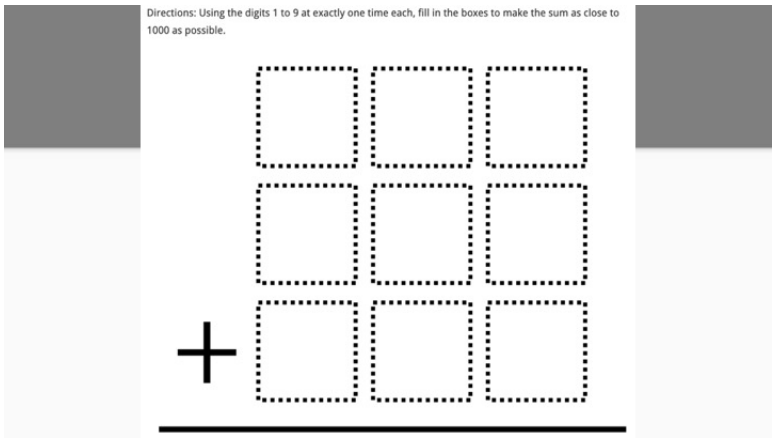
Note to the Trainer: 11:50-12:00
Get teacher observations from the room. Implications: We have to stop connecting particular RIT bands and seeing particular grade levels in certain reports from making us think the student is ready to be in 6th grade as a 3rd grader. Remember, the test shows what the student may be prepared to learn about with the teacher, it does not necessarily mean they are ready to do what that report says on their own.



Note to the Trainer: 12:00-1:00

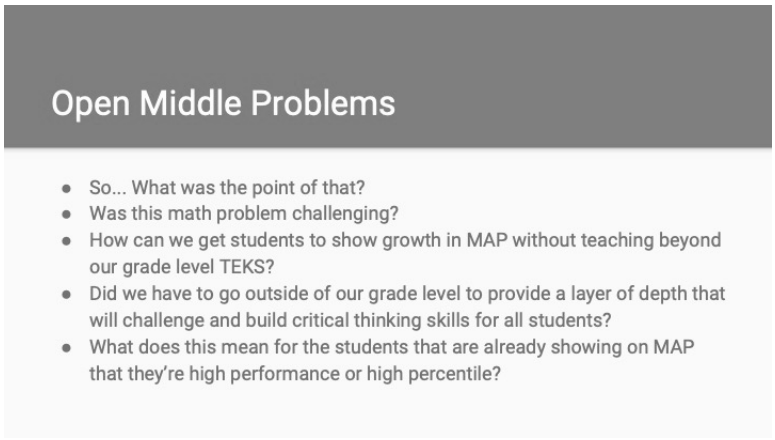


Note to the Trainer: 1:00 – 1:15
Welcome everyone back from lunch. Do a quick recap of the basic questions so far. MAP is an adaptive test. MAP is correlated to the TEKS. MAP shows us what students are ready to learn today, not what they've mastered.
TEKS - 3.4A - solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction.
Challenge – this problem will be solved quickly by many participants. Add a layer of challenge to the group. Now you can only use the digits 1 – 9 one time, no numbers may repeat.

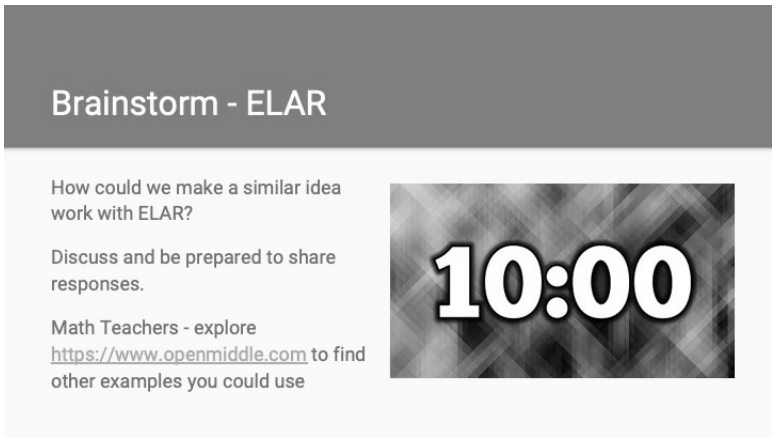


Note to the Trainer: 1:15 – 1:35
3.4A - solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction
This is the same TEKS as the previous example. Allow the teachers to work for several minutes trying to meet the challenge of getting the answer as close to 1000 as possible. Many may assume 999 is the best possible answer, however 1001 is just as valid as an

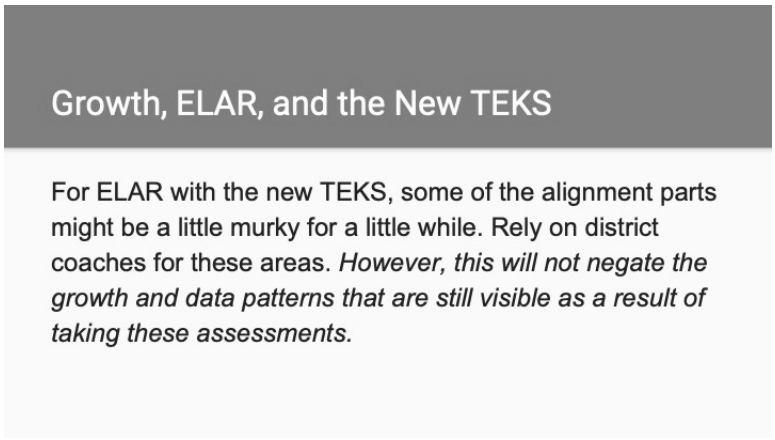
answer. Is there a way to get 1001?
Poll the audience after about 15 minutes – Everyone stand. Remain standing if your final answer is within 100 of 1000. Remain standing if it's within 50. Within 10. Within 5. Within 1.



Note to the Trainer: 1:35 – 1:40
Allow teachers to discuss these questions in small groups.
The main idea here is that many teachers feel like it is difficult to get students to show growth when they are already performing so high. How can we get the students to show growth without going beyond our grade level TEKS?
The idea is to build critical thinking and problem solving skills. There is no need to teach beyond your grade level expectations. Students that are ready for more can show growth when they are provided the opportunity to think more deeply.

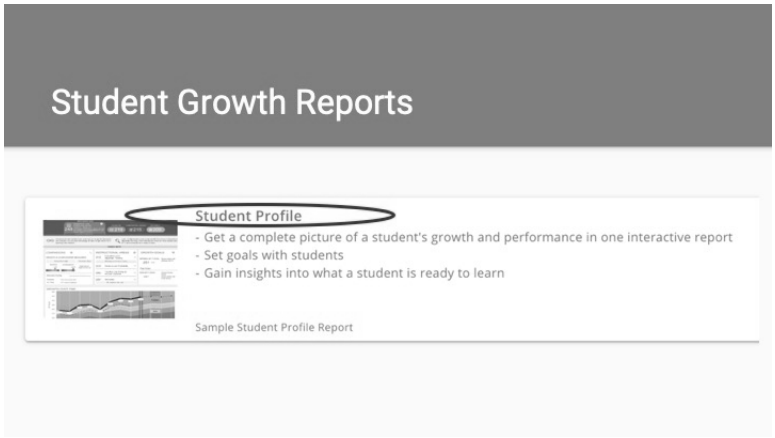


Note to the Trainer: 1:40 – 2:00
Present the idea of doing something similar with the ELAR standards. But this time allow the teachers to dig into their own practices and share with each other about ways that they think they could get students to dig deeper rather than going further. Ask math teachers to explore the open middle website to find examples they could apply to their own instruction. Start the 10 minute timer.
Prompt the group after the 10 minutes to get ideas to share with the entire group. How could this look at different grade levels?

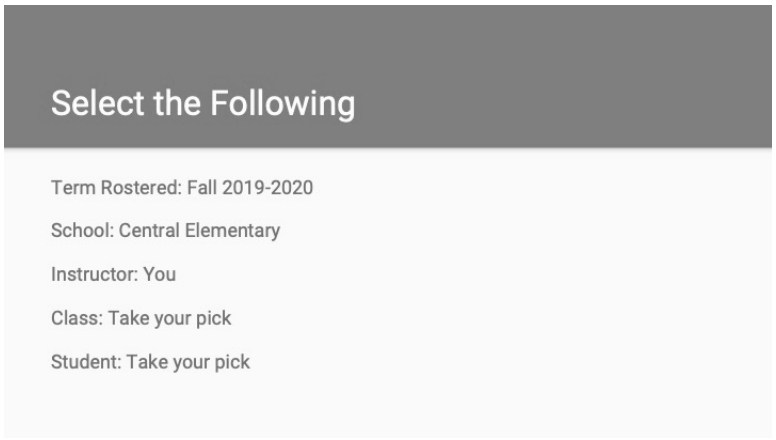


Note to the Trainer: 2:00
This slide is specific to the district as the new ELAR TEKS were implemented this year. Even though the TEKS did change, the MAP growth data is still valid and valuable.

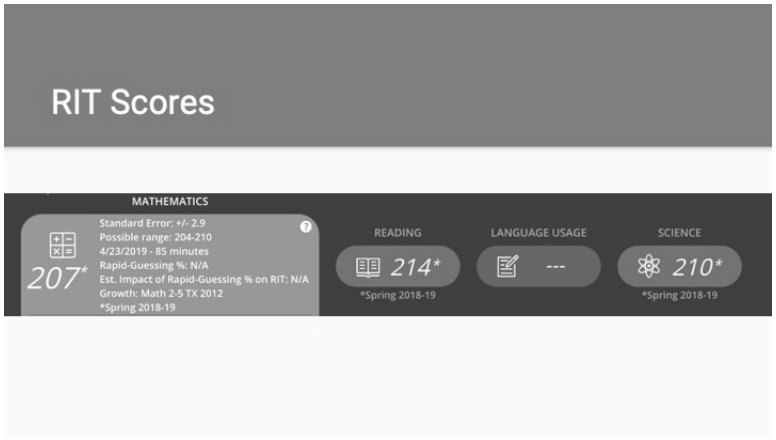
Note to the Trainer: 2:00 – 2:30
For slides 41 through 50, the time should take about 30 minutes, including the 10 minute exploration time. The main idea here is to show teachers how to access the student profile, and then dig into various aspects of the report to identify specific content for student remediation. Each of these reports through the rest of session 1 will be accessing last year's data to identify student gaps for the start of the year.



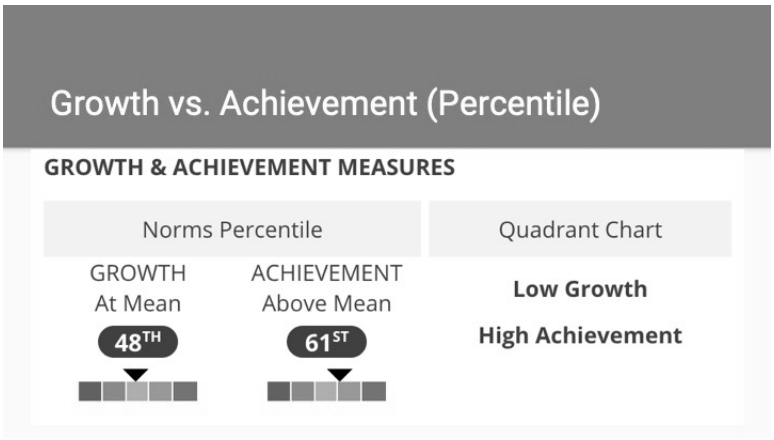
Note to the Trainer: 2:00 – 2:30 Access the Student Profile.



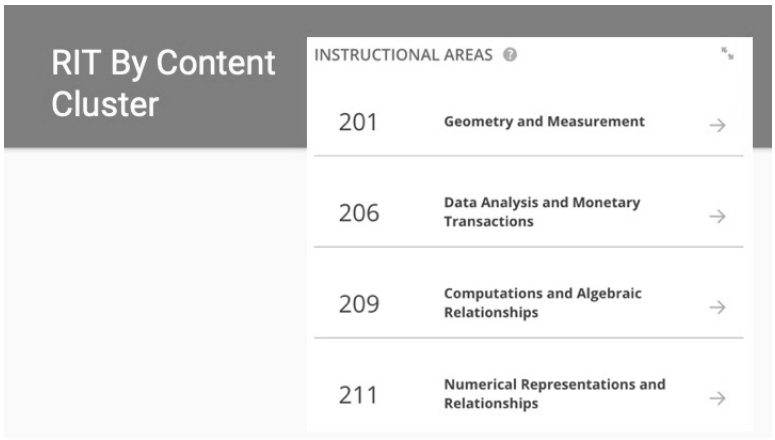
Note to the Trainer: 2:00 – 2:30 Select these options to run the report.



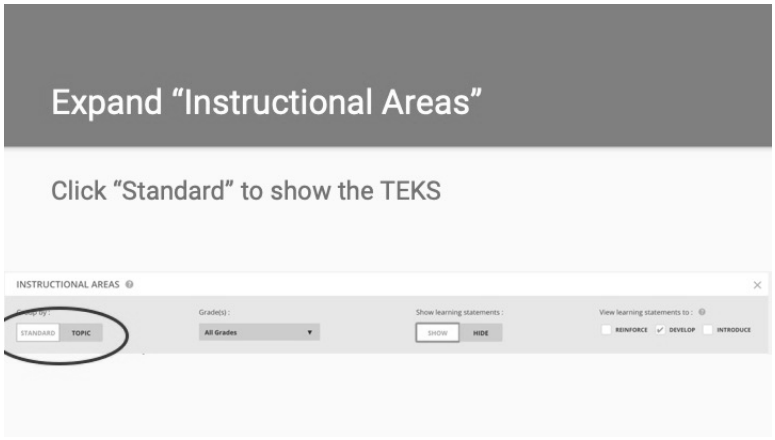
Note to the Trainer: 2:00 – 2:30
The report at the top gives you an overview of the RIT scores for the three areas tested in the district. The colors can give you some idea of the overall performance of the student across each content area. Access the content area you teach.



Note to the Trainer: 2:00 – 2:30
Below the RIT numbers are numbers showing the Growth percentile and the Achievement percentile for the student you've accessed. The Achievement percentile is the easiest. It's the rank that this student has in comparison to other students across the nation in this grade level. This example shows that the student is in the 61st percentile, meaning he or she performs as well or better than 61% of their peers. The growth percentile means where the student falls compared to other students across the nation in growth. A growth of 48% means that the student is growing about average, but perhaps a little less than average than their peers. What could this mean for the future performance for this student? If Growth percentage continues to fall, it could be an indicator that his or her achievement will not maintain and will potentially fall.

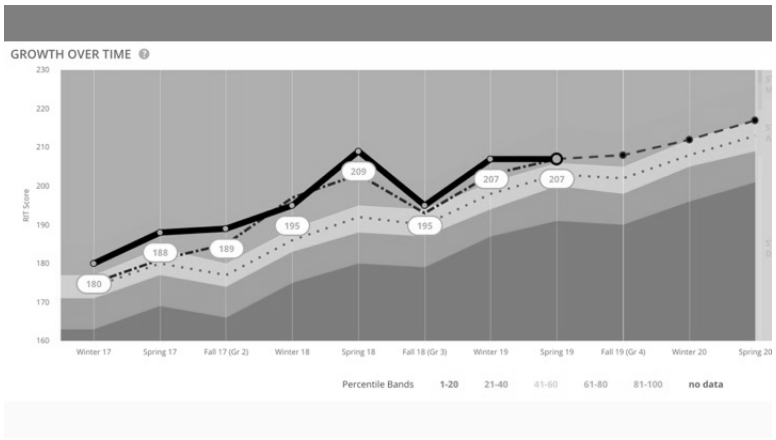


Note to the Trainer: 2:00 – 2:30
The next area to access is the instructional areas. This gives you 3 to 4 content areas with specific RIT scores for each content band. Recall that the performance for a student can vary pretty widely as sometimes students understand aspects of your content well, but other aspects not as well. In this example, the student has a high level of performance in Numerical Representations and Relationships, but not Geometry and Measurement. If I were to choose an area of remediation for this student, where would I likely want to investigate? Geometry and Measurement, and maybe Data Analysis and Monetary Transactions.

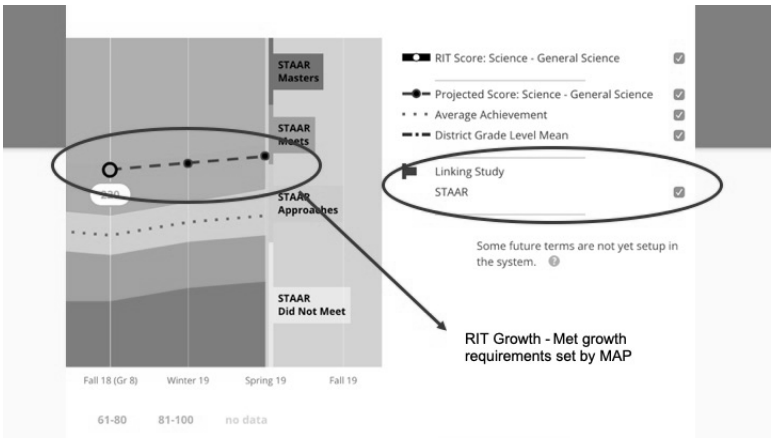


Note to the Trainer: 2:00 – 2:30
Make sure that you're seeing the TEKS correlated to the student performance by selecting "standard" in the top left. You can narrow the grades viewable down under the "grades" drop down.
When looking at the standards that appear, if you see 5th and 6th grade material listed, that doesn't mean they are ready for the 6th grade. It means that's math that they may understand if you were to teach it to them right now. It's been a misconception that when a teacher sees content well above their grade level on these reports, they assume the

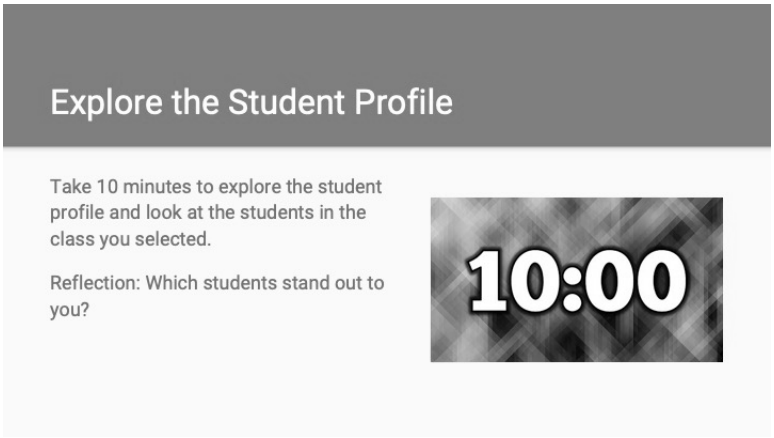
student is at that grade level. However, there is often a wide range of grade levels related to the vertical alignment of the TEKS for that content. If you see 1st through 6th grade standards listed, that means the student is ready to be INTRODUCED or DEVELOP those concepts with teaching from the teacher. That means the student has gaps as far back as the first grade level that need to be addressed. Finding these areas is where you'll find the best potential to grow students.



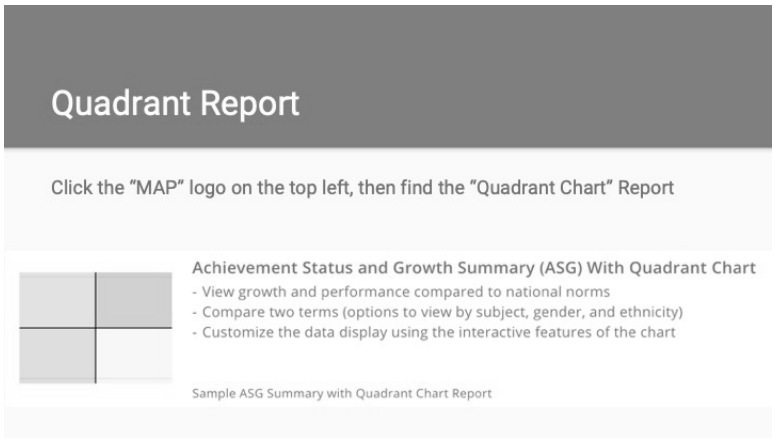
Note to the Trainer: 2:00 – 2:30
Here we can see a visual representation of the student's progress over time. This particular student has almost 3 years worth of growth data. What kinds of trends are we noticing? What can these trends tell us?



Note to the Trainer: 2:00 – 2:30
There is an option to the right of the student growth graph that allows you to see the projected STAAR performance. If you're STAAR tested, check this box to see where MAP anticipates this student to perform on the STAAR at the end of the year.

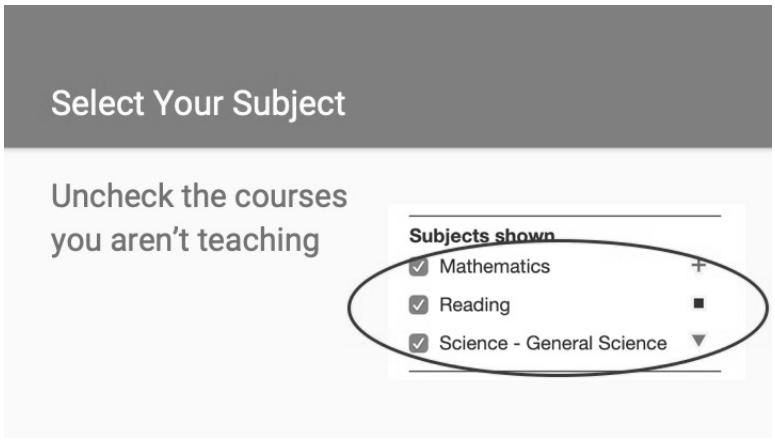


Note to the Trainer: 2:00 – 2:30
Take some time to explore the student profile for your homeroom class. Take some notes about the performance of individual students and some of the gaps that the students are showing.

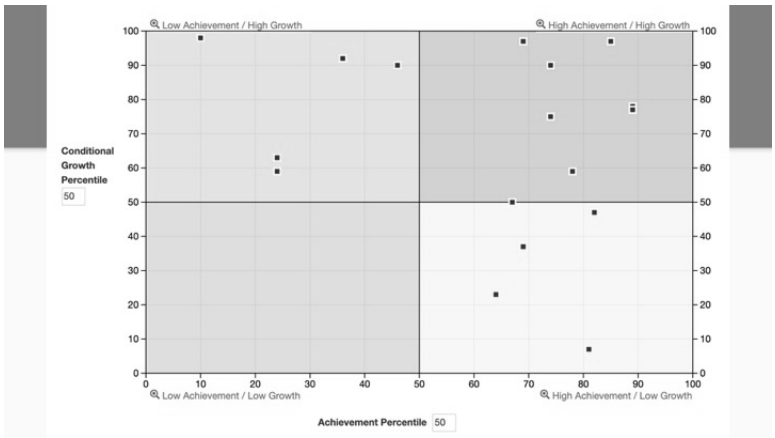


Note to the Trainer: 2:30 – 2:50
Slides 51 through 56 explore the Quadrant report and should take about 20 minutes. Ask the teachers to go back to the NWEA reports home page and access the Quadrant report.

Note to the Trainer: 2:00 – 2:30
Use these options when generating the report. Again, we're looking at the end of last year's results to make some instructional decisions about our students this year.

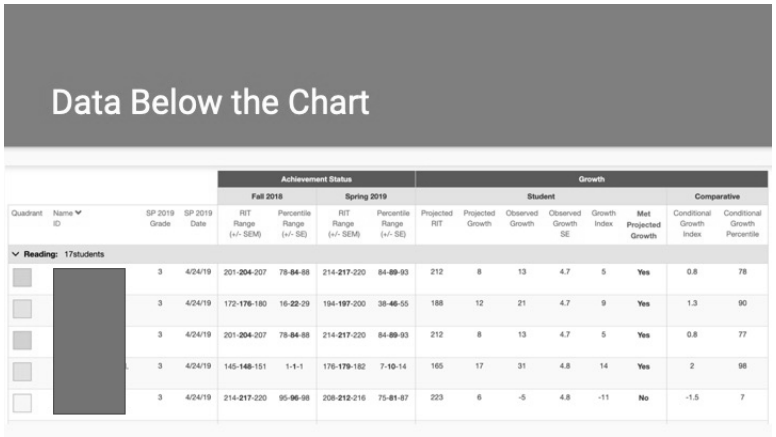


Note to the Trainer: 2:00 – 2:30
We only want to see the courses we are actually teaching, so uncheck any course you aren't interested in investigating right now. If you teach more than one subject because you are self-contained, check the one you are most interested in looking at right at this moment.

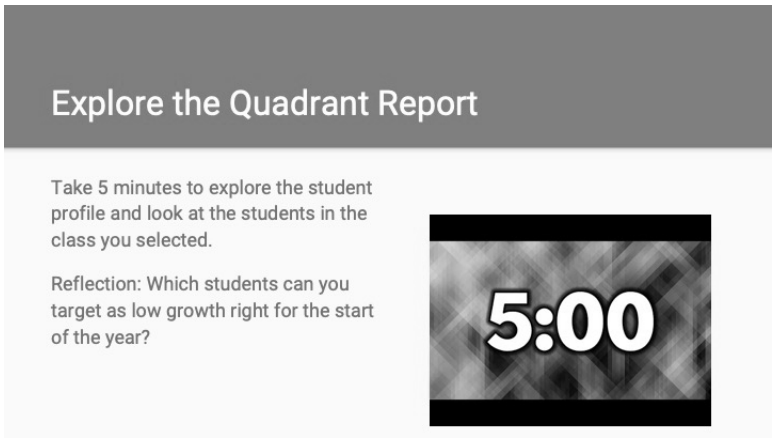


Note to the Trainer: 2:00 – 2:30
Point out the different colors and what they mean. The red quadrant is low growth and low achievement. There are no students in this particular example, which is very good. Keep in mind that the performance we're seeing was from the previous year. It's not about judgements on the previous teacher. It's about knowing where your students are and making instructional decisions to meet the student where they are now and get them where we need them to be. The yellow quadrant is high achievement but low growth. This is not a great quadrant to be in because while the students are performing pretty

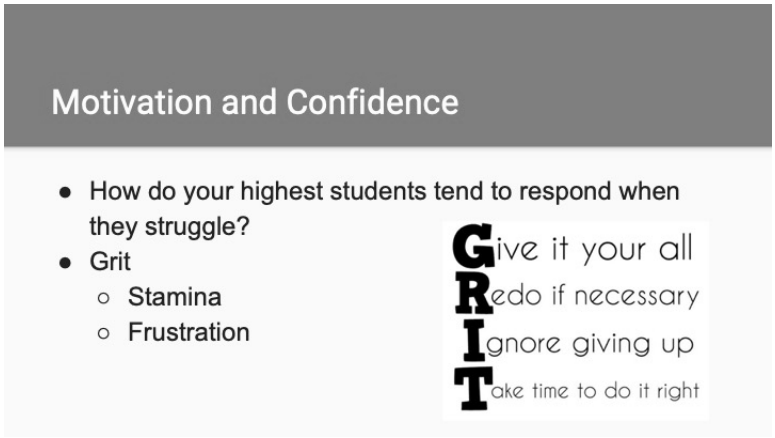
well, they are not showing the growth needed to stay at these high levels. What is it about these students that we can learn in order to help them grow? The orange quadrant is low achievement but high growth. This is a good quadrant to be in, especially for the students that struggle. When students are struggling, high levels of growth are what they need to experience in order to get on track to be college and career ready in the future. The last quadrant, the green quadrant, is the ideal quadrant. These students are high performing and high growth. Keep in mind that these are nationally normed results. These students are performing well and getting what they need to still demonstrate growth.



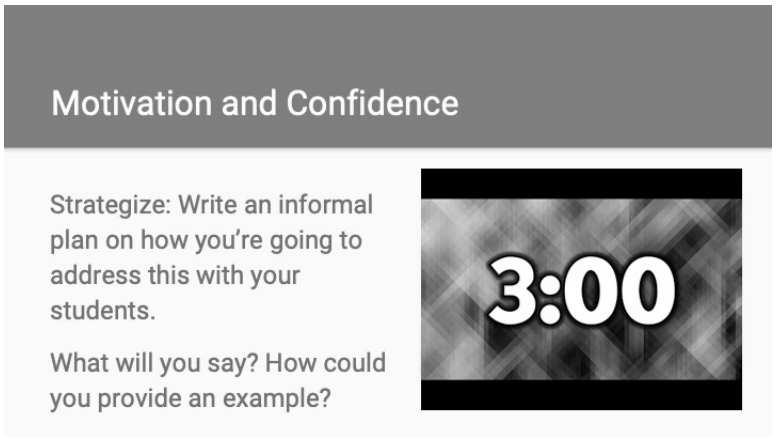
Note to the Trainer: 2:00 – 2:30
At the bottom of the quadrant report is a list of students individually. Note that the color of the quadrant they are in is to the left of each student's name. You can also see RIT scores for the fall, the spring, and whether or not they met the growth expectation set by MAP's metrics under "Met Projected Growth."



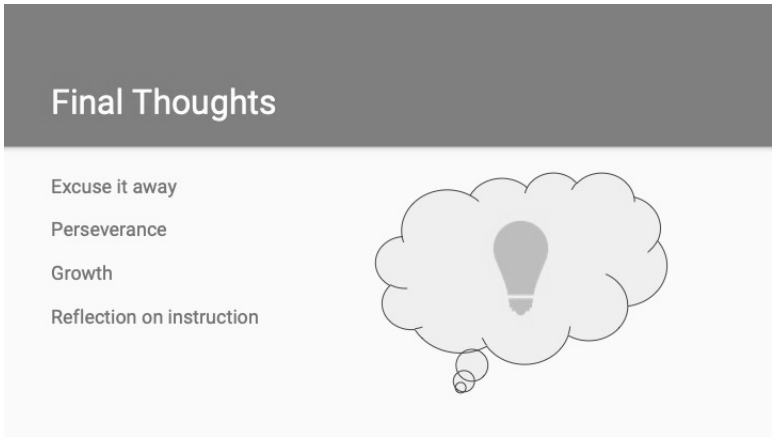
Note to the Trainer: 2:00 – 2:30
Using what we've learned about the quadrant chart, explore your homeroom or another class and identify which students you should focus on in relation to growth. Recall that the red and yellow quadrants are the areas that students are not demonstrating the desired growth. Talk with your grade level and content teams about what you're seeing within each student group.



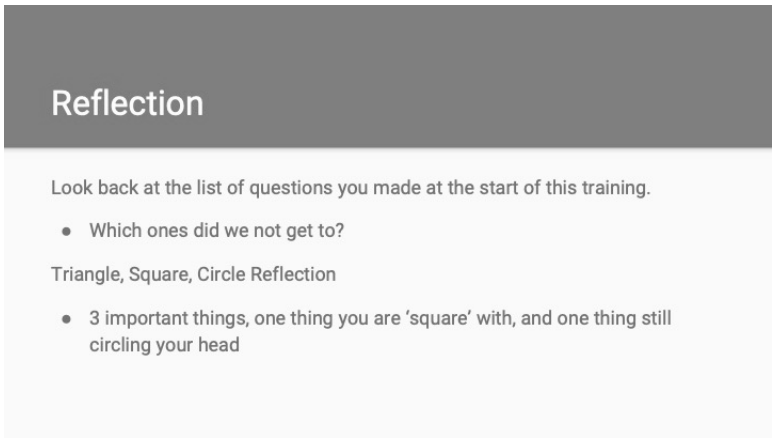
Note to the Trainer: 2:30 – 2:35
When ti comes to showing growth for some of our highest performing students, but may be in the yellow area of the chart, we have to keep in mind their frustration level and familiarity with experiencing difficulty. The MAP test is going to provide them with frustration level questions for those kids that for the first time ever are encountering things they don't find easy or don't know how to do. That's due to the adaptive nature of the test. If the students don't know beforehand that they are going to encounter content that they aren't yet familiar with, they may shut down and give up. This will have a big impact on their MAP scores. How could we address this?



Note to the Trainer: 2:35 – 2:40
Ask the teachers to brainstorm how they will address GRIT with their students. Give them 3 minutes to discuss and write down ideas.

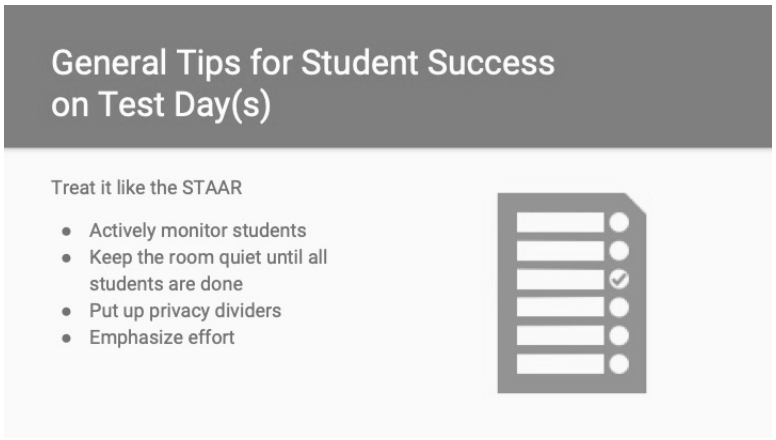


Note to the Trainer: 2:40 – 2:45
Bottom line, how are we using what MAP is giving us to benefit our students?
On Growth - remember, for those really high kids, find those one or two things they need to work on in the reports and help them with that. Beyond that, make sure they stay up there and you'll be fine. You don't have to go beyond your TEKS. Make them dig deeper into your own TEKS.

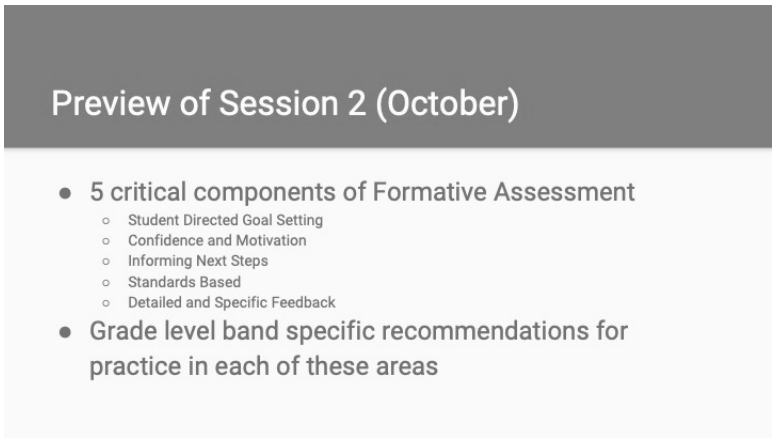


Note to the Trainer: 2:45 – 2:50
Final reflections. Use the Triangle, Square, and Circle reflection technique.

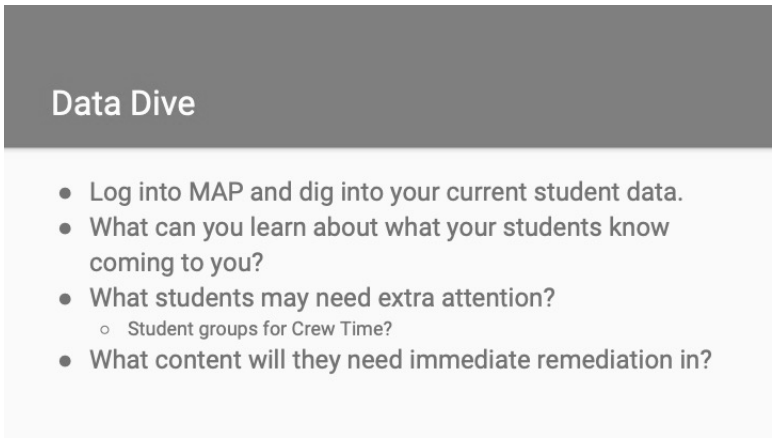
Note to the Trainer: 2:50 – 3:00
Use the Mentimeter to get teachers' thoughts about how they feel about the MAP assessments after having experienced this session.



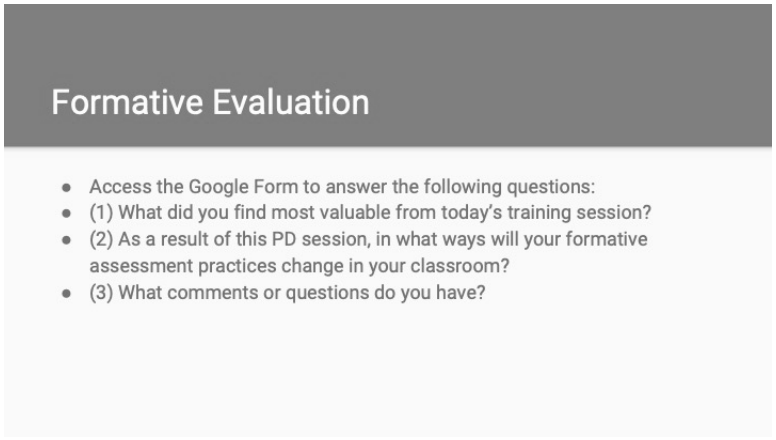
Note to the Trainer: 2:50 – 3:00
Go through the tips provided on the slide. Demonstrate as necessary.



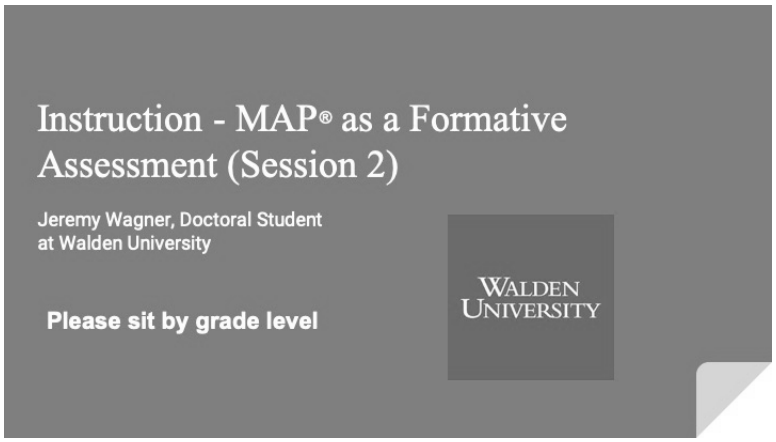
Note to the Trainer: 2:50 – 3:00
Review the information on the slide as a preview for the next training. Provide a small amount of detail, indicating that we'll explore each of the five components and how they can be used to improve formative assessment practices.



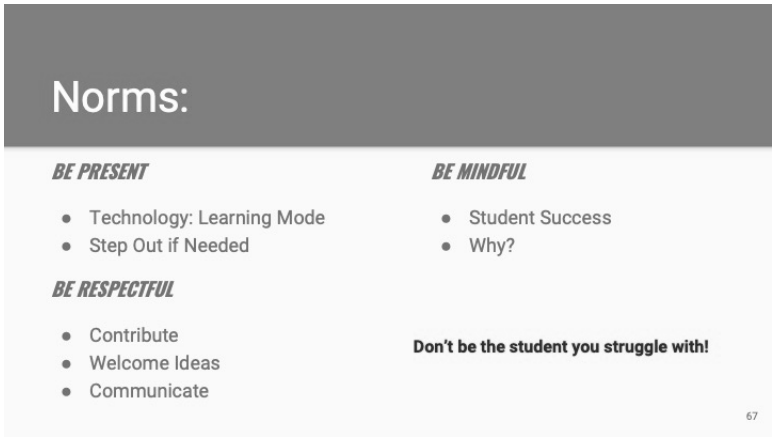
Note to the Trainer: 3:00 – 3:50
Give the teachers about an hour to dig into MAP and analyze their upcoming students. They should use these guiding questions to help them as they dig.



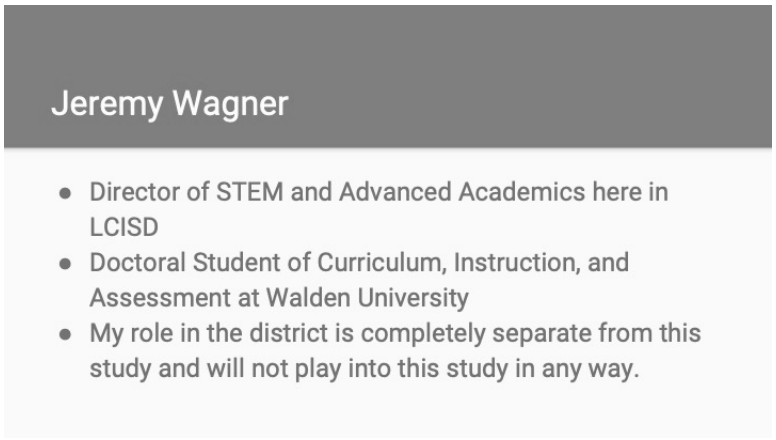
Note to the Trainer: 3:50 – 4:00
Use the last 10 minutes to ask teachers to fill out the session evaluation. The information gathered from the evaluation will be used to guide the follow up sessions.



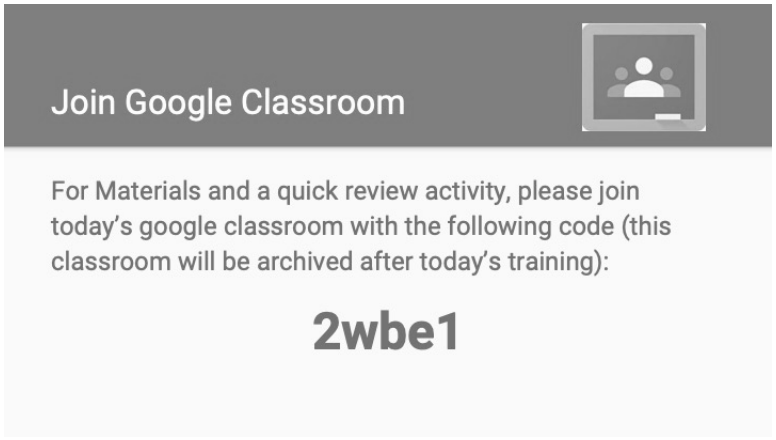
Note to the Trainer: 8:00 – 8:10
Reintroduce yourself and revisit the purpose of the study and this professional development. The purpose of this PD is to facilitate teacher learning so that teachers can create a foundational understanding in how the MAP assessments play a role in utilizing the critical components of formative assessment to guide instruction. Provide a time for any quick questions the participants may have.



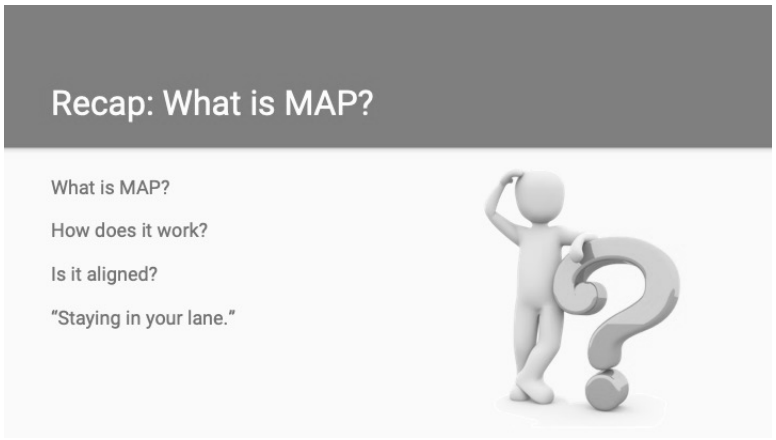
Note to the Trainer: 8:10 – 8:12
Reacquaint teachers to the session norms. Connect the teacher's "why" they are teachers with "why" they are participating in the PD.



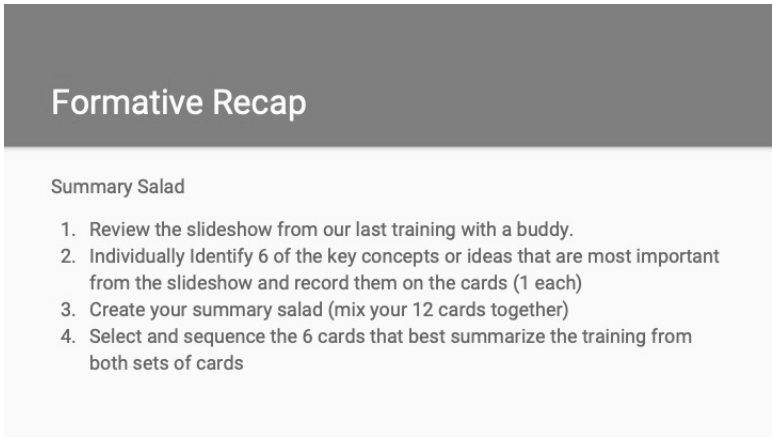
Note to the Trainer: 8:12-8:13
Remind the participants that the role of the facilitator and their role in the district are different and unassociated from each other.



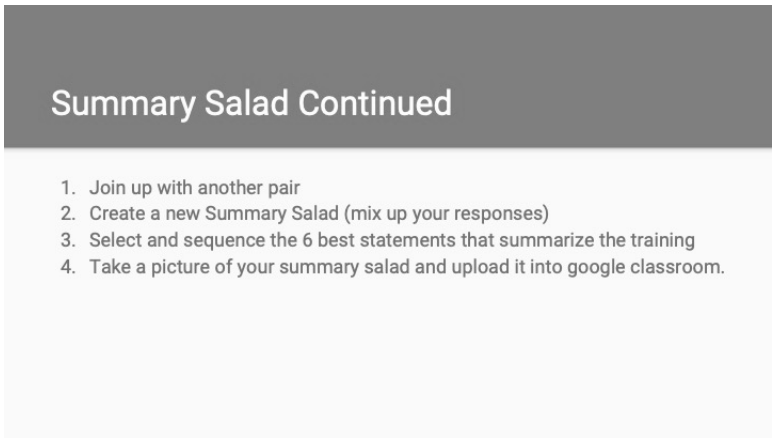
Note to the Trainer: 8:13-8:23
Take several minutes to allow teachers to join the google classroom for today's session. This google classroom will be used for the next two sessions to allow teachers to access and post resources that will be shared with all participants in the professional development. The sharing of resources and ideas is one of the best ways for teachers to build knowledge and strategies that can be used as best practice in the classroom.



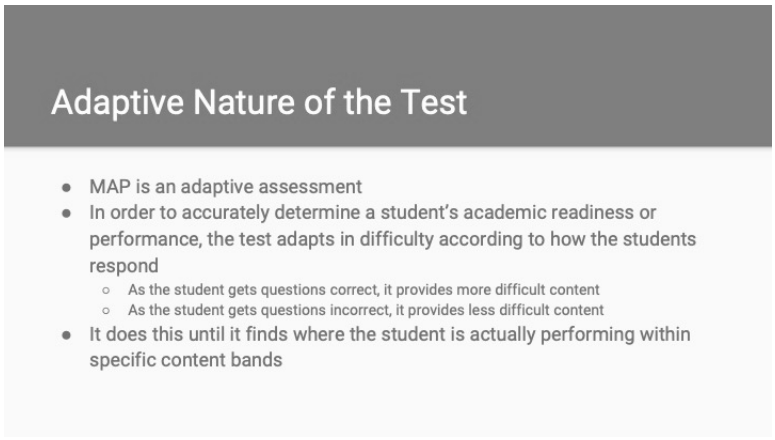
Note to the Trainer: 8:23 – 8:24
Introduce the purpose of the next activity. Now that we've joined the google classroom, our first activity will be recap what we covered in the last session. Since it's been many weeks since the group has met, it will be important for the presenter to remind participants about the knowledge gained from last time so that it can be applied to today's learning. The topics that were covered last time include those on the slide.



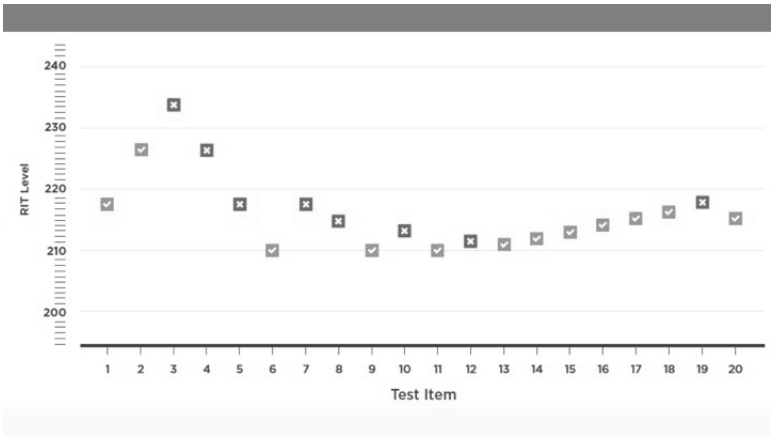
Note to the Trainer: 8:24-8:45
Review the "summary salad" strategy. This strategy was taken from the Lead4Ward strategy playlist (https://lead4ward.com/playlists/). Allow for 20 minutes for the participants to create their first "summary salad." Each group should choose the 6 cards that best summarize the training from their perspective.



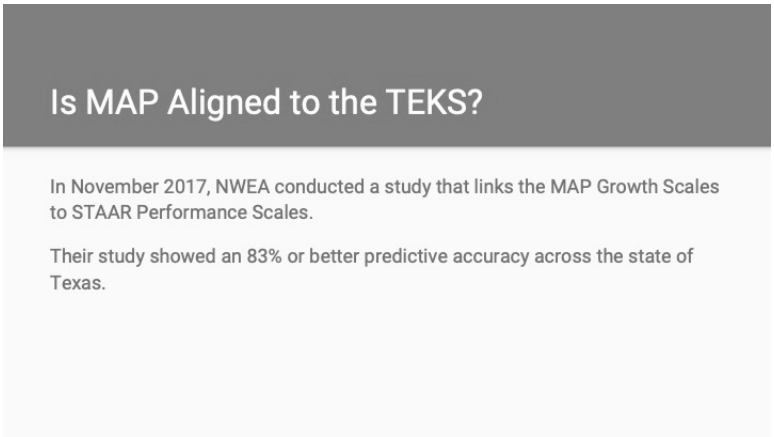
Note to the Trainer: 8:45 – 9:10
Each pair joins another pair to create a group of 4. Use some kind of grouping strategy like musical mix freeze group or hands up pair up. Once groups are paired up, allow them 10 minutes to review their combined cards (12 total) and pick the 6 best from both groups. Give the groups about 5 minutes to arrange their cards, take a picture, and upload them into google classroom. Take 5 to 10 minutes to review a few of the card sets from google classroom with the whole group. Answer any questions that may come up.



Note to the Trainer: 9:10 – 9:11
Review the adaptive nature of the test from last time.



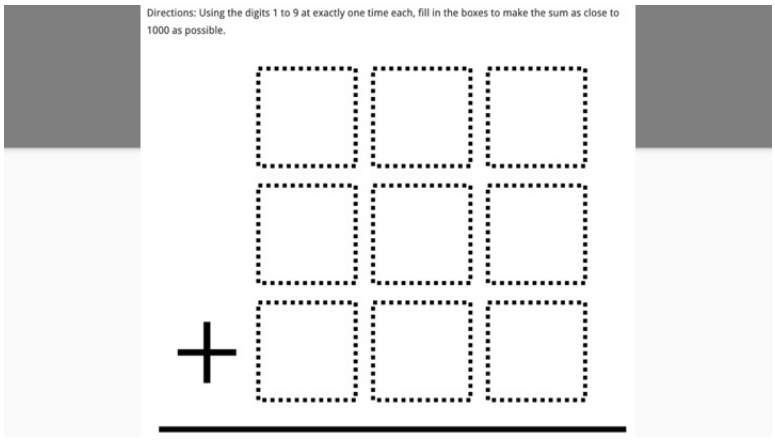
Note to the Trainer: 9:11 – 9:12
Review the adaptive nature of the test from last time.



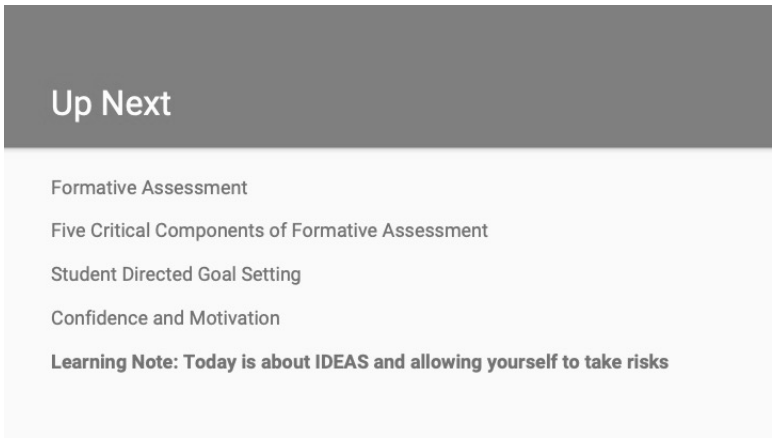
Note to the Trainer: 9:12-9:13
Review the alignment to the TEKS from last time.

Grade/Content	Accuracy
3rd Math	87%
3rd Reading	73%
4th Math	87%
4th Reading	75%
5th Math	87%
5th Reading	77%

Note to the Trainer: 9:12-9:13
Review the alignment to the TEKS from last time.

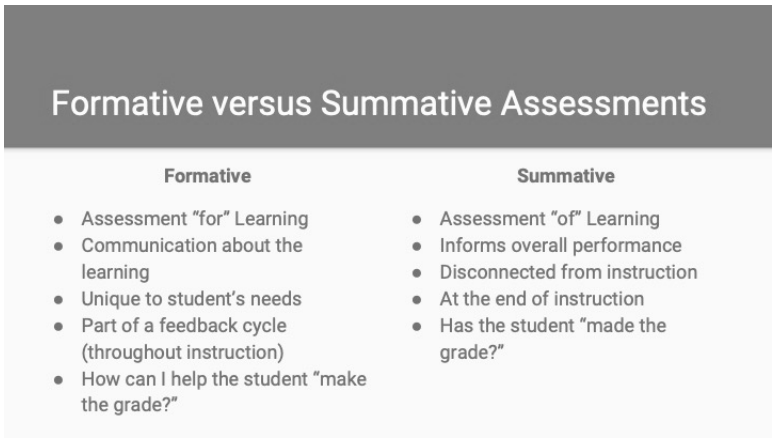


Note to the Trainer: 9:13 – 9:14
Review from last time: Don't have them re-solve this, just revisit it as a way to go deeper without going further. Recap a few of the strategies developed by the ELAR teachers from last time that correspond to going deeper rather than further.

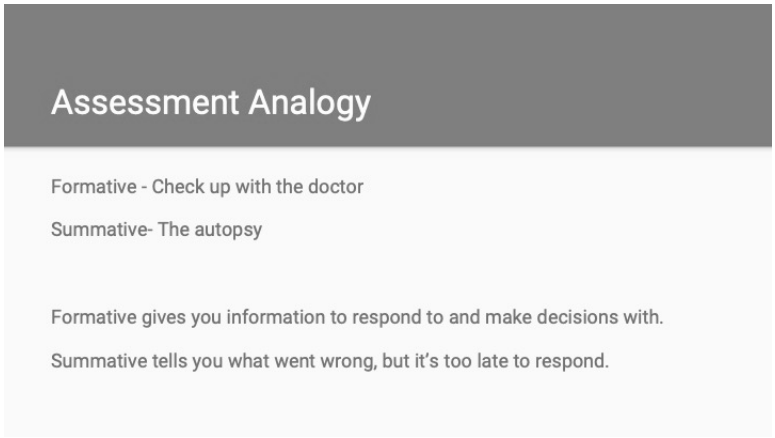


Note to the Trainer: 9:14 – 9:15
These are the concepts we're going to cover in our training time today.

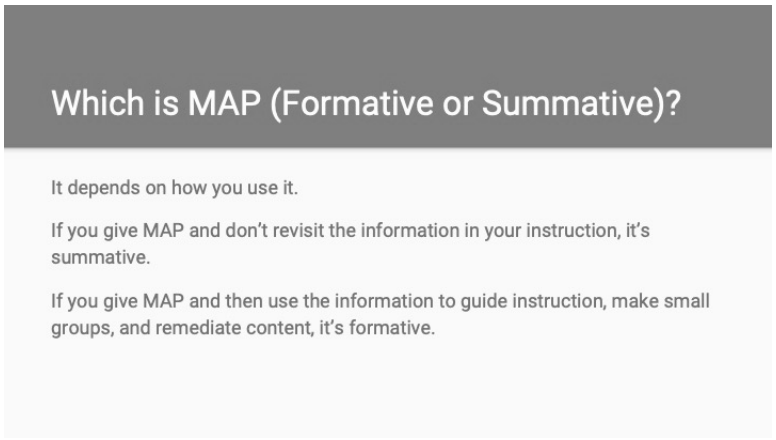
Note to the Trainer: 9:15 – 9:25
Teachers should access the mentimeter using the QR code above. Once there, they will be prompted with a question: "What is formative assessment?" Give the participants time to enter responses and review the response wall that is generated. Then show the participants the second question: "What is summative assessment?" Again, responses will appear as a scrolling response wall. Take some time to discuss responses.



Note to the Trainer: 9:25 – 9:35
Review the following points about formative and summative assessment. Table talk with your group about how these descriptors about formative and summative assessment compare to the previous mentimeter activity.



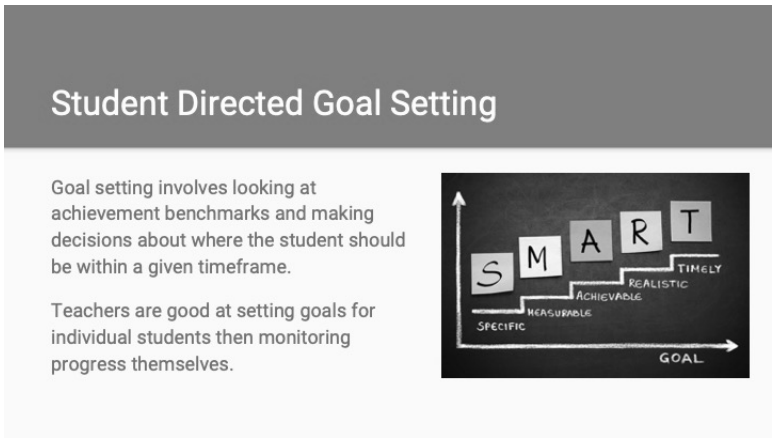
Note to the Trainer: 9:35-9:37
Provide the following analogy about formative and summative assessment.



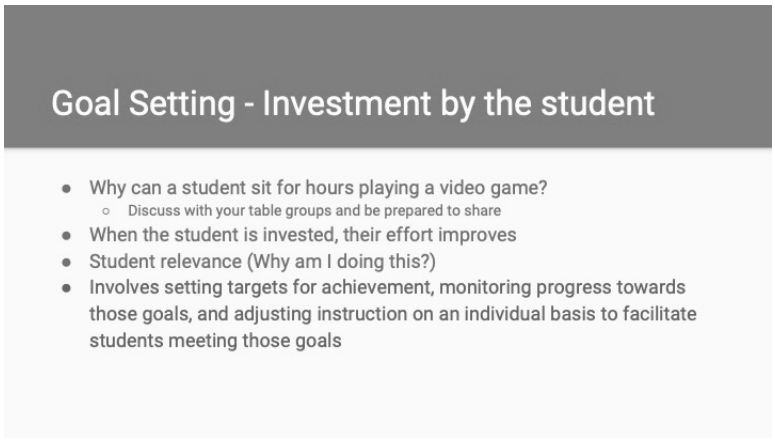
Note to the Trainer: 9:37 – 9:40
The critical idea to connect to is for the teachers to see that the MAP assessment (any assessment) can be either formative or summative. There may be some exceptions, such as the STAAR test. However, for the vast majority of assessments, the difference is how the assessment is used. If the teachers don't use the data from MAP to guide their instruction, then the test is summative. If they look at the data and use it to make instructional decisions for individual students, it is formative in nature.

Note to the Trainer: 9:40 – 9:50
Allow for a 10 minute break. Before dismissing, ask teachers to think about formative and summative assessment practices in their own classrooms. When we return we will be looking at the five most important things you can do when it comes to formative assessment and making students GROW.

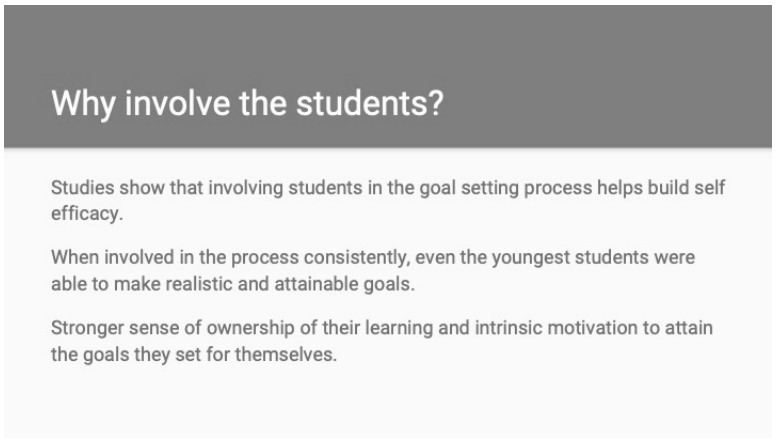
Note to the Trainer: 9:50 – 9:55
Give an overview of the framework for formative assessment. These are the five critical compoentns of formative assessments. These are the things that make a formative assessment the best it can be and can result in the greatest amount of growth for a student. Laud and Patel, 2013, proposed a framework for what constitutes effective formative assessment. Typically, a teacher will formatively assess and then use the information to made decisions about what to do next. However, in their research, published in numerous research articles and a book titled "Using formative assessment to differentiate instruction", they propose these five components as necessary to make formative assessment as meaningful and powerful as possible. They built upon the search of other heavy hitters such as the DuFours (the founders of the PLC model), Jon Hattie (the king of identifying the most powerful practices to improve student performance), and Marzano (the heavy hitter in regards to student growth and instruction).
It's when using all 5 of these components together that students have demonstrated the largest amount of growth.



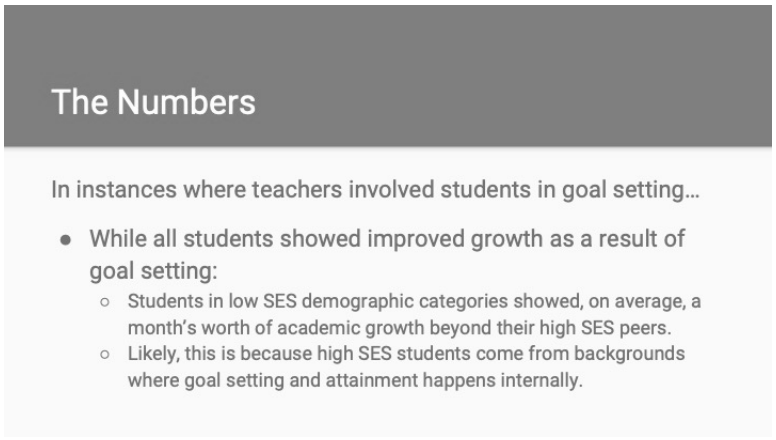
Note to the Trainer: 9:55 – 10:00
When digging down into the component of Student Directed Goal Setting, these are the basic underlying principles that we can already accept. Goal setting is something that teachers are already very good at when it comes to monitoring student progress. Most teachers can even comment on how and why a goal should be SMART (see graphic). However, how often are the students involved in goal setting? What kind of impact does involving the student have on the influence that goal setting has on academic performance?



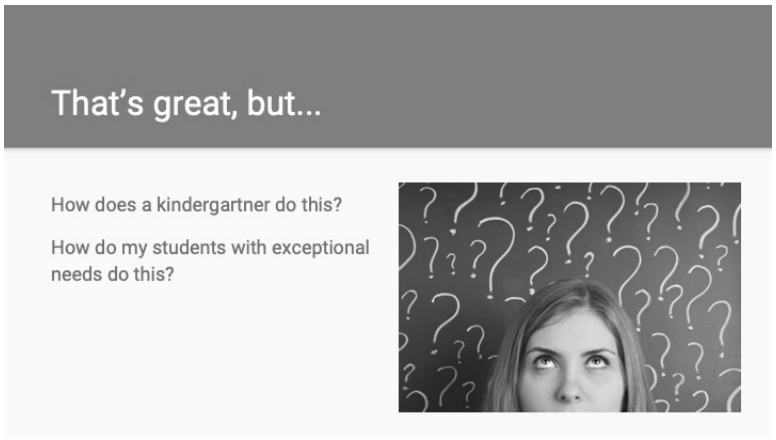
Note to the Trainer: 10:00 – 10:15
Pose the question "Why can a student sit for hours playing a video game?" to the audience. Give them time to discuss their responses and be prepared to share their results. Each bullet, as they are brought up by the audience, should be shown after the question and directions. The last bullet is the most important and how this question links to education settings and your classroom. When the student is involved in setting targets for their own achievement, monitoring their own progress, and making decisions as a result of that process, they grow. They are invested.



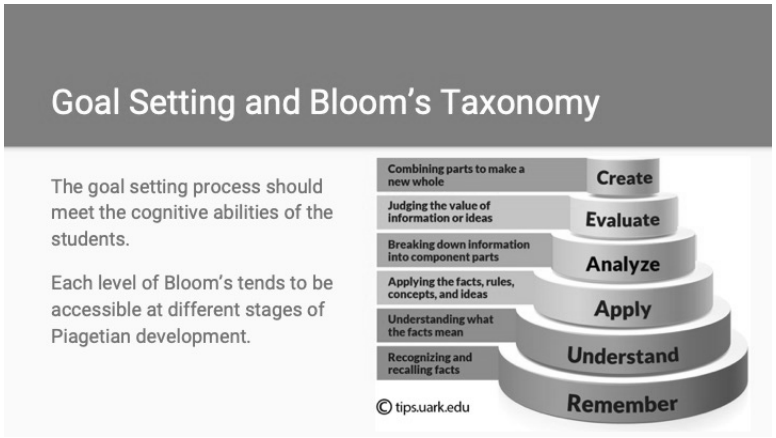
Note to the Trainer: 10:15-10:17
Define self efficacy with the audience if needed: an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977; McGlynn & Kelly, 2017). When students are involved in their own goal setting, they build a better foundation in their capacity to execute certain behaviors to produce specific outcomes. I.E. when the students are involved in their own goal setting, they try harder to make the goal happen.



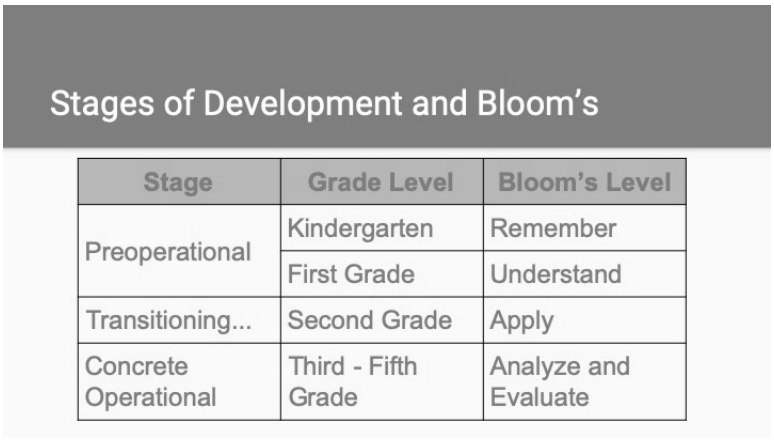
Note to the Trainer: 10:17 – 10:19
Review the information above with the teachers. Van Geel, Keuning, Visscher, and Fox (2016) noted in their study that when decisions were made using data and goal setting, students in low SES demographics grew a month more than their high SES peers. The high SES students still grew, and the process was still extremely valuable for them. But when you are at a campus where you find it difficult to close gaps, these practices will help you do it.



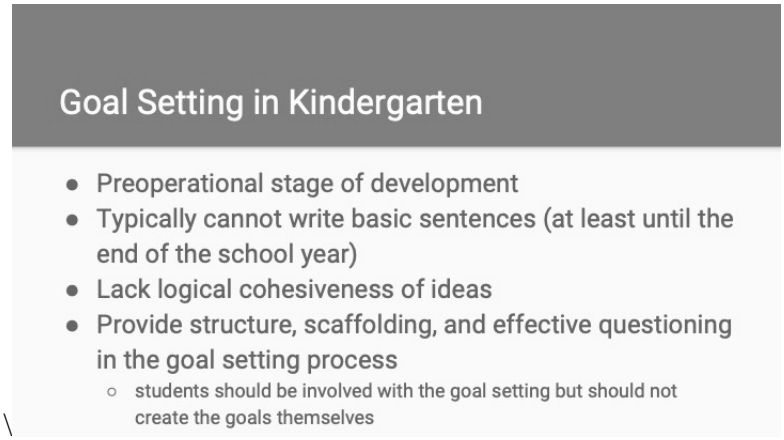
Note to the Trainer: 10:19 – 10:21
These are fair questions for the audience to ask. When it comes to goal setting, the younger the student, the less concrete goal setting is. A student's perception of time, consequences, etc. are not as developed as older students. Similarly, students with exceptional needs sometimes have difficulties with the process of goal setting at deeper levels.



Note to the Trainer: 10:21 – 10:23
Most of us are familiar with Bloom's taxonomy. It's a foundational piece of teacher preparation for at least the last two decades. However, Bloom's can be applied to Piaget. Structuring the learning goal tasks (or goal setting) according to the six levels of Bloom's allows the goals that are set to have meaning according to the cognitive abilities of different age groups (Abawi, 2015; Ugur, Constantinescu, & Stevens, 2015). But what does that look like? Tell the teachers, "Get ready to write this down."
Image from https://tips.uark.edu/using-blooms-taxonomy/

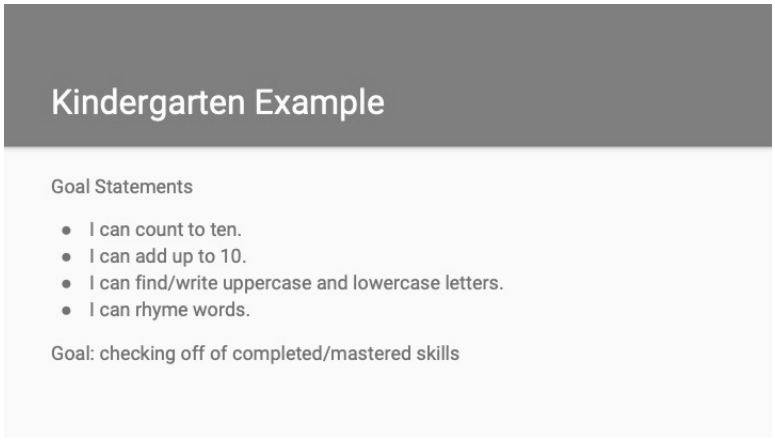


Note to the Trainer: 10:23 – 10:30
Allow teachers time to observe this table. Explain each of the stages and how they connect to each grade level.

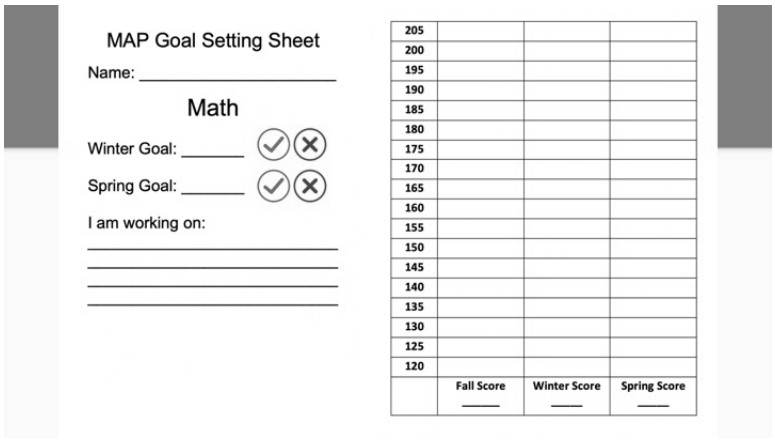


Note to the Trainer: 10:30 – 10:35
Preoperational stage of development: typically cannot write basic sentences (at least until the end of the school year), and lack logical cohesiveness of ideas (Abawi, 2015; Ugur, Constantinescu, & Stevens, 2015). using Ugur, Constantinescu, and Steven's (2015) application of Bloom's Taxonomy to the cognitive ability of the students at the Kindergarten level, the goals should be at the knowledge and possibly understanding level. This implies that the students should be involved with the goal setting but should not create the goals themselves. Further, tracking the attainment of the goals should not

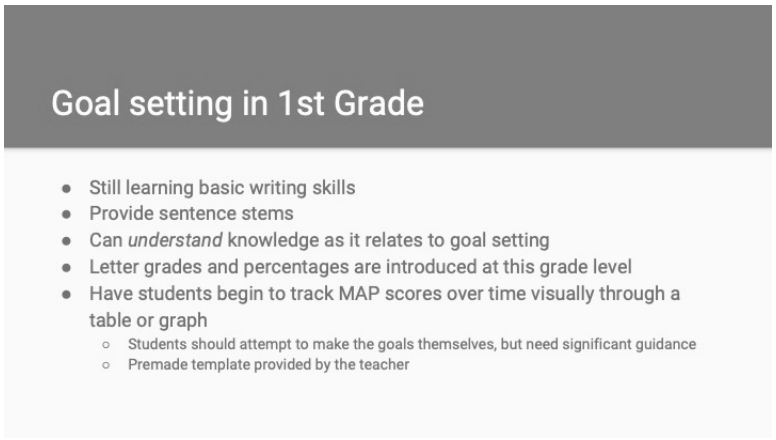
require the students to apply or analyze information and data, but rather the teacher should use the data to help the students reflect on simple statements that can be used to determine if a goal simply has or has not yet been achieved.



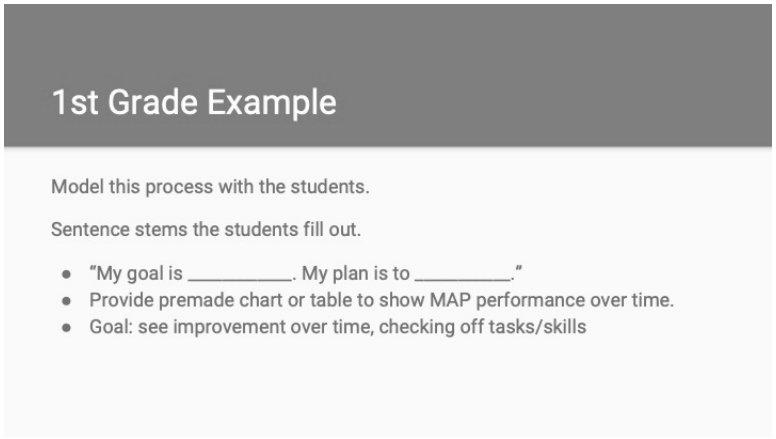
Note to the Trainer: 10:35 – 10:40
Tracking the attainment of the goals should not require the students to apply or analyze information and data, but rather the teacher should use the data to help the students reflect on simple statements that can be used to determine if a goal simply has or has not yet been achieved.
Have the students write their name next to each statement when they know they've mastered the skill. Help them keep track of the statements over time so they can visually see what they've learned and how much there is to learn left. This can be broken down by unit of study and collectively put together throughout the year to show the students a body of goals that have been met.



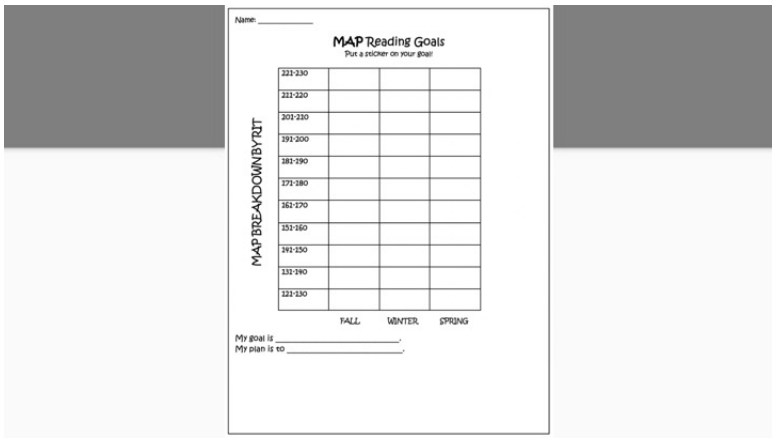
Note to the Trainer: 10:40 – 10:45
This is an example of a goal setting page that kindergarten teachers could use while working with a student. Students can see their progress. As each MAP assessment is given, the RIT scores can be graphed by the teacher. While the graphing process won't make much sense to a Kindergarten student, the visual allows the student to see progress (Are they going up? Are they staying the same? Are they going down?) and have a basic conversation about that. On the back of the page could be "I can" statements that connect to the standards similar to the previous examples. "I can count to 20. I can add numbers up to 10." These statements can be checked off as the student masters them, giving the student a visual showing their overall progress and goal attainment. While the goals have been preset, the goal attainment part is critically important for the students to see.



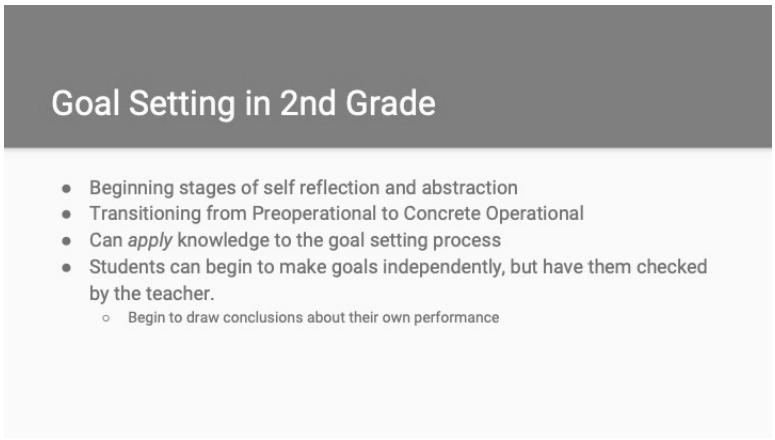
Note to the Trainer: 10:45 – 10:50
A first grader works similarly to a Kindergarten student when it comes to goal setting, however they can begin to move beyond the remember stage and into the understand/comprehend stage. When working with 1st graders you can ask more specific questions of the students, and even get them to create their bar graphs with supervision. Student's writing skills may have grown enough to allow students to fill in blank spots on a sentence stem to help them formulate a goal.



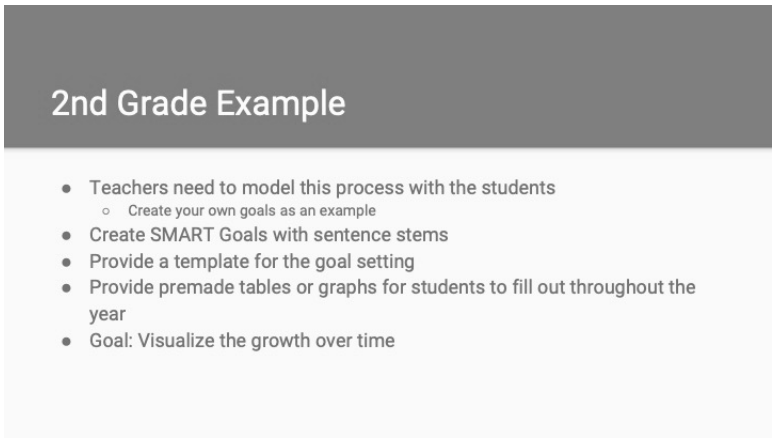
Note to the Trainer: 10:50 – 10:55
This process should be modeled by the teacher. Students can fill these out independently through some whole group modeling. Then conference with the teacher to refine as needed. **Use the "I Can statements" from lead4ward to help provide some content connections.** The presenter should model how a teach could model filling in these two statements.



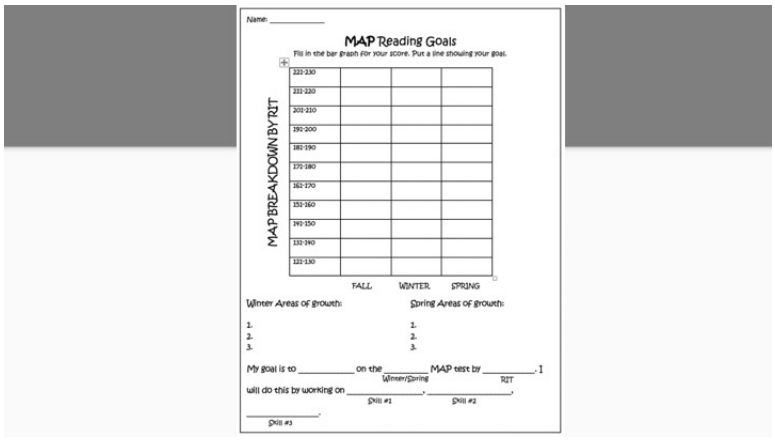
Note to the Trainer: 10:55 – 11:00
You may notice that the example for 1st grade may appear a little simpler than the Kinder. Who is doing the filling out for the 1st grade example versus the kindergarten example? It would also be a good idea to put I can statements on the back for students to check off, similar to the Kinder example.



Note to the Trainer: 11:00 – 11:05
Between Preoperational and Concrete Operational: students at this level allow for them to begin self-reflecting in ways that are at the beginning states of abstraction and less foundational/concrete (Aljojo et al., 2018). These students should be able to begin applying and analyzing information as it relates to goal setting (Ugur, Constantinescu, & Steven, 2015)

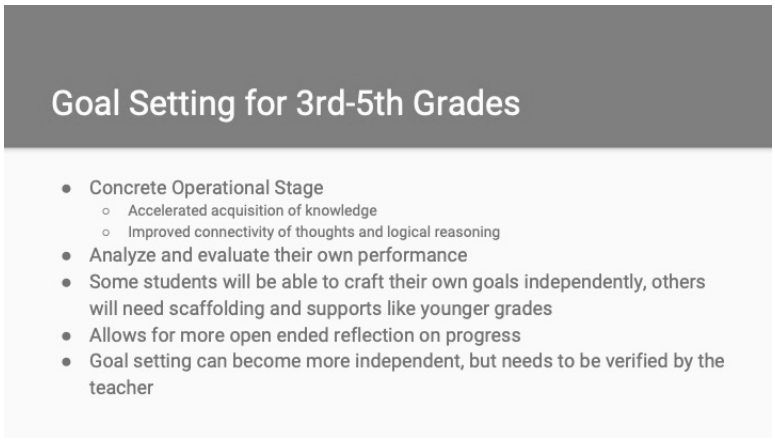


Note to the Trainer: 11:05 – 11:10
Transitioning into 2nd grade, the checklist style of skills can begin to transition out and instead, create a short list of things to work on that can be stamped or checked as growth in each area is achieved. Use the list of skills to help craft the smart goal. The students will need help identifying the skills they need to improve on, but writing the skills down helps them understand WHY they've been placed into their intervention or enrichment groups.

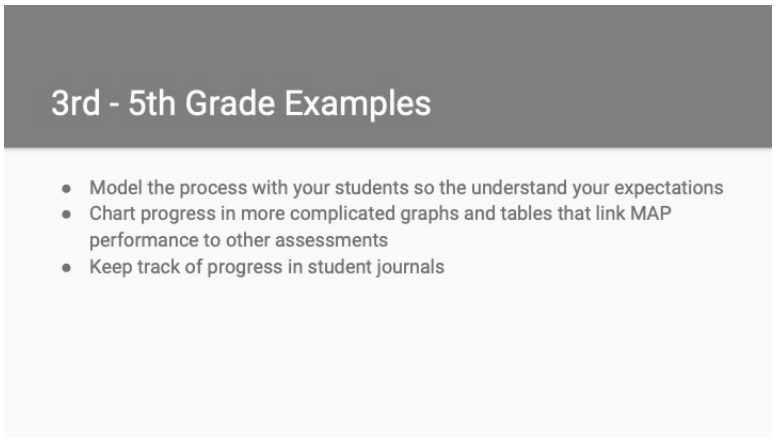


Note to the Trainer: 11:10 – 11:15
Notice that the 2nd grade example has specific areas under winter areas of growth and spring areas of growth. These are places to record content that the students have demonstrated a need for growth according to the MAP assessments. We'll be digging in a little later into how to access some of that information so that you can help the students identify the areas of growth. Identifying specific areas to grow in facilitates the student directed goal setting at these ages because the students have begun to transition into the apply and maybe even analyze stages of Bloom's. They can take what they know they

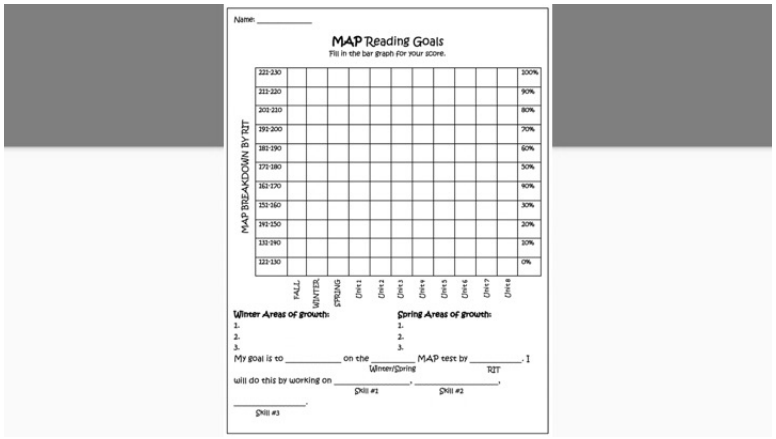
need to work on and apply that to their own progress throughout the coming weeks and months as content is covered and RtI happens in the classroom to fill gaps.



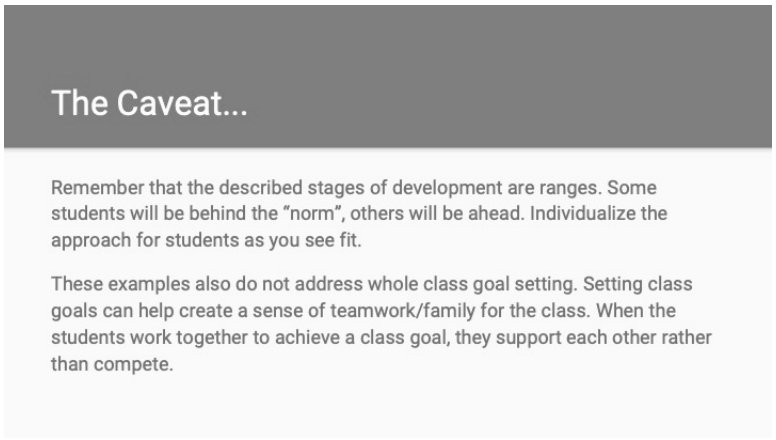
Note to the Trainer: 11:15 – 11:20
Concrete Operational: Children at this stage are typically able to make inferences and evaluate information for meaning (Aljojo et al., 2018). Third grade students and beyond should be able to apply analysis and basic evaluative thought processes to their own data and goals (Ugur, Constantinescu, & Steven, 2015).



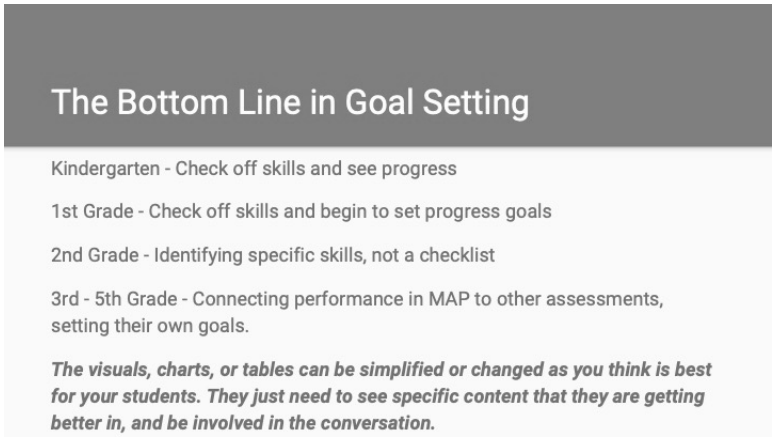
Note to the Trainer: 11:20 – 11:25
Review the slide information, then provide a model example for the process in 3rd through 5th grade.



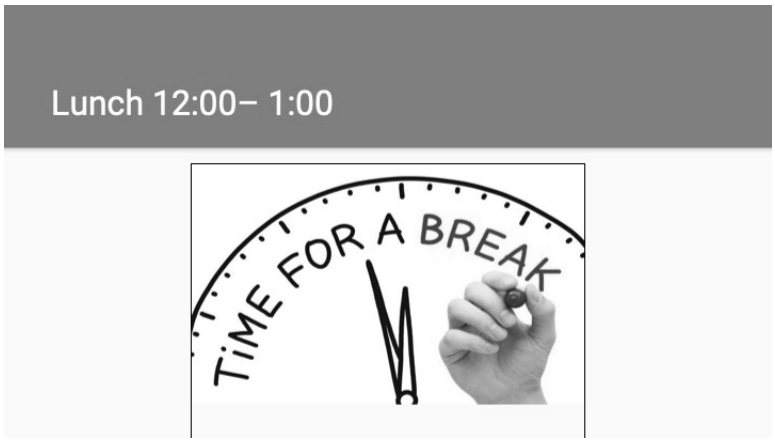
Note to the Trainer: 11:25 – 11:35
While there is only one SMART goal at the bottom, you can continue to craft goal statements. The skills can also be broken down and reidentified through each unit assessment or other formative assessment provided. The students begin to take ownership of tracking and visualizing their progress.
The presenter should model how this conversation may go with these students. Take the time to point out specific things to say and how to begin filling it out.



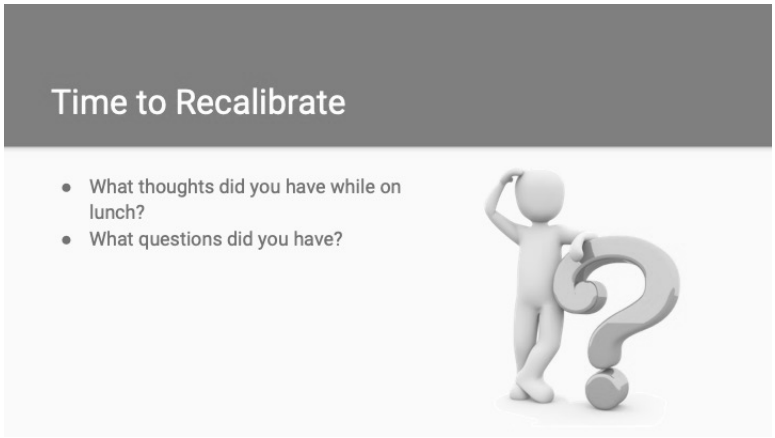
Note to the Trainer: 11:35 – 11:50
What might be some examples of class goals that could be set?
Pose this question to the audience and allow for discussion. Ask them to record their ideas and be prepared to share.



Note to the Trainer: 11:50 – 12:00
Before sending participants off to lunch, summarize the main points for goal setting processes with the information above. Answer any questions that the audience may have.

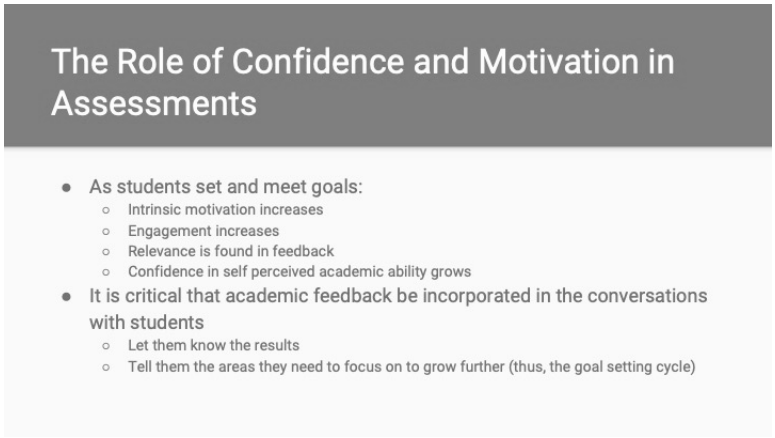


Note to the Trainer: 12:00-1:00



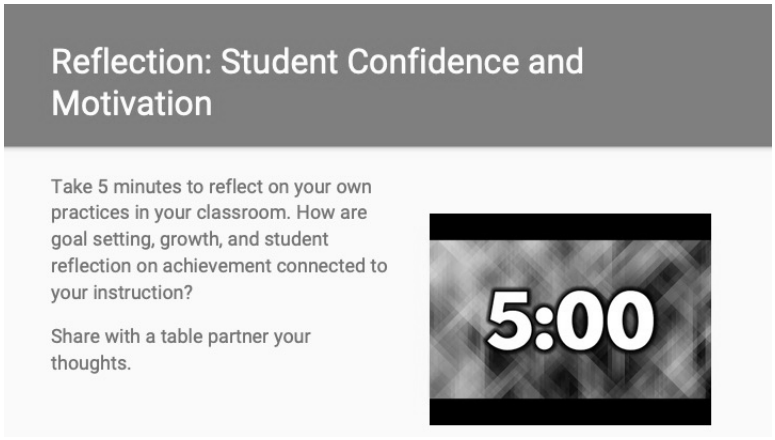
Note to the Trainer: 1:00 – 1:05
Take five minutes to allow participants to share thoughts that they'd had over lunch related to student goal setting, MAP, and formative assessment.

Note to the Trainer: 1:05 – 1:25
This is the third and final question from the mentimeter started earlier in the day. The question is "What things influence student confidence and motivation (think assessment)?"
The mentimeter will make a word cloud showing the most common responses as larger text. Point out the largest text compared to the smallest. Potential patterns: outside influences affecting performance, performance on an assessment being tied to motivation of the student in the moment, not much connection to how an assessment can be used to build student confidence and motivation.

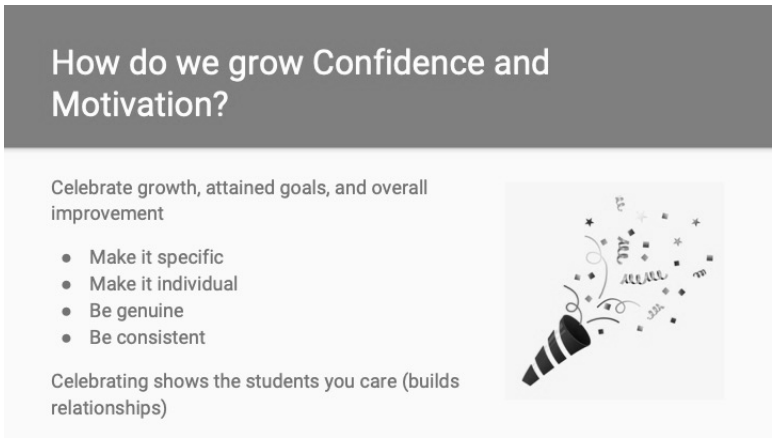


Note to the Trainer: 1:25 – 1:30
The concept Laud and Patel (2013) tackled when dealing with the role that confidence and motivation had with formative assessment was connected not to how motivated the students were to take the assessment (which is addressed), but by how the assessments generated student confidence and motivation. How often are students celebrated for achieving goals? How can the goal setting and attainment process, and taking assessments, be used to make students feel SUCCESSFUL rather than merely compliant?

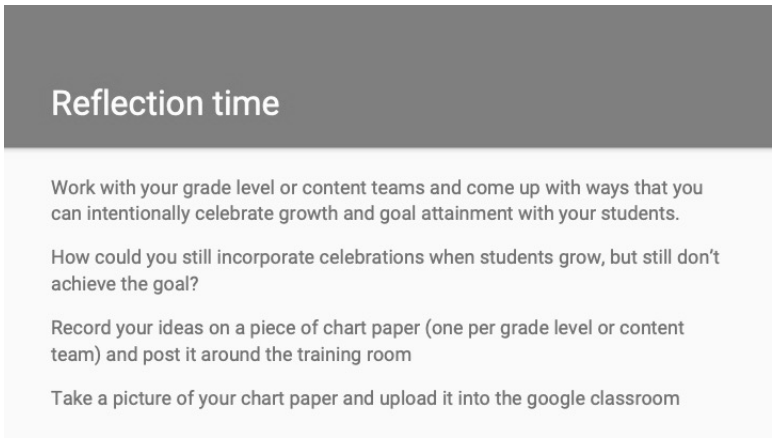
Note to the Trainer: 1:35 – 1:37
Review this slide and allow teachers to reflect on their own practices in their classroom about how these things are connected in their instruction. Go to the next slide for a timer.



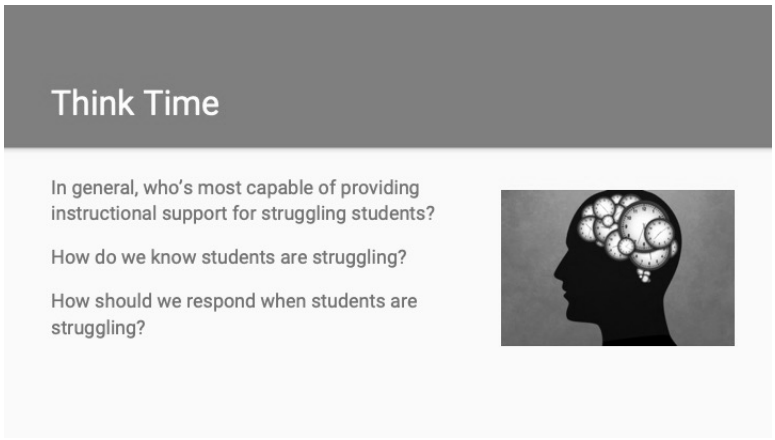
Note to the Trainer: 1:37 – 1:45
Allow the full 5 minutes for teachers to talk. Take a few moments to allow for whole group sharing after the timer is done. The point is to generate ideas, not to identify gaps in practice (Though those may come up. If they do, celebrate the identification and moving towards incorporating these things into their instruction.).



Note to the Trainer: 1:40 – 1:45
Research shows that when growth and goal attainment is celebrated, recognized in some way, the students embrace the effort and strive harder to attain those goals. It's a part of self-actualization and attention seeking behaviors, which are extremely developmentally appropriate at these ages and up into the mid 20s (McCoy, 2019).

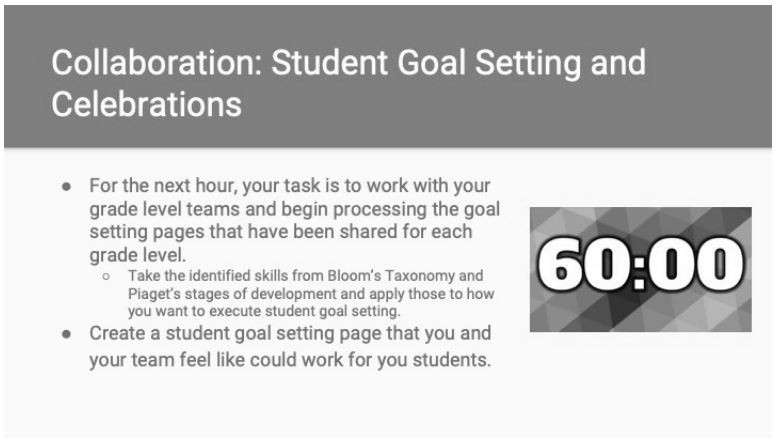


Note to the Trainer: 1:45 – 2:30
Allow for 30 minutes for the participants to work in groups to create their chart papers, take their pictures, and put them up in google classroom. Take 15 minutes to access the google classroom pictures and have individual groups share some of their practices. Allow for group discussion on common practices and ideas that they may like to take into their own classrooms.

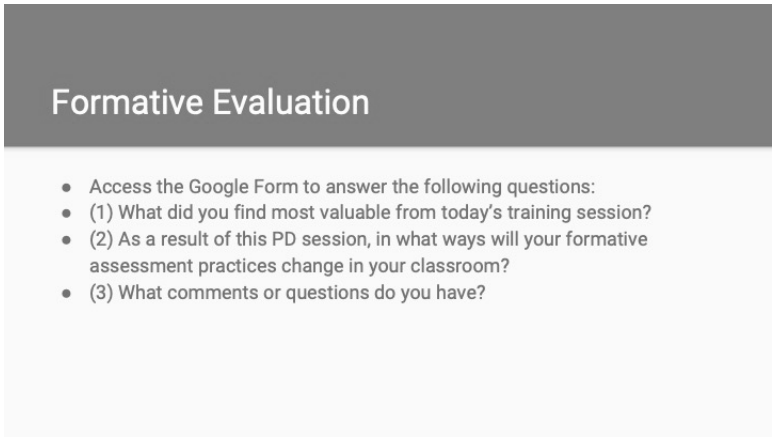


Note to the Trainer: 2:30 – 2:33
These questions are mostly posted to have the teachers identify that when it comes to intervention and assessment, they're the ones with the most power to influence students and provide support for those that are struggling. How do we know when students are struggling? How do we respond? Formative assessment practices can help us with those things.

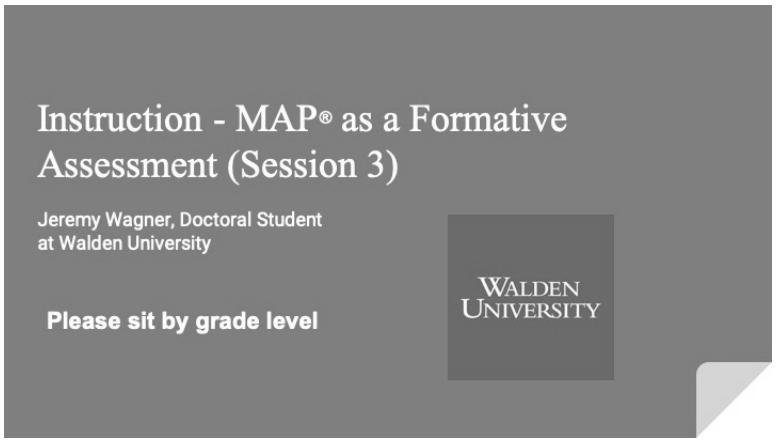
Note to the Trainer: 2:33 – 2:43



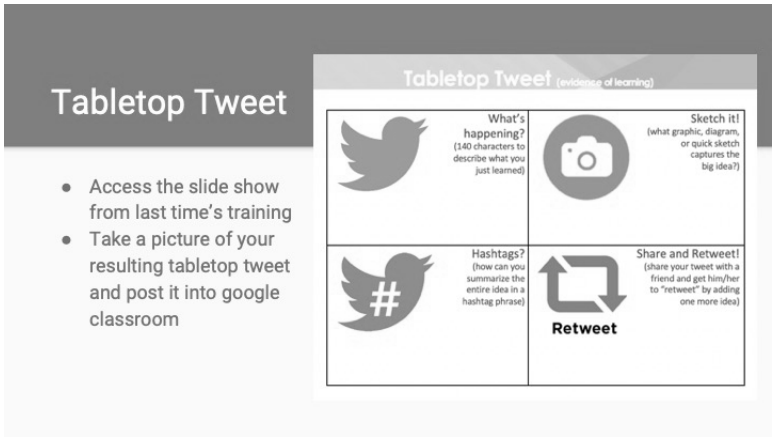
Note to the Trainer: 2:43 – 3:45
The presenter should work with groups as needed, providing support and answering questions. Ultimately, a group may want to use the presented examples, but the team should work to personalize them. These were very generic and need your team's personal flair. Re-create it, make it yours. Find the skills from the Lead4Ward "I can" statements and add them to the back of the goal setting pages.



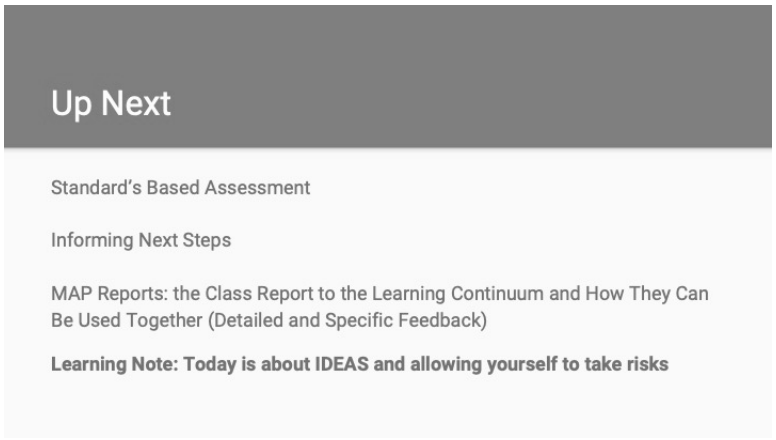
Note to the Trainer: 3:50 – 4:00
Use the last 10 minutes to ask teachers to fill out the session evaluation. The information gathered from the evaluation will be used to guide the follow up sessions.



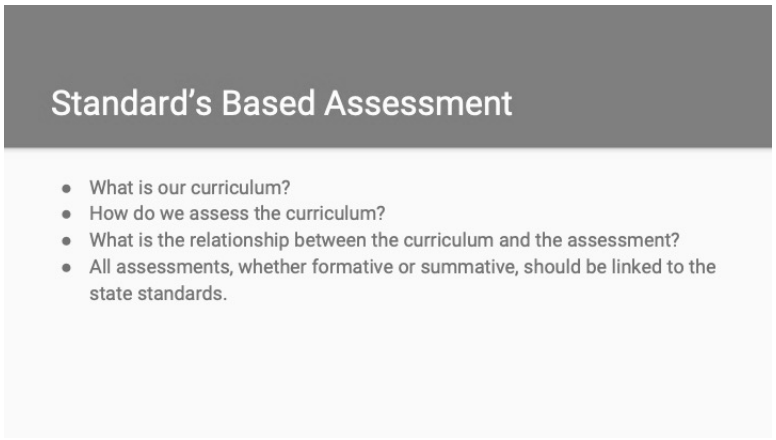
Note to the Trainer: 8:00 – 8:10
Reintroduce yourself and revisit the purpose of the study and this professional development. The purpose of this PD is to facilitate teacher learning so that teachers can create a foundational understanding in how the MAP assessments play a role in utilizing the critical components of formative assessment to guide instruction. Provide a time for any quick questions the participants may have.



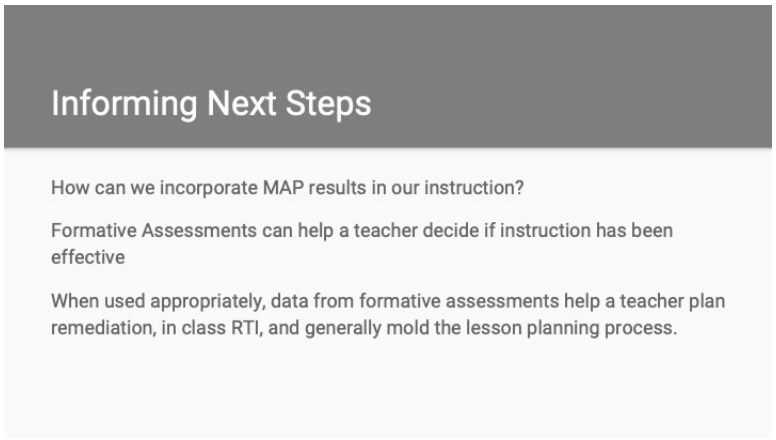
Note to the Trainer: 8:10 – 8:40
Post the slides from the last training into the google classroom so participants can access them for the intro activity. Have copies of the tabletop tweet page from Lead4Ward prepared. Provide an electronic copy through google classroom in case some participants would like to do it electronically. Allow for about 30 minutes for teachers to go through the previous training materials and identify their biggest take away from that training. Use the tabletop tweet strategy to come up with a 140 character or less summary, a sketch that exemplifies the learning, hashtags that they could use, and provides an opportunity for the teachers to share their tweet.



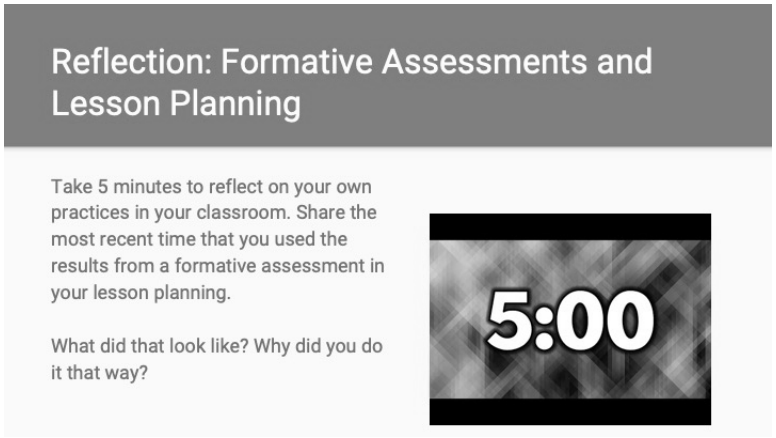
Note to the Trainer: 8:40 – 8:45
These are the concepts we're going to cover in our training time today.



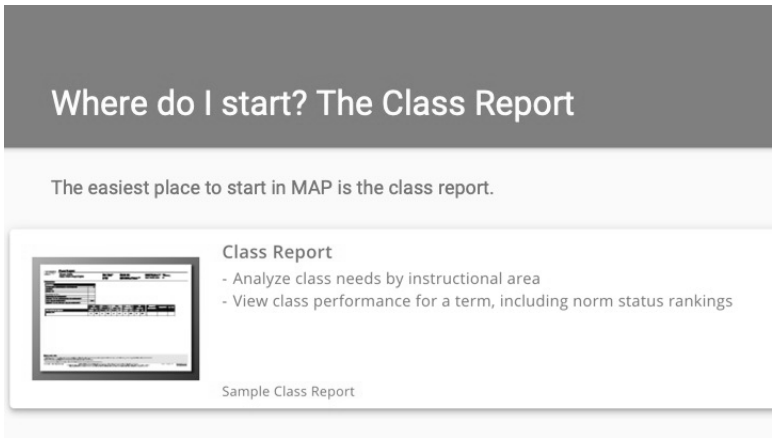
Note to the Trainer: 8:45 – 8:50
Go through these concepts one bullet at a time with the group. Whole group responses are fine. The training does not need to go in depth on this concept as the data from the study showed that the campus agreed on the importance of the TEKS and assessments. The idea is in a curriculum, instruction, and assessment triangle, all three should be linked together. The TEKS are the curriculum as identified by the state of Texas. We assess the student's understanding of the curriculum with formative and summative assessments. As such, all assessments should be directly linked to the TEKS. If the assessment doesn't measure a student's understanding of the TEKS, it shouldn't be used in the classroom.



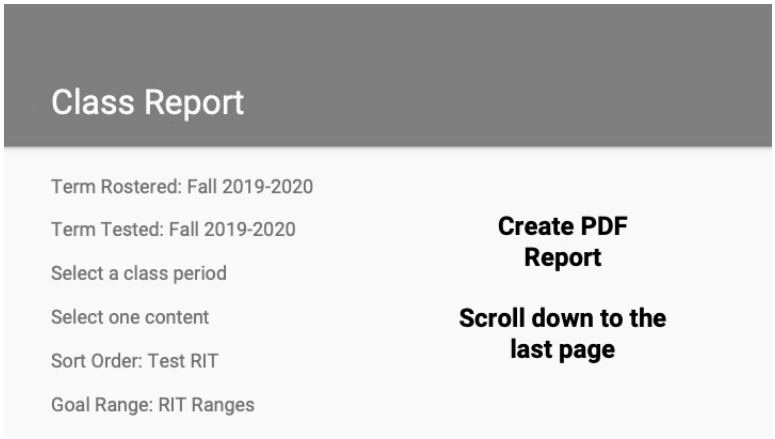
Note to the Trainer: 8:50 – 8:52
Review the concepts on the slide. Ask teachers to share with their table groups a time that they recently used a formative assessment to guide their own lesson plans. Go to the next slide for a timer.



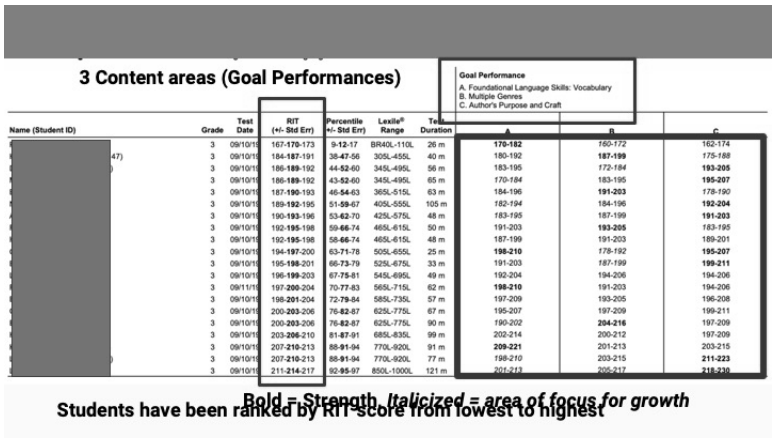
Note to the Trainer: 8:52 – 9:05
Allow the full 5 minutes for teachers to talk. Take a few moments to allow for whole group sharing after the timer is done. The point is to generate ideas, not to identify gaps in practice (Though those may come up. If they do, celebrate the identification and moving towards incorporating these things into their instruction.).



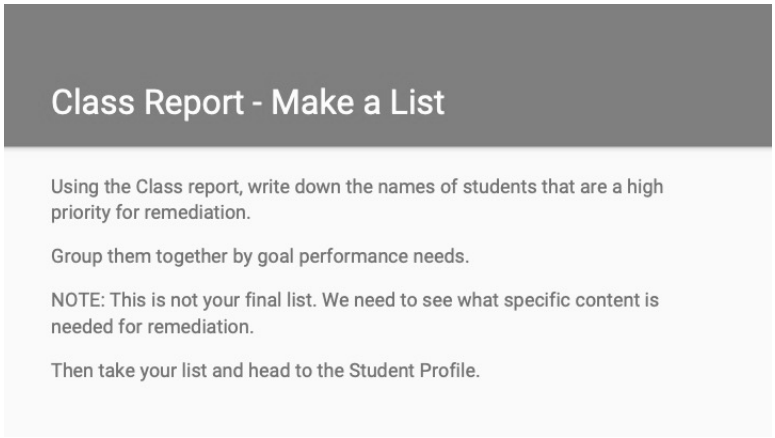
Note to the Trainer: 9:05 – 9:10
With MAP, it might be hard to know where to start with this. One of the easiest entry points is the Class Report. The class report is a quick and simple way to identify content areas of strength and weakness for individual students by class period, or all at once. Ask the group to go to the NWEA website and login using their credentials. Go to the Growth Reports page and access the Class Report that looks like the following. If needed, allow additional time for participants to use the "forgot password" function to get into their accounts.



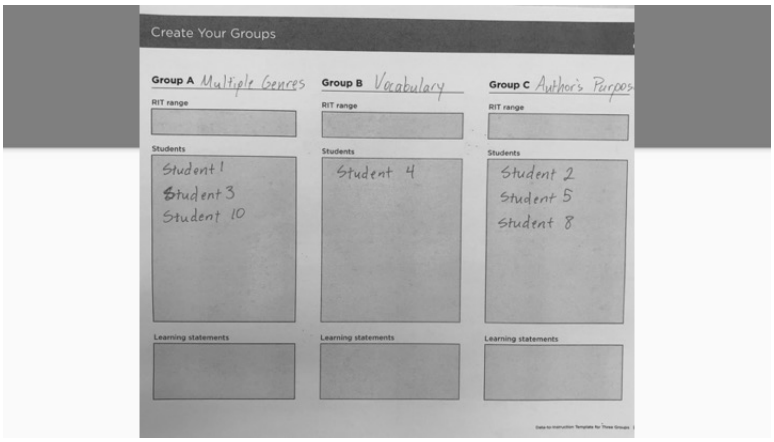
Note to the Trainer: 9:10 – 9:15
Instruct the participants to use the following settings when generating the Class Report.



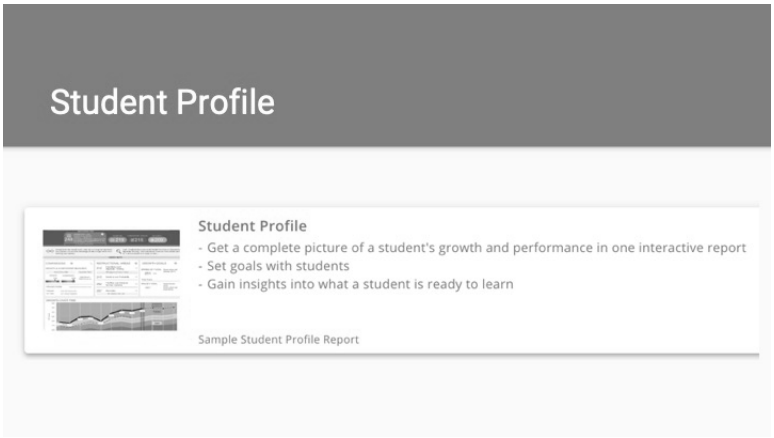
Note to the Trainer: 9:15 – 9:25
Review the 3 pieces identified in the slide above. The slide is set to transition from section to section boxed in red. Each section has important information for the teachers to identify about their specific students.



Note to the Trainer: 9:25 – 9:40
Provide about 10 minutes of time for teachers to go through one class on the class report to fill out a student data page (next slide).

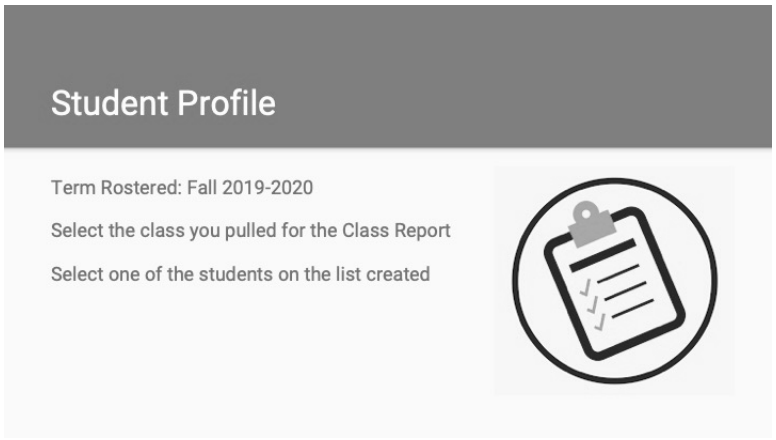


Note to the Trainer: 9:25 – 9:40
Have copies of this handout ready to share with the group so they can fill it out similarly to this example. Review this example with the teachers, perhaps going back and forth from this slide, to slide 125 where the data was used to pull student information. Once teachers are done, ask them to reflect on this page. What have they learned as a result of going through the class report and their students?

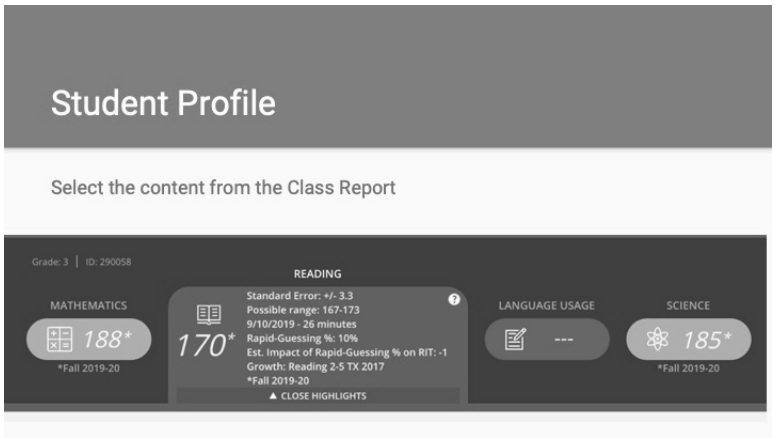


Note to the Trainer: 9:40 – 9:50
Ask participants to access the Student Profile.

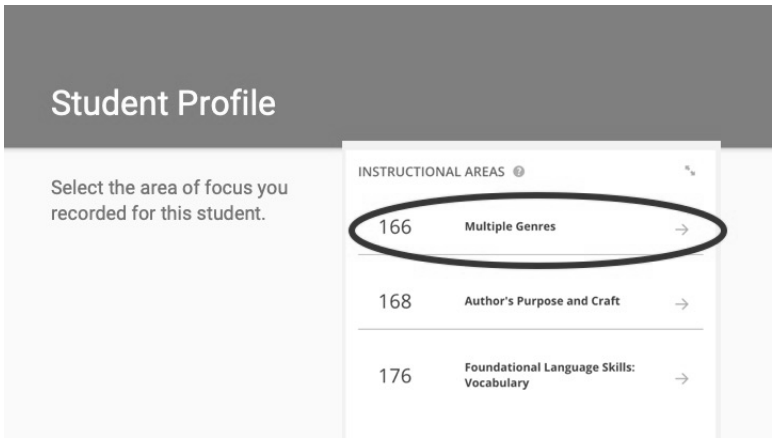
The student profile is a potential 2nd step to using MAP data to inform next steps and provide detailed and specific feedback to yourself for lesson planning (and to students if used in the goal setting processes we learned about last time).



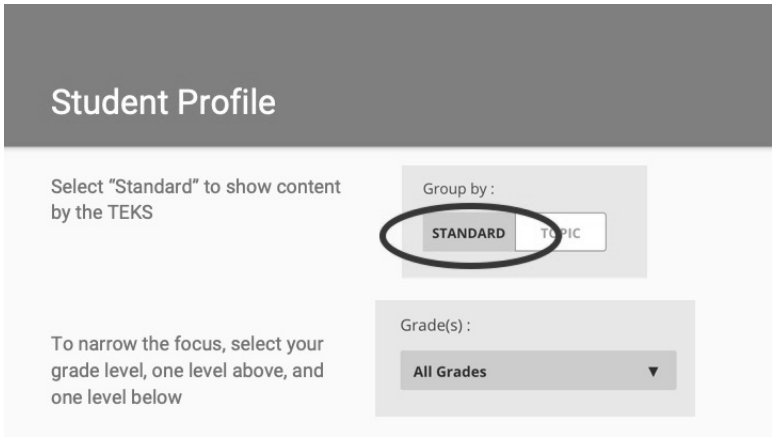
Note to the Trainer: 9:50 – 9:55
Instruct the participants to use the following settings when generating the Student Profile.



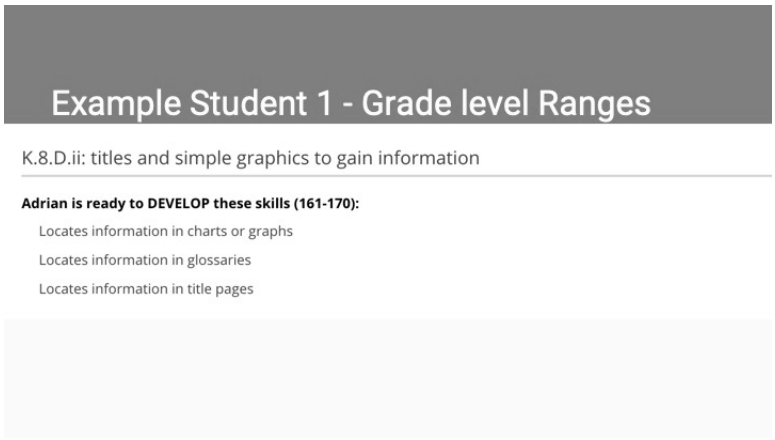
Note to the Trainer: 9:55 – 9:57
Take a small amount of time to point out some of the information next to the RIT Score. The standard error, rapid guessing calculation, and the impact of rapid guessing on the RIT score. Also note the amount of time taken to take the assessment.



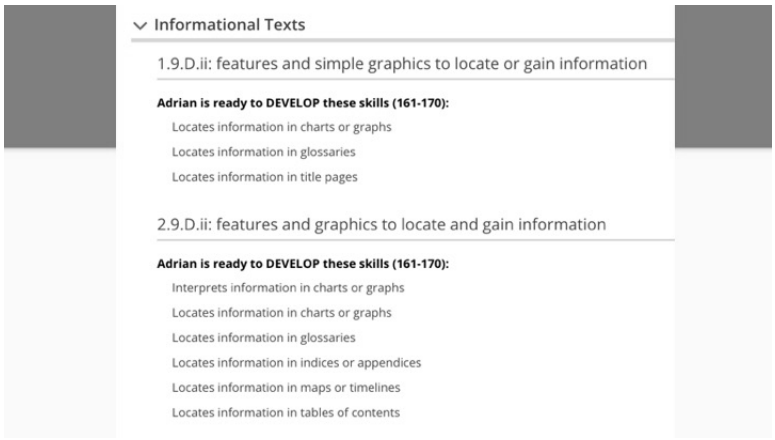
Note to the Trainer: 9:57 – 9:59
The Instructional Areas portion of the student profile shows you three to four content areas specific to your grade level and content. In this example, we can see that of the three areas shown in the report, Multiple Genres in reading has been identified as the area with the most potential for gaps. Click ”multiple genres” or whatever is the lowest area for the student you are looking into in the student profile.



Note to the Trainer: 9:59 – 10:01
Remember, we previously discussed the importance of the TEKS in the formative assessment process. Here, we have to make sure we are looking at the report with the TEKS as a filter for what we’re learning about the student. In the top left, click on “standard” so that the TEKS will show rather than general reading topics.



Note to the Trainer: 10:01 – 10:10
The next three slides should be shown one after the other and take about 10 minutes to review and discuss with the group about the implications on how this information applies to the student's learning. The presenter should take the time to go back and forth between these three slides as needed to point out what is being discussed. Identify the specific areas that this student is showing gaps using these examples.
I see a range under Informational Text for this student from Kinder to 5th grade. Does that mean this student is on the 5th grade level? NO! It means the student is ready to be introduced to or develop these topics. The student's level is most likely more representative of the LOWEST TEKS in the range, not the highest.



Note to the Trainer: 10:01 – 10:10
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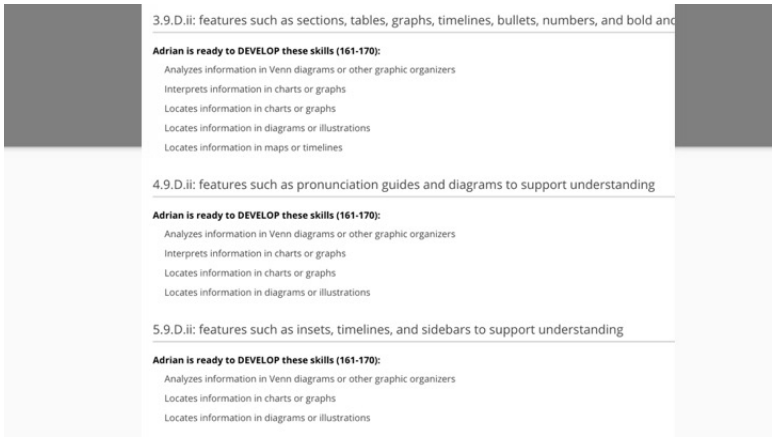

Note to the Trainer: 10:01 – 10:10
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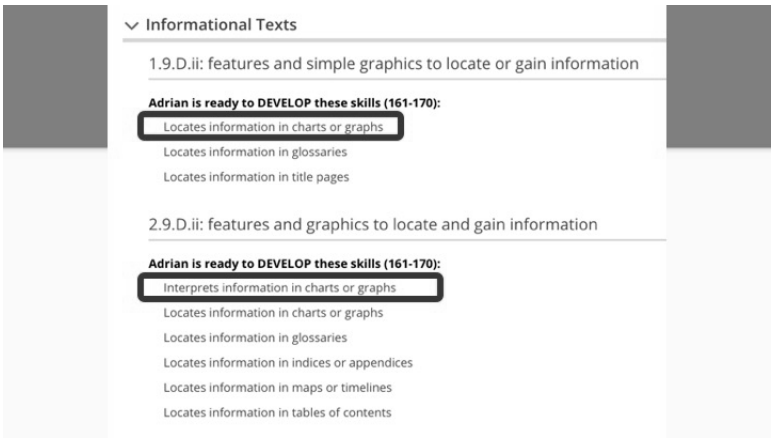
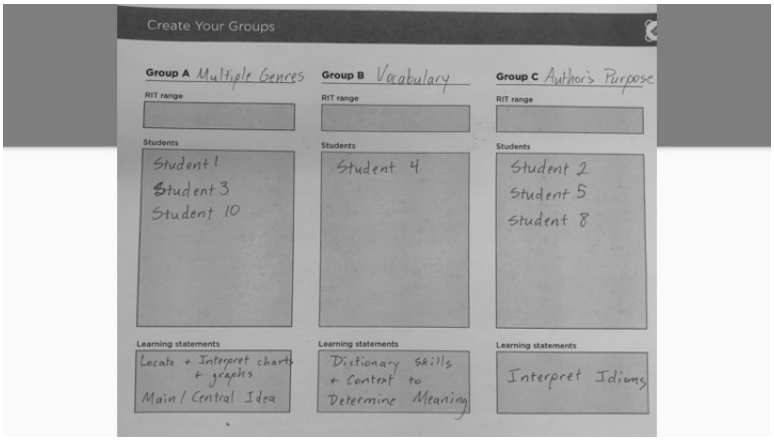
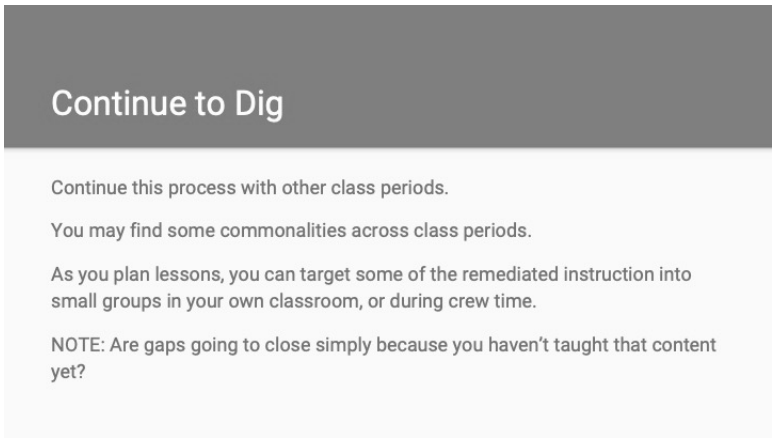


Note to the Trainer: 10:10 – 10:15
Talk about the verb difference in the descriptor. This student needs to begin with LOCATING information in charts and graphs. THEN they need to build skills in INTERPRETING that information.



Note to the Trainer: 10:15 – 10:45
Allow time for the teachers to access each student they added to the groups page we began filling out from the Class Report. Model this process before asking teachers to do it themselves. Notice that each student in each group has learning statements in common that can be worked in in a small group setting.



Note to the Trainer: 10:15 – 10:45
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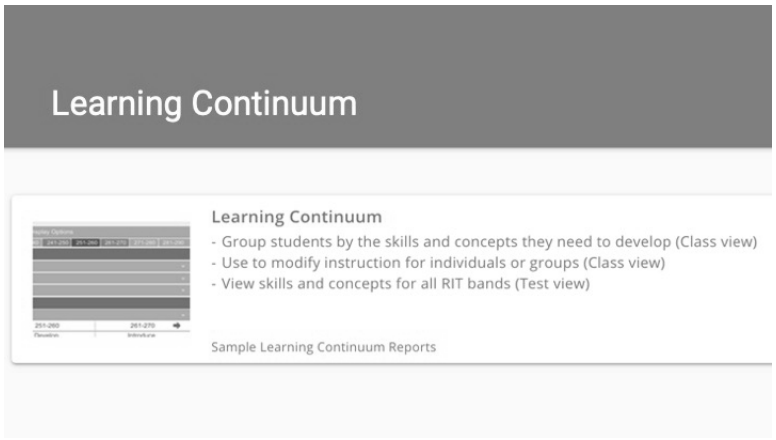
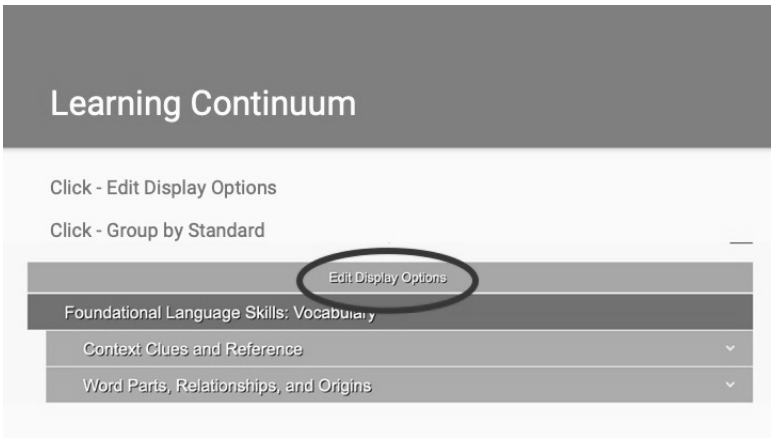
Note to the Trainer: 10:45 – 10:55

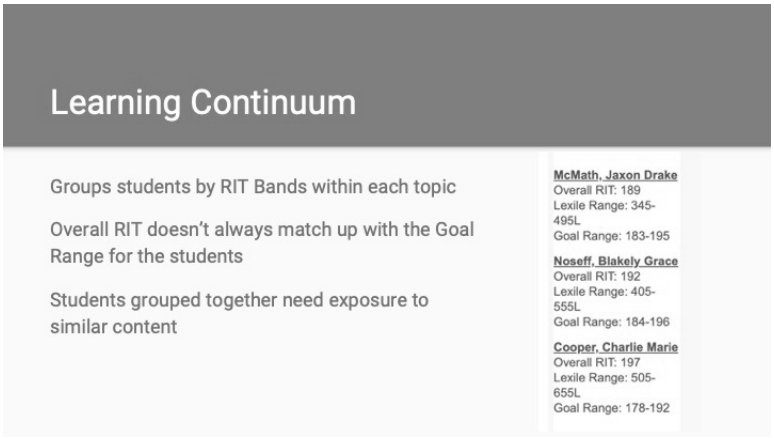


Note to the Trainer: 10:55 – 11:05
Have participants access the Learning Continuum report. The presenter may need to work with teachers in navigating the site.

Note to the Trainer: 11:05 – 11:10
Instruct the participants to use the following settings when generating the Student Profile.

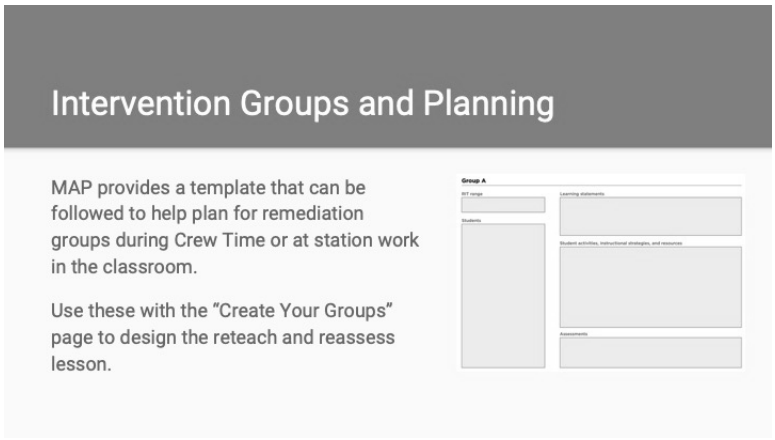


Note to the Trainer: 11:10 – 11:12
Remember, we previously discussed the importance of the TEKS in the formative assessment process. Here, we have to make sure we are looking at the report with the TEKS as a filter for what we're learning about the student. In the "edit display options" box, click on "by standard" so that the TEKS will show rather than general reading topics.

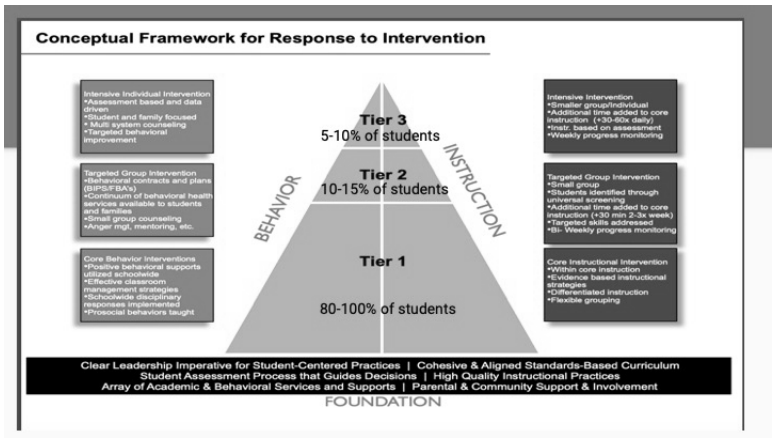


Note to the Trainer: 11:12 – 11:20
Review the example Learning Continuum and show how students are grouped to the right side of the report. The students are grouped not only by RIT band, but also by content. The presenter should run this report, exit the slide show, and show a very explicit example for the group. Scroll through a couple of content topics so that the teachers can see across several examples. Notice that the example shown on this slide has students with varied rit bands and lexile scores. Keep in mind that lexile scores (or Fountis and Panel reading levels) do not necessarily correlate to mastery of skills. Students with reasonably high lexiles can be grouped with students on the same skill with a much lower

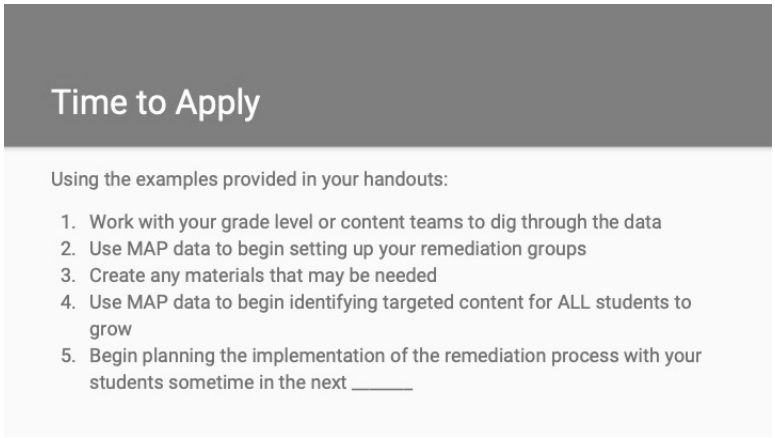
lexile range. It's about mastery of the concepts, not mass grouping according to one data point.



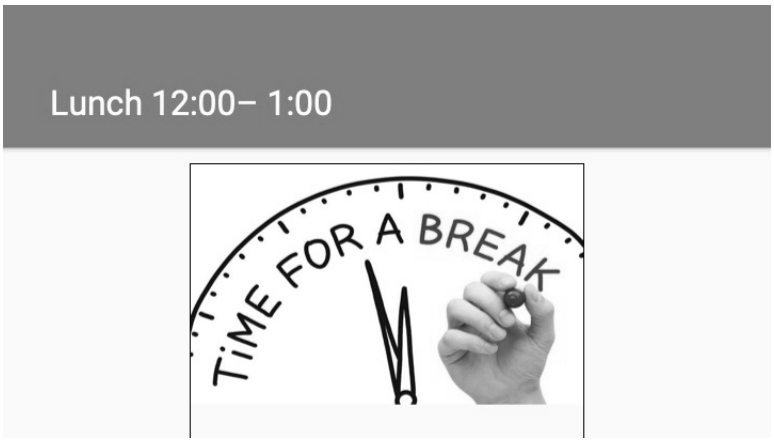
Note to the Trainer: 11:20 – 11:30
Review how the learning continuum report can be used as the next step with the previous groups page we were working on. Students are identified, content is identified, now we can use a different tool to plan a structured lesson to reteach and reassess the gaps in content. Refer to the next slide on the RTI pyramid to discuss where remediation should be happening.



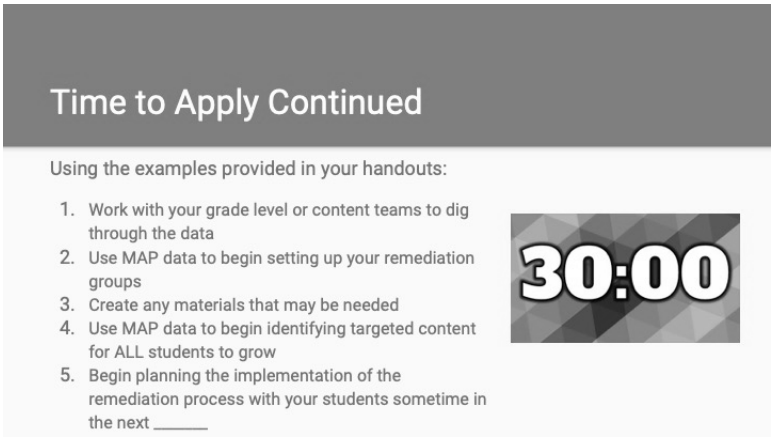
Note to the Trainer: 11:30 – 11:35
The participants should understand that the majority of RTI should be happening in the classroom with the teacher. Crew time is a great opportunity for remediation, but it is ultimately the responsibility of the teacher of the student, and not an interventionist, to provide the supports the students need to fill in the gaps. MAP data helps us identify those gaps, and then we can use that to create plans to help remediate students. All of this is a cycle of detailed and specific feedback to the teacher. If utilized properly with student directed goal setting and tracking, it can be a part of the cycle of detailed and specific feedback directly to the student as well.



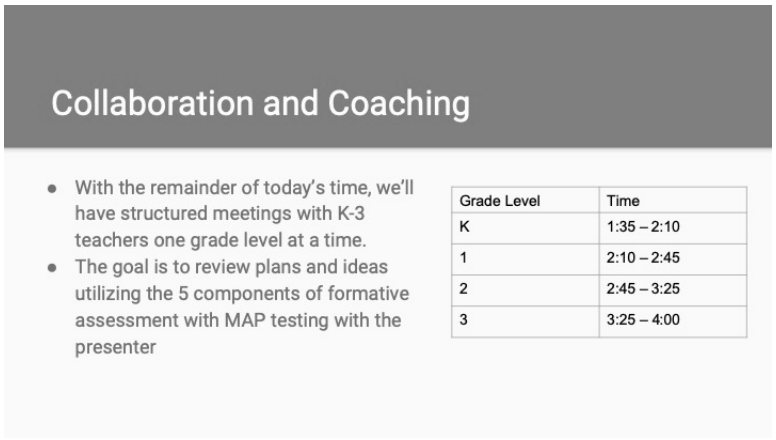
Note to the Trainer: 11:35 – 12:00
Participants will begin this process before lunch, break for lunch, and come back ready to continue.



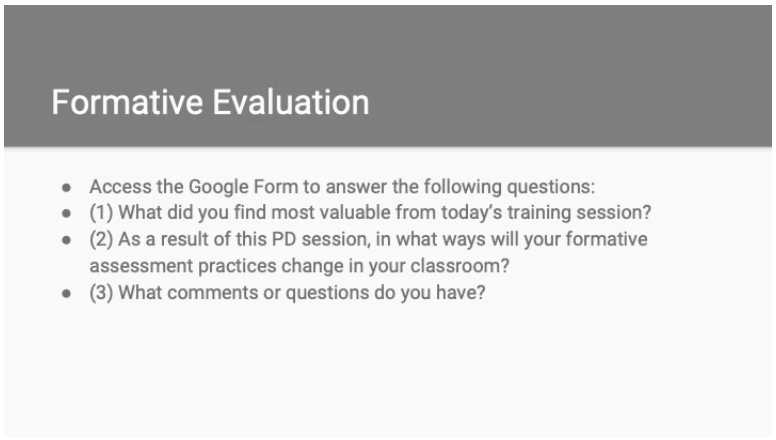
Note to the Trainer: 12:00-1:00



Note to the Trainer: 1:00 – 1:30
Participants will begin this process before lunch, break for lunch, and come back ready to continue.



Note to the Trainer: 1:35 – 4:00
The presenter should reserve a conference room where the grade level teams can go individually to meet and confer. This plan can be flexible so that the grade level that feels the most prepared to meet can go first. While meeting, other grade levels should be collaborating and fine tuning their remediation groups, goal setting plan with students, accessing and using data in their lesson plans, and creating spiral/remediation lessons for their students.



Note to the Trainer: 4:00 – 4:10
Use the last 10 minutes to ask teachers to fill out the session evaluation. The information gathered from the evaluation will be used to assess the overall success of the professional development combined with observation data from the campus administrators over time. Information gathered will also be used to fine tune these professional development sessions to prepare it for potential presentations at other campus sites.

Appendix B: Guiding Interview Questions for Teachers

Good morning! Please take a seat. Today you've agreed to participate in my study to investigate the ways in which teachers and administrators are using the Measures of Academic Progress (MAP) assessments to inform the creation of local professional development and to change instruction at your campus. Basically, that means that since the district has decided to start using MAP, I'm trying to see how the formative assessment of student data from MAP is changing instruction and campus professional development. Please remember that your participation will have absolutely no impact on your employment status with the district, the answers you give will be completely confidential, and any information gathered from this interview will be kept under lock and key or is password protected on my computer. Any data that makes it from this interview and into my research study will be disassociated from you in every possible way. This interview should take about 45 minutes. I have 13 pre-selected questions to ask, but I may ask follow up questions based on your responses. I will be recording this interview so that I can go back and create a transcript and analyze any information appropriately. Do you have any questions before we begin?

1. Are there any school-wide efforts to gather student data for analysis? Please describe or explain.
2. [If MAP is not mentioned in the previous responses] Tell me about MAP and how it is currently being used.
3. Tell me about ways that you use the formative assessment of student data to improve and promote student learning? Does this look the same when using MAP results?

4. Once you have gathered and analyzed data, do you use the data in accordance with instructional planning? Please provide an example.
5. What role, if any, does student confidence play in formative assessment and instruction?
6. How do you use MAP results for student goal setting?
7. Describe any methods of you've established in your classroom on providing students feedback on MAP assessments.
8. Tell me about the ways in which your formative assessments are standards-based or aligned.
9. In what ways to do students use MAP results and feedback to set goals for themselves on their academic growth in your classroom or on your campus? Please give an example.
10. What do you feel are the benefits and challenges of having students analyze their own data and set goals for themselves?
11. What do you believe are the strengths of using data to drive classroom instruction? Please explain.
12. What do you believe are roadblocks, if any, to using performance-based data, like MAP, to make instructional decisions?
13. Have you participated in any professional development focused on using data to make instructional decisions? If so, what was the development and was it beneficial?

Appendix C: Guiding Interview Questions for Administrators

Good morning! Please take a seat. Thank you for agreeing to participate in my study to investigate the ways in which teachers and administrators are using the Measures of Academic Progress (MAP) assessments to inform the creation of local professional development and to change instruction at your campus. Basically, that means that since the district has decided to start using MAP, I'm trying to see how the formative assessment of student data from MAP is changing instruction and campus professional development. Please remember that your participation will have absolutely no impact on your employment status with the district, the answers you give will be completely confidential, and any information gathered from this interview will be kept under lock and key or is password protected on my computer. Any data that makes it from this interview and into my research study will be disassociated from you in every possible way. This interview should take about 45 minutes. I have 11 pre-selected questions to ask, but I may ask follow up questions based on your responses. I will be recording this interview so that I can go back and create a transcript and analyze any information appropriately. Once the transcript is completed, you may choose to review the transcript to verify the data collected. Do you have any questions before we begin?

1. Are there any school-wide efforts to gather student data for analysis? Please describe or explain.
2. [If MAP is not mentioned in the previous responses] Tell me about MAP and how it is currently being used.

3. Tell me about ways that you use the formative assessment of student data to improve and promote student learning? Does this look the same when using MAP results?
4. In what ways to do teachers use MAP results and feedback to set goals for themselves on the academic growth of the students in their classroom or on your campus? Please give an example.
5. What do you believe are the strengths of using data to drive classroom instruction? Please explain.
6. Does the school set clearly defined goals to guide instruction and promote student achievement? How does your school determine those goals?
7. Have you created any professional development focused on using data to make instructional decisions? If so, what was the development and was it beneficial for your teachers?
8. How do you use the formative assessment of student data, such as MAP, to design campus professional development for your teachers?
9. How do the teachers use the development created by you and the rest of the administration team to change instruction in the classroom?
10. What structures are in place to provide feedback to teachers on the utilization of local professional development goals?
11. What do you believe are roadblocks, if any, to using performance-based data, like MAP, to make professional development decisions?

Appendix D: Observation Protocol

Data Use Observation	Researcher's Notes/Comments
1. Which meeting was observed? 2. What was the purpose of the meeting? 3. Was there a formal or informal agenda? 4. Was data discussed? If yes, what kind of data was discussed? 5.In terms of data, what was discussed? 6. Were there any decisions regarding instruction made based on the data? If so, what were the decisions and how were they made? 7. How were professional development decisions made based on instruction or the formative assessment of student data? 8. Was the data used previously analyzed or was the data analyzed during the meeting? 9. Were any short or long-term goals for classroom practice determined based on data? If so, what were the goals and why? 10. Were current instructional practices discussed based on data? If yes, how was instruction changed or influenced? 11. Were professional development goals discussed or created? If yes, what is the intended focus of the development?	

Appendix E: Data Trail

Table E1

Extended Examples of A Priori Organized Responses

A priori code	Description from framework	Example response that adhered	Example response that did not adhere
Student directed goal setting	The practice of student directed goal setting involves the student in setting the targets for achievement with the student involved as part of the goal setting process, monitoring progress towards those goals, and adjusting instruction on an individual basis to facilitate students meeting those goals.	**Teacher G:** So I asked them to tell me what they felt they were really, really good at in math. I broke it down more in their language. And what do you what is difficult for you? And I had them name 1 to 3 things, you know, what's hard? What's easy for you? I asked them questions about, "What what do you want to do more of in class? What would you like to see me do more of? What do you enjoy? And do you have any ideas?" After I asked all those questions, we looked at their MAPs and talked about their MAP score, and I showed them their strength, you know what, it's considered a strength and we looked at, "Is it the same as what you said?" Or is it a weakness and then, and I didn't use the term weakness because I didn't want them to take it as a negative, but something we could work on is what I said. Something we can work on. And so then we set the actual goal for it and looked at the score that we needed to achieve and what we could do to work on it	**Teacher C:** I don't. I mean honestly, I haven't ever done it. Something I'm wanting to do. I wanted to try to do that more this year. I've used MAP mainly just for me. I don't know. I mean, I just never I mean, I hadn't thought about it. And maybe part of is like they're second grade. They won't really get it, might be part of my thinking. They won't understand and not that they're going to understand all of it. But they will like, this is what you did. I want you to try to get to this number or whatever, or improve it. I don't know that they'll get that because there's such a span between the tests so part of me is like... Yeah, I just don't know if seven year olds are gonna understand that this is what I got. Oh, I need to try to get better next time.
		Teacher F: And then we can, tell them that the next time this this is what we think that they are capable of getting, or asked them what did they think they're capable of getting?	**Teacher B:** Part of our goal setting is going to be kind of based on some of the MAPs from last year, we kind of looked and saw and I know kind of

And I guess going back to the intrinsic motivation, where would they like to see their scores? Do they want to be the same? Or do they want to show growth? And if so, how much growth and we try to ensure that it's, it's a reasonable thing, we don't want them to think that they read about space, and now that can be an astronaut tomorrow, we want realistic goals of like stepping stones and, and kind of making it more like, it's, it's their decision.

And then it becomes almost like, they, they have said it, it's a commitment to them. And now they almost have this mindset of, I have to do whatever it takes to get to that next MAP scores to meet my goal, and then on the actual next testing day, then I think they're going to perform better because they're going to be thinking this is my goal and this is where I want to get.

we kind of do it one on one. And it's more of showing this is their strength. So we want to see this number get a little bit higher, this is your weakness, we need to work on this and, and definitely showing them the the bar graph of their results where they were before or where they are in a specific category.

Because I think them seen that bar graph and then graphing where they hope to be next time and the level they hope to reach next time. And then when we actually that round of MAPs, then we showed them, they can say, "Yes, I met my goal," or "no, I'm not quite I needed I'm, this is my next comparing apples to oranges, but instruction's the same.

I don't know if I've really had the students, even the students set their own goals. Okay. I don't know if I've really done a lot of that individually.

I just think maybe, with those older kids they knew that the STAAR test was impactful, and I don't feel my my younger kids feel like that MAPs is an impactful thing, that class work is an impactful thing, turning things in for a grade is impactful, they don't understand grades yet.

Okay, for instance, I have a sheet over behind my table that has guided reading levels for the end of the first nine weeks. And I went through and I was like, these friends need to be at this level by the end of the nine weeks, and these need to be here. And these need to be here.

Yes, it was like this group needs to get here. And they need to get here. And so that was my goal for that first nine weeks for them. In reading, especially. Math is spiraled. So I feel like if they don't get it that first round, they'll they'll pick it up in the second, you know?

Um, you know, some of the kids I think, you know, if we do set goals, and they don't reach them, some of the personalities, you know, just because of their immaturity, it might, you know, not bring the result that I would want in a bad way. And some of the others, I think, you know, it could really help him, it's

goal." So definitely using the graph visual to show them where they are. And then it also helps them pinpoint where they want to be, I hope where they hope to see their bar go up.	always something that I need to do is goal setting with my students.
Well, last year, they had us as soon as the MAPs test was that we administered was done, that window was done, we pulled up the scores, and they wanted us within the next few days, to be able to meet with each kid, show them their growth, showed them their scores, and set those goals right away. So that what how they did, how they performed was, you know, that was shown to them, they got immediate feedback, and then they got to plan and set a goal for the next time.	
where at the end of the testing window, we had the next week to make sure that every kid had made a goal setting plan.	
Well, I think there's things that, you know, for some that are a little bit apathetic, they don't care to grow, or they don't... they have a hard time seeing, you know, in the future, or seeing, you know, the results of future results, I guess. We've got some kids that are in third grade that are a little immature to be able to set realistic goals. You know, it's the kid that says, "No, I want to be an NFL football player when I grew up," okay, and what else do you want to do, that's more likely not going to happen. Um, but so anyway, I think that that's some something you have to consider is we've got some kids that they're not going to	

		have a realistic goal, because they're a little immature, that they're going to set a goal of, you know, where it's, it's too high of a goal, and too unrealistic. And for some kids, you know, being held accountable. This was your goal that you created for yourself, and almost kind of like showing, I guess, you know, we're gonna hold them accountable, but the responsibility is within them, and not us.	
Leveraging results for student confidence and motivation	The practice of leveraging results for student confidence and motivation involves utilizing student performance from formative assessments to improve student self-perception. This component and student directed goal setting pair together support each other, allowing students to track and monitor growth while improving confidence and motivation to engage with assessments and content.	**Teacher F:** Well, it could, I mean, I think if they're, if they're confident, they're going to feel assertive, and they're going to feel, I think they're going to perform better if they're confident, and they're going to perform with a higher level of achievement. And if they are not confident, then it could go two ways. They're going to panic and stress until they shut down, or they're gonna blow through the test. And we're not going to get any kind of good criterion feedback on their abilities, because they blew it off, or they panicked and shut down. It's not like a trick or gotcha kind of thing, then I think they're going to perform better, and they're going to feel confident, because they're gonna, they're going to feel like they're achieving something that there's a, there's a, almost like a self-achievement, and it's connected to their own self. And this is intrinsic reward. Their confidence promotes their own intrinsic reward and motivation. And I fell like	**Teacher C:** Yeah, I mean, I just I was, I had this one particular student last year, he just would go in there. And no matter how much I would get the class excited about it, or try to get them to realize this is a big deal. He would go in and be done in like 10 minutes with all the questions. And of course, he... his scores for terrible, but he's very capable of reading. Now, you may have been a wasn't like the top reader. But his reading skills were fine, his comprehension skills were fine, and he was very capable, but then you get on the computer or iPad and just... didn't care. So during testing, I would watch him and also tried to encourage him to take his time and and do his best. But then... Yeah, yes. And so by the time they've got whether you're working by themselves, they should be very confident and how to do it, because we've had lots of practice lots of re teaching lots of let's look at it this way, and try that try to another way, lots of that is going on through that process.

we're gonna, they're gonna perform at their best, and we're not gonna have skewed data.

And then it becomes almost like, they, they have said it, it's a commitment to them. And now they almost have this mindset of, I have to do whatever it takes to get to that next MAP scores to meet my goal, and then on the actual next testing day, then I think they're going to perform better because they're going to be thinking this is my goal and this is where I want to get.

And then you've got kids that are like, "I don't care, I don't know," maybe a little bit, you know, like, they're not taking it seriously, or they're taking it seriously, they're just way fantasizing about it, I guess. And so that's something you have to there's some that are mature enough. And they can set realistic goals and get it and there's some that you almost kind of have to hold their hand through it. Set realistic goals. And some, you almost have to encourage, just have a goal and, and, and want to be more successful

Okay, so for what I've seen, is setting goals is the the little victory that you see in the kids eyes, when they see that they have met their goal or achieved way well, beyond their goal, there's, there's that little, you know, almost like a light of victory in their eyes that you see, like they're proud of themselves. And then that, I guess, kind of creates, and then again, the intrinsic reward. And then it they had this motivation of feeling

They're real apprehensive kind of. Um, probably I'm gonna jump in with those particular students and just help reassure them that yes, they're doing it yes they're doing it right.

Um, I mean, I always tell them before we do that, hey, this is a chance for us to show [redacted], how smart our class is because we're really smart. So we're going to do our best.

And some of them they freak out. Because it's I mean, it does it rocks their world. They're like, Oh, my goodness, it's a big long test.

Benefits... I think some kids, it'll motivate them to get better. I think, again, honestly, I just don't know that they're going to understand.

	confident and choosing to work harder. You know, it kind of it, I think it creates their own, you know, sense of responsibility in their efforts, and their work ethic. If they achieve it, then they know that was me, and my good work ethic. If they didn't, They need... they'll be able to, they're going to be able to say, "I created that goal. And I didn't reach my goal." And maybe it'll a light a fire under them to work harder and be a little bit more motivated. And for, you know, it's so that's, that's something that I could see. I could see it, motivate them to work harder either way, and definitely take ownership of responsibility, whether it's the goal they wanted, or the goal that they didn't quite meet, taking responsibility. I feel like STAAR and I know parents put more emphasis on STAAR because that's all they know. That's all they've heard. I think if they were to hear about MAPs, they might change their opinion about how their kid does on the STAAR and focus more on how their kid does on that it's and with MAP a little bit, there's less pressure, because it's not so much did they pass or fail? It's more of did they grow?	
	Teacher E: When I have students that do not have that confidence, you can see it, they will try not to even do the work, they will avoid it just because they're so afraid that they're going to do something wrong, or they're going to be told you're wrong.	**Teacher D:** So I've seen it with my own students. And with my own personal kids at home. I just, I even the youngest of our students suffer from testing anxiety, and you can see them getting nervous when I start passing the test out. And I

That is so wrong. And so they will try avoidance, they will try to just sit there till the last minute and then, you know, try to see if a friend will do it for them. Try to see if I will end up going and pulling them and going, “Okay, well, it’s this,” and giving them step by step they I mean, they will do anything to make sure that they’re not going to be told they’re wrong. Now a student who’s super confident, I mean, five minutes they’re already like, “I have this. Oh, well, can I add this because I know it goes with what I’m doing.” So they usually want to try to finish but they also every now and then will go, “What can I add to it? Because I know what I’m doing right. I want to add more to it. I want to show you what I can do.” So they’re aware of I’m going to show you I know how to do this.

They try they try I mean that there’s no other way to put it as they tried to make sure I can do this. I had one today we’re about to get ready to do district assessment and the first one I mean it’s a struggle. But today he particularly came up with like I finished my math review. Okay let’s go back and review let’s go back and check in and I have small groups at this time and I do have a helper and so he went and he was like, “well I miss three but [redacted] I wish just three last time, I missed six.” And I’m like “There you go.” Like so can we do it? Yes. Is it okay if it takes you 45 minutes out of the one hour? Yes let’s go back and fix it. And so it’s become a you know focus it’s little focus things like that like last time have seen a second grader over material that I knew the student had mastered and could do very well on a an assessment. But I think because of the format and the atmosphere of an assessment that students shut down and was in tears, and could not progress on the assessment until I was able to pull her into more of a one on one and kind of talk her through it at her own pace. But she needed a lot of support to get through an assessment on material that she had mastery of. And I’ve seen it with my own kids at home, they should do fine on the standard standardized tests. And my daughter in high school gets horrible testing anxiety, she’s an A honor roll kiddo. But she starts losing her hair, come start testing. I’ll be brushing her hair and just pulling out gobs of hair. And she gets sick at her stomach and headaches and can’t sleep at night. She does fine on the test. She always does fine. But yes, I think testing anxiety can overrule even material that they have mastered. And they know it can just cause them to shut down. So and I think the environment of the classroom and the approach of the teacher has everything in the world to do with all of that.

I guess I think it comes from... it comes from the environment and pressure from the teacher, and also pressure from home, and the peer pressure. Also, students start talking about, “Oh, and it’s the test in next year, we have to take the STAAR test. And my big brother had to take the STAAR test.” So the rumor mill kind of feeds into it, and

you missed 6 this time you miss 3. Next time, let's try to miss zero. Like it's just little things like that. I've noticed that they try more for you. They will do their best. They'll take their time. You know my big... I talked with them all the time about, "Do I want you to be perfect? No. Do I want you to try your best? Yes. Does that sometimes mean taking longer than my friend who finishes in 20 minutes? Yes, that is okay." And so, you know, little things like that. I've noticed even we have it in our pledge. And then I have this right here. And so little chants like that they remember like, "Oh, well. I'm smart. I'm confident. I am brave. I can do this. Like it's okay to be scared. But I can do it." So I noticed they say that to themselves as they work. And so things like that. I'm like, Okay, I know that's working back. Yeah. So come on, you can do it. And so I just, you know, that's this. It's a simple answer. But it's what works.

Um, I would say, just seeing the number, the number like, if they don't meet their goal could damage their confidence right there. So I'm like, Are we really benefiting when they see that? Because they see what's this line right here. And you have to explain a well, that was your goal. If they didn't master it, it does defeat them a little bit. They kind of think, well, what, what did I do wrong? And that, so that a little bit I can find it can be challenging again, just because they are kids, and they go, Oh, I'm not doing so good. But benefit wise... they what they have heard about these unit, assess the assessments, and, "We have to take the MAP test. And that's that big one where we just sit with our headphones on right. And it's hard, right?" It depends on how I present it to them. If I and I do always try to let them know it is important, and you should try your best. And I don't want you to think it doesn't matter. But all I want you to do is just to try your best. And if you don't do well on it. That just helps me to know what all I need to teach you.

I think that though, the students who have little to no anxiety over it have have felt or been made to feel very successful in their academic careers, whether it's by teachers, or their own effort, or by their parents. They have just that self-assuredness that they feel like they're a good student, and that they can do it. And I do think it comes from in a lot of cases, it comes from the parental and involvement and have the parents made them feel like they are good students, and can do well?

		them being able to start analyzing and setting goals, I feel like helps them because then they want to try, then they want to make sure they get there, then they want to make sure that work is completed.	
Informing next steps	Informing next steps involves teachers using data from formative assessments, like MAP, to make instructional decisions including teaching strategies, student grouping, and content pacing.	**Teacher G:** We take that data to see how we can differentiate instruction. So for example, I had some students last year that scored on a fifth grade level. So I had to try to learn... that was in winter. So I had to differentiate their instruction, look into teaching, finding and finding instructional material dealing with decimals and longer division and higher level TEKS for them. Some of them had scatter plot questions. So that is where they ended more with the scatter plot. And I went, Okay, I guess I need to look more into scatter plots in the future as well, for some of them. Right. And then, of course, the low kids we use that data to differentiate on filling in their gaps for intervention time, as well as our intervention time as well as with the specialist if pulled by the specialist having them work on those skills. And we do that also with our unit test as well. But to me, if I want to know, can this student like, for example, can the student multiply two digit by two digit number, which is not taught in third grade? Can they truly do it? I would hand it to him and have him do it sometimes... Just formative I use it I do that I do use the data from into for	**Teacher A:** Um, I use it to place where they are. So for like benchmark assessment, I find what level they're reading at. And then I group them that way to read and to grow their reading levels. And this usually comes before the MAP testing, and each beginning, middle end of year. And you can see what they'll it'll show on some of the reports were what you might teach them next. If they are where the MAP test says they are. In theory, but that's why I was nervous, because I feel like I've been trained well, to use the reports but that when it comes down to do I have time to use the report, it's difficult to find the time and to group them according to that. So I do like to look at the data and but it usually ends up just being whenever we're in meetings, when they say, look at your data, and they should we pull up our own data and use it. And when I'm doing my own, like instructional planning, probably less of that and more trying to meet the TEKS. It helps because it it targets where there are gaps. So we know which students are having the same difficulties, and we can pull them in small groups to to meet those needs or an intervention. And we can

	you that we get from the district test. So I use that as a formative assessment always. I also give my own formative assessments that I create, and I use that data to group students also, especially for re-teaches to see if there's a pattern, am I teaching it wrong? Am I the issue on a certain problem? Or certain TEKS? Or did I not teach that the way I should I always look at that. I look at and if there's just certain students not getting the way I'm teaching it, how do I need to change it? How do I need to adjust the instruction for those students? Small groups if I need to pull and go through it the other day, we were doing basic subtraction, which they should know from second grade. And we noticed they were having issues with that. And so I we immediately went through just to paper, we had them do basic subtraction. And we pulled the ones that we noticed the same patterns like with regrouping and not regrouping and so we divided them up and I had my student teacher work with one group and I worked with another while the others are working on another assignment to clean that up. So we just differentiate where we need to and then the other students an assignment that had already achieved that the next level. So when we one day I had the interventionist I told her, when she came to expanded notation, let me know, and I'll have her pull them for that. So she pulled them for that. So I do that with her, the interven... or him whoever it is, but I do that with them. And then in my classroom, I'll do the same	work on specific things instead of just saying, okay, they're low. So let's give them the lower books. Maybe planning tier one instruction and trying to make it like rigorous and, and also meeting the needs of many students. And then whenever it's time to pull data then, it's just like all the wayside because you're trying to make the regular instruction so hearty that the tier two and tier three instruction, it's just like, okay, let's just get this in real quick. And I felt like [redacted] does such a good job of giving us like, many resources and many ideas. But when there's just so many ideas, I feel like I'm just like, okay, I can only manage just a little bit of that at the time. Like, I can only look at just one report from my data. And one thing with it, I'm just not gonna get any of it done. And just move along. Yes, I do feel like it is beneficial. And it's just been learning how to pull up the report, how to read the report. And then and I've also been given, like, resources on how to like, or websites, and I guess places to look for ideas on how to teach those gaps to the ones who need it. And I do feel like it's beneficial, but like, I said it's just so much that like I put it in the back of my brain and like, okay, when I can when I have time I can get to that and we'll get there.

		thing with spiraling activities. If I'm looking to run stations, like a full day of stations, normal stations, and guided math, I'll introduce the lesson, I'll teach the lesson. And then I might want to pull a group of some students that I feel like we need to spiral back onto something like comparing numbers are ordering numbers. And I'll make sure that I get them back to work with me on that, well, I run some other stations. Or sometimes I teach the actual lesson in the station. And I felt like we need more practice with rounding. I'll throw a rounding station in for the kids to work on, even though we're working on multiplication. And I made his assignment easier for him. And so I will address and modify where I think I need to. Now I have to make notes of that on everything and copy it, you know, to document it and have it addressed if we need to make accommodations or if we need to go back a grade level and still be tested. So, but my thing is, I don't want them to feel like they're failures. But I took in I took what they said they went in more of like they love when I do like Kahoots and Quizlets. And so I did more of what I felt they needed to work on and tried to do that. And I signed more individual work through Google Classroom in Prodigy too for those areas of refinement.	
Standards based assessment	Standards Based Assessment is a system of measurement that	**District Admin:** We set guidelines and really our... really our goal, our instructional goal, or this or	No responses indicated a non-example for the use of the TEKS in the creation or delivery of assessments.

	compares student progress based on pre-determined, often research based, sets of learning standards for students.	the state standards or our TEKS. That is really our goal. And so that is mandated by the state. And then the district provides support in how to maybe group a particular set of standards together to guide instruction and then test on those standards through our common unit assessments. And then we provide a framework for best practice around the standards. And we provide some instructional tools and strategies to help and teach those standards. But really, the actual implementation of teaching the standard is at to the teacher, but the goal is the actual standard itself. And then we have a scope and sequence that help teachers see when to teach and test the standards. And that is, I guess, pretty much the goal. I mean, is, is having students learn and understand and be able to show mastery of those standards. And then the STAAR test comes later on as the... also as a way to measure a student's ability to use apply the standards. If a particular group of 20 to 25 students had a teacher that was weak in math instruction, and maybe didn't really study the IFD well, or meet with grade level teams, or really do those takeaway things and be very intentional with their vocabulary instruction **Teacher D:** So I like the breakdown where I can look and see a specific TEKS that they may have struggled on and for our intervention block, that's what I try and build my little mini

		lessons or activities on students that struggled with specific TEKS so that I can pull them in and have a very targeted intervention time with specifically what I know that kiddo did not do well on. Or need some help with,
		So TEKS resource system is our TEKS of knowledge based curriculum that's broken down into specific units. That gives us very specific examples of what should be taught within each unit and what our timeline needs to be. And then Lead4ward ties into takes resource system. But it offers us I think, a wider variety of activities that we can offer the students and different ways to have those engaging opportunities with them to spark their curiosity just a little bit more. And I feel like it is more targeted approach to our planning that goes hand in hand with TEKS resources system, but they complement one another.
		Well, my formative assessments are almost always put together according to the performance assessments from TEKS resource system. I take those performance assessments and decide if they are appropriate to my students learning. Sometimes they seem to be a little bit above level. And so I may change it to maybe friendlier numbers for math performance assessments. But I try to anytime that I am doing any kind of formative assessment, I want to make sure that it is at least tied into one of the performance assessments on TEKS resource system. But then I also I like to look at

		Lead4ward and see what kind of activities I can find there. It's just because I know that that is also research based and backed, and good activities to plug into a classroom.	
Detailed and specific feedback	Feedback on performance and achievement is one of the primary methods of achieving academic growth. Feedback should be gathered and delivered to provide insight on student strengths and weaknesses as well as inform teacher instructional practices.	**Teacher F:** We also use MAP testing and MAP testing is a way of gathering information based on for reading for us. It's, we can look at what how strong they are, in literature, analysis, nonfiction, and vocabulary and even phonics. And so we can see if there is like a deficit or a strength in one category over another or if they're pretty consistent. The only thing we can use is we use the results from the year before and look to see where which objective they're the weakest or lowest in and try to revamp our teaching and make it stronger for the next year. So it almost and sometimes that depends on year to year class to class. It's not necessarily, you know, one one year a class, maybe just lower in, you know, poetry or biography because they all got the flu around that same time that we (unintelligible) that we taught them those skills. And even though we cycle, they miss a whole objective. Well, I feel like with MAP, we're getting more of a...we're seeing the growth of his child throughout the current year instead of was STAAR we see what... how they were able to do on a test in one day, at the end of the year, and then we don't have those students anymore.	**Teacher B:** We have our intervention team who is going to be looking into our MAPs of scores and dive into those and pick up those TEKS that we see where there are gaps. Because it's like some of my higher kids and some of my lower kids are grouped together in iRead because there's something missing, there's a gap. And so once we get we've already started, iRead, we started this week, the following got our iPads this week, we started iRead this week. And so my part of my instruction during that time is to use that information to help instruction in to help gaps and that's going to help with the MAPs as well. So we kind of I kind of gave everybody I didn't do a lot of just in number talks, just quick, quick, quick, I didn't stop and teach this is ubitizing, I just kind of give a quick thing, I gave a test got my information, I could see this, they've got this, these friends, don't these the ones I need to pull back and work with. So I can use it to see who I don't need to, I don't need to waste their time on this. I need these are the ones I can work with. And then you go from there. I'm hoping it's going to help me fill in because I really think they're, they're dead set on using just the MAPs like

	Whereas with MAP, it's, it's the kids in our current year, and we can see the growth from the beginning to the middle to the end, and you can really analyze, you know, did our ones that were very low, did they show improvement they show growth? Were the ones that are already high, did they continue to get higher? Or did they stay stagnant? Well, we can look at it and see if there's a particular area in reading that they struggle with the most. We've had kids that they're super strong in fiction. But expository nonfiction is hard for them, or vice versa. They're stronger in the facts and details. But understanding and paying attention to a story maybe is boring to them, and they don't focus on it as much. We can see a huge indicator that there is a deficit in their phonics and foundation skills with phonics and which, you know, phonics, if there's a deficit that we you know, that's usually something that we look at, for a child that could be potentially dyslexic. But sometimes it's not dyslexia, it's they just didn't get very good phonics instruction in the earlier grades. And you can, you can see that on the MAPs because it kind of categorizes it as showing a weakness, and you can teach them some of those phonics skills that they're lacking or low in and help fill in the gaps. Yeah, we don't have to wonder is this what it is, or we can actually say, there's a problem with this, and we need to fill in the gaps, reteach get them caught up, and then	today, when I was looking at the MAPs from last year, there was a low low, low achievement, low growth for this one little boy that I know, one is an excellent reader, two sit back and ended up downloading other apps we supposed to be doing, iRead, and, you know, he goofed off during MAPs If I see if I, if I am working on something, and we do a lesson, and I do a formative assessment, and it comes back and it's like, oh, my goodness, subtraction, for example, today, that's going to have to be revisited. And that's going to be revisited a lot and for everybody. So if I see that it's not gonna work. I'm gonna make another lesson. Well, right now, we're going to get the first assessment, we're going to see where they are. And so I think until after I get that first round of information, then that will, oh, these kids still didn't get subtraction after we take it tomorrow, actually, next week, when I they didn't get it again. Describe any methods that you've established in your classroom to provide students feedback on MAP assessments in general. (pause to think, deep breath) I don't have any. Absolutely, for anything from writing their letters correctly and legible to writing numbers correctly. You know, I'll see because I do four small groups of math four times a day

	and then, of course, then we can say, if they're not retaining it, or they're still struggling, then we can look at that next thing. Or what areas are the students are significantly low in spend more time on that, or even which particular students have a strength or weakness, and I need to alter my, my lesson plans in my form of teaching and my ways of teaching so that I can make sure that there were covering and death what we need to that there, there's a weakness in and we're surfacing over what the strength is and spiraling through later. And I'm looking for, we know what the average ranges for the beginning, middle and end and where they should be. And we know that we're able to see like [redacted] has had us where we can look at the kind of like a colorized graph. And it shows us either they're low performing, but high growth or low growth, low performing, high growth, high performing, high performing low growth, you know, we can kind of see now that some of them just needed a more of a push, or some of them are definitely reaching their goals and getting where they're supposed to be. For example, if if literary elements are low, then I know we need to spend more time refreshing our knowledge of literary elements. So we can we can show them what's what what their strengths were, and what their score was.	And that is differentiated as well, because the way IXL works, it's it's leveled, and all all the different things that they learned. The data driven? Well, it like, like we said before, data doesn't lie, you know, it's on there. And so all this is something that we need to continue to work on. So if the data shows that, you know, the letters or sounds or whatever that it's going to be, and that's what we've got to build our instruction around. There's just, you know, no, two ways about it. You know, and we've, I've pulled it up and we've talked about it. And I think I just think the practice taking them and just really letting them know, we really want to know what you know, and may you know, Right. But our administration has met with us many times last year for data, we had a data meeting just today so. Like where to go get the data the different reports and what they say where to go find those specific TEKS that they're talking about that's on the MAPs tests excellent I hate when that happens.

We kind of do it one on one. And it's more of showing this is their strength. So we want to see this number get a little bit higher, this is your weakness, we need to work on this and, and definitely showing them the the bar graph of their results where they were before or where they are in a specific category.

Yeah, so it's like, it's showing them where they are, where they hope to be, and then I keep them and then I pull them back out next time and show them you know, this is where you want to be. And now look, this is where you are in comparison to where you're, you hope to be and where you were before and say, we can say, "yes, you achieved your goal, you know, even more so," or "you achieved your goal, or just below your goal almost there," or "we still got away they go. But look, they're here."

Well, last year, they had us as soon as the MAPs test was that we administered was done, that window was done, we pulled up the scores, and they wanted us within the next few days, to be able to meet with each kid, show them their growth, showed them their scores, and set those goals right away. So that what how they did, how they performed was, you know, that was shown to them, they got immediate feedback, and then they got to plan and set a goal for the next time.

And I feel like sometimes there's a lot of kids that they, "I failed, my teacher failed

me," wrong, you felt yourself, you got the grade, I didn't do the work. So setting a goal is almost kind of like good, because it's proof to say, "You chose this goal, and you didn't reach it. And that's nobody's fault. But yours."

And, you know, they want to be told that everything's great. And okay, well, sometimes that's not the truth. And you have to tell them, you're struggling.

And just being able to see, I guess, in a way, the range of where kids are, where they then where they're going, you know, what the goal is, and, and, you know. Honestly, like, with the data it's, it's fun to look at. Because you can see there, it's there. RIT. RIT, score. And, of course, you have to remember which ones are like this is the average. So you can really see the kids RIT score, if it's, you know, it's the overall score, if they're, if the data is showing that there RIT score is right at the level it should be, or way above or a way below, or just a little below or just a little bit above, you can kind of focus on like seeing that and seeing, okay, these are kids that, you know, they're on the verge of falling below, or almost getting above,

The only thing about MAP is there's no oral administration. So if kids are stuck on a word like trapezoid and they don't... they know what a trapezoid is but the word they're saying they don't realize that's trapezoid sometimes I feel like that kind of construed their their data there. And you

know, and with our dyslexic students are 504 for kids that are they need oral administration on other assessments that we do in the classroom. Other instruction but with MAP, they don't. And so sometimes I wonder, are we getting a a true measurement of what they can do without the oral assistance? Or is is the MAP score a true indicator what they can do and the oral assistance is actually making them perform higher in the classroom, that this is their true measurement.

Yeah, it was very inconsistent. And so that has always made me wonder, you know, keep did his best, you know, considering that child, he worked hard and did his best. His best though is, is not it's like a it's it's like a wavy line. It's up and down, and up and down.

And obviously we have you analyzed MAP and [redacted] did during one of our grade level plannings he helped us create this is the little booklet and we were able to, like graph our kids, I guess, or kind of chart our kids like in what area they were performing, where there was low performing but high growth, you know, things like that, so we could truly see it. And that was pretty helpful and beneficial because, you know, it's just easier to... Analyzing data is fun, it's fun to see, it's just fun to look at it and see kind of, you know, where everybody is on one big screen and kind of put them all together and see, like, where, you know, where we are, as far as like the kids that we

	know, are there going to be they're high level high achievers and and the ones that are hardworking show growth and the ones that are struggling. And maybe there needs to be something else to help them. So, like, it's, I like analyzing the data for sure. Because where, what our kids do on STAAR is it's a test given one day at the end of the year. And I feel like MAP is almost like a safety net for us teachers. Because it it's going to show it's given three different times throughout the same year. And the purpose of it is to show growth. But look at their MAP, like, these are kids that were one that should have probably advanced or can you know, commended. I know, that's not the right term anymore, but and they just met the standard, but according to their MAP, like they were ones that really could have gotten advanced if there wasn't that computer glitch.

Table E2

Extended Example of Emergent Code Organized Responses

Emerging Code	Example response	A priori code	Theme
Age appropriateness	**Teacher C:** I don't. I mean honestly, I haven't ever done it. Something I'm wanting to do. I wanted to try to do that more this year. I've used MAP mainly just for me. I just don't know if seven-year olds are gonna understand that this is what I got. Oh, I need to try to get better next time.	Student directed goal setting	Teacher concerns about student directed goal setting
Age appropriateness	**Teacher B:** Honestly for first grade, they're very egocentric little people, it's all about them. And it's hard to tell with some kids, because some of them are super confident and just write down the most insane things that are not right. But I don't know how much it plays at this grade level. Think as we go on it will confidence will play a bigger role. But right now, no, they all think they know it all.	Student confidence and motivation	
Reasonableness of goals set by students	**Teacher G:** And then we can tell them that the next time this is what we think that they are capable of getting, or asked them what did they think they're capable of getting, where would they like to see their scores? And we try to ensure that it's a reasonable thing. We don't want them to think that they read about space, and now that can be an astronaut tomorrow. We want it [to be] realistic goals, like stepping stones and kind of making it more like it's their decision.	Student directed goal setting	
Personal versus whole class	2nd Grade Teacher A: This is where we want to shoot for, and maybe even just showing them as a class without any	Student directed goal setting	Ways in which teachers use student directed goal setting

	specific names. Here's where this is what our class looks like, on that quadrant out. We want to try to get more dots over here in this area, and not so many, you know, and maybe do it as a whole group even not, you know, and if it's too hard to comprehend individually, you could do a whole group.	
Personal versus whole class	1st Grade Teacher A: I love using that I love doing goal setting with the students and I love talking about here at the beginning of year before taking the MAP test. Here's where and first grade is expected to be and let's think of what we want to try and get to do we want to be just the same as what [redacted] all of the [redacted] first graders are getting. Or do we want to try even like, a little bit harder to do that. And then I am I would make like a poster. I don't have one, maybe like a poster that says like some math and then district goal. And then our goal. And then we put like the score and like a happy faces the the goal and sad face if we didn't meet the goal. And then sometimes they're trying like, celebrate that. And then at the middle of the year, I tell them okay, MAP thinks that we can grow about 10 points. Do you guys think that we could grow less than 10 points, 10 points, or even maybe more than 10 points.	Student directed goal setting
Goal setting with parents	2nd Grade Teacher A: I tell parents, it's just to see if they're on track and where that we need them to be on these skills. I'll usually tell them, we want them to continue to improve as long as we keep seeing an improvement that we're doing fine. If we see them stop improving or going down, then we're gonna have concerns and try to figure out what the main problem	Student directed goal setting

Connect to performance data	2nd Grade Teacher C: Just seeing the number, if they don't meet their goal could damage their confidence right there. Are we really benefiting when they see that? Because they see what's this line right here. And you have to explain a well, that was your goal. If they didn't master it, it does defeat them a little bit. They kind of think well, what did I do wrong? But benefit wise... they them being able to start analyzing and setting goals, I feel like helps them because then they want to try, then they want to make sure they get there, then they want to make sure that work is completed.	Student confidence and motivation	
Testing anxiety	3rd Grade Teacher B: Well, what bothers me, they'll come from second grade, already freaked out about STAAR test. And we haven't even said a word, not a word uttered from my lips. And they're already freaked out. So are the parents and that impacts them greatly, because they're stressed, and they have anxiety. And now not only am I having to teach the material, but now I'm having to undo the anxiety that's already there. So and in that district, their confidence, and they haven't even seen it. So I tried to deflate that with... I try not to talk about it, really.	Student confidence and motivation	Teacher practices that incorporate student confidence and motivation
Connect to performance data and data tracking/graphing	3rd Grade Teacher C: As the it gives it, it gives them encouragement. And when we get it done, and we're putting it in there, sounds composition book, and we use our sides composition, but daily. And so it kind of gives them a reminder every day whenever they're in their book.	Student confidence and motivation	