

In order to select the Module 2 indicator that would have the most impact on my planning for active learning during numeracy intervention and beyond, I began by having a conversation with my mentor regarding my current planning strategies, highlighting both strengths and areas in need of improvement. We discussed my pre-existing means of utilizing assessments, resources, and instructional strategies and analyzed the steps I take to plan for active learning during numeracy intervention. Through this conversation, it became apparent to me that although I have used assessments and resources to assist in my planning, there are many more ways with which I could assess, differentiate, and utilize additional resources and strategies to better provide rigorous and relevant intervention for my struggling students.

At the start of the school year, three of my first grade students were identified as being in need of Tier 2 small-group intervention in addition to core instruction in numeracy. These students were identified by their scores on the NWEA assessment given to all students at the beginning and end of each school year. Initially, I used this time with my small group to focus on teaching them the same skills and concepts that I was teaching during core instruction, but with more manipulatives and a higher teacher to student ratio. As I started my research for this planning module, it became clear to me that although all first graders are expected to master the same Common Core standards by the end of the school year, it does not make sense to expect struggling students to run before they can crawl.

The first lesson I learned about planning for active, rigorous, and relevant learning is the importance of assessment that supports instruction. Chapter three of John A. Van de Walle's book *Teaching Student-Centered Mathematics* describes how specific, appropriate assessments serve as tools that inform instruction and support student growth based on individualized targets for learning. I learned that summative assessments, although necessary at times, are used as a cumulative evaluation at the end of a unit. Formative assessments, on the other hand, are "used to determine the point-in-time status of children's understanding, to pre-assess, or to attempt to identify children's naïve understandings or misconceptions so that the information is interpreted and used to provide feedback and make decisions about the next instructional steps." (p. 28-29)

Some ways to formatively assess a child's knowledge to better plan for differentiated instruction is through the use of observations, rubrics, and diagnostic interviews. Classroom observations can be taken in the form of anecdotal notes, checklists, or questioning. Teachers can learn a lot about what a student knows and does not know by watching and/or questioning an individual. Assessment tasks can include tests, performance-based tasks,

and writing. These written products often yield a lot of information to teachers regarding what students know and need to learn. Tasks should be evaluated using an appropriate rubric because a simple count of correct and incorrect answers does not accurately gauge all of the skills and concepts associated with each task. Rubrics provide both the teacher and student with specific understandings where the child is currently and where they need to be. Another form of assessment to drive planning and instruction is through the use of a diagnostic interview. A diagnostic interview "uses what we know about children's cognition to design an assessment. The interview is usually a one-on-one investigation of a child's thinking of a particular concept or the processes that are being used to solve problems." (p. 30) Interviews should be conducted when more information concerning a particular child is needed. Interviews help teachers gather information to assess instructional effectiveness and plan next steps.

After researching the many different ways to pre-assess and monitor progress for my intervention students, I met with our school's Numeracy Interventionist. We decided to start by using the Grade One RTI Jefferson County Intervention Interview with each of my three students to highlight their individual strengths and address weaknesses and misconceptions. This interview assesses the students' conceptual understandings of Kindergarten Counting and Cardinality standards as well as Operations and Algebraic Thinking. The standards are listed starting with the most foundation skill necessary for each student to master before addressing grade-level standards. The scoring sheet of the interview notes that, "for students to fully master a grade level's standards, teachers should begin intervention with the first standard listed where a student does not score 80% or above."

I conducted the Jefferson County Intervention Interview with each of the three students and jotted notes about what they did or said with regard to each standard. All three of my students scored below 35% on the first standard listed. Through this assessment it became evident to me that each student needed instruction and practice with the K.CC.1 standard of counting to 100 by ones and tens. Student A had trouble transitioning from numbers with 9 ones to the next number containing zero ones (e.g. 9 to 10, 19 to 20, 29 to 30, etc.) Student B began counting correctly but stopped at 29. Student C skipped counted by fives. Because of these results, I knew I needed to focus on counting and number sense with these three students, using what they already know to drive instruction of the conceptual understandings they lack. Using this Intervention Interview has the potential to improve the effectiveness of my intervention instruction throughout the year because it provides me with individualized information about the skills and concepts associated with each student. I will be able to

use this assessment, as well as others I have acquired, to continuously assess and plan to maximize learning. Formative assessments should be used to pre-assess, progress monitor, and adjust planning and instruction within a unit of study. This will promote more specialized, relevant planning for each student's individualized needs.

When I approached the Numeracy Coach at my school asking what I should do with my intervention students besides simply re-teaching what I've already taught to the entire class, she immediately located a book titled *Assisting Students Struggling with Mathematics: Response to Intervention for Elementary and Middle Schools*. This book, written by the Institute of Educational Sciences, suggests that Tier 2 instruction be explicit and systematic. After reading the first few chapters of this book, it became evident to me that my intervention instruction needed to provide students with "models of proficient problem solving, verbalization of thought processes, guided practice, corrective feedback, and frequent cumulative review." Students in need of Tier 2 intervention require multiple visual representations and require practice solving word problems that are based on underlying structures. Since learning this from the Institute of Education Sciences, my planning has changed significantly. I am now careful to note when I am including these approaches in my instruction. I expect that the thoughtful inclusion of these instructional strategies will improve my intervention students' foundational math skills by providing them multiple, differentiated, active learning experiences to firm their understanding of the mathematical concepts with which they struggle.

As I continued conducting research to improve my planning for intervention, it became evident that one of the most necessary steps to promoting active learning is planning for differentiation. The concept of differentiation is centered on the notion that not all students will learn the same content, in the same way, at the same rate. Chapter four of John A. Van de Walle's book *Teaching Student-Centered Mathematics* highlights the importance of three components of differentiation: "1. Planning lessons around meaningful content, grounded in authenticity, 2. Recognizing each child's readiness, interest, and approach to learning, and 3. Connecting content and learners by modifying content, process, product, and the learning environment." (p. 42) Although I already differentiate instruction in our whole-class setting, this module has helped me see the importance of differentiating within a small group as well.

After identifying the critical standards these three students required explicit instruction on, I knew I needed to search for resources and instructional strategies that were specific to each child. Although it is important for each child to have multiple exposures to the same concept, in different ways, it is

still necessary to plan instruction such that each student is engaged with the content using the learning style with which they are most comfortable. Student A is a very active student who has proven to be a kinesthetic learner. He learns best through movement and with the use of different manipulatives. Student B is a very visual learner who learns best through drawings and by watching others model before she attempts a task. Student C is an abstract thinker who is quick to grasp mathematical concepts through an auditory approach; however he is an English Language Learner who often gets confused due to language barriers and misinterpretations.

Because I am now well aware of each student's strengths and preferred learning styles, I use this knowledge when I plan for intervention. I have obtained several outstanding resources from the Numeracy Interventionist and Numeracy Coach at my school to assist with my planning of multimodal instructional strategies to address Kindergarten Counting and Cardinality Standards as well as developing these students' number sense. Chapter three in *Young Mathematicians at Work: Constructing Number Sense, Addition, and Subtraction*, by Catherine Twomey Fosnot and Maarten Dolk, illustrates many methods of improving early number sense in young mathematicians. The games, activities, and investigations described in the chapter have helped me plan more relevant, rigorous lessons for each student to achieve the same standard. I am now comfortable utilizing various approaches and strategies with each student in the group, even though they are addressing the same standard. I anticipate that this flexibility and change to my planning will help each student grow and develop their number sense more clearly and quickly because they are being taught in the manner with which they learn best.

Another resource that has aided my intervention planning is RTI Mathematics Strategies MATS, from Jefferson County Public Schools in Louisville, KY. These intervention mats, organized by Common Core State Standards, include concrete, semi-concrete, and abstract strategies for teaching the given standard. The mat also includes Progress Monitoring ideas for assessing each stage. This mat will help me plan using supplemental materials to better meet the needs and interests of each student in my group. I plan to use more manipulatives, games, and activities to engage each student in active learning through their preferred styles. I've learned how important it is to utilize varied materials and manipulatives with my Tier 2 students because they need more focused instruction in foundational skills than the rest of the class. Utilizing supplemental and specialized materials has the potential to improve each student's number sense and counting and cardinality skills by reaching them through a process that meets their individual needs and learning

styles. Assessing students using different progress monitoring ideas will serve to ensure that the intervention I provide is rigorous and relevant to the individual student.

My mentor provided me with a resource that will help me with both numeracy and literacy intervention. Chapter 16 in the book *The Skillful Teacher*, by Jon Saphier, Mary Ann Haley-Speca, and Robert Gower has helped me plan using objectives. The chapter discusses the use of clear objectives when planning and teaching. A diagram of Nested Thinking Behind Objectives shows that when planning, a teacher first decides what knowledge, skill, or concept to teach. Then, one plans activities to assist students in the development of these skills or understanding, planning ways to get students engaged. Teachers must then plan how to determine if an objective was met. Furthermore, I learned that it is not enough to have an objective and assess if it was met at the end of a lesson. Rather, it is crucial for a teacher to be transparent and specific with a student about the objective. I will use my objective to drive my planning for each intervention session. I will also allow time at the beginning and end of each lesson to discuss the objective with my students. If I am clear with my students about what I expect them to learn, explicitly teach the skill, provide corrective feedback, and evaluate learning, I am hopeful that my students will feel more involved and accountable for evaluating their level of mastery on the given objective.

Through my research and the assistance of the numeracy coach, numeracy interventionist, and my mentor, I have learned how to incorporate multiple assessments, resources, and strategies when I plan for rigorous and relevant intervention, specific to each student's needs. I now know how to design supplemental and specialized instructional interventions. Additionally, I have learned how to discuss multiple sources of assessment and data with colleagues to determine whether an intervention plan is successful or needs to be altered. I have learned to differentiate instruction within my intervention group, and I consider individual needs when planning for whole class and small group differentiation during core instructional time. I anticipate that Student A will improve his skill of transitioning from numbers with 9 ones to the next number containing one more ten and zero ones because I plan to address this when I use multiple resources to plan hands-on activities using number lines and a hundreds charts. I expect that Student B will improve her counting past 29 through the use of visual representations and drawings during intervention. I will be working with Student C's ELL Tutor to plan lessons on math vocabulary words and meanings to improve his counting and skip counting. I have located labeled skip counting mats as a tool to enhance his instruction. Additionally, I have a jumbo hundreds chart mat that the students can use to walk on to count,

trace, and see large numbers in order. I plan to continuously provide each student with the tools and experiences they need to achieve their full potential. I anticipate that the knowledge I have learned through my research, and the changes I have made in the area of planning, will greatly improve and enhance the levels of active, relevant, and specific learning for my intervention group as well as the rest of my students. I intend to continue to use what I have learned about planning for my intervention group and also apply my new learning to other areas of teaching.