Chapter One—What Will I Do To Establish and Communicate Learning Goals, Track Student Progress, and Celebrate Success?

2. How can formative assessments help reinforce student effort?

Formative assessments provide learning progress feedback to students throughout the duration of a unit. To the extent the feedback is specific and actionable students are then in a position to take steps to deepen their understanding. Students make continuous choices about how to engage in their learning, seeming to have an almost innate ability to determine if an activity is worthy of their effort, so if students believe certain action steps derived from formative assessment feedback will reap tangible learning benefits, such as measured by subsequent formative and/or summative assessment results, they will invest the effort. As students gain additional experience in a given class they reach conclusions regarding where and how to invest their effort, therefore, teachers can help students maximize their learning by providing ongoing formative assessments and feedback that will motivate student efforts toward productive outcomes.

5. What are some of the benefits of having students chart their own knowledge gain or progress toward a learning goal?

As Marzano discusses on page 18, learning goals can be formatted effectively by beginning with ‘Students will be able to’ or ‘Students will understand.’ As students proceed through a learning unit if they are able to identify progress toward a learning goal then they will benefit from increased motivation in the realization that they are taking meaningful steps toward important learning outcomes. This process becomes self-reinforcing where identifiable success is likely to yield greater success. The role of formative assessments in the answer to question one above is vital in students having the requisite knowledge gain information to enable progress charting.

Chapter Two—What Will I Do To Help Students Effectively Interact With New Knowledge?

2. Describe the teacher’s role throughout a critical learning experience?

The teacher’s primary role throughout a critical learning experience is designing and leading the process whereby students effectively construct personalized meaning and understanding of content. Teachers determine the mode of student interaction with new content and due to working memory limitations of the human brain must do so in digestible chunks, resulting in organized and meaningful understanding. Given varying student learning styles and needs, where possible teachers must also provide alternate approaches to concepts that also achieve desired learning outcomes.

6. This chapter discusses different strategies for actively processing information during comprehensive critical-input experiences. Out of the instructional
strategies discussed in this chapter, which do you feel most comfortable using, and which would you like more practice and instruction implementing?

Given the scaffolding nature of learning mathematics throughout K-12, mathematics teachers must be adept at linking previous content and understanding to current material. Marzano calls this being adept with advance organizers and cues. In my teaching career I have also found it to be extremely helpful for teachers to have at least a basic understanding of the key concepts at the next level of subsequent mathematics study in order to develop a foundation of continued student success. For example, having taught high school Geometry, Algebra II/Trigonometry and Physics, I frequently find students asking where current material will be helpful to their future learning and having experience at the next level greatly enhances my ability to give quality insights to students.

In addition to being very comfortable with advanced organizers I also make habitual use of teaching in chunks. Again, due to the nature of learning mathematics, we typically introduce one concept at a time. However, there is a continuum of student engagement modes, from purely didactic and lecture-oriented to highly student-centered. I find that I employ a balance of interactions, generally more teacher-driven at the outset, using visual instruction techniques with my SmartBoard, and then increasingly empowering students to create personalized meaning, with my interaction becoming more of a learning coach and individualized tutor. After I introduce new concepts through teaching and solving example problems, I assign practice problems in class to be worked both individually and as a collaborative learning table cluster, employing the power of cooperative learning.

I would like to become more proficient at using reflection as a tool to deepen understanding and result in greater student achievement. As pointed out elsewhere in my Reflective Teacher coursework I am piloting an Action Oriented Reflection (AOR) case study with one of my Algebra I classes where students evaluate their daily learning and identify any areas needing further reinforcement, documenting a simple action plan to do so. I look forward to analyzing the formative and summative learning impact and student attitudinal dispositions toward reflection in this study.

Chapter Three—What Will I Do To Help Students Practice and Deepen Their Understanding of New Knowledge?

1. Give an example of a learning activity designed to help students practice and deepen their knowledge of new content?

As I briefly described in my answer to the chapter two, question six above, after I introduce new material and show solutions to a type of problem, I typically assign practice problems of successively increasing difficulty for students to solve in class. They always work out the solution themselves in written form but are encouraged to collaborate at their table clusters on alternate strategies and compare process steps and answers. During the working time, I visit with students, get a sense of what strategies they are employing, which students are having difficulty, making a mental note to check back in with these students later in the class during homework time, and offer helpful advice in building their skills, understanding and confidence. We then review solutions to the problems, generally through a combination of me showing solutions
from the SmartBoard and with “guest professors” as I call them when students show
the class from the SmartBoard how they arrived at the solution. We intentionally
compare and contrast alternate successful approaches to solving problems, broadening
student repertoire of problem solving strategies.

4. How and why is homework assigned in your classroom or school? How does
this relate to the author’s recommendations on homework policies and
practices?

I find that my homework practices are aligned with the author’s recommendations. I
assign three types of homework problems designed to deepen student understanding:
skill reinforcement problems, moderately challenging skill problems to build
conceptual development, and relevant applications problems, frequently in the form
of word problems and involving principles of science or Geometry, the next math
class for 90+% of Grade 8 students.

In Middle School, we target each core class homework assignment to be 20-30
minutes per class day. Since whenever possible I structure time at the end of class for
students to begin homework many frequently finish half or more of their homework
by the end of class. This greatly helps to ensure students do not leave my class with
confusion about important concepts as I can I work with them in mini-tutoring
sessions to concrete their understanding before they leave. This is a benefit of our 80-
minute block schedule.

Experience has shown that sequencing teacher-led practice problems, student
individual and collaborative practice in class, in-class tutoring during homework time,
homework and reviewing solutions to student-identified homework problems at the
beginning of class is highly effective in building mathematics success.

Chapter Four—What Will I Do To Help Students Generate and Test Hypotheses
About New Knowledge?

1. Give an example of a learning activity designed to help students generate and
test hypotheses about content. Now consider how this activity would support a
learning goal of what students will know or be able to do.

In Algebra I toward the end of the year we study quadratic functions which when
graphed result in parabolic form. One of the most common examples in the physical
world used to study parabolic behavior is that of the effect of gravity. A rich learning
activity to test hypotheses about quadratic functions is using a MacBook laptop
computer to capture video of a projectile in flight, such as a soccer ball, and then
superimpose the parabolic flight path on MacGrapher and determine the extent to
which the projectile flight path matches quadratic mathematics. This activity would
support multiple learning goals including technology integration by employing
multiple MacBook laptop applications and a deeper understanding of quadratic
functions by testing mathematics hypotheses they conceptually understand against a
real-world context.
4. The strategies in this chapter benefit from cooperative learning structures. What are some considerations when assigning groups to tasks that generate and test hypotheses?

When assigning groups or tasks with a cooperative learning structure there are a number of important considerations that are different from individualized learning. Among them are what the outcome from each group will be, such as a project, presentation or display, the optimum size of groups, the selection of topics and whether all groups will focus on identical topics or separate portions of an overarching theme, how individual members of the group will determine task assignments, how the groups will be assessed and if a peer evaluation component is appropriate. The teacher must also consider what resources the groups will need to complete their work and how to conduct formative assessments to ensure groups are making progress toward learning goals.

Chapter Five—What Will I Do To Engage Students?

3. How do you define student engagement? How do you monitor student engagement?

Similar to Marzano’s thoughts, I define student engagement as being on-task and attending to the learning dynamics in the classroom. I strive to make learning fun at every opportunity and my classes bias toward the mildly exciting versus the mildly boring. Students learn differently and have varying levels of comfort in various learning activities so I believe variation is important. I also have differentiated learning occurring particularly with Geometry enrichment for students who demonstrate readiness.

I use many of the strategies Marzano discusses, and others, including exhibiting passionate behavior and language, using technology and colors in my teaching, humor, funny voice modulations, related stories (mine and students’), wait time, demonstrations/props, directed questioning/response, open questioning/choral response, mild controversy such as what I call “argument on the floor” when differing solutions occur, mild challenge such as 8Red versus 8Gold students in neighboring classrooms using timed Maths300 software to build factoring skills, “candy” challenge questions, “branchy game” for identifying multiple solutions, “box game” when determining common denominators, SAT questions, collaborative problem solving with students moving around the room at times, “guest professors” where students show their solution to the class from the SmartBoard, real-world applications, promote multiple problem solving strategies, and employ rhymes such as “Pop Goes The Weasel” to aid mnemonics such as with the Quadratic Formula. I also promote the concept that students share in both the success of class and the deployment of time by allowing them to begin homework when we have concluded learning for the day, and I am open to them using this time for other productive work such as final preparation for a test in a different class in the afternoon. I find that this helps build respect.

My monitoring of student engagement is situationally dependent as outlined in the above paragraph. Students show engagement differently but I generally look for eye-
contact, body language, on-task oral engagement and written evidence of practice problems.

5. In what ways to you try to familiarize yourself with a student’s “self-system”? How could information about a student’s self-system be used to refine engagement activities?

I find the discussion of the “I” and “me” major structures of the self-system interesting. As I reflect on Marzano’s thoughts and the research he cites, I consider the “I” as student self-image (“Who I Am”) and the “me” as their current engagement (“What I’m Doing”). This is a helpful distinction because it is the sum total of the “me” experiences that helps define the “I” on an ongoing basis. It seems to me that it is through self-talk that the two structures communicate; therefore, the success or failure that students experience in learning determines powerful self-perception dispositions over time.

I familiarize myself with student self-systems both formally and informally. As an 8Red Learning Community we sometimes have students take a learning styles inventory that can be helpful. Generally it is through interactions in the classroom and formative assessment feedback that provides the bulk of the familiarity with individual student self-systems. Information about student self-systems can be helpful in deploying student engagements that will best attend to their learning needs. For example, with a struggling student whose self-talk may be negative, reinforcing to their “I” that they’re not a good math student, it will benefit the student both short and long term to engage them in activities that will build skills and confidence. Some options would be pairing them up with a helpful peer in collaborative problem solving, working with them during homework time and/or seeing them one-on-one for tutoring at a later time.

Chapter Six—What Will I Do To Establish or Maintain Classroom Rules and Procedures?

1. Research widely supports effective use of rules and procedures in the classroom. Identify a general rule that is central to the smooth operation and healthy environment of your school or classroom. Now consider how specific school or classroom procedures may or may not support this rule.

‘Treat each other with respect’ is a general rule that is central to an effective learning environment. This rule serves as the foundation of virtually every engagement and activity in a classroom, both student-to-student and teacher-to-student. As a school, SAS clearly defines and communicates its mission statement, values and student characteristics (EAGLES). These help define our school culture and both teachers and students are expected to support and abide by these guiding principles. In my classroom I establish behavioral expectations before the start of the school year, review them on the first day of class with students, provide a handout which also includes other important information such as homework policy and grading, post this information on my blog, and provide an overview to parents at Open House early in the school year, pointing out the blog posting if parents desire additional information. My expectations and the SAS principles are aligned.
2. What might help first-year teachers better develop and enforce rules and procedures, especially before and at the beginning of the school year?

First-year teachers will need to understand past practices and resource colleagues and administrators to begin the year successfully. Depending on the divisional, departmental, and learning community structures, and whether or not the new teacher has a mentor, the teacher will need to understand the school’s mission, values and any relevant established rules and procedures, whether they be subject area, learning community and/or divisional, including student handbooks to be distributed and technology Acceptable Use Policies. After understanding past classroom practice and the broader school expectations, the new teacher needs to reflect on them and document clear expectations to be reviewed with students during the first few days of school. The teacher needs to review the expectations in detail with students, ask for clarification questions, and make it clear that these are the expectations in effect unless modified and communicated at a later date, and that violation of the expectations will have consequences. The new teacher needs to resource their mentor, Team Leader, Department Chair and/or Principal as needed while they become comfortable enforcing the expectations.

Chapter Seven—What Will I Do To Recognize and Acknowledge Adherence and Lack of Adherence to classroom rules and procedures?

2. Stage and Quiroz cite their work as evidence that interventions widely used in schools do, in fact, reduce disruptive behavior. What’s your reaction to this statement?

Although I have not reviewed their research in detail Marzano’s summary and the data from Figure 7.1 (p. 132) speak for themselves—that all four intervention strategies have a positive effect in reducing disruptions. My reaction, based on my observations in the classroom over the past 11 years, is that the conclusion is plausible. Without becoming intimately familiar with the research we cannot know to what extent classroom rules and procedures were clear but the important point here is that one of four intervention strategies were employed (punishment and reinforcement, reinforcement, punishment, and no immediate consequence) to positive effect for each strategy. My experience is students appreciate straightforward interactions with teachers and they generally handle interventions well when the teacher is perceived as being fair and consistent.

3. In your experience, how often does “withitness” come into play regarding classroom management? Do you think “withitness” can be applied and cultivated as a strategy, or do you feel it’s more of a general quality a teacher either does or does not have?

As defined, “withitness” comes into play in every class, every day. Every class involves at least scores of interactions and engagements and given that students by their very developmental nature will not exhibit perfect behavior (and neither do adults), a teacher’s “withitness,” particularly their ability to maintain a broad awareness of student engagement, helps to keep the class moving forward in positive fashion. As I reflect on my own growth as an educator, and based on my observations of colleagues who exhibit a high degree of “withitness,” I believe “withitness” is both
an intrinsic skill and a talent that can be developed. People have varying degrees of social interaction acuity, as well as varying degrees of other life experiences, so some teachers may be more adept at “withitness” than others, but I believe all teachers can cultivate this skill with practice.

Chapter Eight—What Will I Do To Establish and Maintain Effective Relationships With Students?

2. Researchers Brophy and Evertson found no relation between more affectionate teachers and student learning gains. With this in mind, think about favorite teachers you’ve had—How did they convey a balance of dominance and cooperation in their teacher-student relationships?

First of all, I believe it is quite difficult to accurately quantify the cause and effect between teacher interpersonal qualities and student achievement. To do so would seem to require a control group of identical circumstances with the variable in play, in this case, being more affectionate teacher engagements. Having said that, I believe teachers who are more affectionate are more likely to be passionate and enthusiastic about their work, qualities which Marzano and other researchers find improves learning results. So, I would be interested in further corroboration of Brophy and Evertson’s assertions here.

My favorite teachers balanced dominance (clarity of purpose and strong guidance) and cooperation (demonstrating concern for each student and building a sense of community with the classroom) by being competent in their subject area and comfortable in student engagements. I was impressed by their knowledge in the subject and I trusted them to operate a learning environment where we as students could take intellectual risks and grow. They were dedicated to both their area of expertise and to student welfare, and they were firm, fair and consistent in their dealings with students. We knew what we could and could not get away with in their classroom and we felt a sense of mutual respect.

3. Bettencourt, Gillet, Gall, and Hull found that training teachers in behaviors that communicate enthusiasm had positive effects on student engagement and achievement. How have you been trained in this area? How would you suggest training teachers to communicate enthusiasm?

I do not recall any training I have received specifically on behaviors that communicate enthusiasm in my teaching. Frankly, I believe teacher enthusiasm is best cultivated intrinsically and not by external input, such as through training. Reflecting on the causes for my own enthusiasm and that of colleagues leads me to believe that genuine teacher enthusiasm stems from the belief that they are in a position to make a significant positive difference in the learning of their students. This infers that they have the expertise, resources and time to affect meaningful learning and achievement for their students. Therefore, if schools desire to generate greater teacher enthusiasm I would suggest they support professional development directly benefiting teacher expertise, provide technological tools and materials they need, and empower them with the time necessary to create meaningful learning engagements for their students.
Chapter Nine—What Will I Do To Communicate High Expectations For All Students?

1. Think about a student that struggles in one of your classes, and ask yourself, “If I believed this student was completely capable of learning this content, what would I be doing right now?” With this perspective, how might your interactions with this student change?

As I discussed in chapter two, question six, the study of mathematics scaffolds across the K-12 landscape, continuously building on previous material and understanding. My experience with struggling students in Algebra I is they generally have one or more of the following challenges: poor understanding of important foundational concepts, poor self-confidence as a learner of mathematics or a poor work ethic. Of course these three challenges can be interrelated such as with students who have not had prior success in math tend to not have developed sound foundational skills, lack confidence in their ability to succeed in the subject and may therefore apply more of their efforts elsewhere. The first indicators I get in the school year are pretests and formative assessments that tend to cover review material as we bridge prior material to new concepts. With a high degree of reliability, students who struggle with this work struggle disproportionately over the course of the year.

Success for these students is not contingent upon my seeing them as “completely capable of learning” new content and treating them as a currently high achieving mathematics student. For struggling students I immediately work with them to build their confidence by identifying areas of weakness, improving their understanding and seeking to as quickly as possible convince them they can succeed in my class. Sometimes I am able to do this myself and sometimes I recommend ongoing tutoring.

Of all the feedback I get at the end of year none is more satisfying than when a student tells me they came into Grade 8 thinking they were a poor math student and they are now going on to high school more confident in their ability.

2. How might elaborative interrogations improve the quality of interactions with low-expectancy students?

While elaborative interrogations are powerful for all students, they might reap even greater benefits for low-expectancy students because through elaboration they are encouraged to identify the logic from which they generated their response. Low-expectancy students tend not to have as strong a fundamental understanding and/or ability to synthesize concepts, so by teachers asking them follow-up questions such as, “Why would that be true?” they are probing into deeper cognitive processes and attempting to reinforce fundamental understanding which will reap subsequent learning dividends. Upon successful completion of this kind of interaction low-expectancy students feel a sense of greater confidence in their ability.

Chapter Ten—What Will I Do To Develop Effective Lessons Organized Into a Cohesive Unit?

2. This final chapter looks at all the previous chapters and design questions, and iterates how they apply to effective lesson planning and cohesive unit organization. Figure 10.3 synthesizes this work into a list of daily reflection
Marzano makes the observation that teaching is a complex endeavor and teachers must continually juggle multiple, interdependent priorities to achieve enduring student understanding. Novice teachers would benefit from frequent review of Figure 10.3 (Questions for Daily Reflection) to provide guidance on proven effective strategies and help them develop successful habits that are beneficial to student learning. They might want to keep the figure in their planner or perhaps laminate a printout and post it in a prominent location for frequent referencing. Even a veteran teacher would benefit from regularly reviewing the figure to ensure they balance their efforts across the spectrum of priorities required to meet student learning needs.

3. **How might school leaders use the information in this book to support effective teaching behaviors in their schools or districts?**

The first priority for school leaders is determining the critical priorities they want the organization to embrace resulting in the next evolution of school effectiveness. Leaders must choose those priorities carefully cognizant of the fact that there are limitations to how many initiatives the organization can implement with high quality, sustainable results. Leaders then need to create organizational alignment, continuity of focus and staff ownership, communicating transparently and effectively along the way.

For some initiatives task forces or committees are beneficial; however, in order to further support the effective teaching behaviors described in Marzano’s book the teacher community at large must be reached. Some of the possible engagement venues to accomplish this include pre-service days, professional development days and Looking@Learning Wednesday meetings. Leaders can also reach the entire educator community through annual teacher professional development goal setting and portfolio creation. To a lesser extent book clubs can be employed and, of course, graduate level work that embraces desired behaviors such as the Plymouth State University master’s degree program.