

## Research Base and Validation Studies on the Marzano Evaluation Model

The Marzano Evaluation Model is currently being used by the Florida Department of Education (DOE) as a model that districts can use or adapt as their evaluation model. That Marzano Evaluation Model is based on a number of previous, related works that include: *What Works in Schools* (Marzano, 2003), *Classroom Instruction that Works* (Marzano, Pickering, & Pollock, 2001), *Classroom Management that Works* (Marzano, Pickering, & Marzano, 2003), *Classroom Assessment and Grading that Work* (Marzano, 2006), *The Art and Science of Teaching* (Marzano, 2007), *Effective Supervision: Supporting the Art and Science of Teaching* (Marzano, Frontier, & Livingston, 2011). Each of these works was generated from a synthesis of the research and theory. Thus the model can be considered an aggregation of the research on those elements that have traditionally been shown to correlate with student academic achievement. The model includes four domains:

Domain 1: Classroom Strategies and Behaviors

Domain 2: Preparing and Planning

Domain 3: Reflecting on Teaching

Domain 4: Collegiality and Professionalism

The four domains include 60 elements: 41 in Domain 1, 8 elements in Domain 2, 5 elements in Domain 3 and 6 elements in Domain 4. The specifics of each domain are listed in Figure 1. For a detailed discussion of these elements see *Effective Supervision: Supporting the Art and Science of Teaching* (Marzano, Frontier, & Livingston, 2011).

*Figure 1: Elements of the Marzano Evaluation Model*

### Domain 1: Classroom Strategies and Behaviors

#### Routine Segments

Design Question #1: What will I do to establish and communicate learning goals, track student progress, and celebrate success?

1. Providing clear learning goals and scales (rubrics)
2. Tracking student progress
3. Celebrating success

Design Question #6: What will I do to establish and maintain classroom rules and procedures?

4. Establishing classroom rules and procedures
5. Organizing the physical layout of the classroom

## **Content Segments**

Design Question #2: What will I do to help students effectively interact with new knowledge?

1. Identifying critical information
2. Organizing students to interact with new knowledge
3. Previewing new content
4. Chunking content into “digestible bites”
5. Processing new information
6. Elaborating on new information
7. Recording and representing knowledge
8. Reflecting on learning

Design Question #3: What will I do to help student practice and deepen their understanding of new knowledge?

9. Reviewing content
10. Organizing students to practice and deepen knowledge
11. Using homework
12. Examining similarities and differences
13. Examining errors in reasoning
14. Practicing skills, strategies, and processes
15. Revising knowledge

Design Question #4: What will I do to help students generate and test hypotheses about new knowledge?

16. Organizing students for cognitively complex tasks
17. Engaging students in cognitively complex tasks involving hypothesis generation and testing
18. Providing resources and guidance

## **Segments Enacted on the Spot**

Design Question #5: What will I do to engage students?

1. Noticing when students are not engaged
2. Using academic games
3. Managing response rates
4. Using physical movement
5. Maintaining a lively pace
6. Demonstrating intensity and enthusiasm
7. Using friendly controversy
8. Providing opportunities for students to talk about themselves
9. Presenting unusual or intriguing information

Design Question #7: What will I do to recognize and acknowledge adherence or lack of adherence to rules and procedures?

10. Demonstrating “withitness”
11. Applying consequences for lack of adherence to rules and procedures
12. Acknowledging adherence to rules and procedures

Design Question #8: What will I do to establish and maintain effective relationships with students?

13. Understanding students’ interests and background
14. Using verbal and nonverbal behaviors that indicate affection for students
15. Displaying objectivity and control

Design Question #9: What will I do to communicate high expectations for all students?

16. Demonstrating value and respect for low expectancy students
17. Asking questions of low expectancy students
18. Probing incorrect answers with low expectancy students

## **Domain 2: Planning and Preparing**

### **Planning and Preparing for Lessons and Units**

1. Planning and preparing for effective scaffolding of information within lessons
2. Planning and preparing for lessons within units that progress toward a deep understanding and transfer of content
3. Planning and preparing for appropriate attention to established content standards

### **Planning and Preparing for Use of Materials and Technology**

1. Planning and preparing for the use of available traditional resources for upcoming units and lessons (e.g., manipulatives, video tapes)
2. Planning for the use of available technology such as interactive white boards, voting technologies and one-to-one computer

### **Planning and Preparing for Special Needs of Students**

1. Planning and preparing for the needs of English language learners
2. Planning and preparing for the needs of special education students
3. Planning and preparing for the needs of students who come from home environments that offer little support for schooling

### **Domain 3: Reflecting on Teaching**

#### **Evaluating Personal Performance**

1. Identifying specific areas of pedagogical strength and weakness
2. Evaluating the effectiveness of individual lessons and units
3. Evaluating the effectiveness of specific pedagogical strategies and behaviors across different categories of students (i.e., different socio-economic groups, different ethnic groups)

#### **Developing and Implementing a Professional Growth Plan**

1. Developing a written growth and development plan
2. Monitoring progress relative to the professional growth plan

### **Domain 4: Collegiality and Professionalism**

#### **Promoting a Positive Environment**

1. Promoting positive interactions about colleagues
2. Promoting positive interactions about students and parents

#### **Promoting Exchange of Ideas and Strategies**

1. Seeking mentorship for areas of need or interest
2. Mentoring other teachers and sharing ideas and strategies

#### **Promoting District and School Development**

1. Adhering to district and school rules and procedures
2. Participating in district and school initiatives

As indicated in Figure 1, **Domain 1** contains 41 elements (5 + 18 + 18); **Domain 2** contains 8 elements (3 + 2 + 3); **Domain 3** contains 5 elements (3 + 2) and **Domain 4** contains 6 elements (2 + 2 + 2). Given that 41 of the 60 elements in the model are from Domain 1, the clear emphasis in the Marzano model is what occurs in the classroom—the strategies and behaviors teachers use to enhance student achievement. This emphasis differentiates it from some other teacher evaluation models.

Teacher status and growth can be assessed in each component of the model in a manner that is consistent with the Florida DOE guidelines and the requirements of Race to the Top legislation.

### **The Research Base from Which the Model Was Developed**

Each of the works (cited above) from which the model was developed report substantial research on the elements they address. For example, *The Art and Science of Teaching* includes over 25 tables reporting the research on the various elements of Domain 1. These tables report the findings from meta-analytic studies and the average effect sizes computed in these studies. In all, over 5,000 studies (i.e., effect sizes) are covered in the tables representing research over the last five decades. The same can be said for the other titles listed above. Thus, one can say that the model was initially based on thousands of studies that span multiple decades and these studies were chronicled and catalogued in books that have been widely disseminated in the United States. Specifically, over 2,000,000 copies of the books cited above have been purchased and disseminated to K-12 educators across the United States.

### **Experimental/Control Studies**

Perhaps one of the more unique aspects of the research on this model is that it has a growing number of experimental/control studies that have been conducted by practicing teachers on the effectiveness of specific strategies in their classrooms. This is unusual in the sense that these studies are designed to establish a direct causal link between elements of the model and student achievement. Studies that use correlation analysis techniques (see next section) can establish a link between elements of a model and student achievement; however, causality cannot be easily inferred. Other evaluation models currently used throughout the country only have correlational data regarding the relationship between their elements and student achievement.

To date over 300 experimental/control studies have been conducted. Those studies involved over 14,000 students, 300 teachers, across 38 schools in 14 districts. The average effect size for strategies addressed in the studies was .42 with some studies reporting effect sizes of 2.00 and higher. An average effect size of .42 is associated with a 16 percentile point gain in student achievement. Stated differently: on the average, when teachers use the classroom strategies and behaviors in the Marzano Evaluation Model, their typical student achievement increased by 16 percentile points. However, great gains (i.e., those associated with an effect size of 2.00) can be realized if specific strategies are used in specific ways.

### **Correlational Studies**

As mentioned above, correlational studies are the most common approach to examining the validity of an evaluation model. Such studies have been, and continue to be conducted, on various elements of the Marzano Evaluation Model. For example, such study was recently conducted in the state of Oklahoma as a part of their examination of elements that are related to student achievement in K-12 schools (see *What Works in Oklahoma Schools: Phase I Report* and *What Works in Oklahoma School: Phase II Report*, by Marzano Research Laboratory, 2010 and 2011 respectively). Those studies involved 59 schools, 117 teachers and over 13,000 K-12 students. Collectively, those reports indicate positive relationships with various elements of the Marzano Evaluation Model across the domains. Specific emphasis was placed on

Domain 1 particularly in the Phase II report. Using state mathematics and reading test data, 96% of the 82 correlations (i.e., 41 correlations for mathematics and 41 for reading) were found to be positive with some as high as .40 and greater. A .40 correlation translates to an effect size (i.e., standardized mean difference) of .87 which is associated with a 31 percentile point gain in student achievement. These studies also aggregated data across the nine design questions in Domain 1. All correlations were positive for this aggregated data. Seven of those correlations ranged from .33 to .40. These correlations translate into effect sizes of .70 and higher. High correlations such as these were also reported for the total number of Domain 1 strategies teachers used in a school. Specifically the number of Domain 1 strategies teachers used in school had a .35 correlation with reaching proficiency and a .26 correlation with mathematics proficiency.

### **Technology Studies**

Another unique aspect of the research conducted on the model is that its effects have been examined in the context of technology. For example, a two year study was conducted to determine (in part) the relationship between selected elements from Domain 1 and the effectiveness of interactive whiteboards in enhancing student achievement (see *Final Report: A Second Year Evaluation Study of Promethean ActivClassroom* by Haystead and Marzano, 2010). In all, 131 experimental/control studies were conducted across the spectrum of grade levels. Selected elements of Domain 1 were correlated with the effect sizes for use of the interactive white boards. All correlations for Domain 1 elements were positive with some as high as .70. This implies that the effectiveness of the interactive whiteboards as used in these 131 studies was greatly enhanced by the use of Domain 1 strategies.

### **Summary**

In summary, the Marzano Evaluation Model was designed using literally thousands of studies conducted over the past five or more decades and published in books that have been widely used by K-12 educators. In addition, experimental/control studies have been conducted that establish a more direct causal linkages with enhanced student achievement that can be made with other types of data analysis. Correlation studies (the more typical approach to examining the viability of a model) have also been conducted indicating positive correlations between the elements of the model and student mathematics and reading achievement. Finally, the model has been studied as to its effects on the use of technology (i.e., interactive whiteboards) and found it to be highly correlated with the effectiveness of that technology.

## References

Haystead, M. W. & Marzano, R.J. (2010) *Final Report: A Second Year Evaluation Study of Promethean ActivClassroom*. Englewood, CO: Marzano Research Laboratory (marzanoresearch.com)

Haystead, M. W. & Marzano, R.J. (2010). *Meta-Analytic Synthesis of Studies Conducted at Marzano Research Laboratory on instructional Strategies*. Englewood, CO: Marzano Research Laboratory (marzanoresearch.com)

Marzano, R.J. (2003). *What works in schools*. Alexandria, VA: ASCD

Marzano, R. J. (2006). *Classroom assessment and grading that work*. Alexandria, VA: ASCD.

Marzano, R.J. (2007). *The art and science of teaching*. Alexandria, VA: ASCD

Marzano, R. J., Frontier, T., & Livingston, D. (2011). *Effective supervision: Supporting the art and science of teaching*. Alexandria VA: ASCD

Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom instruction that works*. Alexandria, VA: ASCD.

Marzano, R.J., Marzano, J. S., & Pickering, D. J. (2003). *Classroom management that works*. Alexandria, VA: ASCD

Marzano Research Laboratory. (2010) *What Works in Oklahoma Schools: Phase I Report*. Englewood, CO: Marzano Research Laboratory (marzanoresearch.com)

Marzano Research Laboratory. (2011) *What Works in Oklahoma Schools: Phase II Report*. Englewood, CO: Marzano Research Laboratory (marzanoresearch.com)