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The New Art and Science of Teaching

By Robert J. Marzano

Study Guide

This study guide is a companion to the book *The New Art and Science of Teaching* by Robert J. Marzano. *The New Art and Science of Teaching*, an updated revision of the original *Art and Science of Teaching*, greatly expands on the instructional framework and strategies that Marzano has gleaned over fifty years of education research and observation to support students' psychological needs toward optimizing their learning.

This guide is arranged by chapter, enabling readers to either work their way through the entire book or focus on the specific topics addressed in a particular chapter. It can be used by individuals, small groups, or an entire team to identify key points, raise questions for consideration, assess conditions in a particular school or district, and suggest steps that might be taken to promote a healthy school culture.

We thank you for your interest in this book, and we hope this guide is a useful tool in your efforts to create a healthy culture in your school or district.

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Chapter 1

Providing and Communicating Clear Learning Goals

1. What desired mental states and processes should students have regarding clear learning goals?
Why is it important for students to attain these mental states and processes?
2. When the strategies in element 1, *providing scales and rubrics*, produce the desired effects, what behaviors will teachers see students display?
3. How are scales and rubrics distinctly different from each other? Describe a case in which you might design a rubric for your classroom's purposes, and describe a case in which a scale would be a better fit.
4. Name the three general types of assessments described in table 1.2. When do these types of assessments occur in relation to the flow of instruction, and what qualities do these types of assessments typically have? Which form of assessment has the most potential power, and why?
5. Define the concepts of *status* and *growth*, how they relate to each other, and how both relate to students' scores on a proficiency scale.

6. How do proficiency scales resolve the discrepancy between the amount of content that standards address and the amount of time teachers have for covering that content? What actions should district personnel take if they want to create their own proficiency scales?

Chapter 2

Using Assessments

1. What information should assessments provide to students, and what information should teachers gain from assessments? What desired mental states and processes should students have regarding assessment?
2. Briefly describe the purposes served by and the steps involved in the informal assessment strategies that use voting techniques and response boards. What information can teachers gather from using these assessment techniques?
3. Which of the formal assessment strategies featured in table 2.2 have you used with your students, and what purpose have the assessments served? Which of these strategies would you add to your formal assessment work, and why?
4. What should the first order of business always be when designing a common assessment?
5. How do student-generated assessments give students maximum flexibility? Describe a situation in which you feel you could best incorporate student-generated assessments in your classroom.
6. Name the design question that relates to using assessments. How can teachers turn the two elements involved in this design area into more focused planning questions?

Chapter 3

Conducting Direct Instruction Lessons

1. List the four design areas of content that teachers must utilize to deliver effective pedagogy.
2. Why does direct instruction have a tarnished reputation with some educators? What research continually maintains that direct instruction plays a necessary role in effective pedagogy?
3. Why should teachers present new information to students in small increments, and how do teachers accomplish this? How have you used this tactic when covering new material?
4. How do the strategies for processing content featured in table 3.2 help students increase their comprehension and retention in different ways?
5. In your own words, define *linguistic representation* and *nonlinguistic representation*. Provide an example of when students have represented content linguistically in your classroom and an example of when they have represented content nonlinguistically.
6. Briefly describe the actions a collaborative team should take when executing a lesson study in the context of the PLC process.

Chapter 4

Conducting Practicing and Deepening Lessons

1. Describe how *procedural knowledge* and *declarative knowledge* are different from each other. What are the levels of declarative knowledge?
2. How does practice, a staple of effective teaching, commonly get misunderstood? What should teachers consider to determine how to best use practice with their students?
3. What three stages does all procedural knowledge progress through, and what do students learn and do during each stage?
4. Which of the strategies for examining similarities and differences, listed in table 4.2, would best help deepen students' knowledge in your classroom, and why is this the case?
5. Why are the strategies for examining errors in reasoning central to college and career readiness?
6. Define *habit of mind*. What is a habit of mind you have that makes your thinking less productive than it could be, and what productive habit of mind relates to it? What changes could you make to adopt this productive habit of mind and abandon the unproductive one?

Chapter 5

Conducting Knowledge Application Lessons

1. Why is unassisted discovery an ineffective instructional tool, and for what reasons is enhanced discovery more powerful?
2. What behaviors do students exhibit when strategies for engaging them in cognitively complex tasks produce the desired effects? What purpose does engaging students in these tasks serve?
3. How does a teacher's role shift when he or she provides students with resources and guidance to help them engage with cognitively complex tasks?
4. In your own words, describe how *claims* are distinct from *facts*. Provide an example of a claim a student has brought up in your classroom and how the student could have supported the claim with facts.
5. What design question relates to implementing knowledge application lessons, and how can teachers transform the elements related to this design area into focused planning questions?
6. What is *backing*, and why is backing the area of greatest need among an argument structure's components? Describe a classroom situation in which you could incorporate prompting students to demonstrate backing.

Chapter 6

Using Strategies That Appear in All Types of Lessons

1. What desired mental states and processes are common to direct instruction lessons, practicing and deepening lessons, and knowledge application lessons?
2. According to David E. Rumelhart and Donald A. Norman, what are the three types of knowledge change? What do these three types of knowledge change refer to, how quickly do they occur, and how do they relate to each other?
3. Why do teachers need to highlight critical information in class? What behaviors will students demonstrate when the strategies for highlighting critical information have the desired impact?
4. List the four steps involved in cumulative review. Why should teachers carry out this strategy throughout the school year?
5. Why is homework one of the most misused strategies in K–12 classrooms? What considerations should teachers make when assigning homework?
6. Why is the questioning sequences strategy the most robust strategy for elaborating on information? What four types of questions should teachers introduce sequentially when using this strategy, and how does this sequential process impact students?

Chapter 7

Using Engagement Strategies

1. Why does the fact that physical movement strategies have a direct connection to students' energy levels make sense both intuitively and physiologically? In what ways do you use physical movement with students in your classroom?
2. In your own words, define *pace modulation* and *motivational hooks*. Why should teachers maintain a lively and modulated pace of instruction?
3. Describe a case in which you verbally or nonverbally communicated intensity and enthusiasm to students in class or you shared a personal anecdote with them. What message did you hope to send to the students?
4. How does presenting unusual information to students stimulate their intrigue? Consider a unit you teach. How might you or your students generate unusual information for this unit, and how might you get community members involved to inspire the desired effects of stimulating students' intrigue?
5. What makes friendly controversy more productive than other kinds of controversy?

6. Why can attention be thought of as the most basic level of engagement? What levels of engagement occur after the attention level, and how do you think you could enhance your current practices for helping students reach these engagement levels?

Chapter 8

Implementing Rules and Procedures

1. When during the school year do you establish your classroom's general rules and procedures, and how do you explain these rules and procedures to students?
2. How much attention do you pay to your classroom's physical layout? In what ways do you think you could alter your classroom's logistics and physical appeal to enhance students' perceptions of order?
3. What does *withitness* mean, and what does it help teachers do? What perception should withitness produce in students, and what simple behaviors can help produce this perception?
4. Why should teachers acknowledge when students decide to follow rules? What does this communicate to students?
5. Which of table 8.5's strategies for acknowledging lack of adherences to rules and procedures do you use most frequently, and why is this the case? Describe a situation in which you utilized this strategy that would have been better addressed by one of the other strategies in table 8.5.
6. Define *standard operating procedures* (SOPs). What kind of classroom culture develops when students design and implement SOPs themselves?

Chapter 9

Building Relationships

1. What desired mental states and processes should students reach as they build relationships with teachers and fellow students?
2. What verbal and nonverbal behaviors that indicate affection help teachers develop positive relationships with students, and what verbal and nonverbal behaviors provide students with the sense their peers value them?
3. How do you currently go about acquiring information about students' backgrounds and interests and helping students understand each other's backgrounds and interests? What changes would you make to your approach based on the strategies featured in table 9.2?
4. Why do teachers need to display objectivity and control with their students? Describe a case in which you interacted with students in a negative way and how one of the strategies in table 9.3 could have helped you remain thoughtful and not overreact?
5. Why should teachers periodically review how they are addressing the elements related to building relationships with their students? What actions can they take relative to these three elements to better focus on building effective relationships?

6. Consider the age group and grade level of the students you teach. Do you believe you have a natural affinity for teaching students in this level of education? Why or why not?

Chapter 10

Communicating High Expectations

1. According to researchers, why do teachers need to communicate high expectations for all students? What happens as teachers' expectations become greater, and what happens as teachers lower their expectations?
2. Consider table 10.1, featuring three strategies for demonstrating value and respect for reluctant learners. How does each of these three strategies help teachers effectively address reluctant learners' learning needs?
3. Why do teachers sometimes ask reluctant students less complex questions than they ask other students, and what does this behavior convey to the learners? How and why has this common behavior manifested itself in your teaching, and how did the reluctant learners respond to it?
4. What is likely to be the most powerful way to communicate high expectations for reluctant learners?
5. What is the design question for communicating high expectations? What should teachers think about and ensure reluctant learners know in planning for this design question?

6. Define *scripts*. What scripts do you find you have for what you do when you get up in the morning, how you interact with new people, and how you introduce new content to students?

Chapter 11

Making System Changes

1. What is a *draft unit plan*, and what does the name *draft unit plan* communicate about the nature of units of instruction? Why do teachers need to keep the middle ground between flexibility and thoughtful design in designing a draft unit plan?
2. List the six questions at the heart of unit design. What do teachers' answers to these questions help ensure?
3. What kinds of free Internet-based materials do you make available to your students, and how do you use blended instruction in your classroom? How do you think you should expand your use of Internet-based materials and blended instruction based on this chapter?
4. In your own words, define *cognitive skills* and *metacognitive skills*, and provide a few examples of each.
5. In what ways should the report cards used to document students' status and growth be changed, and how does the report card in figure 11.12 demonstrate this change?

6. Why can traditional scheduling practices be some of the most limiting practices in K–12 education? What actions related to scheduling can schools take in hopes of enhancing all teachers' effectiveness?