

# The Art and Science of Teaching

# What is about that Teacher?

- Parents always request for their child to be placed in that classroom.
- Administrators always enjoy visiting the classroom and use it as the exemplar for all others to see.
- Year in and year out they produce the best student achievement results.
  
- What is it about them that we know they are great teachers?

# After 40 years of research Clear on one thing...

The most significant factor in  
student learning?



...the teacher in the classroom!



“What Matters Very Much is  
Which Classroom?”

“If a student is in one of the most **effective** classrooms, he/she will learn in **6 months** what those in an average classroom will take a year to learn. And if a student is in one of the **least effective classrooms** in that school, the same amount of learning takes **2 years.**”



Deborah Loewenberg Ball, Dean of Education, University of Michigan

## The Ultimate Goal For Schools

Raise the level of least effective...so all classrooms are very good...

# Art and Science by the numbers

- 41 instructional elements
  - Why? Differentiate for growth needs
- 9 lesson design questions
  - Why? Guide instructional planning
- 3 segments for every lesson.
  - Why? A basis from which to discuss the craft of teaching.



# Three Segments of a Lesson

1. Segments that involve **Routine Behaviors**.
2. Segments that address **Content** in specific ways.
3. Segments that are **Enacted on the Spot**.

# 1. Lesson segments that involve **routine behaviors.**

- Setting clear learning goals
- Establishing how you will provide feedback and track student progress
- Establishing classroom routines and procedures (Attention signal, grouping routines)
- Organizing the physical layout of the classroom for learning (materials, traffic patterns, and displays)

## 2A. Lesson segments that address content in specific ways: **New Content**

- Questions, cues, advanced organizers
- Summarizing and note taking
- Non-linguistic representations of learning
- Chunking information
- Cooperative Learning
- Pacing of a lesson
- Establishing guiding questions



## 2B. Lesson segments that address content in specific ways: **Practicing and Deepening.**

- Cooperative learning
- Similarities and differences
- Homework and practice
- Questioning as review and practice

2C. Lesson segments that address content in specific ways: **Generating and Test Hypotheses.**

- Organize students into complex tasks involving hypotheses generation and testing
- Provide resources for guidance

# 3. Behaviors Enacted on the Spot

- Managing response rates during questioning
- Reinforcing effort and providing recognition
- Building and maintaining positive relationships with students
- Demonstrating high expectations for all students
- Maintaining a lively pace for instruction
- Use of academic games in the classroom

**ENACTED ON THE SPOT**

Student Engagement

**INVOLVES ROUTINES**

Learning Goals and Feedback  
Rules and Procedures

**ADDRESSES CONTENT IN SPECIFIC WAYS**

Interacting With  
New Knowledge

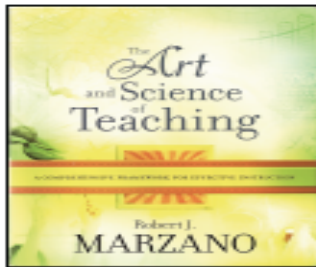
Practicing  
and  
Deepening

Generating/  
Testing  
Hypotheses

Teacher/Student Relationships

Adherence to Rules and Procedures

High Expectations



## The Art and Science of Teaching

<b>LESSON SEGMENTS INVOLVING ROUTINE EVENTS</b>	
Design Question 1	What will I do to establish and communicate learning goals, track student progress, and celebrate success?
Design Question 6	What will I do to establish or maintain classroom rules and procedures?
<b>LESSON SEGMENTS INVOLVING CONTENT</b>	
Design Question 2	What will I do to help students effectively interact with new knowledge?
Design Question 3	What will I do to help students practice and deepen their understanding of new knowledge?
Design Question 4	What will I do to help students generate and test hypotheses about new knowledge?
<b>SEGMENTS ENACTED ON THE SPOT</b>	
Design Question 5	What will I do to engage students?
Design Question 7	What will I do to recognize and acknowledge adherence and lack of adherence to classroom rules and procedures?
Design Question 8	What will I do to establish and maintain effective relationships with students?
Design Question 9	What will I do to communicate high expectations for all students?