Is teaching an art or a science?

Do We make a difference?

- Coleman (1966) discovered that only 10% of student achievement is influenced by what goes on in school.
- But the 10% influence can result in a 23 percentile gain.
- AND...research shows that even if the school doesn’t have much influence, the teacher does!
Effective Teaching Strategies – based on research

Make tremendous differences in student achievement gains!

• most effective teachers 53 percentage points
• least effective teachers produced achievement gains of about 14 percentage points
• students typically gain about 34 percentile points
Top three Instructional Strategies that Affect Student Achievement

- What do you think they are and why?

Research-Based Instruction

- Robert Marzano, Debra Pickering, and Jane Pollock reviewed hundreds of studies on instructional practices that have proven to effect student achievement.
• Marzano summarizes findings from educational research studies in quantitative terms, using the following effect size formula:

\[
\text{Effect Size} = \frac{\text{Mean of experimental group} - \text{mean of control group}}{\text{The population standard deviation}}
\]

Why is Effect Size Important?

- Very little overlap means there may be a significant difference
- Lots of overlap means there may not be a significant difference
Top three Instructional Strategies that Affect Student Achievement

1. Identify Similarities and Differences (45%)

2. Summarizing and note taking (34%)

3. Reinforcing effort and provide recognition (29%) - connection between effort and achievement


Instructional Strategies that Affect Student Achievement

4. Homework and practice (28%)

5. Nonlinguistic representations (27%)

6. Cooperative learning (27%)

Instructional Strategies that Affect Student Achievement

7. Setting Objectives and providing feedback (23%)
   “corrective,” timely, specific to a criterion

8. Generating and testing hypotheses (25%)
   system analysis, problem-solving, invention, inquiry

9. Questions, cues, and advance organizers (22%)
   wait time, focus on what is important

Based on Marzano, R.J., Pickering, D. J., & Pollock, J. E. (2001)
Classroom Instruction That Works: Research-based strategies....

HUNTER MODEL (ITIP)

- based on a theory of instruction derived from the research of human learning. Critical to this theory is the understanding that the teacher is the key to effective instruction.
- teaching is decision making
Hunter Model

- Briefly summarized, this model:
- 1. Identifies the decisions that all teachers make
- 2. Supplies teachers with a repertoire of research-based skills and strategies (processes)
- 3. Encourages teachers to select those processes which are appropriate (given existing conditions in content, teacher, student and situation) in order to increase the probability of learning.

8 ELEMENTS OF ITIP LESSON PLAN DESIGN

- Anticipatory Set
- Objectives
- Instructional input/strategies
- Modeling
- Checking for Understanding
- Guided Practice
- Independent Practice
- Closure/evaluation
OUR ITIP

- Focus on the 9 most effective/ 8 ITIP steps
- Share presentation responsibilities
- (RT as resource, organizer)
- Examine teaching as models
- Open, honest discussions.

Possible WORKSHOPS ??
1. First Steps (Intro)
2. Motivation
3. Questioning/Misconceptions
4. Assessment
5. Discussion/Forums
6. Learning Styles (Brain)
7. Writing in the 21st Century
8. TBD
“Teaching is described as a higher-level decision-making process: The teaching act requires a substantial amount of professional, and practical knowledge, teachers make many professional decisions each day, the judgments that teachers make require higher-order thinking processes, and this professional thinking and planning goes on throughout the day, in and out of the classroom.”

Similarities and Differences
• Think about your own personal experiences with identifying similarities and differences, both in school settings and in real life.

• Why do you think that the act of identifying similarities and differences can have such a positive influence on learning?

**Identifying Similarities and Differences**

- Presenting students with explicit guidance in identifying similarities and differences enhances students’ understanding of and ability to use knowledge.

- Asking students to independently identify similarities and differences enhances students’ understanding of and ability to use knowledge.
Identifying Similarities and Differences

- Representing similarities and differences in graphic or symbolic form enhances students’ understanding of and ability to use knowledge.
- Identification of similarities and differences can be accomplished in a variety of ways. The identification of similarities and differences is a highly engaging activity.

Suggested Teaching Strategies

- COMPARING—the process of identifying similarities and differences between or among things or ideas
- CLASSIFYING—the process of grouping things that are alike into categories on the basis of their characteristics
Suggested Teaching Strategies

- CREATING METAPHORS—identifying a general or basic pattern in a specific topic and then finding another topic that appears to be different but has the same pattern

- CREATING ANALOGIES—identifying relationships between pairs of concepts, identifying relationships between relationships

Complete this analogy: Instructional Strategies are to teachers as __________ are to _____________.

- What do you think the strengths and challenges of using the identification of similarities and differences in the classroom?
What are the examples of using similarities and differences we see?