



## **RESEARCH-BASED INSTRUCTIONAL STRATEGIES (RBIS)**

Researchers at Mid-Continent Research for Education and Learning (McREL) have identified 9 instructional strategies “that have a high probability of enhancing student achievement for all students in all subject areas at all grade levels.” These research-based instructional strategies (RBIS) are explained in the book, *Classroom Instruction That Works*, ASCD, 2001, by Robert J. Marzano, Debra J. Pickering, and Jane E. Pollock. Listed in order of highest to lowest average effect size, the RBIS are:

1. **Identifying Similarities & Differences** (Avg. Effect Size = 1.61; Percentile Gain = 45)
2. **Summarizing & Note Taking** (Avg. Effect Size = 1.00; Percentile Gain = 34)
3. **Reinforcing Effort & Providing Recognition** (Avg. Effect Size = .80; Percentile Gain = 29)
4. **Homework & Practice** (Avg. Effect Size = .77; Percentile Gain = 28)
5. **Nonlinguistic Representations** (Avg. Effect Size = .75; Percentile Gain = 27)
6. **Cooperative Learning** (Avg. Effect Size = .73; Percentile Gain = 27)
7. **Setting Objectives & Providing Feedback** (Avg. Effect Size = .61; Percentile Gain = 23)
8. **Generating & Testing Hypotheses** (Avg. Effect Size = .61; Percentile Gain = 23)
9. **Questions, Cues, & Advance Organizers** (Avg. Effect Size = .59; Percentile Gain = 22)

Effect Size (ES) = expresses the increase or decrease in achievement of the experimental group (the group of students who are exposed to a specific instructional technique) in standard deviation units.

### **1. IDENTIFYING SIMILARITIES & DIFFERENCES (pp. 13-28)**

The ability to break a concept into its similar and dissimilar characteristics allows students to understand (and often solve) complex problems by analyzing them in a more simple way. Researchers have found these mental operations to be basic to human thought. Indeed, they might be considered the “core” of all learning. Four ways to identify similarities and differences are (1) comparing, (2) classifying, (3) creating metaphors, and (4) creating analogies.

### **2. SUMMARIZING & NOTE TAKING (pp. 29-48)**

These skills promote greater comprehension by asking students to analyze a subject to expose what’s essential and then put it in their own words. According to research, this requires (1) substituting, (2) deleting, (3) keeping some things, and (4) having an awareness of the basic structure of the information presented. Research shows that taking *more* notes is better than fewer notes, though verbatim note taking is ineffective because it does not allow time to process the information. Teachers should encourage and give time for review and revision of notes. Notes can be the best study guides for tests.

### **3. REINFORCING EFFORT & PROVIDING RECOGNITION (pp. 49-59)**

Effort and recognition speak to the attitudes and beliefs of students, and teachers must show the connection between effort and achievement. Research shows that although not all students realize the importance of effort, they can learn to change their beliefs to emphasize effort. According to research, recognition is most effective if it is contingent on the achievement of a certain standard. Also, symbolic recognition works better than tangible rewards.

### **4. HOMEWORK & PRACTICE (pp. 60-71)**

Homework provides students with the opportunity to extend their learning outside the classroom. However, research shows that the amount of homework assigned should vary by grade level and that parent involvement should be minimal. Teachers should explain the purpose of homework to both the student and the parent or guardian, and teachers should try to give feedback on all homework assigned. Research shows

that students should adapt skills while they're learning them. Speed and accuracy are key indicators of the effectiveness of practice.

#### **5. NONLINGUISTIC REPRESENTATIONS (pp. 72-83)**

According to research, knowledge is stored in two forms: linguistic and visual (nonlinguistic). The more students use both forms in the classroom, the more opportunity they have to achieve. Recently, use of nonlinguistic representations has proven to not only stimulate but also to increase brain activity.

#### **6. COOPERATIVE LEARNING (pp. 84-91)**

Research shows that organizing students into cooperative groups yields a positive effect on overall learning. When applying cooperative learning strategies, keep groups small and don't overuse this strategy—be systematic and consistent in your approach. According to the research, cooperative learning is defined as possessing (1) positive interdependence, i.e., a sense of sink or swim together, (2) face-to-face promotive interaction, i.e., helping each other learn, applauding success and efforts, (3) individual and group accountability, i.e., each of us has to contribute to the group achieving its goal, (4) interpersonal and small group skills, i.e., communication, trust, leadership, decision making, and conflict resolution, and (5) group processing, i.e., reflecting on how well the team is functioning and how to function even better.

#### **7. Setting Objectives & Providing Feedback (pp. 92-102)**

Setting objectives can provide students with a direction for their learning. Goals should not be too specific; they should be easily adaptable to students' own objectives. Research shows that feedback generally produces positive results. Teachers can never give too much; however, they should manage the form that feedback takes.

#### **8. Generating & Testing Hypotheses (pp. 103-110)**

Research shows that a *deductive* approach (using a general rule to make a prediction) to this strategy works best. Whether a hypothesis is induced or deduced, students should clearly explain their hypotheses and conclusions. We commonly think of generating and testing hypotheses as the purview of the science teacher only. However, this strategy applies to a variety of tasks that are applicable to many subject areas.

#### **9. Using Cues, Questions, & Advance Organizers (pp. 111-120)**

Cues, questions, and advance organizers help students use what they already know about a topic to enhance further learning. Research shows that these tools should be highly analytical, should focus on what is important, and are most effective when presented *before* a learning experience.

**Source:** *Classroom Instruction That Works*, ASCD, 2001, by Robert J. Marzano, Debra J. Pickering, & Jane E. Pollock