# Ten Effective Research-Based Instructional Strategies*

Marzano[1] (2000) identified ten research-based, effective instructional strategies that cut across all content areas and all grade levels. Each requires specific implementation techniques to produce the effect sizes reported, so their use requires learning to use them correctly.

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| 1. | **Vocabulary**. Research indicates that student achievement will increase by 12 percentile points when students are taught 10-12 words a week; 33 percentile points when vocabulary is focused on specific words important to what students are learning. Requires specific approaches. (Effect size=0.95 or 32 percentile points) |
| 2. | **Comparing, contrasting, classifying, analogies, and metaphors**. These processes are connected as each requires students to analyze two or more elements in terms of their similarities and differences in one or more characteristics. This strategy has the greatest effect size on student learning. Techniques vary by age level. (Effect size=1.61 or 45 percentile points) |
| 3. | **Summarizing and note-taking**. To summarize is to fill in missing information and translate information into a synthesized, brief form. Note-taking is the process of students' using notes as a work in progress and/or teachers' preparing notes to guide instruction. (Effect size=1.0 or 34 percentile points) |
| 4. | **Reinforcing effort and giving praise**. Simply teaching many students that added effort will pay off in terms of achievement actually increases student achievement more than techniques for time management and comprehension of new material. Praise, when recognizing students for legitimate achievements, is also effective. (Effect size=0.8 or 29 percentile points) |
| 5. | **Homework and practice**. These provide students with opportunities to deepen their understanding and skills relative to presented content. Effectiveness depends on quality and frequency of teacher feedback, among other factors. (Effect size=0.77 or 28 percentile points) |
| 6. | **Nonlinguistic representation**. Knowledge is generally stored in two forms—linguistic form and imagery. Simple yet powerful non-linguistic instructional techniques such as graphic organizers, pictures and pictographs, concrete representations, and creating mental images improve learning. (Effect size=0.75 or |

* An excerpt from training materials for the SQS course "Measurement, Data Analysis, and Knowledge Management: Choosing Research-Based Instructional Strategies" by Dr. Susan Leddick; PKR, Inc.; January, 2005.

[1] Marzano, R. (2000). *What Works in Classroom Instruction*. Alexandria, VA. ASCD.

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| 27 percentile points) |
| 7. **Cooperative learning**. Effective when used right; ineffective when overused. Students still need time to practice skills and processes independently. (Effect size=0.74 or 27 percentile points) |
| 8. **Setting objectives and providing feedback**. Goal setting is the process of establishing direction and purpose. Providing frequent and specific feedback related to learning objectives is one of the most effective strategies to increase student achievement. (Effect size=0.61 or 23 percentile points) |
| 9. **Generating and testing hypotheses**. Involves students directly in applying knowledge to a specific situation. Deductive thinking (making a prediction about a future action or event) is more effective than inductive thinking (drawing conclusions based on information known or presented.) Both are valuable. (Effect size=0.61 or 23 percentile points) |
| 10. **Cues, questions, and advanced organizers**. These strategies help students retrieve what they already know on a topic. Cues are straight-forward ways of activating prior knowledge; questions help students to identify missing information; advanced organizers are organizational frameworks presented in advance of learning. (Effect size=0.59 or 22 percentile points) |