Marzano's High Yield Strategies—
How to identify similarities and differences to improve achievement

Robert Marzano and his research group have analyzed the research literature on teaching and learning in order to identify the teaching strategies that provide the highest gains in student achievement. Using the research technique classified meta-analysis (a process that collects a number of studies and combines the results to explore trends), Dr. Marzano has identified nine strategies that produce these high gains. These “high yield” strategies suggest a great deal of promise for improving the effectiveness of classroom instruction.

Identification of similarities and differences

Marzano et al. (2001) outline several critical aspects of the instruction of determining similarities and differences. Through analysis of the research, these features show dramatic increases in student understanding and the ability to access acquired knowledge:

1. Providing explicit instruction in identifying similarities and differences
2. Promoting student-directed identification of similarities and differences
3. Utilizing graphic representations of the similarities/differences relationship

Analysis of the research literature indicates that there are multiple ways to conduct the process of identifying similarities and differences. The four instructional strategies that Dr. Marzano identified as the most effective in developing this skill are 1) Comparing, 2) Contrasting, 3) Creating Metaphors, and 4) Creating Similarities. For this article, the strategies of compare and contrast will be highlighted.

Schwartz and Parks (1994) identify four problems with traditional strategies to teach compare and contrast. When engaged in the processes of compare and contrast, students often report only a few similarities or differences. Often, the quality of this comparison is superficial and does not identify the essential elements needed for deeper and more accurate understanding. Schwartz and Parks also suggest that students can engage in imprecise judgments when engaged in the process of compare and contrast. For example, when comparing mammals and reptiles, a student might report that one has fur while the other one lays eggs. Although the observation is correct, the lack of precision in using attributes can lead the student astray in systematically engaging in this thinking process.

A more precise manner to carry out the comparison would be to promote the use of attributes or characteristics. For example, the teacher can scaffold the conversation by cueing the attribute of “outside covering” (fur and scales) and “method of bearing young” (live birth and egg). Finally, many students do not adequately draw out the implications of the comparison. When engaging in the compare and contrast process, there should be an ultimate purpose for undergoing the process that is clear to students and teacher. By analyzing the pattern of similarities and differences, significant insights or implications can be uncovered, such as “Although there are several similarities between mammals and reptiles, the differences between the two are significant.”
Steps to the complete identification of similarities and differences

It is important to use explicit words that signal the process of identification of similarities and differences. "Compare," "contrast" and "attribute" will signal to the learner that the lesson is focused on the process of identification of similarities and differences. Using precise terminology such as this assists learners to be more strategic and deliberate in their approach.

Display "cognitive maps" and other visual tools

Cognitive maps provide a visual framework for learners, guiding them through the process of this type of thinking. Displaying them throughout the classroom will give students the opportunity to use the skill of compare and contrast.

Incorporate visual tools

To help learners skillfully engage in this thinking process, use visual tools such as graphic organizers. By incorporating visual tools into the lesson, students are able to visualize and eventually internalize the attributes of "similar" and "different." It helps to make this process more concrete and the thinking more skillful and systematic.

Identify concepts around which "similarities" and "differences" can be taught

Analyze the material that you are currently teaching and determine which concepts will lend themselves to the explicit teaching of identification of similarities and differences. By using this approach, teachers will uncover concepts which they are currently teaching that can incorporate the use of compare and contrast thinking, leading to even more powerful learning for students.

Instruct with explicit teaching in mind

Remember that the goal of this approach is to empower students to determine significant similarities and differences and to determine the importance of these patterns. The goal is not to complete a graphic organizer like a Venn diagram as an end product. Rather, the goal is to engage students in rich, critical thinking activities and to enhance the students' ability to engage in this process independently. It is important that students build a level of confidence as they engage in this process so they can independently transfer these skills to their everyday life.

Pitfalls to avoid

In this quick-paced world, it is easy to become entrapped in several snares that prevent teachers from fully engaging in the strategies that are discussed here.
- To "save time," it is easy to truncate a discussion by giving students the answers to the questions. The teacher must preserve the role of facilitator to assist students through probing questions in revealing the similarities and differences between the concepts that are being taught.
- By focusing on the completion of the graphic organizer, it becomes easy to believe that this is the end point of the lesson rather than the creation of powerful thinking patterns for students. It is critical to remember that the purpose is to help students discover the significant patterns of the similarities and differences and the implications of these patterns.
- It is easy to think that students are "absorbing" these strategies simply because the teacher uses them. However, it is important that the instruction in identifying similarities and differences is explicit and direct. Explicit use of the vocabulary ("compare," "contrast," "attribute") will help students to internalize these concepts. Purposefully displaying the cognitive maps and graphic organizers in your room will also increase the direct nature of this type of instruction.

Implementing together

Suggestions for schools:
- Read and discuss the SOS article and support materials at faculty or team meetings. (Watch the Webcast together to spark discussion.)
- Share specific examples of how the strategy is currently used by teachers and how it can be used more effectively.
- In learning teams, go deeper. Examine the steps and the pitfalls. Identify and agree on one concrete thing you will all do to improve the use of the strategy "identification of similarities and differences" in a specific subject/course over the next two weeks. Agree to log your actions and schedule a time to observe each other at least once. Arrange with the principal and/or department chair to observe as well.
- At the next team meeting, share observations about using the strategy and its impact on learning. Refine and agree on actions for the next two weeks.
- Share actions taken and observations of impact on student learning at next faculty meeting.

References


More Help

For help with vocabulary terms, cognitive map examples, graphic organizers and other topics described above, visit www.luc.edu/ccsc.