Nine Essential Instructional Strategies

Researchers at Mid-continent Research for Education and Learning (McREL) have identified nine instructional strategies that are most likely to improve student achievement across all content areas and across all grade levels. These strategies are explained in the book Classroom Instruction That Works by Robert Marzano, Debra Pickering, and Jane Pollock.

1. Identifying similarities and differences
2. Summarizing and note taking
3. Reinforcing effort and providing recognition
4. Homework and practice
5. Nonlinguistic representations
6. Cooperative learning
7. Setting objectives and providing feedback
8. Generating and testing hypotheses
9. Cues, questions, and advance organizers

The following is an overview of the research behind these strategies as well as some practical applications for the classroom.

1. Identifying Similarities and Differences

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. Teachers can either directly present similarities and differences, accompanied by deep discussion and inquiry, or simply ask students to identify similarities and differences on their own. While teacher-directed activities focus on identifying specific items, student-directed activities encourage variation and broaden understanding, research shows. Research also notes that graphic forms are a good way to represent similarities and differences.

Applications:

- Use Venn diagrams or charts to compare and classify items.
- Engage students in comparing, classifying, and creating metaphors and analogies.

2. Summarizing and Note Taking

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 substituting, deleting, and keeping some things and having an awareness of the basic structure of the information presented.

Applications:

- Provide a set of rules for creating a summary.
- When summarizing, ask students to question what is unclear, clarify those questions, and then predict what will happen next in the text.

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.

Applications:

- Use teacher-prepared notes.
- Stick to a consistent format for notes, although students can refine the notes as necessary.

3. Reinforcing Effort and Providing Recognition

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.

Applications:

- Share stories about people who succeeded by not giving up.
- Have students keep a log of their weekly efforts and achievements, reflect on it periodically, and even mathematically analyze the data.

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.

Applications:

- Find ways to personalize recognition. Give awards for individual accomplishments.
- "Pause, Prompt, Praise." If a student is struggling, pause to discuss the problem, then prompt with specific suggestions to help her improve. If the student's performance improves as a result, offer praise.

4. Homework and Practice

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.

Applications:

- Establish a homework policy with advice-such as keeping a consistent schedule, setting, and time limit-that parents and students may not have considered.
- Tell students if homework is for practice or preparation for upcoming units.
- Maximize the effectiveness of feedback by varying the way it is delivered.

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

Applications:

- Assign timed quizzes for homework and have students report on their speed and accuracy.
- Focus practice on difficult concepts and set aside time to accommodate practice periods.

5. Nonlinguistic Representations

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

Applications:

- Incorporate words and images using symbols to represent relationships.
- Use physical models and physical movement to represent information.

6. Cooperative Learning

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.

Applications:

- When grouping students, consider a variety of criteria, such as common experiences or interests.
- Vary group sizes and objectives.
- Design group work around the core components of cooperative learning-positive interdependence, group processing, appropriate use of social skills, face-to-face interaction, and individual and group accountability.

7. Setting Objectives and Providing Feedback

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.

Applications:

- Set a core goal for a unit, and then encourage students to personalize that goal by identifying areas of interest to them. Questions like "I want to know" and "I want to know more about . . ." get students thinking about their interests and actively involved in the goal-setting process.
- Use contracts to outline the specific goals that students must attain and the grade they will receive if they meet those goals.

Research shows that feedback generally produces positive results. Teachers can never give too much; however, they should manage the form that feedback takes.

Applications:

- Make sure feedback is corrective in nature; tell students how they did in relation to specific levels of knowledge. Rubrics are a great way to do this.
- Keep feedback timely and specific.
- Encourage students to lead feedback sessions.

8. Generating and Testing Hypotheses

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.

Applications:

- Ask students to predict what would happen if an aspect of a familiar system, such as the government or transportation, were changed.
- Ask students to build something using limited resources. This task generates questions and hypotheses about what may or may not work.

9. Cues, Questions, and Advance Organizers

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.

Applications:

- Pause briefly after asking a question. Doing so will increase the depth of your students' answers.
- Vary the style of advance organizer used: Tell a story, skim a text, or create a graphic image. There are many ways to expose students to information before they "learn" it.

Source: Adapted from Classroom Instruction That Works by R. J. Marzano, D. J. Pickering, and J. E. Pollock, 2001, Alexandria, VA: ASCD.