

Review the Research Base

Good instruction is essential for classroom learning, but it does not happen by accident. As you know, effective instruction is the result of a number of factors, including careful planning and skillful implementation of quality lessons in an environment set up for learning. Two recent research summaries by John Bransford and his colleagues (*How People Learn*, 2002) and Robert Marzano and his colleagues (*Classroom Instruction that Works*, 2001) help us understand some of the science behind why effective classroom planning and instruction are important to learning.

Learning

How People Learn draws on the foundational work of Lev Vygotsky and Jean Piaget, as well as more recent studies, to explain how new knowledge is constructed. Focusing on the actual processes of the mind, rather than specific instructional strategies, some key findings emerge that are significant to the classroom.

First, people use their existing knowledge to make sense of and learn new information. When people develop new knowledge, they build on and connect it to their previous knowledge or understandings. This has profound implications for classroom instruction. The finding in this case is not just that prior knowledge *can* be used as a starting place, but that it *will* be used. In some cases, that prior knowledge may involve misconceptions. By taking students' prior knowledge into account, teachers not only have the opportunity to build students' schema, or conceptual framework—they can also clarify any misconceptions that might impede understanding (Bransford, et al, 2002, p. 14–15).

A second key finding is the relationship between factual knowledge, a conceptual framework, and the ability to organize knowledge in such a way that it can be retrieved and applied. For a student to develop “competence in an area of inquiry” he or she must have learned an extensive depth of factual knowledge. This knowledge must be organized in a well-developed conceptual framework. Students need to recognize connections and relationships among facts and concepts, not just memorize pieces of information. In order to be proficient in a subject, a student must be able to access and apply their factual and conceptual knowledge to new problems and situations. (Bransford, et al, 2002,p.16)

Finally, Bransford and his colleagues emphasize the importance of metacognition in learning. Students need to develop skills in “thinking about thinking.” This awareness allows them to set learning goals, monitor their own learning, and know when they need to seek additional information. Metacognitive skills empower students to learn independently, a necessary skill to lifelong learning (Bransford, et al, 2002,p. 18–19).

When teachers implement these principles, they make their classrooms effective learning environments that are:

- Learner-centered
- Knowledge-centered
- Assessment-centered
- Community-centered

In a learner-centered environment, the classroom and the instruction that takes place there are designed with the needs of individual learners (including their prior understandings and experiences) in mind, rather than a “one size fits all” approach.

In a knowledge-centered environment, importance is placed on effective instructional techniques that develop depth of understanding.

Ongoing assessment of student learning that provides meaningful information to teachers and students about what students know and can do is key to an assessment-centered environment.

Finally, in a community-centered classroom, students feel safe in sharing and building on each other's knowledge. They have a sense of connection to their fellow learners and see the relevance both within and outside the classroom (p. 23–25).

Instruction

Effective instructional strategies for a learner- and knowledge-centered environment are focused on each learner and the development of her or his skills and knowledge base. *Classroom Instruction that Works* is the result of a meta-analysis of studies focused on the use of instructional strategies. In their analysis, Marzano and his colleagues found nine categories of instructional strategies have repeatedly been found to be particularly effective in promoting learning:

- Identifying similarities and differences
- Summarizing and note taking
- Reinforcing effort and providing recognition
- Homework and practice
- Nonlinguistic representations
- Cooperative learning
- Setting objectives and providing feedback
- Generating and testing hypotheses
- Cues, questions, and advance organizers

Through the use of these strategies, teachers can increase student learning and scaffold students to thinking tasks at the higher levels of Bloom's taxonomy, such as analysis, synthesis, and evaluation.

Research and the LEARN Model

The table below shows some of the specific connections between each element of the LEARN model and research on learning and instruction discussed above.

LEARN element	Key components	Relevant principles from the research above
Link	Activate prior knowledge and make connections to what learners already know	<p>Marzano— Effective instructional strategies:</p> <ul style="list-style-type: none"> • similarities and differences • setting objectives and providing feedback • cues, questions, advanced organizers <p>Bransford— People build new learning on previous or existing knowledge.</p>
Engage and Educate	Model the learning expected of students; direct instruction; showing concise examples	<p>Marzano— All effective strategies are relevant:</p> <ul style="list-style-type: none"> • Identifying similarities and differences • Summarizing and note taking • Reinforcing effort and providing recognition • Homework and practice • Nonlinguistic representations • Cooperative learning • Setting objectives and providing feedback • Generating and testing hypotheses • Cues, questions, and advance organizers <p>Bransford— Scaffolding for learning involves building interest, demonstrating the desired model, and simplifying the task enough that the student can succeed and recognize that success. (p. 104)</p>
Active Learning	Students participate in scaffolded, differentiated learning experiences where they can develop and practice new knowledge.	<p>Marzano— All effective strategies are relevant:</p> <ul style="list-style-type: none"> • Identifying similarities and differences • Summarizing and note taking • Reinforcing effort and providing recognition • Homework and practice • Nonlinguistic representations • Cooperative learning • Setting objectives and providing feedback • Generating and testing hypotheses • Cues, questions, and advance organizers <p>Bransford— Effective scaffolded instruction requires motivating and directing the learning activity, making clear to students the “critical features of discrepancies” between child work and “ideal solution,” helping to control the child’s frustration. (p. 104)</p>
Reflect	Reflect on and summarize the learning from the entire lesson	<p>Marzano— Several of the effective strategies are relevant. In particular:</p> <ul style="list-style-type: none"> • Summarizing and note taking • Setting objectives and providing feedback <p>Bransford— The importance of metacognition in being able set learning goals and monitor progress toward those goals.</p>
Now and Then	Identify concrete next steps for applying knowledge; provide a link for students between the current lesson and future learning. This is when teachers link both to prior knowledge and global knowledge.	<p>Marzano— Several of the effective strategies are relevant. In particular:</p> <ul style="list-style-type: none"> • Identifying similarities and differences • Summarizing and note taking • Reinforcing effort and providing recognition • Homework and practice <p>Bransford— The importance of metacognition and building on prior knowledge for future learning</p>

References

Bransford, John D., Brown, Ann L., and Cocking, Rodney R. (eds.). 2002. *How people learn: Brain, mind, experience, and school*. Washington, D.C.: National Academy Press.

Marzano, Robert J., Pickering, Debra J., and Pollock, Jane E. 2001. *Classroom instruction that works: Research-based strategies for increasing student achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.