LEARNING THEORIES

How teachers view the role of technology and media in the classroom depends very much on their beliefs about how people learn. Over the past half-century there have been several dominant theories of learning. Each has implications for instruction in general and for the use of technology and media in particular. We briefly survey each of the major perspectives on learning and discuss their implications. Driscoll (2005) discusses learning theories and their impact on teaching decisions in greater detail.

BEHAVIORIST PERSPECTIVE

In the 1950s, B. F. Skinner, a psychologist at Harvard University and a proponent of **behaviorism,** conducted scientific studies of observable behavior. He was interested in voluntary behavior, such as learning new skills, rather than reflexive behavior, as illustrated by Pavlov's famous salivating dog. He demonstrated that reinforcing, or rewarding desired responses, could shape the behavior patterns of an organism. Skinner based his learning theory, known as reinforcement theory, on a series of experiments with pigeons. He reasoned that the same procedures could be used with humans. The result was the foundation for computer-assisted instruction. Unlike earlier learning research, Skinner's work was very logical and precise, leading directly to improved instruction and learning.

Behaviorists refuse to speculate on what goes on internally when learning takes place. They rely solely on observable behaviors. As a result, they are more comfortable explaining relatively simple learning tasks. Because of this posture, behaviorism has limited applications in teaching higher-level skills. For example, behaviorists are reluctant to make inferences about how learners process information. Although most would argue that in the 21st century, behavioral concepts are not necessarily applicable to the types of learners you are encountering in your classrooms, you may determine that some basic knowledge or skills require a behaviorist approach to instruction.

COGNITIVIST PERSPECTIVE

In the latter half of the twentieth century, cognitivists made new contributions to learning theory by creating models of how learners receive, process, and manipulate information. **Cognitivism,** based on the work of Swiss psychologist Jean Piaget (1977), explores the mental processes individuals use in responding to their environment—that is, how people think, solve problems, and make decisions. For example,
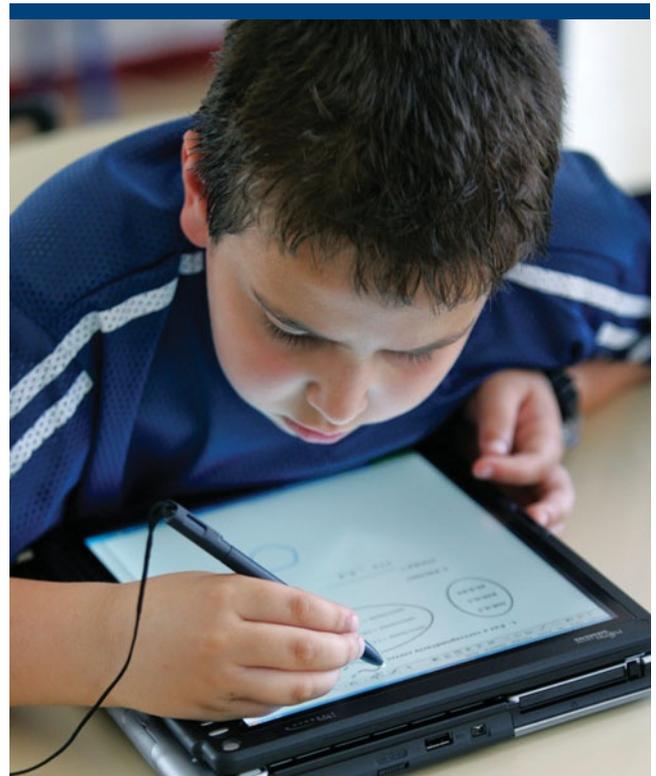
Learning is sometimes done best by the individual student working alone.

Sergio Azenha/Alamy

behaviorists simply state that practice strengthens the response to a stimulus. Cognitivists, on the other hand, create a mental model of short-term and long-term memory. New information is stored in short-term memory, where it is rehearsed until ready to be stored in long-term memory. If the information is not rehearsed, it fades from short-term memory. Learners then combine the information and skills in long-term memory to develop cognitive strategies, or skills for dealing with complex tasks.

Cognitivists have a broader perception of learning than that held by behaviorists. Students are less dependent on the guiding hand of the teacher and rely more on their own cognitive strategies in using available learning resources. Many would suggest that the cognitivist approach to instruction is a good compromise between required benchmarks, those standards against which students are tested, and a more metacognitive approach to teaching the 21st century learner.

CONSTRUCTIVIST PERSPECTIVE

Constructivism is a movement that extends beyond the ideas of cognitivism, considering the engagement of students in

meaningful experiences as the essence of experiential learning. Shifting from passive transfer of information to active problem solving and discovery, constructivists emphasize that learners create their own interpretations of the world of information. They argue that students situate the learning experience within their own experience and that the goal of instruction is not to teach information but to create conditions in which students can interpret information for their own understanding. The role of instruction is to provide students with ways to assemble knowledge rather than to dispense facts. Constructivists believe that learning occurs most effectively when students are engaged in authentic tasks that relate to meaningful contexts (i.e., learning by doing). The ultimate measure of learning is therefore the ability of the student to use knowledge to facilitate thinking in real life, an approach that fits with the learning abilities 21st century learners need for an uncertain future, in which they must solve problems that not only capitalize on their existing knowledge but also require them to seek additional information or skills in finding effective solutions.

SOCIAL PSYCHOLOGY PERSPECTIVE

Social psychology is another well-established approach to the study of instruction and learning. Social psychologists look at how the social organization of the classroom affects learning. What is the group structure of the classroom—independent study, small groups, or the class as a whole? What is the authority structure—how much control do

Together a pair of students can collaborate on their learning.

Bob Daemmrich/PhotoEdit

students have over their activities? And what is the reward structure—is cooperation rather than competition fostered?

Researchers such as Robert Slavin (1990) have taken the position that cooperative learning is both more effective and more socially beneficial than competitive and individualistic learning. Slavin developed a set of cooperative learning techniques embodying the principles of small-group collaboration, learner-controlled instruction, and rewards based on group achievement. We discuss these techniques more fully in Chapter 4.

The 21st century learner enters your classroom with many skills developed from technology-based social networking. The ideas fostered in the social psychology perspective address such interdependent collaborative abilities that 21st century learners need to use as part of their learning.

Teachers need to develop an eclectic attitude toward the various schools of learning psychology. We are not obliged to swear allegiance to a particular learning theory. We use what works. If we find that a particular learning situation is suited to a behaviorist approach, then we should use behaviorist techniques. Conversely, if the situation seems to call for cognitivist or constructivist strategies, those are what we should use. When dealing with the 21st century learner in your classroom, consider which learning theory best applies to the particular type of learning task at hand.

INFORMATION AND INSTRUCTION

As educators, it is important to distinguish between information and instruction. **Information** is knowledge, facts, news, comments, and content. Information can be presented in a memo, in the classroom, in a textbook, or on the Web. Often the presentation, whether it is live, printed, or on the Internet, is general in content and its purpose is to give an overview of ideas or subject matter—to generate interest, to provide background information, or to give procedural details.

Learners should not be expected to be responsible for the retention or use of information they have only seen or heard. The information provided by a job aid, like a phone book, is not meant to be memorized. It is assumed that you will look up the information when needed. With computers, it has become possible to give ever more rapid and detailed information in specific situations, to the point that the computer could be said to be helping or "coaching" the individual. Although with frequent use of a job aid or a