CHAPTER 1 ARTICLE

CONSTRUCTIVISM: PROMOTING ACTIVE LEARNING

Let’s take a brief look at the theoretical points underlying constructivism and social constructivism and examine several classroom practices that lend themselves well to these views of the teaching/learning process.

Cognitive Constructivism

Constructivism is based on the idea (Snowman & Biehler, 2000, p. 291) that “meaningful learning occurs when people actively try to make sense of the world—when they construct an interpretation of how and why things are—by filtering new ideas and experiences through existing knowledge structures…” Years ago, teachers recognized the importance of students’ background experiences and how important they are to reading comprehension. We recognize that the “whole child” comes to any act of learning, and we need to consider what their life experiences are. You might want to examine Beloit College’s Class of 2004 Mindset List and think, “If these pertain to college students, what to current K-8 students know?” See it at http://www.beloit.edu/~pubaff/releases/Mindset-List-2004.html

Constructivists emphasize that individuals build new meanings upon previous meanings that they have acquired through life experiences (Cox-Petersen & Olsen, 2000; Steffe & Gale, 1995). Cognitive theorists also understand that teachers cannot take what is in their heads and plop that information into a student’s head, because the student’s life experiences are not identical to anyone else’s—including (and perhaps especially) the teacher’s. It is interesting to us that the term “virtual reality” is used to describe technologically simulated, artificial, three-dimensional environments that people can manipulate through bodily movements. From a
cognitivist point of view, one’s personal interpretation of reality could be considered the original “virtual reality,” since each person’s reality is self-created and unique, and it is acquired through interactions with the “real” world. Ponder the statements in the Beloit College’s Class of 2004 Mindset List mentioned above, which is a humorous--but at the same time serious—reminder to us that elementary and middle school students have very different knowledge structures or understandings about the world than adults do.

You might wonder why we do not have idiosyncratic views (unique to one’s self) of reality. We live in societies and cultures that filter, restrict, and channel information. As a result, our own version of reality is consistent with, but not identical to, the realities of others who are immersed in the same circumstances. A term from sociology, cultural relativism, comes to mind. The idea related to this term is that people cannot fully understand a culture unless they can “get out of it” and see if from the perspective of another culture. Seeing “how the other half lives” helps you see how you live. More simply put, you do not fully appreciate strawberry ice cream if that is all you ever had to eat, but once you try another flavor you can then appreciate the strengths and limitations of strawberry ice cream. Broadening our life experiences help us from having idiosyncratic views of the world.

Another reason we do not maintain idiosyncratic views of the world is because we constantly interact with others, and through such interactions, we hear different perspectives, our thoughts are challenged, and we re-think issues. Collaborative learning experiences help students because they are often challenged by the thinking of other members of the group and learn other students’ perspectives.

Cognitive constructivism, one form of constructivist learning theory, rests on theoretical arguments that some educators and psychologists find controversial as well as several
methodologies that enjoy popular support regardless of the theories they reflect (Gage & Berliner, 1998, p. 276). Cognitive constructivism rests heavily on Piaget’s (1952) view that people have “an intrinsic drive to resolve inconsistencies and contradictions—that is, to always have a view of the world that makes sense in light of what we currently know” (Snowman & Buehler, 2000, p. 294). Piaget’s notions of assimilation (i.e., taking in new information), accommodation (i.e., adjusting to the new information, and equilibration (i.e., being satisfied or comfortable again) come into play in explaining cognitive constructivism. To help understand Piaget’s ideas about cognition, you can think of the biological term “homeostasis,” a state of physiological balance. Some view cognitive constructivism as an educational philosophy rather than a theory, because they believe it lacks the explanatory power of learning theories. It falls, according to Smith & Ragan (1999), in the category of philosophies called “rationalism,” which is characterized by the belief that reason is the primary source of knowledge and that reality is constructed rather than discovered. Most rationalists would propose that there is not a single reality to be discovered, but that each individual has constructed a personal reality. (p.14, 15)

Social Constructivism

One version of constructivist learning theory, social constructivism, emphasizes consideration of the ways a culture influences its people’s mental constructs. One major assumption about social constructivism is that “learning is collaborative with meaning negotiated from multiple perspectives (Smith & Ragan, 1999, p. 15). Those holding this view of constructivism, according to Snowman and Biehler (2000), believe that
meaningful learning occurs when people are explicitly taught how to use the psychological tools of their culture (like language, mathematics, diagrams, and approaches to problem solving) and are then given the opportunity to use these tools to create a common, or shared, understanding of some phenomenon. (p. 295)

Individuals learn, as members of a group, to think like other members of the group. That is, the groups they belong to heavily influence people’s thinking.

**Teaching Approaches that Emerge from Constructivism**

Constructivism blends well with a variety of classroom practices. Constructivist perspectives, according to Cadiero-Kaplan (1999, p. 15), lead to “discovery learning, authentic (real world) classroom tasks, social discourse as part of learning, the teacher as facilitator and resource provider, and most importantly, the students as agents over the classroom environment and learning.” (See also Randolph & Everston, 1994; St. Pierre-Hirtle, 1996)

Several instructional principles are associated with constructivist teaching. We will look at three here: scaffolding, situated learning or cognition, and ensuring that students experience multiple perspectives. With scaffolding, teachers model and provide initial support that is gradually withdrawn so that students internalize the processes involved. Situated learning or situated cognition involves presenting learning experiences in realistic contexts so students learn to solve meaningful problems using skills that have relevance to the world outside of school. Situated learning, according to Simonson & Thompson (1997), “occurs when students work on ‘authentic tasks’ in a real-world setting. This implies that effective instruction should be based on authentic tasks that permit the student to construct a learning environment meaningful to them. Students do not discover knowledge, they construct it in authentic settings” (p. 43).
Exposing students to multiple perspectives, other people’s ideas, prepares them for those times when they encounter real world problems that can be looked at in multiple ways.

Linked to these constructivist perspectives and principles are several specific teaching approaches. We will examine four here.

**Inquiry strategies**

Some educators suggest that the teacher’s role is to facilitate learning by creating an environment that promotes inquiry, while others contend that teachers must continue to transmit facts and traditional concepts to students through direct teaching. Both kinds of teaching/learning have their place in educating students. The question is how to balance instruction so you lead, model, and instruct some of the time, but you give students freedom to pursue their own interests some of the time, also. Recent trends in learning about authors and literature have emphasized the inquiry approach. (Short, K. G., Harste, J. C., & Burke, C. (1996); Short, K. G., Schreder, J., Laird, J., Kauffman, G., Ferguson, M. J., & Crawford, K. M. (1996).)

In inquiry classrooms says Galas (1999),

the teacher provides children with resources and activities that help them create and develop their ideas…. The learning process is open-ended and open to continual change.

It is an on-going loop. The questions students ask lead to answers, which lead to more questions, and more answers that generate more questions. (p.11,13).

Inquiry strategies enable students, working alone or in groups, to engage in research activities as they pose problems; seek, analyze and evaluate information; and report what they learn about topics of interest to them. “Thus,” says Tower (2000), “inquiry means allowing students to become much more involved in the decisions about what to study and what sources and activities are necessary” (p. 550).
Inquiry has been called an attention strategy (Smith & Ragan, 1999, p. 310) who state that inquiry “includes frequent engagement in problem solving activities and providing opportunities for learners to select topics, projects, and assignments that can capitalize on their interests.” Certainly, many students have interests that they would like to pursue independently, and certainly you are wise to support students in learning to help themselves. Your art of asking good questions can be supportive of inquiry strategies. See the Chapter 1 Web site Feature Evoking Motivation Using Predictive Behaviors for a discussion about helping students make predictions through the art of questioning.

You have some constraints that affect what goes on in your classroom. The public is concerned about students’ performance with national, state, and, perhaps, district-wide standards. You, yourself, believe there are necessary topics or strategies you must ensure that your students learn, and your curriculum may have specific requirements for the grade level you teach. What, can you do to balance your needs as a teacher and students’ interests and needs? Start by taking a good, hard look at what you must accomplish throughout the school year and determine which specific learning experiences best lend themselves to high student input and expression. Those learning experiences will provide the best opportunities for you to help students pursue their own interests.

**Problem-Solving**

You and students are surrounded by life’s problems. Some problems are easy to resolve, but others are not. Some of the understandings, skills, and attitudes that students attempt to learn in school are easy, but some are not. You can help students learn to solve problems by

1) helping students define problems,

2) making apparent the models and strategies you use to solve problems, and
3) helping students build their own capabilities through solving problems as part of their learning experiences.

When problems are relatively well defined, you and students use your intelligence, knowledge of your background experiences, and hard work to solve them. When problems are less well-defined, according to Gage and Berliner (1998, p. 279), people use “extensive case knowledge and reflect on their experience.” Case knowledge results from multiple, reflective experiences—such as, for instance, building a hundred model airplanes and, because you did so, you can now make excellent model airplanes. The implication drawn from the idea of case knowledge is that if you want to help students become excellent problem solvers, you have to ensure that they learn appropriate strategies and engage in an abundance of problem-solving activities in your classroom.

Two approaches that have endured for many years and dovetail well with both inquiry-based learning and problem solving are the scientific method and discovery learning. For at least half a century, prominent educators have endorsed teaching students the scientific method, which includes the principles and processes needed for conducting observations or experiments and involves having students form hypotheses and determine for themselves whether or not those hypotheses pan out. The scientific method can be an important structure for students to help them organize their research activities. Aspects of discovery learning, in which students use inductive reasoning and independent research strategies to explore concepts or principles, can be found in many of the teaching practices and learning experiences that were originally advocated in the latter part of the 20th century. You can arrange learning experiences in which students must organize and make sense out of the exemplars you present for them to study.

**Mentoring and Apprenticeship**
The constructivist approach emphasizes the importance of providing expert support for learners and opportunities for learners to interact with one another to gain alternate ways to accomplish tasks. You can use scaffolding to mentor students, and you can, in some cases, have students act as your assistants (apprentices), giving them opportunities to see how you approach learning tasks. Students help other students, too, and your use of cooperative or collaborative strategies in your room can help students work with the mentors they need.

**Collaborative Learning**

In recent decades, more and more teachers have embraced collaborative or cooperative learning as their major classroom strategy. In cooperative learning, small groups of students work together to accomplish tasks, and (Snowman & Biehler, p. 359) “cooperative structures lead students to focus on effort and cooperation as the primary basis of motivation.”

Groups of four or five students who reflect the makeup of the class (e.g., in terms of sex, ethnicity, ability) are given a group goal to reach, and they learn that the group goal will be attained only if each student learns the required materials or contributes something specific to the task at hand (e.g., an electronic presentation or online project).

Collaborative learning, however, is more complex than just asking a group of students to work together on some project. There are a variety of factors over which teachers must exercise some authority. You must orchestrate cooperative learning experiences to ensure that:

1) everyone participates fully in a group project,

2) no single student dominates the activity, and

3) students comport themselves well.

You help students work together to learn to solve problems, complete their assignments on schedule, help one another, and stay motivated, among other things. You also hold individual
students accountable for pulling their weight as they work toward the group goal, and you help students develop and use interpersonal skills (e.g., leadership, “followership,” communicating, resolving conflicts).

Cooperative and collaborative learning opportunities offer students freedom to contribute to their own learning. In many collaborative learning experiences, students work together to determine the scope of an investigation then work together—or sometimes independently for part of the time—to conduct research and report the results of their co-inquiry. For an excellent discussion about cooperative learning, see AtoZ Teacher Chat - Cooperative Learning ...

some basics & online resources at http://www.atozteacherstuff.com/topics/cooperative.shtml, or Collaborative Lesson Archive (The University of Illinois) at http://faldo.atmos.uiuc.edu/CLA/. This site contains, by grade level, lessons that help students work collaboratively. Many textbooks and articles about cooperative learning (e.g., Lookatch, 1996) are available on the subject, also.

References


