CONSTRUCTIVISM: A SHORT SUMMARY

by
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“Constructivism is a theory of learning, and it is also a theory of knowing. It is an epistemological concept that draws from a variety of fields, including philosophy, psychology, and science” (Walker & Lambert, 1995 p. 1). Constructivism "has become de rigueur in educational circles and ... stems from a long and respected tradition in cognitive psychology, especially the writings of Dewey, Vygotsky, and Piaget" (Danielson, 1996, p. 23). Ernst von Glasersfeld's basic principles of radical constructivism are the following:

1. Knowledge is not passively received either through the senses or by way of communication, but it is actively built up by the cognising subject.
2. The function of cognition is adaptive and serves the subject's organization of the experiential world, not the discovery of an objective ontological reality. (von Glasersfeld, 1988, p. 83)

His principles are built on the ideas of Jean Piaget, who applied the biological concept of adaptation to epistemology (von Glasersfeld, 1996). Von Glasersfeld (1993, p. 24) refers to his ideas as "postepistemological" because his radical constructivism posits a different relationship between knowledge and the external world than does traditional epistemology.

Theories about conceptual change have been built on constructivist principles. Conceptual change can be subdivided into differentiation in which new concepts emerge from more general concepts, class extension in which existing concepts become cases of another subsuming concept, and re-conceptualization in which nature of and relationship between concepts changes significantly (Dykstra, Boyle and Monarch, 1992). After dissatisfaction with existing conceptions, requirements for conceptual change are that the new conception be intelligible, plausible, and fruitful (Posner, Strike, Hewson, & Gertzog, 1982). The status of a conception is increased as more of these three conditions are met (Hewson, 1996).

A constructivist view does not lead to a simple, uncontested set of rules for pedagogical practice. General agreement is that students need interaction with the physical
world and with their peers to stimulate meaning-making. The teacher elicits students’ initial beliefs about the subject to be studied and about the nature of learning. The teacher sets up situations that will cause dissatisfaction with existing ideas. Realizing that students' expectations affect their observations and that multiple approaches to problem solving are acceptable, the teacher monitors students' understandings, requests from them evidence and justification, provides constraints for their thinking, and gives them opportunities to represent their knowledge in a variety of ways. The teacher's role also includes introducing, when necessary, new ways of thinking about phenomena and working with symbols. Then the teacher guides and supports students as they make sense of these ideas and tools for themselves in cooperation with their classmates (Driver, 1995; Driver, Asoko, Leach, Mortimer, & Scott, 1994; Duit, 1995; Fosnot, 1996; Lewin, 1995; Rubin, 1995; Tobin & Tippins, 1993; von Glasersfeld, 1995).

Constructivist approaches to teaching and cooperative learning techniques can be thought of as having both personal and interpersonal components. Each person constructs his or her own mental frameworks and conceptions using preferred learning styles. However, this is seldom done in isolation. The cognitive developmental perspective emphasizes that participants should engage in discussion in which cognitive conflict is resolved and inadequate reasoning is modified. Language passing back and forth between individuals in written and oral forms is viewed as indispensable for the development of understanding (Belenky et al, 1986; Driver, 1995; von Glasersfeld, 1995). The social interdependence perspective has the assumption that the way social interdependence is structured determines how individuals interact. This, in turn, determines what is accomplished by the group (Johnson & Johnson, 1994). Intrinsic motivation is generated by interpersonal factors and joint aspirations. At the same time that students become more aware of and take more responsibility for their own thinking, they increase their understanding and appreciation of other people’s thinking.

REFERENCES


Types of constructivism:

1. Trivial or Personal
   Knowledge is actively constructed by the learner, not passively received from the environment.

2. Radical
   Coming to know is a process of dynamic adaptation towards viable interpretations of experience. The knower does not discover truth about the real world.

3. Social
   Individuals participate in the learning of a collective, sometimes with what is learned distributed throughout the collective more than in the mind of any one individual.

4. Cultural
   The ways in which individuals think are affected by the tools, artifacts, and symbolic systems used to facilitate social and cultural interaction.

5. Critical
   Myths that keep individuals from being empowered should be made visible and hence open to question.
Constructivist teachers:

1. encourage and accept student autonomy and initiative.

2. use raw data and primary sources, along with manipulative, interactive and physical materials.

3. use cognitive terminology such as “classify,” “analyze,” “predict,” and “create.”

4. allow student responses to drive lessons, shift instructional strategies, and alter content.

5. inquire about students’ understandings of concepts before sharing their own understandings of those concepts.

6. encourage students to engage in dialogue, both with the teacher and with one another.

7. encourage student inquiry by asking thoughtful, open-ended questions and encouraging students to ask questions of each other.

8. seek elaboration of students’ initial responses.

9. engage students in experiences that might engender contradictions to their initial hypotheses and then encourage discussion.

10. allow wait time after posing questions.

11. provide time for students to construct relationships and create metaphors.

12. nurture students’ natural curiosity through frequent use of the learning cycle model.