Constructivism

Constructivist View of Learning

- The main tenet of constructivist learning is that people construct their own understanding of the world, and in turn their own knowledge.

- “all knowledge is constructed from previous knowledge, irrespective of how one is taught” (National Research Council, 1999, p. 10).

- we as humans construct our own knowledge, as opposed to the idea that knowledge is somehow transmitted directly into our minds.

Constructivist View of Learning

- Understanding is seen as not being built up simply from received pieces of knowledge, but instead, as being composed of "building blocks" of understanding which are the outcomes of preceding acts of construction.

- Knowledge structures, which have actually been "constructed" in the mind, then form the basis for subsequent "constructions" through "restructuring".

Constructivist View of Learning

- Piaget, who believed that knowledge does not come to us passively from the outside world, 'ready-made', nor innately, but is actively constructed within our minds. According to Piaget, each person therefore creates his or her own world (Donaldson, 1978).

- The learner and the world are regarded as separate entities. People do get information from the world, but it does not carry meaning; it is the mind which combines these sensory impressions in order to construct meaning.

Constructivist View of Learning

- people in the same world construct meaning differently. This difference is not a function of what is out there, but rather of what is inside our heads. It is because we ourselves construct different images of the world in which we live.

- learning is the belief that knowledge about the external world is a human construct, and that learners actively construct their knowledge on the basis of knowledge already held.

Constructivist View of Learning

- Everything that a person “sees” is somehow an interpretation, in the sense that a person builds up his/her own interpretative framework for making sense of the world, and meaning is actively constructed in the mind.

- Romberg and Carpenter (1986) claimed that “learning proceeds through construction, not absorption” (p. 868), or, in other words, that knowledge is not passively received but actively built up by the learner.

Constructivist View of Learning

- Learning requires the active search for information and experiences that are subsequently converted into useful knowledge by the mind.
- Learning is best described as an active process in which students construct their own personal meaning of the subject matter through interactions with the world around them.
- For constructivist learning to take place, students must incorporate new information into their prior knowledge. Learners must personally determine the overall meaning of their experiences in relation to their preexisting cognitive structures.

Constructivist View of Learning – Effects on Curriculum

- it is impossible to specify identical learning outcomes for all students.
- Constructivist curriculum developers suggest problems and challenges that the teacher and students can approach cooperatively. They then suggest possible learning experiences intended to lead teachers and students to scientifically valid solutions.

Constructivist View of Learning – Effects on Curriculum

- From a constructivist perspective, curriculum developers must flexibly specify both the questions to be addressed and the various learning experiences meant to help a diverse population of students develop meaningful answers to these questions.

Constructivist View of Learning – Effects on Curriculum

In making decisions concerning instruction, teachers must first determine the prior knowledge of the students and then organize instruction to modify and build upon what the students already know.

Constructivist teaching involves classroom interactions in which the teacher helps the student gain a deeper understanding of reality. Constructivist teachers provide structure and guidance for learning and constructing knowledge through their interactions with students.

Constructivist Pedagogy

Brooks and Brooks (1999) offer five guiding principles of constructivism that can be applied to the classroom.

1. Posing problems of emerging relevance to students.

A focus on students' interests and using their previous knowledge as a departure point helps students engage and become motivated to learn. The relevant questions posed to the students will force them to ponder and question their thoughts and conceptions.

Constructivist Pedagogy

2. Structuring learning around primary concepts.

This refers to building lessons around main ideas or concepts, instead of exposing students to segmented and disjoint topics that may or may not relate to each other.

"The use of broad concepts invites each student to participate irrespective of individual styles, temperaments, and dispositions" (p. 58).

Constructivist Pedagogy

3. Seeking and valuing students' points of view.

This principle allows for access to students' reasoning and thinking processes, which in turn allows teachers to further challenge students in order to make learning meaningful. To accomplish this, however, the teacher must be willing to listen to students, and to provide opportunities for this to occur.

Constructivist Pedagogy

4. Adapting curriculum to address students' suppositions.

   "The adaptation of curricular tasks to address student suppositions is a function of the cognitive demands implicit in specific tasks (the curriculum) and the nature of the questions posed by the students engaged in these tasks (the suppositions)" (p.72).

Constructivist Pedagogy

5. Assessing student learning in the context of teaching.

   Authentic assessment is best achieved through teaching; interactions between both teacher and student, and student and student; and observing students in meaningful tasks.

Constructivist Pedagogy and Critical Thinking

- However, it is often found that constructivist learning could be carried out superficially and mechanically through discussion in the classroom, as teachers might try to control or ensure that an appropriate conclusion will be developed from that process.

Constructivist Pedagogy and Critical Thinking

- In this case, students might have constructed their own knowledge, but the construction needs to follow a criterion of appropriateness imposed by the teacher.

- Is it the “constructivist pedagogy” that we should use when we try to develop students’ critical thinking?

Constructivist Pedagogy and Critical Thinking

- According to Dirks (1998), the primary role of the teacher when using critical pedagogy to develop critical thinking is “to engender learning by supporting the student in this construction process”.

- He proposed a linear model which comprises the following five steps:

Constructivist Pedagogy and Critical Thinking

1. The teacher ensures that alternative perspectives are accessible readily to students.

2. The teacher sets up a learning environment which could encourage the students to empathetically enter the alternative perspectives.

Constructivist Pedagogy and Critical Thinking

- According to Clinchy (1994), this process is characterized by withholding judgment; first believing , then doubting.

- Only through deliberately withholding judgment can the student fully comprehend the framework and perspective of the alternative argument so that he or she could evaluate and judge the various perspectives.

Constructivist Pedagogy and Critical Thinking

- Missimer (1994) argues that the yardstick to be used for judging a particular argument is its adequacy in light of alternative arguments which have been thoroughly understood.

- “Within this social framework, the person doing critical thinking does not see out of the eye of one argument alone (monoscopic vision), but must see a hypothesis from the point of view of two or more arguments or lenses (stereoscopic, even multiscopic vision)”.

Constructivist Pedagogy and Critical Thinking

- Missimer supports the notion that proper evaluation of multiple perspectives and arguments requires a knowledge base as a frame of reference.

- “It is virtually impossible for someone unaware of the rich, intricate accretion of theories in a subject to estimate whether a given argument ‘adequately takes account of alternative arguments,’ much less to construct such an argument”.

Constructivist Pedagogy and Critical Thinking

3. The teacher provides access to the students to the "conversation of the knowledge community" so that they can develop a reasonable understanding of the body of knowledge relating to the matter.

4. The teacher establishes the social environment in which cognitive interactions and dialogic processes can help students evaluate the alternatives through reflection and critical thinking.

Constructivist Pedagogy and Critical Thinking

- Bruffee (1993) argues that the teacher is to acculturate the students to the "conversation" of a particular knowledge community, which is seen as the cognitive engagement, interaction and negotiation among members of the community.

Constructivist Pedagogy and Critical Thinking

5. The teacher provides incentives to motivate learners to complete the knowledge construction process by formulating his/her own personal perspective of the matter which is learned.

   The teacher should also support the students in reflecting upon and improving their knowledge-construction processes as they are in the course of constructing their own understandings.

Constructivist View of Learning – Effects on Assessment

- In making decisions concerning assessment, constructivist teachers must embrace "alternative assessment" strategies in order to truly understand what students are thinking and to identify the steps they have taken to construct meaning out of their learning experiences.

- Alternative assessments strategies include observation, interviews, concept mapping, journals, performance assessment tasks, open-ended problems, drawings, and portfolios (Chiappeta, Koballa, & Collette, 1998).

Constructivist View of Learning – Effects on Assessment

- Alternative assessment complements the constructivist approach to teaching by providing ongoing assessment of learning and more accurate measures of actual student understanding. They allow teachers to examine the process of knowledge construction that takes place as students interact with new information.

- Alternative methods of assessment also provide teachers with more accurate representations of what students have actually learned about a particular topic.