Learning Theories: Constructivism

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Overview

Jean Piaget (1896-1980) is considered the father of the constructivist view of learning. As a biologist, he was interested in how an organism adapts to the environment and how previous mental knowledge contributes to behaviors. Knowledge is not a snapshot of reality; in order to understand something, you don't just simply look at it and make a mental copy of it. In order to truly know an object you must act on it. According to Piaget (1964), learning is modeling, transforming, and understanding the way in which an object is constructed. Through interactions with the environment, we change our internalized view of the world. Views on separate constructs can be changed in different ways.

Instead of there being a stimulus and then a response as a means of learning, Piaget (1964) proposed that there is actually a circular relationship between the two; a stimulus can cause a response, and that response can affect the way in which the next stimulus is viewed. One's cognitive schema, or the way one thinks of a topic or object, is updated by external stimuli. Schemas can be adapted to the stimuli by either assimilation or accommodation. Assimilation takes new information from the environment and fits it with the pre-existing schema, whereas accommodation is the process of changing cognitive schemas in order to accept something new from the environment. Both of these processes can be used simultaneously and alternately throughout life.

Schunk (1991) reflected on a few questions that can be applied to the constructivist theory of learning:

- how does learning occur?
- which factors influence learning?
- what is the role of memory in this learning theory?
- what types of learning are best explained by the theory?

How does learning occur?

Constructivism equates learning with meaning that is created via experience; the mind filters input from the world to produce its own unique reality (Jonassen, 1991). Thus, humans learn by internally constructing meaning as opposed to acquiring it. As people learn, they continually build personal interpretations of the world from input by experiences and interactions. The internal representation of one's knowledge is constantly open to change, and there is no objective reality that learners are striving

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to know and can eventually achieve. In order to understand the learning which has taken place for an individual, their experiences and how they experienced them must be examined.

Which factors influence learning?
Individual and environmental factors are both critical to the constructivist theory of learning. It is the specific interaction between these two variables that creates knowledge (Ertmer & Newby, 1993). Actual behavior is also determined by both of these factors. Every action is an interpretation of the current situation (environment) based upon the history of previous interactions that one has encountered (individual).Based upon these two factors, the best learning will occur in a realistic setting that reflects the topic being learned and will consist of tasks that are relevant to the typical past experiences of a student. Brown et al. (1989) asos added that the culture or specific context of the environment are the most salient and influential contributors.

What is the role of memory in this learning theory?
A memory is an ever-changing construct since it is constantly expanding its history of interactions. Learning by memorizing rigid facts will not truly be absorbed into a cognitive schema. Constructs become more firmly rooted in memory when there is some teaching emphasis on the utilization of pre-existing knowledge.

What types of learning are best explained by the theory?
Piaget's view was that there actually are not distinctive types of learning or ways to acquire knowledge because there is far too much overlap in their function to actually distinguish them (Piaget, 1964) . However, Jonassen (1991) suggested that a constructivist approach to teaching is better for more advanced types knowledge acquisition. Basic and intermediate levels of a topic involve learning in a more objective way, but once the essentials are in place, then constructivism is the best means of instilling applied knowledge.

Implications for the Classroom

The goal of instructing should be to portray how to do tasks instead of defining how to learn to do the task. According to constructivist theory, micromanagement of students is not an effective means of instilling learning. Effective teaching involves engaging the student with real-world applications of how to use a tool instead of simply giving a list of prescribed instructions. A good constructivist teaching style involves presenting information in a variety of different ways by revising the content at different times and applying it to different purposes and contexts.

Below are some methods that can encourage constructivist learning in the classroom:

1. Modeling an activity
2. Actively coaching a student
3. Collaborative learning with peers in order to share views
    a. Debates
    b. Discussions
    c. Peer reviews
4. Assignments centered around transferring knowledge and skills from situations addressed in lecture and/or reading to novel or real-world situations
5. Reflective analysis of a topic
6. Mental maps and summaries that point out the relation of the parts of a topic to the whole

Teaching Strategies that support this Learning Theory

- Case-based Learning
- Problem-based Learning
- Project-based Learning
- Experiential Learning
- Service Learning

Technology Tools that support this Learning Theory

1. Online Collaboration
2. Online Meetings
3. Interactive E-Learning Modules

On the Web

- Piaget's constructivist learning terms
- Constructivism in the classroom
- Applications of constructivism

In the Library

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