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Constructivist Approach in Teaching and Learning

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ABSTRACT

Constructivist approach is the most recent approach in the field of Teaching and Learning. Constructivist approach is an approach that hold that people actively construct / or make their own knowledge and reality is determine by the experience of learner. There are two broad Category of this approach: Psychological or Individual approach given by Jeen Peaget and Second is social constructivism given by Lev Vygotsky. Psychological approach focus on the psychological process take place in the mind and social approach focus on the social interaction of the individual. Constructivist approach has its own relevance and implication in teaching learning process. The objectives of this article to explain the various educational method and strategies like – inquiry and problem based learning, cognitive apprenticeship and cooperating learning.

Education plays an important role in human life. The process of Education includes in two key factors, Teaching and Learning. Teaching in a broad way is a process to induce learning. It is a conscious effort made by a teacher to contribute in the process of human development. Teaching and learning closely associate to each other. Learning is defined as 'any change in human behaviour and thoughts' by practice and experience. Learning is a universal and continuous process which determines the Progressive adjustment of the Individual. Effective Teaching for better learning is a big question for Educationists and Psychologists. There are so many approaches which are introduced by the Psychologists to improve the level of teaching and learning.

Constructivist approach is one of the recent and important development in the area of Teaching and Learning. Recently a new theme has emerged in the cognitive psychology that is 'Embodied Cognition'. 'Embodied Cognition' means the cognitive process develop from real time goal directed interactions between humans and their environment. It means our sensory-motor engagement with the environment determines our cognition or experience. In this approach our bodily sensation engaged with environment is important in the process of learning comparative to our mind. These are the basic Assumption which provides a conceptual framework to the Constructivist approach. Constructivism is a broad term used by philosophers, psychologists and educators. According to this view, 'The active role of the learner is building understanding and making sense of information.'

'Constructivist approach is an approach to learning that holds that people actively construct for make their own knowledge and reality is determine by the experience of the learner.' (Elliot *et al.*, 2020)

The constructivist view of Psychologists can be divided into two categories, psychological constructivism and social psychological constructivism.

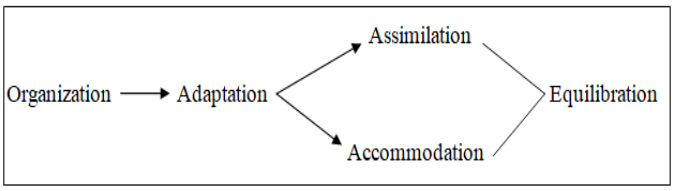
1. Psychological constructivist: [Jean Piaget] Central Idea – Learner actively constructing their own knowledge.
2. Social Constructivism: [Lev Vyotsky] Central idea – Social Interactions are important in the knowledge construction process.

Psychological Constructivism:

Individuals construct their own cognitive structure as they interpret their experience in a particular situation. This approach is known as individual constructivism or psychological or cognitive constructivism. This approach focus on the 'Inner Psychological life of the People.' The outside world is a source of Information Input but when information enter in the head and working memory, the important work assumed to be happened 'inside the head'. This approach is based on Information Processing Theories which deals the outer world information through input, output and process.

Jean Peaget is the main supporter of this view of constructivism. He proposed as children develop, their thinking become more organized and adaptive less tied to concrete events. Peaget focus on the logic and construction of the knowledge. Such knowledge comes from reflecting of our conditioning our thoughts and cognitions. Some psychologist referred this kind of constructivism as 'THE FIRST WAVE OF CONSTRUCTIVISM' or 'SOLO' constructivism. The first wave of constructivism focus on the Indiviudal and Psychological source of knowing. It is also know as 'Radical Constructivism'. This perspective holds that there is no reality or truth in the world. Only the Individual's perception and belief construct meaning from our own experience.

Process of Knowledge Construction



Organization means on going process of arranging information and experiences into mental system of categories. Adaptation is a process to adjustment into the environment

through the two process – Assimilation (fitting and Information into existing schemes) and Accommodation (Altering existing schemes or creating new one in response to new information.

Social Constructivism :

Vygotsky focus on the social interactions, cultural tool and activity shape individual development and learning. By participating in activities with others learner "appropriate" the outcome produced with working together. Appropriating means being able to reason, act and participate using cultural tools.

In the psychological constructivism learning means individual processing knowledge, but in social constructivism learning means belonging to a group and participating in the social construction of knowledge. Putting learning in social and cultural context is known as 'Second Wave of Constructivism'.

The theory of Vygotsky gives us a way to consider both psychological and social factors. Vygotsky's concept of 'Zone of proximal development the area in which a child can solve a problem with the help (SCAFFOLDING) of an adult or more able peer has a place where cultural and cognition create each other. Culture create cognition when the adult use tools and practice from the culture and cognition create culture as the adult and child together generate new practice. So "People are both product and producer of the culture."

The term constructivism sometime use to describe how public knowledge is created public knowledge such as Science, Mathematics, Economics or history and other disciplines constructed in social and cultural environment.

How Knowledge is Constructed?

There are the three main explanations of this question, first answers given by information processing theory, second by Jean Peaget and third is given by Lev Vygotsky.

1. **Direct Knowledge Construction:** Through the realities and truths of external world, knowledge is acquired by constructing a representation of the outside world. Direct teaching, feedback and explanation affect learning.
2. **Internal Process of Knowledge Construction:** Internal process such as Organization, assimilation and accommodation. Knowledge is constructed by transforming, organizing, and reorganizing previous knowledge. Knowledge is not a mirror of external world. Experience influence thinking and thinking influence knowledge. Exploration and discovery are more important this teaching.
3. **Both Inernal and Extrnal process knowledge construction :** Knowledge is constructed based on social interactions and experience. Knowledge reflects the outside world as filtered and influence by culture, language, belief, and interaction with others, Direct teaching and modeling, guided discovery, teaching models and coaching as well as the individuals prior knowledge belief and thinking affects learning.

Education and Constructivism:

Constructivism share similar goal for learning they emphasize "Knowledge in use" rather than the storing facts. Learning goal include developing abilities to find and solve problems. Constructivist recommended five conditions of learning:

1. Embedded Learning in complex, realistic and relevant learning environment.
2. Provide for social negotiation and shared responsibility as a part of learning.
3. Support multiple perspective and multiple representation of the content.
4. Nurture self awareness and an understanding that knowledge is constructed.
5. Encourage ownership in learning.

(a) **Complex Learning Environment :** The teacher should present the complex learning environment, problems and learning situations that mimic the ill structured nature of real life. These complex problems should be embedded an authentic task and activities. The kind of situation that students would face as they apply what they learning to the real world.

(b) **Social Negotiation :** Constructivist belief that higher mental processes develop through social negotiations and interaction. So collaboration in learning is valued. A major goal of teaching is to develop students ability to establish and defend their own positions while respecting the position of others.

(c) **Multiple Perspective and Presentation of Content :** Multiple representation of content using different analogies, examples and metaphors. The idea is construct with Jerome Bruner's "Spiral Curriculum" a structure for teaching that introduce the fundamental structure of all subjects.

(d) **Understanding the knowledge constructed process:** This approach emphasize to make students self aware of own role of constructing knowledge. His belief, experience to know about the world different assumption and belief leads to different experience.

(e) **Students ownership of Learning :** It involves the dramatic change in the focus of teaching, putting the students own effort to understand at the centre of learning. It doesn't mean that teacher abandons his responsibility for instruction.

Application of Constructivism in Educational Practices:

The constructive approaches by the activists of the teacher and students. The following activities encourage meaningful learning:

1. Teacher elicits students idea and experience in relation to key topics - then fashion learning situation elaborate their current knowledge.
2. Students are given frequent opportunities to engage in complex meaningful problem based activities.
3. Teacher provides students a variety of information to engage in complex, meaningful problem based activities.
4. Students work collaboratively with task oriented dialogue with one another.
5. Students are routinely ask to apply knowledge in diverse and authentic context, explain, predict and construct ideas.
6. Teacher encourages students' reflective and autonomous thinking in cognition with real conditions.
7. Teacher employs a variety of assessment strategies to understand students' idea and progress.

In addition to constructivist approach include "Scaffolding" to support students developing expertise. Students grapple with the problem in their "Zone of Proximal Development". There are different view of "Scaffolding". Most of psychologist are agree on three characteristics.

1. **Contingency Support :** The teacher consistently adjusting differentiate and tailoring response to the students.
2. **Fading :** The teacher gradually withdraw support as the students understanding and skill deepen.
3. **Transferring Responsibilities :** Students assume more and more responsible for their own learning.

Approach for Teaching:

This approach put the students at the cenre and provide scaffolding.We will discuss three main approaches:

I. Inquiry and Problem based learning
II. Cognitive Apprenticeship and Reciprocal Teaching
III. Cooperative Learning and Collaboration

I. Inquiry and Problem based Learning: John Dewey introduce inquiry learning in 1910. It include the following elements : The teacher present a puzzling event, or a problem to the students:

- formulating hypotheses to explain the event or to solve the problem.
- Collect the data to test the hypotheses
- Draw conclusions and
- Reflect on the original problem and the thinking process needed to solve.

Problem based learning is a method that provide student with realistic problem that don't necessarily have 'Right' answers. The aims of problem based inquiry are to help the students develop knowledge that is useful and flexible and enhance intrinsic motivation and skills. In the problem based inquiry / learning students are confronted with a problem that launches their inquiry as they collaborate to find solutions. The students analyze problem facts, and scenario and then they begun to generate hypotheses about solutions and try to solve the problem. Teacher always available to scaffold them.

II. Cognitive apprenticeship and Reciprocal Teaching: This is a relationship in which a less experienced learner acquires knowledge and skills under the guidance of an expert. There are many cognitive apprenticeship model but most of share six features:

- Students observe an expert model the performance.
- Students get external support through coaching and tutoring.
- Students receive conceptual scaffolding which gradually faded.
- Students continually articulate their knowledge putting into words their understanding of the process and content being learned.
- Students reflects on their progress, comparing their problem solving to an expert's performance and to their own earlier performance.
- Students are require to explore new ways to apply what they are learning – way that they have not practiced at the master side.

Reciprocal Teaching design to students understand and think deeply about what they read. There are three guideline for effective reciprocal teaching.

- Shift gradually, the Responsibility : Shift from teacher to students must be gradual.
- Match Demand and Abilities : The difficulty of the task and the responsibility must match the abilities of each student and grow as these abilities.
- Diagnostic thinking : Teacher should carefully observe the 'Teaching' of each students for clue about how the students is thinking, and what kind of instruction he or she needed.

III. Collaboration and Cooperation : The term use with Collaboration are Group work and Cooperative learning. Collaboration is a way of dealing with people that respect differences share authorities and builds on the knowledge that is distributed among other people.

Cooperation on the other hand is a way of working with others to attain a share goal.

Group work on the other hand is simply several students working together. They may or may not be cooperative. Cooperative learning can be define as 'Students working together for one class period to several weeks to achieve shared learning goal and complete jointly specific task and assignment.

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