

CONSTRUCTIVISM AND ITS NEED IN PRESENT SCENARIO

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Received :03-05-2020

Accepted : 11-06-2020

ABSTRACT

In present scenario of the 21st century, there will be a demand to equip students with Meta-competencies going beyond cognitive knowledge to develop individual potential with the help of constructivist learning. Advantage of constructivist learning, and criteria for its realization have been well determine through theoretical findings in pedagogy. Constructivist teaching is based on belief that learning occurs as learners are actively involved in a process of meaning and knowledge construction as opposed to passively receiving information. Learners are the maker of meaning and knowledge. Constructivist teaching fosters critical thinking and create motivated and independent learners. By creating a personal interpretation of external ideas and experience, constructivism allows student the ability to understand how ideas can relate to each other and pre-existing knowledge. A constructivist teacher and constructivist classroom are distinguished from traditional teacher and classroom.

The constructivism is basically a theory based on observation and scientific study. The constructivism assumes teacher as a facilitator of learning and students are active learner who construct their own knowledge with the help of help of their previous experience and varied learning experience provided by the facilitator..

Introduction :

Constructivism is basically a theory based on observations and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. Constructivism is a theory to explain how knowledge is constructed in the human being when information came into contact with existing knowledge that had been

developed by experience. Constructivism is a theory about knowledge and learning; of what “knowledge” is and how one “come to know”. (Fosnot, 1996). According to the theory, human learning is constructed, and that learner build new ideas or concepts based on previous experiences or knowledge. This prior knowledge or experience influence the construction of new or modified learning. Constructivism suggests that human innately have certain

physical “schemes” which they use to interact with the environment. Genetical and environmental factors play important roles in shaping one’s learning and development. (Heffron-????). Von Glasersfeld Ernst von Glasersfeld describes constructivism as a theory of knowledge with roots in philosophy, psychology and cybernetics. According to this theory, knowledge is being actively constructed by the individual and learning is an adaptive process based on the experience of individual (Mayer 1992; Hendry 1996).

CONSTRUCTIVISM LEARNING THEORY

Constructivism learning theory is a philosophy which enhance student’s logical and conceptual growth. The underlying concept within the constructivist learning theory is the role which experience or connections with the adjusting atmosphere play in student education. Learning theory of constructivism incorporates a learning process where in the student gain, their own conclusion through the creative aid of teacher as a facilitator. Instead of having the students relying on someone else’s information and accepting as a truth, the student should be exposed to data, primary, and the ability to interact with other student, so that they can learn from the incorporation of their experience. Hand on activities are the best for the classroom application of construct, critical thinking and learning.

Jonassen’s (1994) description of general characteristics of constructivist learning environment is a succinct summary of constructivist perspective. There are eight characteristics that differentiate constructive learning environment.

- 1- Constructivist learning environment provide multiple representation of reality.
- 2- Multiple representation avoids oversimplification and represent the complexity of real world.
- 3- Constructivist learning environment emphasises knowledge construction instead of knowledge reproduction.
- 4- Constructivist learning environment emphasises authentic task in a meaningful context rather than abstract instruction out of context.
- 5- Constructivist learning environment provide learning environment such as real-world setting or case-based learning instead of predetermined sequence of instruction.
- 6- Constructivist learning environment enable context and content-dependent knowledge construction.
- 7- Constructivist learning environment encourage thought full reflection on experience.
- 8- Constructivist learning environment support “collaborative construction of knowledge through social negotiation, not competition among learner for recognition”.

These characteristics support both social and cognitive constructivist.

PRINCIPLES OF CONSTRUCTIVISM

- 1- New ideas occur as we adapt and change our old ideas.

2- Learning involves inventing ideas rather than the mechanically accumulated facts.

3- Meaningful learning occurs through rethinking old ideas and coming to new conclusion about new ideas which conflict with our old ideas.

Constructivism represents a paradigm shift from educational based on behaviourism to education based on cognitive theory. Fosnot (1996) has provided a recent summary of these theories and describes constructivist teaching practice. Constructivist epistemology assumes that learners construct their own knowledge on the basis of interaction with their environment. Four epistemological assumption are at the heart of what we refer to as “constructivist learning”.

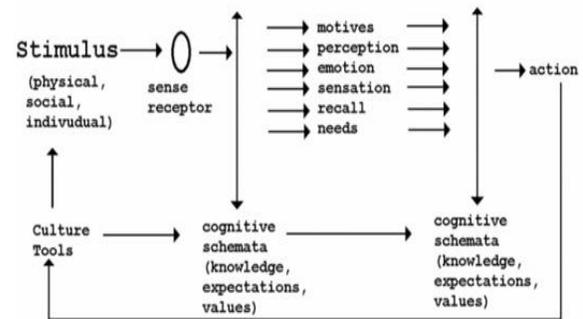
1- Knowledge is physically constructed by learner who are involved in active learning.

2- Knowledge is symbolically constructed by learners who are making their own representation of action.

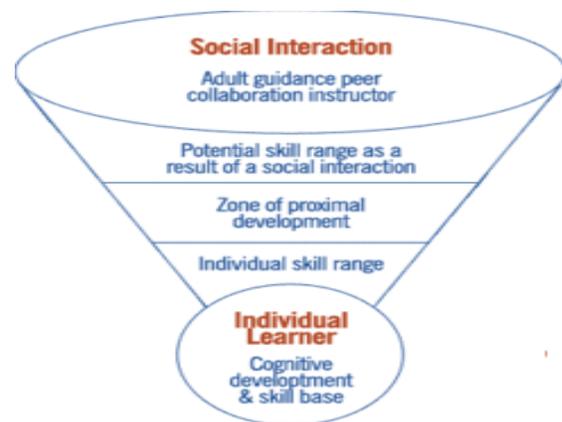
3- Knowledge is socially constructed by learners who convey their meaning making to others.

4- Knowledge is theoretically constructed by learners who try to explain things they don't completely understand.

Vygotsky (1978) believed that learning is also developmental but adds a socio-culture dimension to the theory. This theory combines the social environment and cognition in which he states that prior to cognitive development social interaction takes place first. Consciousness and cognition are the end products of socialization and social behaviour.



Vygotsky focus on social structures peer collaboration. He believes in the fundamental role of social interaction in the development of cognition. He stated that “community is the key in the process of making, learning comes from within (skill base) and from without society”. This can be shown in given figure.



There are three ways in which a cultural tool can be transmitted from one person to another.

1. Imitative learning - The learner copies or imitates another person.
2. Instructed learning – Remembering instruction and using the instruction to self – regulate.
3. Collaborative learning – A learning which involves the collaboration with other individual in the effort of understanding each other and reach a common goal/ skill.

RESEARCH AND EVIDENCE SUPPORTING CONSTRUCTIVISM

Hmelo Silver, Duncan & Chinn site, several studies supporting the success of constructivist problem based and inquiry learning method. Hamelo Silver, et.al also cite a large study by Geier on the effectiveness of inquiry based science for middle school student. As demonstrated by their performance on high stakes standardized test. The improvement was 14% for the first cohort of students and 13% for the second cohort. This study also found that inquiry based training method greatly reduced the achievement gap for the American students (Hamel Silver, Duncan & Chinn (2007).

Guthrie et al (2004) compared third grade reading. A traditional approach a strategies instruction only approach and an approach with strategies instruction & constructivist motivation techniques including students' choices collaboration, and hand-on-activities. The constructivist approach-oriented reading instructions resulted in better student reading comprehension, cognitive, strategies, and motivation. John suk kim found that using constructivist teaching methods for better student achievement than traditional teaching method. This study also found that students preferred constructivist methods over traditional ones, however Kim did not find any difference in student self-concept or learning strategies between those taught by constructivism or traditional method.

Dogru and Kalender compared science classroom using traditional teacher-centered approaches to these using student-centred, constructivist method. In their initial test of

student's performance immediately following the lesson. They found no significant difference between traditional and constructivist method. However, in the follow up assessment later, student who learned through constructivist methods showed better retention of knowledge than those who learned through traditional method. (Dogru; Kalender,2007).

THE CONSTRUCTIVE CLASSROOM

A constructivist classroom, the focus must tend to shift from the teacher to the students. The classroom is no longer a place where the teacher pours knowledge into passive students, who will wait like empty vessels to be filled. Students are actively involved in the learning process and given the opportunity to construct knowledge based on their own background. The constructivist teacher sets up problems and monitors student exploration, guides the direction of student inquiry and promotes new pattern of thinking. Classes can take unexpected turns as students are given the autonomy to direct their own explorations. In specific terms a constructivist classroom bears the following characteristics (Brooks & Brooks,1993).

Students are engaged in dialogue with the teacher and with each other.

Social discourse helps students change and reinforce their ideas. If they have the chance to present what they think and other's idea, student can build a personal knowledge base that they understand.

Students autonomy and initiative are accepted and encouraged.

By respecting student's ideas and encouraging own intellectual identify. Student

who frames questions and then go about analysing and answering them, take responsibility for their own learning and become problem solver.

The teacher asks open-ended questions and allow wait for responses.

Reflective thought takes times and is often built on other's ideas and comments. The ways teachers ask question and the way student respond will structure the success of student inquiry.

Higher level thinking is encouraged.

The constructivist teacher challenges student to reach beyond the simple factual responses. They encourage students to connect and summarize concept by analysing predicting, justifying and defending their ideas.

Students are engaged in experience that challenge hypotheses and encourage discussion.

When allowed to make prediction, students often generate varying hypothesis, about natural phenomena. The constructivist teacher provides ample opportunities for students to test their hypothesis, especially through group discussion of concrete experience.

THE CONSTRUCTIVIST TEACHER.

Constructivist teachers encourage students to constantly how the activity is helping them gain understanding. By questioning themselves and their strategies, students, in the constructivist classroom become expert learner. When they continually reflect on their experiences, they develop increasingly strong abilities to integrate new information. One of the main roles of the teacher here is to encourage this learning and reflection process.

Contrary to criticism by some traditional educators, constructivist does not dismiss the active role of the teacher or the value of expert knowledge. Constructivism modifies that role, so that teacher helps students to construct knowledge rather than to reproduce a series of facts. The constructivist teacher provides tools such as problem solving and inquiry based learning activities with which students formulate and test their ideas, draws conclusion and inferences, and pool their knowledge in a collaborative learning environment.

The constructivist teachers perform the following roles:

- Encourage and accept student autonomy and initiative.
- Encourage student's inquiry by asking thoughtful, open-ended questions and encouraging students to ask question of each other.
- Seek elaboration of student's initial response.
- Engage students in experience that might endanger contradictions to their initial hypotheses and then encourage discussion.
- Provide time for students to construct relationship and create metaphors.

APPLICATION

Now a days, the classroom is no longer a place where the teacher (expert), pours knowledge into passive student, who wait like empty vessels to be filled. In the constructivist model, the student is urged to be actively involved in their own process of learning. The teacher function more as a facilitator who

coaches, mediates, prompts and helps students he develops and assess their understanding, and learning. Here we discuss the significant difference in basic assumption about knowledge, student and learning. There is comparison between constructivist and traditional classroom conditions.

In traditional classroom, curriculum begins with the parts of the whole. Emphasizes basic skills, and teachers disseminate information to students; students are recipients of knowledge. Teacher's role is directive, rooted in authority. As knowledge is seen as inert and assessment is through testing, correct answers. Material are primarily textbooks and workbook and students work primarily alone as well as learning is based on repetition, while on contrary ,in constructivist classroom , curriculum emphasizes big concepts, beginning with the whole and expanding to include the parts, learning is interactive, building on what the student already knows. In this type of situation, teacher have a dialogue with student, helping student construct their own knowledge and teacher's role is interactive, rooted in negotiation. Assessment includes student, works, observation and points of view as well as tests. Knowledge is seen as dynamic, ever changing with our experience. Students work primarily in groups.

Constructivist teachers pose questions and problems, then guide student to help them find their own answers. Its important to realize that the constructivist approach borrows from many other practices in the pursuit of its primary goal; helping students learn "how to learn".

In a constructivist classroom learning is:

CONSTRUCTED- Students come to learning situation with already formulated knowledge, ideas and understanding. This previous knowledge is the raw material for the new knowledge they will create.

ACTIVE- The student is the person who creates new understanding for him/herself. The teacher coaches, moderate, suggest, but allows the students room to experiment, ask questions. Learning activities require the student's full participation. An important part of the learning process is that students reflect on and talk about their activities. Students also help set their own goals and means of assessment.

REFLECTIVE-Students control their own learning process, and they lead the way by reflecting on their experience. This process makes them experts of their own learning. The teacher should also create activities that lead the students to reflects on his or her prior knowledge and experience. Talking about what was learned and how it was learned is really important.

COLLABORATIVE- The constructivist classroom relies heavily on collaboration among students. The main reason it is used so much in constructivism is that student learn about learning not only from themselves, but also from their peers. When students review and reflect on their learning processes together, they can pick up methods and strategies and methods from one another.

INQUIRY BASED-The main activity in a constructivist classroom is solving problems. Students use inquiry methods to ask questions, investigate a topic, and use a variety of resource

to find solutions and answers. As the students explore the topic, they draw conclusion, and exploration continues, they revisit those conclusions. Exploration of question leads to more questions.

EVOLVING-Students have ideas that they may later see were invalid, incorrect or insufficient to explain new experience. These ideas are temporary steps in the integration of knowledge .

The constructivist model says that the students compares the information to the knowledge and understanding she/he already has, and one of the three things can occurs:

* The new information matches up with his previous knowledge pretty well (it's *consonant with* the previous knowledge),so the students add it to his understanding. It may take some work, but it's just a matter of finding the right fits, as with a puzzle piece.

*The information doesn't match previous knowledge(it's *dissonant*). The student has to change her previous understanding to find a fit for the information. This can be harder work.

*The information doesn't match previous knowledge, and it is *ignored*. Rejected bits of information may just not be absorbed by the student. Or they may float around, waiting for the day when the students understanding has developed and permits a fit.

Constructivism became an influential current of thought in 1960's and 1970's as it converged with new approaches to understanding of constitutive rule of regulatory process that inform the frame work of social life. This was particularly important in so called

“labelling theories of deviances” and the “new criminology” in debates about the symbolic sources of social identity.(in the symbolic interactionist tradition); in the study of prejudice, and authoritarianism in the field of ethnicity and race relation; in the renewed concern with the historical and political construction of sexuality and gender relation (associated, in particular, with feminist sociology)and in the emergence of more micro sociological inquiries into negotiated character of everyday social order.

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