Role of Constructivist Approach in Teaching-Learning Environment

Sukhdeep Kaur1, Asha Yadav2
1Research Scholar, Guru Kashi University, Talwandi Sabo
2Assistant Professor, Guru Kashi University, Talwandi Sabo

Abstract- This paper presents a theoretical analysis of constructivist approach in practice by building a framework of teaching and learning experiences. Kim(2005)have found that constructivist teaching is more efficient than traditional teaching. The present research shows that majority of people learn effectively when they construct meaning themselves. Constructivist approach is learner centered approach in education. The National Curriculum Framework (NCF) 2005 strongly supports the constructivist and learner centered approach in school education.

Key words - Constructivist Approach ,Teaching-Learning Environment.

I. INTRODUCTION

Education is our fundamental right. It is gained by the learning experiences and through teaching process. "Let us think of education as the means of developing our greatest abilities,because in each of us there is a private hope and dream which ,fulfilled,can be translated into benefit for everyone and greater strength for our nation."(John F. Kennedy) The traditional teaching approach assumes that students acquire knowledge at the same time and at the same place. This instructional approach does not fulfill the goal of qualitative teaching-learning process. So there is a need to an environment which can allow to the students for constructing knowledge through their prior experiences. Constructivist approach recognized learner as a maker of new knowledge. Constructivist holistic approach is about knowledge and learning. The psychological roots of constructivism began with the developmental work of Jean Piaget (1896-1980).Many theorists have focused that the construction of new knowledge is influenced by past knowledge.

II. ORIGIN OF CONSTRUCTIVISM

The concept of constructivism is not a new concept its roots are in classical antiquity, going back to Socrates dialogues with his followers,in which he directed questions that led students to realize for themselves the weaknesses in their thinking. More philosophers such as John Locke(17th to 18th centuries) taught that no men's knowledge can go beyond his experiences. Kant (late 18th century) organizes experiences into definite patterns which effect how one makes sense of new information.(Brooks and Brooks,1993). With the work of piaget(1970)and Vygotsky(1978,1986)the constructivist theory was developed especially in the last several decades. Piaget and John Dewey developed theories of childhood development and education which are called progressive Education. Progressive education led to the evolution of constructivism. The pragmatic philosopher Dewey called for education to be grounded in real experience. He wrote,"If you have doubts about how learning happens,engage in sustained inquiry:study,ponder,consider alternative possibilities and arrive at your belief grounded in evidence." Inquiry is a key part of constructivist learning. Among the educators, philosophers, psychologists and sociologists who have added new concept to constructivist learning theory and practice are Vygotsky,Jerome Bruner and DravidAusubel. Vygotsky introduces the social aspect of learning into constructivism.He defined the 'Zone of Proximal Development' according to which students perform a task under adult guidance and /or with peer collaboration and the students ability solving the problem independently.Jerome Bruner initiated curriculum changed based on the notion that learning is an active. DravidAusubel introduced the concept based learning on their current knowledge. Modern educators who have studied about constructivism are John D.Bransford,Ernst Von Glaserfeld, Eleanor, Duckworth George Forman, Roger Schank,Jacqueline Grennon Brooks and Martin G.Brooks.

2.1 Meaning of constructivism

The word constructivism is derived from a latin word "construer"which means to arrange or give structure. The learners be active to take knowledge,connect it to previously assimilated knowledge and make it theirs by constructing their own interpretation(cheek,1992).Constructivism is basically a theory based on observation and scientific study about how people learn(Brooks and Brooks,1993).
2.2 Definitions of constructivist
2.2.1 According to Brooks and Brook (1993)
Constructivism is not a theory about teaching. It is theory about knowledge and learning .... the theory defines knowledge as temporary, developmental, socially mediated, and thus, non-objectives.

2.2.2 According to Dewey
Knowledge is constructed by an knower and there is a relationship between the individual, the community and the world mediated by socially constructed ideas.

2.2.3 According to Vygotsky
Social interaction is more important for construction of knowledge. He believed that constructs have social origin and they learned through interaction with others.

2.3 Comparison between Constructivist Classrooms and Traditional Classrooms
According to Brooks and Brooks (1999), Constructivist classrooms have totally different characteristics from traditional classrooms with respect to their curriculum, learning activities, students and teachers roles and assessment of students learning are summarized as given in table:

<table>
<thead>
<tr>
<th>Traditional Classrooms</th>
<th>Constructivist Classrooms</th>
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<tr>
<td>1. Curriculum: fixed curriculum delivered to students with the help of text books by using part to whole method and emphasis on basic skills.</td>
<td>1. Curriculum: presented from whole to part and emphasizes on big concepts,</td>
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<tr>
<td>2. Learning Activities: students work alone and learn basically on repetition.</td>
<td>2. Learning Activities: students work primarily in group and learn through their prior knowledge,</td>
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<tr>
<td>3. Teacher’s Role: directive rooted in authority</td>
<td>3. Teacher’s Role: interactive role, helping students construct their own knowledge,</td>
</tr>
<tr>
<td>4. Assessment: learning outcomes of the students are assessed through testing correct answer.</td>
<td>4. Assessment: through teacher observations of learners at work and through exhibition.</td>
</tr>
</tbody>
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III. PRINCIPLES OF CONSTRUCTIVISTIC TEACHING — LEARNING APPROACH
(Brook & Brooks, 1993) The principles of constructivist teaching are:
1. Posing problems of emerging relevance to students.
2. Structuring learning around primary concepts.
3. Seeking and valuing student’s points of view.
4. Adapting the curriculum to address students’ suppositions.
5. Assessing student learning in the context of teaching.

3.1 The 5E’s Model of Constructivist
Experimental teaching-learning is based on the constructivist learning model as describe by Yager (1991), the 5E” (Engage, Explore, Explain, Elaborate, Evaluate) model developed by Bybee (1993) and applied by Lord (1998, 1999, 2001). The steps involved for the constructivist teaching-learning approach are:

3.2 Engage
The students first encounter and identify the instructional task. Teachers engage students in their lessons in order to understand and learn. The teacher guides to whole group through discussions and ask students to explain what they have understood and learned, working together in small groups to complete projects or tasks.

3.3 Explore
The students may get the opportunity to directly involved with phenomena and materials and project. Students inquire, work together, form hypotheses, learn about new ideas and concepts on their own before coming together as a whole class. Students develop an idea of thinking and check whether the idea generated is accurate or not. Students use tools such as textbooks, the internet, scientific instruments, and their creative minds to explore new concepts.
3.4 Explain
The learner begins to put the abstract experience into a communicable form. The student define and explain the current concept using their own words. The student will accomplish the informational readings, group discussions, and teacher interaction. Learners will support each other by sharing their ideas, observations, questions, and hypotheses.

3.5 Elaborate
The students expand the prior knowledge of the concepts they have learned, make connections to other related concepts, and apply their understandings to the world around them. This will help students make connections that lead them to more inquiry which lead to new understandings.

3.6 Evaluate
Evaluate is an on-going diagnostic process allows the teacher to determine if the learner has attained understanding of concepts and knowledge. Constructivist teaching-learning approach encourages teachers to assess their students learning on an ongoing basis. In traditional classrooms, assessment was on paper tests taken by the students after the content was taught and in which they received a grade. In a constructivist classroom the teacher assesses the students work and adapts the lesson plan to meet the needs of the learner.

IV. TYPES OF CONSTRUCTIVISM

4.1 Dougiamas (1998) describes the major types of constructivism.
1. Trivial Constructivism
2. Radical Constructivism
3. Social Constructivism
4. Psychological Constructivism
5. Cultural constructivism

4.1.1 Trivial constructivism
Trivial constructivism is the simplest form. According to Von-Glaserfeld(1990) trivial constructivism knowledge is actively constructed by the learner, and not passively received from the environment.

4.1.2. Radical Constructivism
It adds a second principle to trivial constructivism, which can be expressed as: coming to know is a process of dynamic adaption towards viable interpretations of experience. The knower does not necessarily construct knowledge of a "real" "world".

4.1.3. Social Constructivism
The social world of a learner includes the people that directly affect that person – teachers, friends, students, administrators and participants in all forms of activity. This perspective is closely associated with many contemporary theories, most notably the developmental theories of vygotskian social cognitive theory.

4.1.4. Cultural Constructivism
If we go beyond the immediate social environment of a learning situation are the wider context of cultural influences including custom, religion, biology, tools and language. For example, the format of books can effect learning, by promoting views about the organization, accessibility and status of the information they contain.

4.1.5. Critical Constructivism
Critical Constructivism looks at constructivism with a social and cultural environment, but adds a critical dimension aimed at reforming these environments in order to improve the success of constructivism applied as a referent.

4.2 Role of constructivist teacher
Constructivist teachers invite students ideas and questions. Constructivist teacher gives freedom to students for constructing knowledge by them selves. The teacher provides them flexible, supportive and positive environment in which students formulate and test their ideas, draw conclusion and convey their knowledge in collaborative learning environment.
4.3 Role of student
In constructivist learning approach students are maker of knowledge. They use their prior knowledge to confront the problems. All the activities are students centered and students are encouraged to ask their own questions carry out their own experiments make their own analogies and come to their own conclusions.

V. CONCLUSION
This study focus on the role of constructivist approach in teaching learning environment. For improving the quality of education the constructivist approach is much better compare to traditional approach. The constructivist approach is learner centered, it makes them active, constructive and goal directed. On the other hand, the constructivism does not dismiss the active role of teacher, it modifies for helping students to construct knowledge.

VI. REFERENCES