CHAPTER II

REVIEW OF RELATED LITERATURE

In this chapter, the researcher will describe the related literature. The researcher has classified this chapter to be some sub-chapters. There is constructivism: a learning theory, basic of constructivist theory, principles of constructivist learning and teaching, constructivist learning design.

A. Constructivism: A Learning Theory

Learning theories are the ideas which educators consider while designing a teaching and applying them to instruction. In teaching the theories determine what and how the learning material should be arranged and taught. Learning designers need to have their own personal educational philosophies and ideas about what constitutes education and learning. According to Sachse the outcome of student participation and involvement facilitates personal growth and enhanced learning.[16]

Constructivism as a learning theory contends that knowledge is not merely transmitted from teacher to student, but it is actively constructed in the mind of the learners out of their experiences in the world.[17] It mainly deals with how learners build their understanding on a new experience in relation to their previous ones. The constructivism can be reduced to one sentence:

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[16] T.Sachse, "TLC Experiential Learning: Experiential Learning Theory," http://www.usoe.k12.ut.us/ate/tlc/cda/experiential.html, was taken on November 29, 2011.

[17] Robert E. Slavin, *Educational Psychology: Theory and Practice, 9th ed.* (New Jersey: Pearson Education, Inc., 2009), 4.

"everything that is said is said by the learner.[18]Constructivists deal with how conceptions of reality come into being. Maturana (1998) and other constructivists hold the view that an external reality exists but negate that this external world can be perceived the way it really is. Von Glasersfeld (1995) partly bases his concept on the results of Jean Piaget's developmental psychology. In a class, which is run according to constructivist guidelines, the teacher does not act as a pure knowledge transmitter who only accepts true answer to his/her problem but as a coach or facilitator offering thought provoking suggestions for solving the tasks given. Students are expected to use their own experiences to solve a problem as a group using different ways and methods.

In addition, constructivism proposes that learners are more likely to create new knowledge when they are actively involved in making some type of learning artifact upon which they can reflect and share with others. "Thus, constructivism involves two intertwined types of construction: the construction of knowledge in the context of building personally meaningful artifacts".[19] Since the emphasis of constructivism is on thinking and understanding and not on rote memorization of isolated facts, students learn how to learn and thus can relate their learning to new situations in real life. Constructivism involves children in authentic real world learning experience

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[18] H. Maturana and F. Varela, "Autopoiesis and Cognition: The Realization of Living," (Dordrecht: Reidel, 1980).

[19]Y. Kafai and M. Resnick, eds., "Constructionism in Practice: Designing, Thinking, and Learning in a Digital World," (Mahwah, New Jersey: Lawrence Erlbaum, 1996), pp. 1.

that are based on their own questions, thus students feel a sense of ownership for the learning.

According to Howard Gardner's (1991) view presented in his book "The Unschooled Mind", the learners come to new situations with preconceived notions, as children develop, and long before they enter school, they begin to construct sets of ideas, expectations, and explanations about the world around them, giving strength to the constructivist's view point.[20] The constructivists believe that students construct at first then proceed further in acquisition of knowledge.

Constructivism requires teachers to continually diagnose students' ideas and consider where they are in the process of conceptual change. Naïve conceptions must be explored through experience and discussion with opportunities to test ideas, even those that are false. Ideas change only when students face evidence from nature that their naïve conceptions do not work but it is not a hard rule for change in ideas in all situations. Attimes it happens that in spite persuading the learners through examples, they stick to their own stand and do not change. In fact socio-cultural norms and family background play an important role in this process and the learners take time to discard any existing belief about a phenomena or a situation.

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[20]H. Gardner, "The Unschooled Mind: How Children Think and How Schools Should Teach," http://www.indiana.edu/~intell/gardner.shtml, was taken on November 20, 2011.

B. Basic of Constructivist Theory

Elizabeth Murphy (1997) discusses a set of constructivist assumptions about learning that have a long developmental history, among these are:[21]

i. Humans construct a unique view of the world out of personal experience.

ii. The process of construction is incremental, involving adding to, making connections with, and modifying previously established constructs.

iii. Constructs are normalized through interactions with other.

iv. The process of normalization where other humans are involved constitutes teaching.

v. Learning is interactive and occurs in a social context.

vi. The mind is seen as an inner representation of an outer reality. Knowledge is residing in the mind, thus learning results from a personal interpretation of the world.

vii. Thought is grounded in perception and bodily experience.

viii. Meaning is internally constructed and is developed on the basis of experience. Meaning requires understanding wholes as well as parts.

Learning is the search for meaning. The curriculum planners should adopt a realistic approach and must realize that education is not to change the beliefs and values of the learners towards a certain phenomena. It is just to guide them to look at the things critically and to conclude at their own what suits them to live in a society. The teachers also need to accept the realities,

[21]Elizabeth Murphy, "Constructivist Learning Theory," http://www.stemnet.nf.ca/~elmurphy/emurphy/cle2b.html, was taken on November 20, 2011.

the learners are bringing into the classroom, associate it with the new ideas and help them to construct their own knowledge suitable to the circumstances of the learner.[22]

C. Principles of Constructivist Learning and Teaching

Constructivism is a theory of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in.[23]Each of generates our own "rules" and "mental models," which we use to make sense of our experiences.[24] Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences. What are some guiding principles of constructivist thinking that we must keep in mind when we consider our role as educators? Prof. George E. Hein (1991) outlines a few ideas, all predicated on the belief that learning consists of individuals 'constructed meanings and then indicate how they influence education:[25]

1. **Learning is an active process:** in this process the learner uses sensory input and constructs meaning out of it. The more traditional formulation of this idea involves the terminology of the active learner (Dewey's term)

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[22]Gholam Reza Zarei, "The Effect of Constructivist Language Teaching/Learning on Students' Conceptions of L2 Reading", *Iranian Journal of Language Studies (IJLS),* volume 2, (2008).

[23]Robert E. Slavin, *Educational Psychology: Theory and Practice, 9th ed.* (New Jersey: Pearson Education, Inc., 2009), 5.

[24]Ibid, 13.

[25]S. Tajammal Hussain Shah, "Constructivist Approach to Development of Criteria for Selection of Contents for Teaching English in Secondary School (Class IX-X) " (Thesis, National University Of Modern Languages, Islamabad, 2007) 48.

stressing that the learner needs to do something; that learning is not the passive acceptance of knowledge which exists "out there" but that learning involves the learner's engaging with the world.

2. **People learn to learn as they learn**: learning consists both of constructing meaning and constructing systems of meaning. For example, if we learn the chronology of dates of a series of historical events, we are simultaneously learning the meaning of a chronology. Each meaning we construct makes us better able to give meaning to other sensations which can fit a similar pattern.
3. **The crucial action of constructing meaning is mental**: it happens in the mind. Physical actions, hands-on experience may be necessary for learning, especially for children, but it is not sufficient; we need to provide activities which engage the mind as well as the hands. (Dewey called this reflective activity.)
4. **Learning involves language**: the language we use influences learning. On the empirical level researchers have noted that people talk to themselves as they learn. On a more general level there is a collection of arguments, presented most forcefully by Vigotsky (1986), that language and learning are inextricably intertwined. The desire to have material and programs in their own language was an important request by many members of various Native American communities.
5. **Learning is a social activity**: our learning is intimately associated with our connection with other human beings, our teachers, our peers, our

family as well as casual acquaintances, including the people before us or next to us at the exhibit.

6. **Learning is contextual**: we do not learn isolated facts and theories in some abstract the real land of the mind separate from the rest of our lives: we learn in relationship to what else we know, what we believe, our prejudices and our fears. On reflection, it becomes clear that this point is actually a corollary of the idea that learning is active and social. We cannot divorce our learning from our lives.
7. **One needs knowledge to learn**: it is not possible to assimilate new knowledge without having some structure developed from previous knowledge to build on. The more we know, the more we can learn. Therefore any effort to teach must be connected to the state of the learner and must provide a path into the subject for the learner, based on that learner's previous knowledge.
8. **It takes time to learn: learning is not instantaneous**. For significant teaching we need to revisit ideas, ponder them try them out, play with them and use them. This cannot happen in the 5-10 minutes usually spent in a gallery (and certainly not in the few seconds usually spent contemplating a single museum object.) If we reflect on anything we have learned, we soon realize that it is the product of repeated exposure and thought. Even, or especially, moments of profound insight, can be traced back to longer periods of preparation.

9. **Motivation is a key component in learning**: Not only is it the case that motivation helps learning, it is essential for learning. This idea of motivation as described here is broadly conceived to include an understanding of ways in which the knowledge can be used. Unless we know "the reasons why", we may not be very involved in using the knowledge that may be instilled in us even by the most severe and direct teaching.

This is true that experiential learning facilitates effective acquisition of knowledge; however, keeping in view the unique characteristics of human brain it cannot be safely said that each learner passing through a similar experience will learn at the same level and speed.[26] For some learners a scene of an event may suffice to reach some conclusion about the presented situation while others may fail to do so. Moreover, socio-cultural environments of the learners have a different effect on the learning of the individual though they are experiencing the same problem of situation.[27] The teachers, therefore, need to consider a variety of aspects that effect learning while making any conclusion about learning and should be vigilant to the fact that learning does not take place mechanically and each learner passing

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[26]Susan Edington, "Developmental Reading: A Constructivist Approach Using Reading Modules," *Murray State University Journal,* (2003).

[27]Barbara Jaworsk, "Constructivism and Teaching – The Socio-cultural context," http://www.grout.demon.co.uk/Barbara/chreods.htm, was taken on December 2, 2011.

through a similar experience will be learning at the same pace and understanding.[28]

D. Constructivist Learning Design

The "Constructive Learning Design" we are using now has been through a variety of revisions in the past seven years and now emphasizes these six important elements: Situation, Groupings, Bridge, Questions, Exhibit, and Reflections.[29] These elements are designed to provoke teacher planning and reflection about the process of student learning. Teachers develop the situation for students to explain, select a process for groupings of materials and students, build a bridge between what students already know and what they want them to learn, anticipate questions to ask and answer without giving away an explanation, encourage students to exhibit a record of their thinking by sharing it with others, and solicit students' reflections about their learning.[30] We longer refer to objectives, outcomes, or results since we expect that teachers have that determined by the district curriculum or the textbook they are using in their classroom and need to think more about accomplishing it than about writing it again.

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[28]Robert E. Slavin, *Educational Psychology: Theory and Practice, 9th ed.* (New Jersey: Pearson Education, Inc., 2009), 19.

[29]George W. Gagnon and M. Collay, "Constructivist Learning Design," *The Journal of International Social Research*, (2004).

[30]Robert E. Slavin, *Educational Psychology: Theory and Practice, 9th ed.* (New Jersey: Pearson Education, Inc., 2009), 10.

This brief overview above indicates how each of these six elements integrates and works as a whole, but all need further explanation:[31]

1. **Situation:** What situation are we going to arrange for students to explain? Give this situation a title and describe a process of solving problems, answering questions, creating metaphors, making decisions, drawing conclusions, or setting goals. This situation should include what we expect the students to do and how students will make their own meaning.
2. **Groupings:** There are two categories of groupings:
    a. How are we going to make groupings of students; as a whole class, individuals, in collaborative thinking teams of two, three, four, five, six or more, and what process will we use to group them; counting off, choosing a color or piece of fruit, or similar clothing? This depends upon the situation we design and the materials we have available to us.
    b. How are we going to arrange groupings of materials that students will use to explain the situation by physical modeling, graphically representing, numerically describing, or individually writing about their collective experience. How many sets of materials we have will often determine the numbers of student groups we will form.
3. **Bridge:** This is an initial activity intended to determine students' prior knowledge and to build a "bridge" between what they already know and

[31]George W. Gagnon and M. Collay, "Constructivist Learning Design," *The Journal of International Social Research*, (2004).

what they might learn by explaining the situation. This might involve such things as giving them a simple problem to solve, having a whole class discussion, playing a game, or making lists. Sometimes this is best done before the students are in groups and sometimes after they are grouped. We need to think about what is appropriate.

4. **Questions:** Questions could take place during each element of the Learning Design. What guiding questions will we use to introduce the situation, to arrange the groupings, to set up the bridge, to keep active learning going, to prompt exhibits, and to encourage reflections? We also need to anticipate questions from students and frame other questions to encourage them to explain their thinking and to support them in continuing to think for themselves.
5. **Exhibit:** This involves having students make an exhibit for others of whatever record they made to record their thinking as they were explaining the situation. This could include writing a description on cards and giving a verbal presentation, making a graph, chart, or other visual representation, acting out or role playing their impressions, constructing a physical representation with models, and making a video tape, photographs, or audio tape for display.
6. **Reflections:** These are the students' reflections of what they thought about while explaining the situation and then saw the exhibits from others. They would include what students remember from their thought process about feelings in their spirit, images in their imagination, and

languages in their internal dialogue. What attitudes, skills, and concepts will students take out the door? What did students learn today that they won't forget tomorrow? What did they know before; what did they want to know; and what did they learn?