Paper 12; Module 30; E Text

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Item	Description of module
Subject Name	English
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From Theory to Practice: Constructivism in ELT

Module Structure:

30.0 LEARNING OUTCOMES:

By the end of the lesson, students should be able to:

- define Constructivism
- identify the two main approaches to constructivism
- distinguish between the two approaches to constructivism
- explain how learning occurs in constructivism
- understand the implications of this theory to ELT pedagogy/ELT classroom
- identify the characteristic features of teaching using the constructivist learning theory

30.1 INTRODUCTION:

Learning is a complex process and from times immemorial attempts have been made to understand human learning. Aristotle (384-322) espoused the 'Empiricist' view that knowledge is derived from sensory impressions. In other words, experience is the primary source of knowledge (Schunk, 1991) and anything that is learned is a result of interactions and associations with the environment. The 'empiricist' viewpoint provided the background and framework for 'behaviorism' that become the leading psychological viewpoint of learning, in the first half of this century. Again rationalism may be said to have provided the framework for 'cognitivism' in the late 1950s. Plato's (427-347 B.C.) 'Rationalist' view that knowledge is derived from reason and not senses (Schunk, 1991) and that humans learn by recalling or discovering what already exists in the mind, brought out one of the earliest beliefs in the distinction between mind and matter as regards theories of learning which have since continued into modern times.

With the start of a scientific study of learning in full earnest at the dawn of the 20th century, learning has been defined in numerous ways and no single definition of learning exists yet. However, there are some common elements that can be found in most definition of learning. These common elements or main ideas are well incorporated in the definition of learning by Shuell as interpreted by Schunk, 1991 which defines learning as: “Learning is an enduring change in behavior or in the capacity to behave in a given fashion, which results from practice or others forms of experience” (p. 2).

It is important to note that just as there are many definitions of learning there are many theories of learning, like the Empiricist, the Rationalist, the Behaviourist and the Cognitivist to name a few , and each has its own set of implications for pedagogy and for the classroom. This module will focus on the Constructivist theory of learning.

The concept of constructivism will be first discussed. The two main approaches to constructivism will then be explained. Schunk’s (1991) five questions, will be utilized to understand the theory of Constructivism from a pedagogic perspective. Next, the guiding principles that the theory suggests for ELT methodology and instructional design (construction of instructional materials) will be suggested. The last section will give suggestions for teaching with the constructivist approach to learning.

30.2 WHAT IS CONSTRUCTIVISM?

Constructivism is not a completely new approach to learning. Many of the philosophical and psychological viewpoints of this century, particularly those that are espoused in the works of Piaget, Bruner & Woodman (Perkkius, 1991), form the basis of Constructivism.

Constructivism is a theory of learning that states that learning happens when people actively construct their over knowledge (von Glasersfeld 1991). In other words, people construct their own knowledge by experiencing things and then by reflecting on those experiences. Thus when we experience something, we engage in our mind and reconcile this experience with our existing ideas and thoughts. In so doing, we many change what we believe. We could also discard this new information as irrelevant. In engaging with the mind, we question and assess what we know. We are thus active creators of our own knowledge. According to Schcolnick et al., 2006,"Construction of knowledge leads to authentic authorship and ownership. The knowledge becomes part of the learner, and the learner emerges empowered."

Schcolnik et al (2006) say, "Since learning is an active process of knowledge construction, the learning environment should not impart knowledge but rather support the learners' construction of knowledge". In Constructivism, the age-old metaphor of the mind as a container, that is waiting to be filled with knowledge is changed to the metaphor of a mind as an active agent that is engaged in the construction of knowledge. In other words, knowledge is not seen as a commodity that is to be transferred from the expert to the learner but is looked at as a construct that is to be pieced together through an active engagement of the mind with the environment.

Teachers under Constructivism are seen as the guide on the side who facilitates the construction of meaning and knowledge and not as the sage on the stage who is expected to transfer knowledge to the learner. According to von Glasersfeld (1983), knowledge creation is an on-going process of construction, evaluation and modification of constructs. This developing knowledge is shaped by the activities, in which the learners are engaged, the context of the activities & the enveloping culture (Brawn, Collins & Duguid, 1989).

30.3 THE TWO MAIN APPROACHES TO CONSTRUCTIVISM:

Jean Piaget and Lev Vygotsky are two eminent figures in the development of Constructivist theories and thus there are two main approaches to Constructivism influenced by each of the two eminent figures. One is Cognitive Constructivism advocated by Piaget and the other is Social Constructivism associated with the work of Vygotsky. While both these approaches believe that students learn by constructing their own knowledge, Cognitive Constructivists focus on the importance of the mind in constructing knowledge where as the Social Constructivists emphasize the role played by the environment and the interaction amongst the learners themselves in constructing knowledge. It may be noted that both Piaget and Vygotsky do not reject the role of social interaction and the development of cognitive structures respectively in the construction of meaning; The only thing is, their focus or emphasis was different. Piaget emphasized the role of cognition in constructing meaning and Vygotsky emphasized the role of social interaction in constructing meaning.

In order to describe the interplay of mind and the environment in the learning process, Piaget made use of two terms 'accommodation' and 'assimilation' (Gleitman 1987). According to Piaget, every learner has an existing set of cognitive schemes. When the learner interacts with the environment, he interprets the environment as per the existing cognitive structures; understanding the information only to the extent that is allowed by the existing cognitive schemes. However, even as the learner interprets the information as per the existing schemes, the learner 'assimilates' new information into his/her cognitive structures leading to a change in cognitive structures as they interact with new information. Thus the new information assimilated into the cognitive structures leads to modification of the existing cognitive structures. Piaget views this modification of the cognitive structures as 'accommodating' to the environment.

Thus, Piaget explains the learning process by schemes (the organization of information on how things work), assimilation (the placing of new information into schemes), and accommodation (transforming existing schemes or creating new ones). The motivation for learning is the predisposition of the learner to adapt to his environment, and reach equilibrium between schemes and the environment.

Piaget's cognitive learning theory identifies four stages that are believed to be universal in the cognitive development of children: (i) the **Sensorimotor** stage, this lies between birth up until the age of two. At this stage the child learns things using his five senses,-touch, smell, sound, sight and taste. Stage two of is the **Pre-operational stage,** between two and seven years of age. During this stage the child is usually 'ego centric'. This means that the child is able to consider things from his/her own point of view, and imagines that everyone shares this view, because it is the only one possible. Gradually, however, during this stage, a certain amount of 'decentering' occurs. This is when the child stops believing that he/she is the centre of the world, and is able to imagine that someone else or something could also be the centre of attention. The third stage of this development is the **Concrete operational stage,** from seven years to uptil eleven years of age, where the child begins to his/her egocentric thinking and begins to understand the ways in which others around them think, feel and react to certain things. The final stage is the **Formal operational stage** where the child reaches adolescence and then gradually transforms into adulthood. In this last stage the person is finally able to think logically placing all possible outcomes in a situation into a whole thought thus being able to fully understand the ways in which others think, react and respond to certain things.

Piaget’s developmental theory of learning and constructivism are based on discovery. Piaget’s theory suggests that development precedes learning. That is to say, specific cognitive structures have to develop before certain types of learning can take place. According to his constructivist theory, in order to provide an ideal learning environment, children should be allowed to construct knowledge. Learning is thus an ongoing process that involves the continual interaction of the mind with the environment, where the cognitive structures are continuously “under construction” (Fosnot 1996, 18).

Lev Vygotsky (1896-1934), on the other hand, emphasized the social origin of cognition and argued that the social interpersonal aspects of learning precede the individual intrapersonal aspects (Confrey 1995). The central focus for Vygotsky is thus the dialogic nature of learning.

Vygotsky’s constructivism is known as social constructivism because of the significance he attributed to culture and social context in learning and development. Vygotsky believed that learning and development is a collaborative activity and children develop in cognition even as they socialize. The attention, perceptual and memory capacities of children undergo transformation as a result of the vital cognitive tools provided by culture, for example, history, social context, traditions, language, and religion. Vygotsky believed that for learning to occur, the child first makes a contact with the social environment on an interpersonal level before he/she finally internalizes this experience. The earlier notions and the new experiences influence the child, and he/she then constructs new ideas.

Vygotsky’s social Development Theory identifies three major components to describe the process of learning. One is that social interaction plays a fundamental role in the process of cognitive development. Two is that he identified a ‘more knowledgeable other’ i.e., anyone with a better understanding or higher ability with respect to a particular process, concept or task. The third is the zone of proximal development (ZPD) “. . . the distance between the actual development of a child as determined by the independent problem solving, and the level of potential development as determined through problem solving under adult guidance or in collaboration with more peers (Vygotsky: 1978)", where according to Vygotsky learning occurs. In other words, ZPD is the distance between a student's ability to perform a task under guidance- peer or adult, and the ability of the student to solve the problem or construct meaning independently.

While the debate over the relative importance of cognitive structuring and social interaction on learning continues, it can be safely said that cognition and social influences are inextricable interviewed and play a vital role in the process of learning for the Constructivists

30.4 CHECK YOUR PROGRESS

Fill in the blanks:

1. Under Constructivism, knowledge creation is an ongoing process of ---------------,--------------------, and ------------------ of constructs.
2. Teachers under Constructivism are seen as ----------------------, who facilitates the construction of meaning and not as -------------------------, who is expected to transfer knowledge to the learners.
3. The two main approaches to Constructivism are ------------------------ and ------------------.

4. According to Vygotsky, ---------------- is where learning occurs.
5. Piaget used the two terms, ------------- and ---------------- to describe the interplay of mind and environment in learning.

Answers: Q 1. Construction, evaluation and modification; Q 2. Guide on the side; stage on the stage; Q 3. Cognitive constructivism and social constructivism; Q 4. ZPD; Q 5. Accommodation and assimilation

30.5 UNDERSTANDING THE THEORY OF CONSTRUCTIVISM

Thus far, we have had a general understanding of the Constructivist learning theory and we have seen the two main approaches to Constructivism. In this section, Constructivism will be looked at in more detail. Schunk (1991) lists five definitive questions that not only help us understand the theory from a pedagogical perspective but also serve to distinguish one learning theory from the other. In this section Schunk's five questions will be used to understand Constructivism in detail. Schunk's five questions are:

- How does the theory explain learning?
- Which are the factors that influence learning?
- What role does memory play in learning?
- How does transfer occur?
- Which types of learning does this theory best explain

How does Constructivism explain learning?

Learning according to the constructivists is the creation of meaning from experience (Bednar et al., 1919). Meaning is *created* as opposed to being *acquired*. Constructivists believe that the mind filters input from the environment and creates its own unique reality unlike the cognitive psychologists who think of the mind as a reference tool to the environment. In other words, knowledge is not transferred from the external word into the minds of the learners. Learners rather build or create their personal interpretations based on their individual experiences and interactions.

In Constructivism, just like the rationalists, the mind is considered to be the source of all meaning creation and yet, just like the empiricist, experiences with the environment are considered equally important in the learning process.

Which are the factors that influence learning?

Environmental and cognitive factors are both important for learning. This is because, the Constructivist believes that knowledge is created when these two factors interact. For example, just as the learning of a new vocabulary is enhanced by exposing the student to see and use it in context, it is necessary that the content knowledge should be embedded in the situation in which it is used. Also, just as shades of meaning of the word/s are constantly changing and evolving with each new use or ‘interaction’, so also concepts/knowledge continually evolve with each new use. It is therefore important that learning should be situated in realistic settings and the learning tasks should be relevant to the learners’ lived experiences.

What role does memory play in learning?

Under Constructivism, knowledge creation or learning is an on-going process. A concept continues to evolve every time it is used in new situations and new activities. Constructivists thus believe that “understanding is developed through continued, situated use…and does not crystallize into a categorical defi nition” that can be called up from memory (Brown et al., 1989, p. 33). “Memory” is therefore, always under construction as a cumulative history of interactions. The goal of instruction is that the learners should be able to elaborate on and interpret information rather than to ensure that learners know particular facts that are stored in the head as a single piece of declarative knowledge. Constructivists emphasize the flexible use of pre-existing knowledge rather than the recall of pre-packaged schemas (Spiro, Feltovich, Jacobson, & Coulson, 1991).

Clearly there is no scope for mere acquisition of fixed abstract, self-contained concepts in Constructivism.. The focus of constructivism is on making learning meaningful and lasting by using all three of the crucial factors: activity (practice), concept (knowledge), and culture (context) (Brown et al.,1989).

How does transfer occur?

According to the Constructivist view learning always takes place in a context. It is this context that forms an inexorable link with the knowledge embedded in it (Bednar et al., 1991). Transfer can thus be facilitated by involving the learners in authentic tasks that are anchored in meaningful contexts. To explain this further, one does not learn to use a set of tools by simply following a list of rules. When the learner is engaged in the actual use of the tools in real-world situations, does he actually learn to effectively use the tools. Transfer cannot occur if learning is decontextualized.

What types of learning are best explained by this position?

The Constructivists believe that it is impossible to isolate units of information or divide knowledge domains based on a hierarchical analysis of relationships. However, Jonassen (1991a) has described three stages of knowledge acquisition: introductory, advanced, and expert. He argues that constructive learning environments are most effective for the stage of advanced knowledge acquisition, where the misconceptions and biases acquired during the introductory stage can be identified negotiated, and if necessary, modified or removed. Jonassen is of the view that introductory knowledge acquisition is supported better by behavioural and/or cognitive approaches. However he suggests a transition to constructivist approaches as learners acquire more knowledge which provides them with the conceptual power needed to deal with complex and ill-structured problems.

30.6 CONSTRUCTIVIST INSTRUCTIONAL DESIGN MODELS

Constructivism has emerged as a substantially effective approach to language teaching. Much research has gone into constructivism as an approach to teaching. According to Marlowe and Page, 2005,the foundation of a Constructivist approach is about:

- constructing knowledge, not receiving it
- thinking and analysing, not about accumulating and memorizing
- understanding and applying, not about repeating back
- being active, not about being passive.

Constructivism has resulted in the formulation of Constructivist Instructional Design. Instructional Design can be defined as "a systematic process that is employed to develop education and training programs in a consistent and reliable fashion" (Reiser, Dempsey, 2007). In addition, according to Merrill, Drake, Lacy, Pratt, 1996, it may be thought of as a framework for developing lessons that:

- enhance the possibility of learning
- increase the efficiency, effectiveness and appeal of the acquisition of knowledge and skills

- encourage the engagement of learners so that they develop deeper levels of understanding

There are **three** constructivist design models that can prove to be beneficial while planning ELT lessons using the Constructivist approach: Unlike the conventional lessons, where the teacher either gives a verbal explanation or a demonstration, and then follows it up by giving practice to the students, the constructivist instructional design models are designed in such a way that they help provoke the teacher to plan lessons that help the learner to discover the knowledge/create meaning themselves.

1. **The Constructivist Design Model** developed by George W. Gagnon. Jr., and Michelle Collay. According to this model there are six elements which a teacher should take into account when planning a lesson.

Situation – develop a situation and ask the students to explain it.

Groupings – select a way to group the teaching materials and also the students. For Example, group work, pair work, whole class or the like.

Bridge - build a bridge between the student's prior knowledge and what the student is going to learn. For example, pose a simple problem to solve, initiate a whole class discussion, or have students make lists or the like.

Questions - anticipate questions that the students might ask the teacher or that the teacher might have to ask the students in order to help the students construct meaning.

Exhibit – encourage students to ehhibit their findings, productions, presentations.

Reflections –solicit the student's reflections on their learning. For example, on what they learned, how they can apply it, what are some of the questions that still remain unanswered and the like.

2. **The Learning Cycle** – This three-step learning model can be applied to many kinds of constructivist activities. This model was previously used in science education.

Discovery phase – With the help of various materials the teacher encourages and prods the students to generate questions and hypotheses.

Concept introduction - the teacher helps the students' generate questions and helps them create hypotheses and design experiments.

Concept application - students work on new problems that are based on the concept introduced in the first two steps. This cycle could be repeated many times throughout the lesson unit.

3. **The Information Construction (ICON) Model: Designed by** Robert O. McClintock and John B. Black of Columbia University Teachers' College, the model consists of seven steps:

Observation: Students are provided with natural contexts- primary source materials or simulations and are made to make observations.

Interpretation Construction: Students are asked to interpret their observations and explain their reasoning.

Contextualization: Students are made to construct contexts for their explanations.

Cognitive Apprenticeship: Teachers help student master observation, interpretation, and contextualization .

Collaboration: Students are made to build on their observation, interpretation, and contextualization by collaboration.

Multiple Interpretations: Students gain cognitive flexibility as a result of collaboration, by being exposed to multiple interpretations from other students and from expert examples.

Multiple Manifestations: Students gain transferability as they see multiple manifestations of the same interpretations, by exhibition of group work.

30.7 WHAT ARE THE GUIDING PRINCIPLES OF CONSTRUCTIVISM FOR ELT PEDAGOGY?

Constructivism offers a potentially powerful way to rethink educational methodology and construction of instructional materials. Schcolnik et al., 2006 have suggested the following guiding principles that emerge for pedagogy from the Constructivist approach:

- The classroom learning environment should be such that it supports the learners' construction of knowledge. This means that that learners should be exposed to materials, experiences, and situations that would help them to inductively build their own knowledge.

- Since Constructivism emphasizes the dialogic nature of learning, teachers should allow for activities requiring communication and exchange of ideas. Opportunities should be created for dialogue, discussion and interchange of ideas among the learners.

- As learners construct their own knowledge and knowledge is not 'imparted' or 'transferred' as it is, teachers should not expect consistency (Hannafin 1997).Teachers should instead be ready to view students' work from the students' perspective. They should be aware of their own preconceptions, and understand the differences between the world of the learner and the world of the expert (Wood 1995). Teachers should understand that student errors result from their non-expert, nascent conceptions and can be utilized as motivation for further exploration (Fosnot 1996).

- According to Piaget, learning results from a need to return to equilibration after disturbance to a system. This means that teachers should create disturbance by asking a question that requires thought or research—and then by providing resources which the students can use to resolve the disturbance and return to equilibration.

- Under Constructivist theory, learning is an on-going process and learners integrate chunks of new knowledge into existing knowledge to create new knowledge. This implies that a Constructivist pedagogy should allow for students to reflect on what they are learning. This will help them to better integrate chunks of new knowledge into existing knowledge and thereby achieve synthesis. In other words, the learning environment must encourages reflection and abstract thinking (von Glasersfleld 1995).

- When the learner constructs his own meaning and knowledge, the knowledge becomes part of the learner and the learner becomes empowered. The curriculum should therefore support a learner-centered, task-based curriculum, which will promote knowledge construction.

- Since constructivist teaching requires teachers to respond spontaneously to student confusion and discovery (Schifter 1996) learning and classroom interaction cannot be totally scripted,. Therefore teachers should not attempt to plan their lessons to the smallest detail. Teachers should instead, leave enough time for the spontaneous interactions that are instrumental in the learning and in the creation of knowledge.

The Constructivist approach can thus facilitate language learning by giving students meaningful tasks, and by providing language practice that is interesting and authentic. By providing situations where the students create their own knowledge, students are encouraged to experiment freely with the language. Moreover, because student errors are viewed as part and parcel of interlanguage under the constructivist approach (Krashen 1982), students are not under any pressure to produce the 'correct' language. This helps to bring down their inhibitions and the students experiment more freely with the language.

In Practice, in Constructivism, direct instruction is avoided. The teacher instead, guides the students in discovering knowledge on their own by actively involving them rather than passively telling them and making them absorb. The teacher is not seen as an authoritative figure. The classroom environment is democratic The activities are authentic and involve the students and should not be overly structured. The activities are student centred rather than being lesson-centred.

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The teacher has to play different roles. According to Jonassen, there are three roles for teachers who use the constructivist learning theory in their class: modelling, coaching and scaffolding-to provide sufficient support to promote learning when new concepts are introduced.

The Constructivist theory has also led to the development of many new instructional techniques. Cooperative and collaborative techniques have been especially found to be useful in helping the students construct their own meaning and take ownership of their learning.

Based on Cronjé (1997:B7) the characteristics of constructivist learning can be synthesized as follows:

- The learner constructs learning from his experience
- Interpretation is personal.
- Learning is an active process where experience is converted into knowledge and skills.
- Learning is collaborative, and therefore allows for multiple perspectives.
- Knowledge and learning is situated in real-life.

30.8 SUGGESTIONS FOR TEACHING WITH THE CONSTRUCTIVIST LEARNING THEORY

The following are some of the important suggestions that have been adapted from Brooks, J. & Brooks, M. (1993) that teachers should take care to employ when teaching with the Constructivist learning theory:

- **Encourage and accept student autonomy and initiative.**

  -By respecting students' ideas and encouraging independent thinking, teachers help students attain their own intellectual identity. Students who frame questions and issues and then go about analysing and answering them take responsibility for their own learning and become problem solvers.

- **Try to use raw data and primary sources, in addition to manipulative, interactive, and physical materials.**

-The constructivist approach involves students in real---world possibilities, and then helps them generate the abstractions that bind phenomena together

- **When assigning tasks to the students, use cognitive terminology such as "classify," "analyze," "predict," and "create."**

  -The constructivist teacher challenges students to reach beyond the simple factual response.He encourages students to connect and summarize concepts by analyzing, predicting, justifying, and defending their ideas.

- **Build off and use student responses when making "on-the-spot" decisions about teacher behaviors, instructional strategies, activities, and content to be taught.**

- **Search out students' understanding and prior experiences about a concept before teaching it to them.**

- **Encourage communication between the teacher and the students and also between the students.**

  -Social discourse helps students change or reinforce their ideas. If they have the chance to present what they think and hear others' ideas, students can build a personal knowledge base that they understand. Only when they feel comfortable enough to express their ideas will meaningful classroom dialogue occur.

- **Encourage student critical thinking and inquiry by asking them thoughtful, open-ended questions, and encourage them to ask questions to each other.**

  -Reflective thought takes time and is often built on others' ideas and comments. The ways teachers ask questions and the ways students respond will structure the success of student inquiry.

- **Ask follow up questions and seek elaboration after a student's initial response.**

- **Put students in situations that might challenge their previous conceptions and that will create contradictions that will encourage discussion.**

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

- **Make sure to wait long enough after posing a question so that the students have time to think about their answers and be able to respond thoughtfully.**

- **Provide enough time for students to construct their own meaning when learning something new.**

30.9 CONSTRUCTIVIST ACTIVITIES IN THE ELT CLASSROOM:

In the constructivist classroom students mostly work in groups. Knowledge creation is interactive, dialogic and dynamic. In the Constructivist classroom the emphasis is on social and communication skills as well as cooperation, change of ideas and collaboration. The emphasis is on group work, pair work and on cooperation and collaboration. The emphasis is on creative, reflective, interactive, modeling and meaning making activities.

There are innumerable activities that can be designed for the constructivist classrooms, some of the activities include, designing and pursuing research and projects, role playing, debates and discussions, problem solving, case studies, portfolio creation, portfolio evaluation, writing and performimg songs, plays, creating charts, tables, graphs, maps, the use of mind-maps and the like

30.10 LIMITATIONS OF CONSTRUCTIVISM:

The Constructivist theory has many strengths. It promotes student autonomy. It calls for using meaningful and authentic activities and learning materials. It promotes life-long learning by making the students take ownership of their learning. Students learn to apply their knowledge in real contexts. Constructivism develops social skills and communication skills. This is so because the constructivist classroom environment emphasizes collaboration and exchange of ideas. Students are encouraged to learn how to articulate their ideas clearly. Students have to exchange ideas as they collaborate on tasks. They therefore learn to "negotiate" .

One of the disadvantages of Constructivism is its lack of structure. Some students require highly structured environments in order to be able to excel. Standardized curriculum cannot be followed because constructivism believes that learning is based on prior knowledge.

Standard methods of grading are not acceptable because constructivism pays more value on students evaluating their own progress. Tis could pose serious problems because without standardized scores the teacher may not get to know that the student is struggling.

Also, because a lot of group work is promoted, ‘majority voice’ could tend to prevail as the voice of the other students would not be ‘heard’ by the group. There would be a tendency therefore to follow the group. One cannot therefore check how many students can take ownership of their own learning- or whether learning is really happening.

Notwithstanding the limitations Constructivism can have its place in the learning system. However, it cannot be taken as the absolute approach. Students will benefit if a judicious mix of the approaches to teaching is made depending upon aims and objectives of the lesson.

30.11 LET US SUM UP:

Learning is a complex process and from times immemorial attempts have been made to understand human learning. Learning has been defined in numerous ways and no single definition of learning exists yet. The definition of learning by Shuell as interpreted by Schunk, 1991 which defines learning as: “Learning is an enduring change in behavior or in the capacity to behave in a given fashion, which results from practice or others forms of experience” (p. 2) incorporates the common elements found in most of the definitions of learning.

It is important to note that just as there are many definitions of learning there are many theories of learning, like the Empiricist, the Rationalist, the Behaviourist and the Cognitivist to name a few , and each has its own set of implications for pedagogy and for the classroom.

Constructivism is a theory of learning that states that learning happens when people actively construct their own knowledge (von Glasersfeld 1991). In Constructivism, the age-old metaphor of the mind as a container, that is waiting to be filled with knowledge is changed to the metaphor of a mind as an active agent that is engaged in the construction of knowledge. There are two main approaches to Constructivism. One is Cognitive Constructivism advocated by Piaget and the other is Social Constructivism associated with the work of Vygotsky. While both these approaches believe that students learn by constructing their own knowledge, Cognitive Constructivists focus on the importance of the mind in constructing knowledge where as the Social Constructivists emphasize the role played by the environment and the interaction amongst the learners themselves in constructing knowledge.

Constructivists believe that the mind filters input from the environment and creates its own unique reality unlike the cognitive psychologists who think of the mind as a reference tool to the environment. Meaning is *created* as opposed to being *acquired*.

Environmental and cognitive factors are both important for learning. This is because, the Constructivist believes that knowledge is created when these two factors interact.

There is no scope for memorising or for mere acquisition of fixed abstract, self-contained concepts in Constructivism. The focus of constructivism is on making learning meaningful and lasting.

Jonassen (1991a) has described three stages of knowledge acquisition: introductory, advanced, and expert. He argues that constructive learning environments are most effective for the stage of advanced knowledge acquisition, where the misconceptions and biases acquired during the introductory stage can be identified negotiated, and if necessary, modified or removed.

Constructivism offers a potentially powerful way to rethink educational methodology and construction of instructional materials. Schcolnik et al., 2006 have suggested seven guiding principles that emerge for pedagogy from the Constructivist approach.

Brooks, J. & Brooks, M. (1993) have suggested eleven points that teachers should keep in mind when teaching with the Constructivist learning theory.

As a result of the Constructivist learning theory many new instructional techniques like the cooperative and collaborative techniques have been identified and have been found to be useful in helping the students construct meaning and take ownership of their learning and that of the new knowledge created.