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Research Papers

Constructivism – A New Paradigm to Teaching and Learning

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Abstract

Education is a process of acquiring information and knowledge. Human learning has been one of the important fields of study since ages. How an individual learns and think is not only the field for cognitive, developmental and neuroscientist but also for common man. Dr. Abdul Kalam has recommended five special capacities that are required to be built in education system for nurturing the students. They are research, inquiry, creativity and innovation , use of technology , entrepreneurial ability and moral leadership. If we develop these five capacities in our students we will produce "Autonomous Learners", a self directed, controlled life long learners who will have the capacity to both respect and at the same time is capable of questioning authority in an appropriate manner.[University News, Vol4 (No. 24)] But how one perceives information and what is the process of acquiring knowledge are pertinent questions of education.

In our education system a lot has been discussed but building an autonomous learner in reality is a major question. One of the criticisms labeled against our education system is that it lays more emphasis on memorization rather than thinking. Due to competition of scoring higher marks has become the goal of the students as well as the institutions; it has lead to stress and tension among students. For any quantitative change from the present situation should undergo a paradigm shift where rote learning should be discouraged, stress tension should be reduced, provision should be made to satisfy curiosity and hunger for novelty, discovery and challenge. Hence learning should emphasize the development of meaning and understanding. This paradigm shift in teaching learning process can be brought about as neurologist have thrown light by observing specific patterns of activity within the brain. In light of these brain based studies, current theories and practices of instructional design need to be changed with how the brain best learns . So brain opposed things should be eradicated and brain adapted things should be taken into consideration. So Constructivist Approach is the answer to it.

What is Constructivism?

Constructivism is an outgrowth of cognitive science. It is derived from Latin word construcre – meaning to arrange or give structure. Constructing knowledge on the basis of previous knowledge is called constructivism. It has its roots in ancient times going back to Socrates dialogue with his followers, in which he asked directed questions that led his students to realize for themselves the weaknesses in their thinking. Jean Piaget , John Dewey, Lev Vygotsky , Jerome Bruner and David Ausubel have influenced Constructive view.. National Curriculum Framework (NCF 2005) has given guiding principles of constructivism, which are as follows.

·   Learning is a process of construction of knowledge

- Knowledge is constructed by the student
- Constructing meaning is learning
- Child constructs knowledge from experiencing the world
- By interacting with the environment the child constructs knowledge and derives meaning
- Local knowledge has to occupy a major place in school knowledge
- There should be plurality of textbooks to break the authority and monopoly of textbooks

Constructivism suggests that students learn and do not simply memorize or take on others conceptions of reality, instead their own meaning and understanding. In Constructivism learning is interactive building on what the students already know. Students are not blank slates (Tabula Rasa) upon which knowledge is constructed. They come with certain knowledge, ideas and understanding on what student already knows. According to constructivism, learning is not a treasure hunting game where students are trying to guess what is in teachers head but a process that creates meaning and knowledge. So the main focus is "HOW THEY LEARN" rather than **"WHAT TO LEARN"**

So as teachers we have to change the outlook of the classroom where it is no longer a place where teacher pours knowledge into passive students, who wait like empty vessels to be filled in but a classroom where students are engaged in learning activities with which students formulate and test ideas, draw conclusion and inferences. Research was done by Neal Kimberly L (2004-09) using constructivist approach on Std.XII - To study basic skills of mathematics was . Findings revealed that it increased students' marks & motivation.

Constructivism may be cognitive ,social or radical.Cognitive constructivism focuses on mental processes rather than observable behaviour.Social Constructivism applies the general philosophical constructivism into social settings, wherein groups construct knowledge for one another. Radical Constructivism refers to both a type of learning theory and a pedagogical model.

Bringing Constructivism to Classroom:

To bring constructivism to classroom following strategies can be adopted

¬ Project Based Learning is a strategy that challenges students to discover answers to their questions through real world investigations. Research projects can be given where students do research on a particular topic and present the findings to the class.

¬ Problem Based Learning helps students to solve the problems and reflect on their experiences. The teacher presents a problem to the students .The content is not taught, but students work with the content, are active and discover the solution to the problem. Findings of research conducted by Putnam (2001) reveal that this approach is attractive as it exercises metacognitive or higher order skills and real life perspective.

¬ Inquiry training model is developed by Richard Suchmann. Questioning is a key element in each of the building blocks of constructivism. In this model the teacher presents a discrepant event .Students have to ask yes/no type of questions. Teacher encourages students to find solutions of the problem.

¬ Group Discussion: In this students can be divided into groups Open ended questions can be asked where students are given time to discuss, share ideas and express their opinion.

¬ Cooperative Learning can be practiced in classrooms which gives learners opportunity to construct knowledge, problem solving and develop social and personal skill. It is a successful teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Jigsaw technique developed by Elliot Aronson can be used where each student is responsible for learning one piece of the content and sharing in peer group.

¬ Concept Mapping can be used as a tool for organizing and representing knowledge. It can be used to generate ideas, illustrate the relationship between different components to integrate new knowledge and old knowledge .Research done by Hyerle DavidA Field Guide to using visual tools revealed that use of concept maps , mind maps brought about changes in students reading , comprehension and writing from kindergarten to college to workplace.

¬ KWLH Technique: Previous knowledge can be activated using KWLH technique.
K - stands for helping students recall what they KNOW about the subject.
W – stands for helping students determine WHAT they want to learn.
L - stands for helping students identify what

they LEARNED.

H – stands for helping students know HOW we can learn more.

¬ Reciprocal Teaching: It can be used to increase the comprehension level of the students. This strategy given by Palincsar refers to an activity that takes place in the form of dialogue between teachers and students regarding segments of the text .The dialogue is structured by use of 4 strategies:

· Summarizing: Provides the opportunity to identify and integrate the most important information of the text. Summary can be sentence wise or paragraph wise.

· Questioning: Involves identification and creating new questions of various types (Objective, short) and levels (Lower, middle or higher order)

· Clarifying: Text, which is difficult to understand, is clarified (New vocabulary, unfamiliar words). They are asked to refer dictionaries, rereading)

· Predicting: It is based on what you have read, what you know and what will happen next. Students are asked to predict what the author will discuss next in the text.

Thus all above strategies tap onto and trigger student's innate curiosity about the world and how things work. The students not reinvent wheel but rather attempt to understand how it turns and functions. Lastly we as teacher educators should not just restrict ourselves to the theory of various methods of teaching but also actually put into practice. In this information age we shoulder a huge responsibility of moulding our future teachers. We must enlighten them with the new approaches, help them to put into practice as they in return will apply it in schools and will construct Autonomous Learners for our society.

Researches prove that constructivist approach encourages active meaningful learning, fosters critical thinking and promotes responsibility and autonomy, which is beneficial in achieving desirable goals of education. Thus, it is important for us to grow professionally towards a constructivist approach.

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