PARADIGMS OF CONSTRUCTIVIST APPROACH: CONSTRUCTIVIST TEACHING AND CONTENT ORGANIZATION

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1.0 Constructivist Approach to Teaching: Constructivist Approach to Teaching is based on constructivist learning theory which suggests that every individual constructs his or her own knowledge in unique way. Building knowledge is highly individualized process which may have its origin in environment or social setting but eventually when it comes to understanding and retention it is intrinsic in nature. It cannot be visualized apparently by others but can be guessed through manifestations in some forms like verbal or non-verbal expressions, problem-solving etc.

Such kind of construction begins as soon as an infant starts experiencing the surroundings through his senses. It's a kind of learning that begins at very early stage. The stimuli in the environment come in variety of forms such as things, people, sounds, colours, behaviour of people and many more. In this process of observation and understanding and assimilating "something", the deliberate efforts are made by others when the words and meanings are associated to what a growing child sees, hears and feels. This facilitates the process of understanding the world for a child. As the child steps into school the stimuli are presented before him and the efforts are made that the intended learning takes place. The child is subjected to a series of procedures like recitation, revision and memorisation of the information which is presented to him. All this is done with the objective that the child should learn what is taught to him or her. Constructivism in its radical form allows the learner to learn as much as he could learn at his own pace. Eventually, the amount of knowledge constructed by every individual will differ and furthermore there is no empirical measure for any kind of assessment. However, in the school, strategies need to be planned if constructivist approach has to be borne by the teachers.

There are various stimuli present in the environment and every individual perceives them in independent ways. There will be some perception, understanding and retention of what is experienced through senses.

Constructivist teaching is based on the belief that learning occurs as learners are actively involved in a process of meaning and knowledge construction as opposed to receiving information passively. Learners are the makers of meaning and knowledge.

The following are salient features of constructivist classroom:

- the learners are actively involved.
- the environment is democratic.
- the activities are interactive and student-centred.
- the teacher facilitates a process of learning in which students are encouraged to be responsible and autonomous.

1.1 Teaching- Learning Process in Traditional Classroom: As said earlier systematic efforts are taken for teaching the content that the child should learn. Overall, the instructional plan revolves around three major paradigms of teaching, learning and evaluation. But the underlying process of construction at the cognitive level is overlooked for the obvious reasons that it is abstract and highly individualistic.

In a traditional classroom, we can see a linear flow of processes as shown below:

1. TEACHING → **2. LEARNING** → **3. EVALUATION**

1. **Teaching:** It is practically imparting the pre-planned knowledge to the classroom consisting of number of students by means of narration, explanation, demonstration and other supportive strategies. Though, teacher may try to seek students 'participation in the process by asking questions and conducting activities but the entire process is guided by the teacher.

2. **Learning:** Customarily, learning is supposed to be the acquisition of information, facts, definitions etc by memorising with or without understanding. Usually, such learning includes a whole lot of information under the various subjects like Mathematics, history, geography, Science and so on.

3. **Evaluation:** After the formal procedure of teaching-learning, it is monitored how much every student can recall that was learnt. Evaluation is carried out by employing tools like

oral, written or practical tests. Performance on the test is indicative of how much knowledge has been acquired by a child.

What is missing?
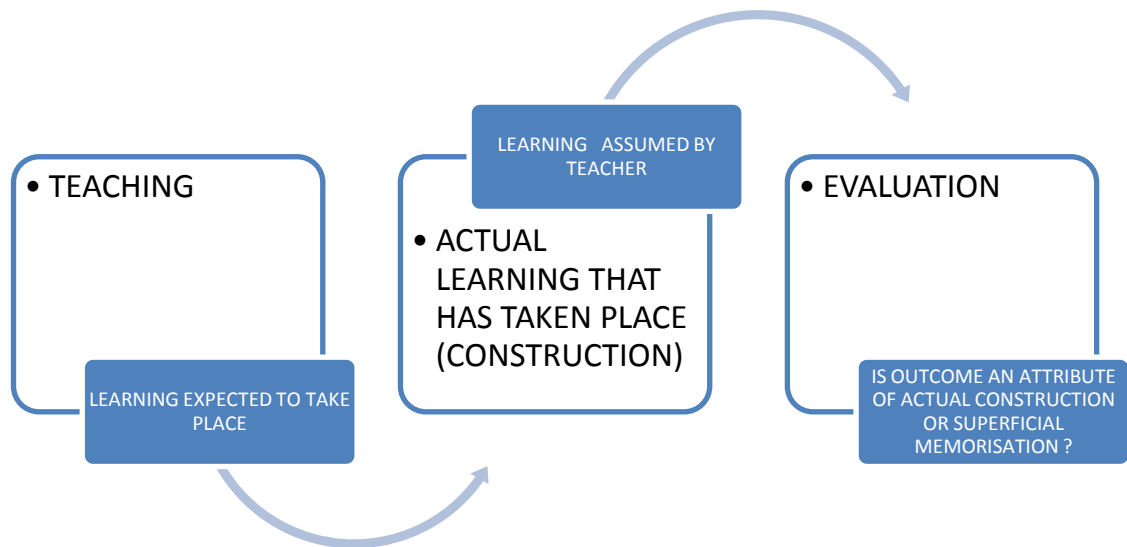
What has been missing there are the important links between teaching and evaluation on the basis of learning that has been assumed by the teacher to have taken place. What has been taught may not have been received by the learner so much so that it becomes a part of the learner's cognitive construction. Subsequently, the evaluation that has been carried does not yield the results that match with the real learning that has taken place. On the contrary, it leads to faulty numerical data which is corresponding to something that has been temporarily memorised and recalled to some degree of accuracy.

So, the actual need is to monitor the process of how a learner is constructing various points of knowledge while teaching in the classroom is in progress rather to carry out evaluation at the end of teaching in conventional sense.

1.2 Gauging the process of construction: We can say that what the child could do or recall on the test not by mere memorisation but by using his own intellectual device is the actual knowledge that he has constructed! But who will judge how much a learner is doing by his own intelligence and not by just reproducing the content which is memorised? The answer

is the learner himself! Teacher can strategically plan the learner's construction analysis process.

Following techniques can be employed.

1. **Think Aloud**: Especially, while solving Mathematics problems, teacher may ask a learner to say aloud the calculations he is doing.

2. **Error Analysis**: Only one mathematical problem should be given at a time. Teacher should correct the solution given by child step by step and mark the incorrect entries made by the child. Teacher should talk to child in order to find out the origin of the unexpected response so that the wrong construct leading to such response can be identified and modified.

3. **Programmed learning material**: Programmed learning kit is a self-learning material which gives step by step units of learning. Each frame contains only one bit of information and a question based on it. Teacher can easily identify the incorrect response and track a source of it as child moves on to the next learning frame.

4. **"Nothing is wrong!" : The Underlying Principle**

Nothing that has been quoted by a learner is wrong is the crux of constructive learning. An answer given by child may be unexpected but not wrong. Its only that the learner is not giving desired response. Such unexpected response has its root cause in some wrong construct which is previously set in the child's cognitive structure. Or the required piece from a jigsaw is missing thus making the learner unable to arrange the next pieces in meaningful fashion.
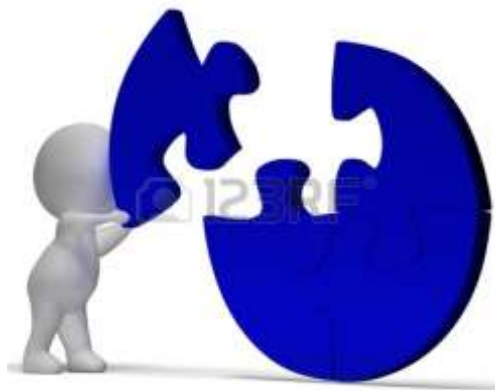
Hence, a constructivist teacher should not treat any answer given by a learner as wrong but it must be treated as a product of construction that the learner already has in him. It may not make any sense to the outer world but it is logical and meaningful in the world of learner's cognition. If the teacher wants the desired formation of jigsaw puzzle from a student as that is

his/her role of facilitating right learning that will make sense, he or she must go on tracing the previous arrangement of constructs.

1.3 Equilibrium between what is taught and what is learnt: As has been already discussed, in formal schools, the stimuli are articulated and presented to a child so that he/she is stimulated to think about them and get something into the cognition. But the process is induced so the child may not make the desired efforts to learn something from such stimuli. Also, the child's internal world of construction may not have adequate constructs to accommodate new ones or he/she may miss that link to where actually to relate the new constructs. After all, learning is the process of establishing links among all the points of knowledge that the learner has been acquiring at different times so that as a whole it makes sense.

In formal classroom,

$$\text{Amount of Teaching} \quad \neq \quad \text{Amount of Learning}$$

But the Constructivist teacher will reconfigure this equation as follows:

Amount of teaching = amount of knowledge constructed by individual + learner's own reflective thinking/perception/interpretation

Furthermore, teaching of a particular unit selected by a teacher may have an end but the process of construction has multiple free ends and flexible structure allowing reshaping and extensions as new experiences occur. New knowledge when classified as being related to the previously existing construction may anchor to free end or it may adjust itself suitably at any point in the existing structure!

That is why our ideas about the world change as we grow and gain new experiences. Every time when a new construct is acquired either our knowledge elongates or broadens or restructured. So, construction is a multidirectional, multidimensional process.

2.0 Constructivist Content Organization and Constructivist Teacher: These are the major paradigms in adopting Constructivist Approach to teaching in conventional classroom. Teacher needs to understand the fundamentals of Constructivism so that he/she can gradually develop constructivist approach. Also, to apply that in practice, the content that has been prescribed in the customary schools for students' learning needs to be suitably designed. These two are complementing each other in practice. But, we often find that academic authorities claim to have the prescribed content organised in constructivist manner whereas the teachers are not well-versed with the theory and practice of constructivism. On the other

hand, we may also encounter with the teachers who are keen to follow constructivism but are bound by the limitations of rigid texts and time limit to finish with teaching.

Ideally, texts should serve as a guiding manual to present the content to the students in constructivist manner and the teacher should be very well conversant with the constructivist theory and practice.

2.1 Constructivist Teacher Vs Traditional Educational System: If a constructivist teacher is bound by limits of traditional teaching pattern in terms of prescribed syllabi, classroom strength etc. the following problems can be configured.

1. **Teaching of given syllabi in stipulated timeframe:** In the formal setting like classroom, teacher has to deliver the amount of content which has been planned by the relevant academic authorities. Since, child's academic evaluation has been linked to promotion to the next academic class, it is mandatory for the teacher to complete teaching of the given course. Eventually, the teacher adopts the most suitable plan of teaching that enables him/her to complete the teaching of all the units which have been prescribed in the syllabi with only a little consideration of how much the child has actually learnt.

2. **Nature of Evaluation:** Generally, there are two modes of evaluation practiced in schools. These are formative evaluation and summative evaluation. Formative evaluation is conducted at short intervals of time and it is based on two or three units of teaching. The prime aim of formative evaluation is to assess the child's learning of a specific unit and to take follow up like remedial teaching. However, this is not practiced genuinely due to time constraint and overcrowded classes. Eventually, the child proceeds further without actually learning the things that he could not do on the test.

3. **Time Constraint:** General time-table of any academic class is tightly packed with teaching periods and number of other activities thus leaving no room for understanding the difficulties of children and resolving them.

4. **Overcrowded Classrooms:** In typical Indian classrooms there are more than 50 students on an average. This makes it highly infeasible to plan anything for individual child.

2.2 Constructivist Organization of Content: Constructivist organization of subject content will offer a ready solution to the problems discussed above.

If the content is organized with the constructivist approach, teacher will get appropriate guidelines for the implementation of constructivist strategies in teaching-learning process.

Content itself will be systematically organized and graded keeping in view the natural process of how child learns.

Also, it will provide the questions and exercises to probe the construction process of child and monitor it so that any kind of obstacle can be easily encountered and resolved on time by the teacher.

Thus, the constructively organized content is an effective mechanism for teaching with the constructivist approach.

It will save teacher's time in planning and executing extra activities and sessions as the same will be a part of the prescribed content.

The evaluation which is followed by the constructively organized content will be suited to the constructivist approach and it will give the teacher an insight into how to locate the incorrect constructs and further to assist the child in reorganizing the jigsaw or to find missing piece!

It will guide the entire process of time-table planning, classroom strength, evaluation system and remedial measures. All these will be a part of a well planned system and there will not be any conflict of amalgamating constructivism in conventional set up.

2.3   Drift between Constructivist Content organization and Teaching Approach:
Providing a self-sustainable system for constructivist teaching will be a great solution for implementing constructivist approach in teaching. However, the following can prove to be risk factors to shatter the major objectives of giving Constructivist Content.

1. **Lack of teacher's Constructivist Approach:** No matter how well the content has been organized, if the teacher is not trained enough to think and act on constructivist lines, he or she will ruin the plan of constructivist classroom!

It needs excellently trained teacher who has developed constructivist approach with thorough knowledge of underlying principles and strategies. Rather, such teacher will deal with any kind of content with the constructivist approach.

2. **Traditional Evaluation System:** If the old evaluation system is not evolved along with the changed teaching approaches, there will be a mismatch between the two. Subsequently, the teacher will have to rush with the teaching so that the student can answer all the questions in the traditional type of examination. Hence, the right thing to follow is to adopt well suited evaluation mechanisms in the constructivist programmes.

3. **Rigidity in time-table:** In constructivist approach, teacher needs time to carefully implement and monitor the student's learning. There has to be individual attention as and when required and also special follow up measures for assisting the child for better learning. So, the time-table must have the provision for special reserved time slots for interactive sessions and remedial teaching in ample amounts.

2.4 Complementing Constructivist Approach and Learning System Approach:

Here, the learning system signifies the educational set up in which the students are to enter and learn. There are number of problems practically felt by the teachers and schools while implementing the constructivist teaching plans. But, if we really want our students to learn in true sense and build up their own knowledge, constructivist approach is indispensable.

The following measures can offer solution to the problems:

1. Plan interactive sessions and remedial teaching in time-table

2. Appoint Supportive Staff/Volunteers

3. Use Innovative testing methods rather than paper and pen tests

4. Create Democratic Environment in Classroom

5. Engage students in experiments, specimen studies, Mathematics Puzzle Solving

6. Deal with student's doubts, breaks in learning as and when observed

7. Set Induction with what is already known by the student.

Constructivism in its radical form allows the learner to learn as much as he could   learn at his own pace. Eventually, the amount of knowledge constructed by every individual will differ and furthermore there is no empirical measure for any kind of assessment. However, in the school, strategies need to be planned if constructivist approach has to be borne by the teachers.

3.0: What is more important: Constructivist Teacher or Constructivist Content Organization?

As discussed earlier, both the paradigms are complementary to each other in implementing constructivist approach to teaching in the classroom. Alone, none of them is self-sufficient. However, if the question has to be answered, the answer would be constructivist teacher is more important. The reason is but obvious that the teacher is a live medium of presenting the stimuli that is potent with knowledge to the students. Such teacher will skilfully articulate the learning environment to make it most proactive for constructivist learning. He/she will be resourceful in planning activities to keep students engaged inactive learning. Teacher plays versatile role of a guide, facilitator and organizer in Constructivist learning environment. A truly constructivist teacher would be able to present any bit of content in the way that the students can easily build up their knowledge.

Teacher's Multifaceted Role
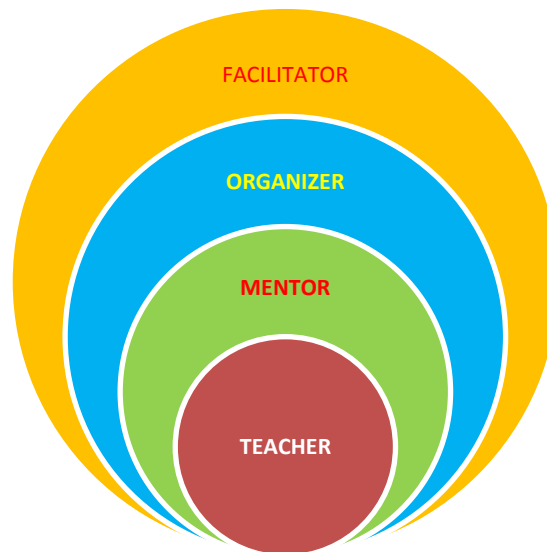
The above diagram illustrates the teacher's expanding sphere of roles once the constructivist approach is adopted.

Apart from traditional role of teaching, the teacher has to perform the following jobs:

1. Organizer: Teacher has organize learning experiences in various forms, interactive sessions in a systematic and well planned manner. Also, the teacher has to be resourceful to modify the nature and form of activity depending on the classroom situation.

2. Mentor: In the process of monitoring the construction, teacher has to mentor the learner as and when needed.

3. Facilitator: If the construction is left to take its natural course, the desired learning may not take place. So, the teacher has to facilitate the process of construction by simplifying the learning task suited as per needs or by boosting it with some additional resources.

4.0 **Conclusion:** However, a very well organized content may not serve the desired purpose in the absence of teacher who has internalized the mechanism of transmitting the same to the students. Such content will just remain as dead compendium exemplifying mere structural aspects of constructivist organization of content. On the contrary, a teacher with constructivist approach would transform every bit of information into an effective stimulus with great potential of inducing the process of constructing knowledge in a learner.

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