



Constructivism And Skill Based Pedagogy In The Higher Educational Context

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ABSTRACT

A set of unique procedures are common to all the disciplines of science, they do not change with time. One can practice there process as part of daily life. For this reason a science curriculum must stress more on these processes than the products of science. The knowledge of the product may be useful in understanding the processes of science. But understanding the processes are useful for both daily lives as well as in furthering scientific knowledge. The higher education class rooms are mostly lecture or skill oriented. The activities that we entertain in a day-to-day life of higher education need to be near or along with skill building phenomena. The constructivism is a combination work of philosophy, psychology and sociology which gives due recognition to construct own ideas as reflecting of one's own experiences acquired from the surrounding or social setting situation. Hence, the present investigation throw light on how the selected suitable principles of constructivism can be incorporated in a curriculum, method of teaching, learning activities, student autonomy, higher level thinking, dialogue and real world possibilities of higher education . This paper also has suggested some procedures to be followed for skill based pedagogy under each activity.

Keywords : Constructivism, process skills, curriculum, teaching-learning.

Introduction

Constructivism is basically a theory based on observation and scientific study about how people learn. It says that how people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences (Von Glaserfeld, 1989). When we encounter something new we have to reconcile it with our previous ideas and experiences. Constructivism also can be defined as a "philosophy of learning founded on the premise that by reflecting on our experiences". We construct our own understanding of the world we live in. Each of us generate our own "rules" and "mental models" (Jacqueline and martin Brooks 1999) which are use to make sense of our experiences. Therefore, we conclude learning is simply a process of adjusting our mental models to accommodate new experiences. In this paper an attempt is made to describe the importance of constructivism principles in the higher education context.

Impacts of constructivism on learning

Constructivism calls for the elimination of the rigid curriculum. Instead, it promotes using curricula customized to the students' prior knowledge and also it emphasizes hands-on problem solving. As far as the instruction is concerned it makes connection between facts and fostering new understanding among students. Instructors have to tailor their teaching strategies to the students' response and encourage them to analyze, interpret and predict the information through constructivism philosophy. Teachers also rarely pose open ended questions to promote extensive dialogue among students. This theory does not assign grades and standardized tests. Instead, it expects

assessment should become an integral part of the learning process so that the students play a larger role in judging their own progress.

Constructivism and classroom

It suggests learning is a search for meaning. Therefore, learning must start with the issues around which students are actively trying to construct. It expects students' understanding as a 'whole' as well as 'parts' and parts must be understood in the context of wholes. Hence, it focuses on the primary concepts of any context and not as isolated facts. It also suggests that teachers have to understand students' mental model to teach effectively. Ultimately it expects learners to construct their own meaning according to their mental model.

Constructivism and skills

From the above description we could understand that constructivism theories help the learners to build all required skills and knowledge by their own with support of the surrounding. Today learners are in a pressurized situation and they should have mastery over various skills rather than knowledge. Because, skill comprises knowledge as part and parcel but not vice-versa. The authors try to explain the appropriateness and suitability of constructivism in improving required and expected skills of the learners at higher education level.

Required and expected skills

Learners in classrooms of higher education today are still passive striving to acquire the knowledge alone. It is essential to incorporate the following skills under various dimensions of Teaching, Learning, Training and Assessment of higher education.

Table 1

Knowledge oriented skills	List, Name, Recall, Recognize, Select, Reproduce and Measure
Comprehension oriented skills	Identify, Justify, Indicate, Illustrate, Represent, Formulate, Judge, Contrast and Classify
Application oriented skills	Predict, Assess, Find, Demonstrate, Construct, Compute and Perform
Analysis oriented skills	Analyze, Conclude, Differentiate, Separate, Compare, Contrast, Breakdown and Criticize.
Synthesis oriented skills	Combine, Restate, Summarize, Precise, Argue, Derive and generalize.
Evaluation oriented skills	Evaluate, Determine, Support, Defend, Choose and Avoid.

Teaching at higher education classrooms should be based on the skills. For instance, the learners should possess the materials that should pave the way to acquire all those stated skills through tasks and assignments in the classroom itself by the different phases (Motivation, Development of the lesson, Assessment and Recapitulation) of the teaching.

Cognitive load

During 1990s, several theorists began to study the "cognitive load" of novices (students with little knowledge or no prior knowledge of the subject matter, i.e. new enterant) during the learning and problem solving process. The "Cognitive load" theory was applied in several contexts. (Pass,1992; Moreno & mayer,1999; Mousari, Low & Sweller, 1995 and Chandler and Sweller, 1992). These theories do not want to allow novices to study and interact with the ill structured environments. From the findings of their research we could understand that the learners should be provided better learning environment rather than the instruction. Constructivism is a theory capable of providing such an environment in the higher education classroom in turn it will help the learners to attain mastery in the various skills required to meet the futuristic challenges because constructivism teachers do not take the role of the "sage on the stage" rather, teachers act as "guide by the side".

Investigation in constructivism

Dunn and Larson (1998) and Alexandria and Larson (2002) specified ten events that provide the foundation for a constructivist approach to instruction. These ten component skills are described under four phases. They are: investigation, initial implementation, implementation and evaluation and celebration. Each phase includes series of processing skills. These phases are listed below with their process skills.

Phase I: Investigation includes contextualizing; clarifying, inquiring and invention .This phase elicits the required information for learning.

Phase II: Initial implementation consists of planning and realizing which will be used at the development of lesson.

Phase III: Implementation and evaluation will be carried out by the skills such as testing, modifying, interpreting and reflecting. When learning is completed it would be reviewed in the fourth phase.

Phase IV: Celebration: where the students present their work of learning with others. The model of constructivism learning shows the value of inculcating knowledge through skill based and skill oriented techniques.

Constructivism classroom

In a constructivism classroom the following characteristic features are strictly adhered to there by it pays attention to the learners' integrated development.

a. Student autonomy

Students' autonomy and initiative are accepted and encouraged in a classroom. It respects students' ideas and leads them for independent thinking to attain own intellectual identity. It allows students to frame questions and issues and then go about analyzing and answering them. Thus they take responsibility for their own learning and they become problem solvers in every constructivism classroom.

b. Open-ended questionnaire and inquiry

Reflective thought takes time always but it builds on others'

ideas and comments. The way teachers ask open ended questions and the way students respond to the questions will decide the success of inquiry.

c. Higher level thinking

Constructivist teachers challenge students to reach beyond the simple factual (from the text book) response. The great work of him (teacher) is to connect and summarize concepts by the various skills such as analyzing, predicting, justifying and defending where the learners play major role not only in learning but also in teaching.

d. Dialogue

Constructivism classroom will not end without dialogue. Social discourse helps the students to change and reinforce their ideas. If they have the chance to present what they think and listen to ideas of others, they build a personal knowledge and understanding. Hence, dialogues between teacher and students and among peers are emphasized.

e. Hypotheses Formulating

Constructivism classroom allows the students to make predictions to frame the hypotheses on the concepts to be learnt. The teacher provides ample opportunities for students to test their hypotheses, especially through group discussion and intra level thinking.

f. Real world possibilities

Above all, the constructivist teacher tries to establish a classroom as the real world. He/She tries to use raw data, primary sources, and manipulative, physical and interactive materials for the concepts to be taught. In general the teaching - learning in constructivism process happens through the steps and principles such as constructive, active, reflective, Collaborative, inquiry based and evolving.

Constructivism Teachers

Constructivist teachers pose questions and problems and then guide students to help them to find their own answers. They do many techniques in the teaching process they prompt students to formulate their own questions (inquiry), allow multiple interpretations and expressions of learning (multiple intellect learning) and encourage group work and the use of peers as resources (collaborative learning). Above all, they conduct workshop in the majority of the classes. In every constructivism classroom learning is 'constructed' first, and then the constructed learning (as per the issues and concepts) will be applied to the 'Active' process. Teacher allows students to reconstruct the knowledge by this process. The reconstructed item by the active process will be discussed under the 'Collaborative' phase which supposes the student to learn not only for themselves but also for their peers. The refined knowledge they gained through the collaborative phase will be subjected for the 'inquiry-based' phase to solve the problems if any, apart from the collaborative phase. 'Evolving' is the last phase of the teacher thereby he/she expects students to confirm and evolve the knowledge among students by eliminating invalid, incorrect and insufficient experiences.

Constructivism and Distance Education

Once these practices are implemented and practiced regularly in colleges and universities, it is easy to disseminate the same to the distance learners. These constructivism principles can be applied in the various tasks especially at the PCP (Personal Contact Programme), seminars, workshops, counselling classes, assignments, examination and evaluation.

Conclusion

Constructivism classroom requires some extra efforts and encouragements; it paves way for strong foundation and firm construction of knowledge by the students of their own by adopting various processes. This paper is concluded with the notion that constructivism is an apt principle to bring forth skill based higher education for ever in all dimensions and the learner can be an all rounder to meet the challenges in emerging global scenario.

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