



A Constructivist Perspective on Teaching and Learning: A Conceptual Framework

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Available online at: www.isca.in, www.isca.me

Received 20th November 2013, revised 18th December 2013, accepted 2nd January 2014

Abstract

Constructivism is a view that emphasizes the active role of students in building understanding and making sense of the information. The constructivist teaching is learner centred where students are actively involved in knowledge construction rather than mere passive listeners. Constructivists' views can be organized in two forms: psychological and social. In Psychological constructivists' view such as Piaget, students construct knowledge by transforming, organizing, reorganizing previous knowledge whereas in social constructivists' view such as Vygotsky, opportunities are provided to students to learn through social interaction in construction of knowledge and understanding. The paper is an attempt to examine constructivist teaching and learning by providing indepth analysis of features of constructivist theory and its two forms (psychological and social) and the organization of a constructivist classroom.

Keywords: Constructivist theory, psychological constructivism, social constructivism, instructional models.

Introduction

The 21st century is characterized by the development of ICT which are essential tools to access knowledge. Mastering ICT skills and integrating ICT in teaching and learning environment is of utmost importance to teachers in creating new culture in the era of globalization. Globalization has broadened the education horizon¹ by facilitating the individuals in becoming lifelong learners and stimulating the shift towards collaborative inquiry with experts and peers all over the world^{2 and 3}.

The use of internet, social media and mobile communication is becoming common these days among students; teachers need to find pedagogical approaches to integrate these technologies for academic purposes⁴. It is important to highlight the importance and relevance of learning theories in the light of emerging technologies. With the education environment continues to change, in terms of student expectations and teaching methods, finding a framework, to explain this trend is crucial¹.

The objectives of present paper are: i. To provide overview of constructivist theory and its two forms. ii. To provide overview of how constructivism can be incorporated in teaching and learning

The present paper is conceptual highlighting the importance of the theory of constructivism in the present scenario of information explosion due to advancements in technologies.

Theoretical Background

Constructivist Theory: Behaviourists learning models may be helpful in understanding and influencing what students do, but teachers usually want to know about the thought process which

the students are undergoing and want to enrich their thought processes. For this aspect of teaching, the best help comes from constructivism. "The core of constructivism is that learners actively construct their own knowledge and meaning from their experiences"⁴ by perceiving various things around them and making sense out of those objects in particular learning situation. The learning is adaptive as it integrates new knowledge with the existing knowledge and allows for generation of innovative idea or work; it involves more of exploration and discovery. Constructivist models of learning differ among themselves and one of the most important differences is about how much the model focuses on learners as independent individuals (psychological), compared to the social links between an individual and people who may be more expert and who can help the individual to learn (social)⁵⁻⁷.

Psychological/Individual Constructivism: These constructivists are interested in individual beliefs, knowledge, self-concept or identity, so they are sometimes called "individual constructivists"; they all focus on the inner psychology of people⁸. Piaget's approach is central to the school of cognitive theory also known as "cognitive constructivism". Piaget described learning as interplay between two mental activities called "assimilation" and "accommodation". Assimilation refers to "incorporation of new information in terms of pre-existing concepts, information or ideas" which means fitting the new information into what we already know. For example: for a two year old child every flying object whether a sparrow, butterflies or an aeroplane is a bird for him. Assimilation operates jointly with accommodation which is the modification of pre-existing concepts in terms of new information or experience. A child's thought process is enriched when assimilation and accommodation work together to attain "cognitive equilibrium", that is a balance between dependence on

prior information and openness to new information. A child will revise the concept of bird by adding up pigeons or robins to the list of birds and removing butterflies or aeroplane from it. "Cognitive equilibrium" consists of a collection of mental representations for objects or experience called "schema". It is not just a verbal knowledge but experiences and action related to the concept. A child's schema for bird is not just the verbal knowledge but also his experiences with birds, pictures of birds and conversation about birds. The core of psychological constructivism is "a person learns by mentally organizing and reorganizing new information or experiences". The organization happens partly by relating new experiences to prior knowledge that is already meaningful and well understood^{9,10}.

Piaget's constructivism is premised on his view of the psychological development of children. Within his theory, the basis of learning is discovery: "To understand is to discover, or reconstruct by rediscovery and such conditions must be compiled with if in future individuals are to be formed who are capable of production and creativity and not simply repetition"¹¹. According to Piaget, children go through active participation and involvement.

Social Constructivism: A social constructivist approach influenced by Vygotsky's work, emphasizes "the social contexts of learning and that knowledge is mutually built and constructed"^{12, 13}. By interacting with others students get the opportunity to share their views and thus generate a shared understanding related to the concept. From Piaget to Vygotsky, "the conceptual shift is from individual to collaboration or assisted performance, social interaction and sociocultural activity"¹⁴. In Vygotsky's theory content of the knowledge is influenced by the culture which includes language, beliefs important to that culture and skills considered important in that culture (like computer skills, communication skills, collaboration skills)¹⁵.

Two important assumptions in social constructivist approaches are: *Situated cognition* "refers to the idea that thinking is located in social and physical contexts not within individual's mind"¹³ which means that knowledge is tied to the situation in which they are learned and it is difficult to apply in other situations. So, learning situations should be as close to real life situations as possible.

Zone of proximal development refers to "the range of tasks that are too difficult for children to accomplish independently" but can attain mastery if they are provided assistance and guidance by the adults or more able peers¹⁴.

With the increasing use of digital media the social aspects of learning as described by Vygotsky have become more useful for organizing educational activities involving a distributed but intercommunicating audience. Constructivist approach has a primary goal: helping students learn "How to learn" which fosters critical thinking and learners are more motivated and independent.

Constructivism in the present day classroom

There is lot of diversity in present day average classrooms representing composition of diverse cultural backgrounds and individuals possessing different strengths, the instructors' role is to customize the content on the basis of individual strengths to facilitate the learning process. This is synonymous with the concept of constructivism. Learners' expectations continue to change in the response to the changes in the environment. One major change is widespread use of internet and social networking sites. In order to stimulate the learner towards maximum learning achievement, the instructor must be willing to shift gears from "what has been" to "what is emerging" – the instructor and the learner jointly constructing the learning content and process.

In the constructivist classroom: Knowledge is constructed either individually based on what student brings through prior experience or collaboratively by what participants contribute.

Environment is student centred where the focus is on students' learning rather than teachers' teaching as in traditional approach. Environment is democratic in nature as far as sharing of responsibility and decision making is concerned.

Involves curriculum negotiation which means deliberately planning to invite students to contribute, and to modify, the educational program, so that they will have a real investment both in the learning journey and the outcomes.

Role of teacher is that of the facilitator or guide not of a director; stimulates learner's exploration of various ideas¹⁶. Student is an active thinker, active co-creator of knowledge with others rather than a passive listener¹⁶. With the development of a constructivist philosophy, a teacher of any discipline is able to create a classroom environment within which students are able to become autonomous learners.

Constructivist approaches recommend the teachers: To provide complex learning situations related to real life where multiple solutions are possible. For example in teaching of sciences, the emphasis should be on discovery learning by providing appropriate feedback and guidance as students construct interpretations of various phenomenon.

To develop students' abilities to work collaboratively. To use multiple representations of subject matter using analogies and examples. Develop ownership of learning among students by jointly constructing the knowledge.

In developed countries the advances in ICT have been harnessed efficiently to support the learning process. In the developing countries, there is still a lot of knowledge gap in the use of technology to support the learning process thereby conserving the intellectuals within the society which will in the long run have huge positive outcomes on the entire population.

Constructivism and Instructional Models: Specific instructional approaches to education that are based on constructivism include:

Cooperative learning: Arrangement in which students work in mixed-ability groups and are rewarded on the basis of the success of the group. It produces effective results if elements of “positive interdependence”, “individual accountability” and “social skills” are instituted among the group members. Jigsaw, reciprocal questioning, STAD, learning together are the strategies that support both cognitive and social learning.

Inquiry based learning: This begins when the teacher presents a puzzling question. The students then formulate hypotheses to explain the event; collect the relevant data to test the hypotheses and draw conclusions.

Problem based learning: This may follow the same procedure as inquiry based learning but students are confronted with a real problem that has a meaning to them. This problem launches their inquiry as they collaborate to find solutions. It teaches students to consider multiple perspectives on a given situation or phenomenon. This develops flexibility in thinking and reasoning skills, as students compare and contrast various possibilities in order to draw conclusions.

Cognitive apprenticeships: Refers to “a relationship in which an expert stretches and supports the less experienced learner” through “scaffolding” and “tutoring”. The less able learners are provided assistance to enhance their competencies and skills and finally the teachers and more skilled peers encourage the students to work independently^{17 and 18}.

Suggestions

More web based tools should be used in the curriculum so as to prepare and competitively position the average learner for future. The learner should be involved in the systems analysis and design process that supports any learning initiative so as to meet the expectations of learners with the content of curriculum.

Conclusion

Children learn more and enjoy learning more when they are actively involved. In a constructivist classroom students are actively involved, the environment is democratic, the activities are interactive and student-centred and the teacher facilitates the process of learning in which students are encouraged to be responsible.

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