Evolution Of Constructivism

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Abstract

The contrast between social constructivism and cognitive constructivism are depicted in different ways in many studies. The purpose of this paper is to summarize the evolution of constructivism and put a focus on social constructivism from the perception of Vygotsky. This study provides a general idea of the evolution of constructivism for people want to understand this learning theory.

The only real voyage of discovery consists not in seeking new landscapes, but in having new eyes.
Marcel Proust

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In the 1990s, Taiwan began to develop a series of educational reforms in the form of decrees concerning teacher qualification, teaching, curriculum, textbooks, and finance to address the needs of the educational system. In 1993, constructivism theory was first introduced in the curriculum standard for mathematics at the elementary level. This theory was stopped in 2003 after the learners whose math was taught on the first year of utilizing constructivism theory entered high school and couldn't achieve the academic achievement as those who were educated in traditional classrooms. Debates about using constructivism theory in math arose as a result.

Constructivism theory in math learning didn't succeed in Taiwan. But there are many scholars, educators, and teachers working on attempting to introduce constructivist-learning theory in physical education classrooms in the USA. However, there was a gap between theory and practice. Teachers who believed in constructivist learning theory did not use this theory in their practice because they did not know how to use it. This paper is a historical review of constructivism.

The principle of trial constructivism is seen as the root of constructivism and is the beginning of the idea of constructivism (Von Glasersfeld, 1990). This principle originated from Jean Piaget and is also known as personal constructivism (Dougiamas, 1998). Trial constructivism can be summed up as learner actively constructing knowledge rather than passively receiving it from the environment. This principle contradicts the traditional learning model where knowledge is simply transmitted from a more knowledgeable person to others. In constructivism, prior knowledge plays an important role in actively constructing knowledge. But what is the knowledge and how does learner to make connection with prior knowledge? How is the environment defined? And what is the connection between knowledge and the environment? Many questions arise and many points of view are expressed in the field of constructivism. These are the shortcomings of this rudimental of view.

The founder and most prominent proponent of radical constructivism is the psychologist Ernst von Glasersfeld (e.g. 1987a; 1991; 1992a; 1995). Based on trial constructivism, his thinking is built on the theories of psychologist, Jean Piaget. From the point of view of radical constructivism, the process of knowing is that the learner dynamically adapts to variable interpretation of experience and he/she doesn't need to construct knowledge related to the real world. According to the basis of radical constructivism, it doesn't reject the reality of an objective but provides the learners with possible learning products during the learning process. Judging from "knowing as learner dynamically adapts to variable interpretation of experience", it seems that learners must fit knowledge to their experience (Dougiamas, 1998). The role of knowledge in radical constructivism is determined by the cognitive needs of the learners. How do learners get the knowledge they need? By discovering and constructing alone?

Communicating with others or the environment? From the perspective of radical constructivism, communication is not necessary to involve sharing meaning among participants. Only if the learner does everything exactly and meets the expectation of others, then, shared meaning is kept (von Glasersfeld, 1990). So far, the emphasis is on the individual as constructer. Does human environment affect learning? Is it possible for individual to construct understanding without contacting with the environment directly around learners during their learning process? Therefore, social constructivism was introduced.

What can affect learning in the social constructivist-learning environment? What can directly affect learners? Teachers? Participants? Friends? Administrators? The aforementioned factors can also influence learning directly in different forms of circumstances. Anyone who directly interacts with the learner under learning circumstances can be taken into account in the social world of learner. The pioneer of social constructivism was Vygotsky. Based on Vygotsky's social learning theory, it is believed that psychological phenomena emerge from social interaction. They are established by social relationship, and their elements are social artifacts such as signs, symbols, and linguistic terms. It is not difficult to understand the origination of his thoughts. He grew up during the revolution of Russia and held the belief that socialism could improve his country. The revolutionary transformation of society was necessary to his country. It could improve many people in many ways such as material conditions, social relationships, and education opportunities.

In addition to an individual directly impacting a learner in the learning activity, other things around the learner could influence his/her learning in his/her learning environment. Could different textbooks influence learning? Could the beliefs that the teacher or learner holds influence learning? Could the tools that the learner uses to figure out the knowledge he/she wants influence learning? Could the prior knowledge that the learner owns influence learning? Salomon and Perkins (1998) analyzed the concept of social learning. They elaborated on four meanings of the term. They described "social mediation as participatory knowledge construction (p. 1)." There are two features of social mediation, cognitive processes and learner's learning. They thought tools were the trigger of cognitive transformations. They examined two effects of tools on the learning mind. One effect is when learning affects with the tool and the other side is learning of the tool. Once the learners use and get used to a particular tool, it is changed and the capacity is expanded which will result when impact occurs through the redistribution of a task's cognitive load between people and devices (Pea, 1993; Perkins, 1993). The tools could possibly affect the way that learners think, such as the tools for conversation and the load of task. Furthermore, they used tools to advance the changes in assessment, curricula, and other aspects in teaching and learning.

In 1996, Cole and Wertsch suggested that researchers too narrowly focused on the traditional discussion between Vygotsky and Piaget, individual psychogenesis versus socoigenesis of the mind. They ignore the primary difference between Vygotsky and Piaget. They believe the importance of culture on the development of the mind is the cardinal difference. They built on Vygotsky's assumptions about the active individual. Vygotsky emphasized on practice, speaking and thinking as the focus of an extended treatment (Zinchenko, 1985). An active individual and an active environment are needed to make co-constructionism. In other words, the active child and the active environment are the basis of theorizing (Valsiner, 1993; Wozniak, 1993). Besides the active individual and the active environment, the third essential element in the process of co-constructionism is the product of accumulation of prior generations--culture. With the essential element, the active individual and the active environment can interact with each other. In this view, the mind development is the interaction of human body and the culture/idea/material heritage that appears to arrange people with each other and the surrounding environment (Cole, 1996; Wertsch, 1991).

In the early writings on cultural-historical psychology, scholars assumed that there was a close connection between the special environment human beings inhabit, and the psychological processes (Dewey, 1938; Vygotsky, 1929). John Dewey wrote:

…we live from birth to death in a world of persons and things which are in large measure what it is because of what has been done and transmitted from previous human activities. When this fact is ignored, experience is treated as if it were something, which goes on exclusively inside an individual's body and mind. It ought not to be necessary to

say that experience does not occur in a vacuum. There are sources outside and individual which give rise to experience (Dewey, 1938, p.39).

In Vygotsky and Russian cultural-historical psychologists' writings, cultural medium was one of their foci. They assumed that human beings' special mental quality depended on personal need and ability. According to personal need and ability, the learner will mediate their actions via artifacts and organize the rediscovery and appropriation of these forms mediation by subsequent generations. Minick (1987) pointed out this view became increasingly important and well formulated in the last decade of Vygotsky's life. Cole (1996) proposed that higher mental functions are culturally mediated, not direct action but indirect action. They also mentioned four implications, as researchers believe cultural mediation is primacy during the process of learners construct knowledge.

- Artifacts are recognized as transforming mental functioning in fundamental ways. In Vygotsky's view:

  The inclusion of a tool in the process of behavior (a) introduces several new functions connected with the use of the given tool and with its control; (b) abolishes and makes unnecessary several natural processes, whose work is accomplished by the tool; and alters the course and individual features (the intensity, duration, sequence, etc.) of all the mental processes that enter into the composition of instrumental act, replacing some functions with others (i.e., it re-technical tool re-creates the whole structure of labor operations) (1981, pp.139-140).

  Judging from this view, artifacts do not play a simple role to facilitating mental processes. On the contrary, they are in charge of shaping and transforming mental processes fundamentally.

- As artifacts are involved in human psychological functions, they are culturally and historically situated. Then psychological functions begin. In the other word, as human beings carry out an action, it is inevitable to be socio-culturally situated. But one point cannot be ignored. That is there is no tool adequate to all tasks and no universal proper form of cultural mediation.

- As human beings take action into context as the unit of psychological analysis, relational interpretation of mind is required. Both objects and contexts arise; they are part of a single bio-social-cultural process of development. In other words, the meaning of an action and a context are not specifiable independent of each other.

- The mind is located in biological individual while the cultural meditational artifacts and the culturally structured social and natural environments where human beings are also apart. In a word, the mind works via artifacts cannot be unconditionally bounded by the head not just the body. It must be seen as distributed in the artifacts (Cole, 1996). Gregory Bateson (1972) wrote, "…there are lots of message pathways outside the skin, and these and the messages which they carry must be included as a part of the mental system whenever they are relevant." (p. 458).

Constructivism is a theory about how we learn and the thinking process, rather than about how a student can memorize and recite a quantity of information. If teachers believe this theory and carry it out, what would they do during the process? How would the teachers know that learners have learned? From Vygotsky's perspective, learners construct meaning from reality but not passively receive what are taught in their learning environment. Therefore, constructivism means that learning involves constructing, creating, inventing, and developing one's own knowledge and meaning. The role of teacher is a facilitator who provides information and organizes activities for learners to discover their own learning. Marlowe and Page (1998 & 2005) defined learning in the constructivist classroom as the cycle of questioning, interpreting, and analyzing information, combining information and thinking to develop, build, and alter meaning and understanding of concepts, and integrating new understandings with past experiences. In constructivist classrooms, learners don't passively repeat the information delivered from teacher. They demonstrate their learning and understanding through different means such as developing critical questions,

and summarizing ideas by their own words.

Basically, constructivist approaches in teaching and learning environments have originated from several psychologists and educators such as Jerome Bruner, Jean Piaget, and Lev Vygotsky, etc. Those scholars emphasized two major different strands of the constructivist perspectives, social constructivism, and cognitive constructivism. Even though, there is some debate between these two aspects of thought, they have some perspectives in common about the constructivist-learning environment.

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