
Constructivism: Theorists and their Theories

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Introduction

Constructivism is the term given to a range of theories about knowledge and learning which seek to explain what 'knowing' is and how we 'come to know'. Based on work in psychology, philosophy and anthropology, constructivism views knowledge as temporary, developmental, internally constructed, and socially and culturally agreed upon. Learning is viewed as a self-regulatory process of the struggle with the confusion between existing personal models of the world and conflicting new ideas. New representations and models of reality are built or constructed as a human 'meaning-making' venture with culturally developed tools and symbols. Meaning is negotiated through cooperative social activity, discussion and debate. This essay explores the dimensions of constructivism through a discussion of Jean Piaget and Lev Vygotsky.

According to Fosnot (1996:146), "constructivism is not a theory of teaching, it is obvious that it is a completely different approach to instruction from that which is used in most schools". Teachers who base their practice on constructivist principles reject the notion that meaning can be passed onto learners via transmission or symbols, that learners can incorporate exact copies of teachers' understandings for their own use, that whole concepts or processes can be broken down into discrete subskills, and that concepts can be taught out of context. A constructivist view of learning suggests an approach to teaching that gives learners the opportunity for concrete, meaningful experience, within which they can search for patterns, devise their own questions and construct their own models, concepts and strategies. The classroom in this model is seen as a mini-society, a community of learners engaged in activity, discussion and reflection, be it in either small groups or a whole class situation (Cobb,1995).

There is a tradition of the teacher being at the top of the hierarchical ladder as the unlimited knower, and the learner as the unknowing, being drip fed a subject to study and learn. Using a constructivist approach however, what the teacher knows will

begin to wane in influence as the teacher assume more of a facilitator's role and the learner takes on more ownership of the ideas. Independence, compatibility of social relations, and empowerment are the goals within the constructivist classroom.

Constructivism, as developed by Jean Piaget, differs from other theories of cognition in that, what we call knowledge, does not have the purpose of producing representations of an independent reality, but instead has an adaptive function. This assessment of cognitive activity breaks away from the generally accepted idea that the individual must have knowledge to obtain a picture of the real world. Piaget theorised that adaptation opens a path into knowledge. The concept of adaptation is derived from biology and suggests the relationship between living organisms or species and their environment, with the organisms evolving or fitting in with their environment.

Piaget used his theory of biological adaptation as the cornerstone of his research. He had realized from his studies of biology, that whatever knowledge was, it was not a copy of reality. The concept of a relationship of viable organisms adapting to their environment provided a means to reconstruct the relationship between the cognitive subjects' conceptual framework and that subject's experimental world. Rather than an equal representational action of external situations and events, knowledge acquisition is the mapping of actions and conceptual operations that had proven viable in the knowing subject's experience.

In Piaget's view, what we see, hear and feel is the result of our own perceptual activities and is therefore, specific to our ways of perceiving and conceiving. Knowledge, for Piaget, arises from actions and the subject's reflection on them. When Piaget talks about interaction, he does not imply an organism that interacts with objects as they really are, but rather as a cognitive subject that is dealing with previously constructed perceptual and conceptual structures. The conceptual structures that constitute meanings or knowledge are not entities that could be used alternatively by different individuals. They are constructs that each user has to build up for him or her self. Because they are individual constructs, one can never say whether two people have produced the same construct.

Although the main body of Piaget's work is centered on illuminating the gradual cognitive structuring of individuals, he did not overlook the effect of social interaction on learning. He wrote "there is no longer any need to choose between the primacy of the social or that of the intellect; the collective intellect is the social equilibrium resulting from the interplay of the operations that enter into all cooperation" (Piaget, 1970:114).

It is here, in the area of social interaction and cognition, that the work of theorist Lev Vygotsky becomes important. Vygotsky, like Piaget, believed learning to be developmental, but he differentiated between what he called 'spontaneous' and 'scientific' concepts. Spontaneous concepts are bogus concepts (of the type studied by Piaget), that the child develops naturally in the process of construction which emerge from the child's own reflections on everyday experience. Vygotsky proposed that scientific concepts originate in the structured activity of classroom instruction and impose on the child abstractions that are more formal and logically defined concepts than those constructed in a spontaneous nature. He perceives these as culturally agreed upon, more formalized, concepts. I think that the important question about learning which needs to be asked is not whether the cognising individual or the culture should be given priority, but what the relationship between them is. Piaget's biological model helps one understand that both the structure of the individual mind and the knowledge we construct of the world are a part of an open system. Knowledge and mind cannot be separated because one builds or constructs the other.

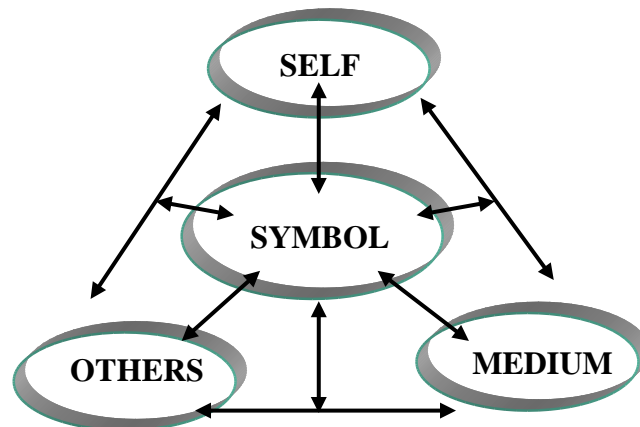
Vygotsky (quoted in Kozuliun, 1986:225), argues that scientific concepts do not come to the learner in a ready-made form. These concepts undergo a substantial development, depending on the existing level of the child's ability to understand the adult's model. Vygotsky believed that scientific concepts work their way 'down,' imposing their logic on the child, spontaneous concepts work their way 'up,' meeting the scientific concept and allowing the learner to accept its logic. Vygotsky used the term 'zo-ped' zone of proximal development, to describe the place where a child's spontaneous concepts meet the "systematically and logic of adult reasoning". This zone varies from child to child and reflects the ability of the learner to understand the logic of the scientific concept. For this reason Vygotsky viewed tests or school tasks

that looked at the child's individual problem solving as inadequate, arguing instead that the progress in concept formation achieved by the child in cooperation with an adult was a much more viable way to look at the abilities of learners.

Along with the constructivists' concepts of the zone of proximal development and scaffolding, Vygotsky focused upon the relationship between language and thought. His notion of a dialectical interplay between the symbolic representation of language and thought in concept development provided a fertile ground for research. This research has been controversial and often contradictory in its results. For example, Vygotsky and Luria studied illiterate peasants in rural Soviet central Asia and found that their speech and reasoning echoed patterns of practical, situational activity, while for people with some formal education this was reversed. This work suggested that the level of symbolic representation in language does affect thought. However, research by Lave (1988) in mathematics, produced the opposite results. Schooling in abstract mathematics showed little connection to approaches used to solve mathematical problems in context. Educated and uneducated people alike solved grocery problems in similar ways.

Meaning from world views, may become unique to the cognising individual, but the language symbols used in cognition are the result of previous 'taken as shared' meanings by a community. This links culture and individual knowledge right from the start. The new constructions are communicated to the community, to be further reflected upon and discussed – a process which is likely to generate possibilities and contradictions until new, temporary, but generally agreed upon or 'taken as shared' meanings are found. Similarly, Piaget conceptualised the interplay between the individual's cognitive structures and the knowledge acquired from the social world as part of an open system. Knowledge and mind seem to be inseparable because one affects the other. Both are being developed from a dialectical interaction between the subject and the world around him or her, including the social world.

This process can be represented by a dialectical tripartite drawing.



Conclusion

“Constructivism is a post-structuralist psychological theory” (Doll, 1993), one that defines learning as an interpretive, recursive, building process by active learners interacting with the physical and social world. It is a psychological theory of learning that describes how structures and deeper conceptual understanding come about, rather than simply characterizing the structures and stages of thought. Constructivism has played an important role in establishing the principle that learning is a constructive activity that the students themselves have to carry out. From this point of view, the task of the teacher is not to dispense knowledge but to provide students with opportunities and rewards to establish it.

Bionote

Rhys Johnston has five years specialised experience in restorative dentistry, currently he is enrolled in the graduate primary pathway programme at the Auckland College of Education. Comment is welcome on this paper. rhysjoh@ihug.co.nz

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