

Constructivism: Two Perspectives, Common Goals

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As I became involved with Community Independent School this past spring, one of the primary things I was pleased to find is the school's dedication to the Constructivist theory of learning. As a short definition, it can be said that Constructivism recognizes learning as something that happens within the individual – that is to say, students construct their own cognitive understandings of new situations and ideas. A Constructivist school, therefore, offers students opportunities to explore academics through hands-on activities and projects, and creates a social setting in which young people learn through their own interactions what it means to live as a responsible member of community.

I was glad to know of CIS's commitment to these ideas, as Constructivist theory is in accord with some of the best thinking in educational philosophy today. And yet, as many of you know, Constructivism itself is not new. Indeed, its founding ideas were formulated in the early and mid 20th century. In this writing, my hope is to present an overview of the basic thoughts of two founding thinkers in constructivist theory, Jean Piaget and Lev Vygotsky – not in great depth, but with enough detail to give us a common understanding of what they really had to say, and of how their slightly different ideas might inform our work here at Community Independent School. My conversations with members of the CIS community indicate that the school has always worked to hold true to its own intentions. As we move forward, it is my own hope to continue that most vital tradition.

Much of this paper serves as a summary of the opening chapters of the book *Constructivism: Theory, Perspectives and Practice*, edited by Catherine Fosnot, Professor of Education at the City College of New York. The early chapters in Fosnot's book contrast two lines of thought in Constructivist theory – the socio-cultural perspective as developed by Lev Vygotsky and the more strictly cognitive perspective of Jean Piaget.

Jean Piaget was born in Switzerland in 1896 and died in Geneva in 1980. His researches in developmental psychology had one central goal: to determine how knowledge grows within the individual mind. Piaget's findings, in short, are representative of the cognitive constructivist viewpoint that the growth of knowledge is a progressive construction of understanding which takes place within the individual.



The root theories of what we call constructivism are generally attributed to Piaget. His research in cognitive science suggested that individuals construct new knowledge from their experiences through the processes of accommodation and assimilation. Assimilation occurs when an individual's new experience aligns with his or her existing, internal representation of the world. That is to say, the learner will assimilate the new experience into an already existing framework. Accommodation, on the other hand, is the process through which individuals reframe their mental representations of the external world in order to meet new experiences which differ from their existing understandings.

Lev Vygotsky was born in Russia, also in 1896. He worked extensively on ideas about cognitive development, particularly the relationship between language and thinking. His writings emphasized the roles of cultural and social factors in cognition.

Vygotsky's investigations centered primarily on child development and how this is guided by the roles of culture and interpersonal communication. Vygotsky observed how higher mental functions develop through social interactions with significant people in a child's life. Vygotsky believed that through these interactions, a child comes to learn the language and symbolic knowledge through which the child derives meaning, and which affects a child's construction of her/his knowledge. This key premise of Vygotsky's psychology is often referred to as cultural mediation. Lev Vygotsky died in 1934, leaving behind a surprisingly large body of work which is still being examined today.



In her book *Constructivism: Theory, Perspectives and Practice*, published in 2005, Catherine Fosnot clearly identifies learning as a constructive activity on the part of the student. The task of the educator, she argues, is not to dispense knowledge, but to provide students with opportunities to build it up.

This view can be contrasted with several other theories of learning. Behaviorism, for instance, explains learning as responses to stimuli and is concerned with the effects of reinforcement, practice and external motivation. From this perspective, students are seen as passive receptors of knowledge given to them by teachers who have preplanned a curriculum which breaks content area into sequenced component parts. From a behaviorist point of view, a student's progress is measured by observable outcomes – or behaviors – in relation to predetermined tasks.

Jean Piaget and the Cognitive Theory of Constructivism

Proponents of the cognitive theory of constructivism view the act of knowledge acquisition as a constructive process of cognitive reorganization on the part of the child. Jean Piaget explained this process as one of cognitive “equilibration”. According to Piaget, learning is an ongoing process of self-regulated behaviors balancing the acts of assimilation and accommodation. Assimilation, he asserts, is an active organization of experience on the part of the child through which ideas and experience that match the child's understandings are incorporated into an existing cognitive structure. Accommodation, on the other hand, is a reflective behavior through which learners change their cognitive structures in the face of experiences which do not mesh with their existing understandings. This is done so that the child can function with sense of cognitive equilibration, or balance, in relation to the new experience or idea. Piaget referred to this process as reflective abstraction.

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Proponents of Piaget’s cognitive theories of the construction of knowledge are quick to point out, however, that equilibration is not a linear process of assimilation, or conflict and then accommodation. Rather than being sequential, equilibration is seen as a dynamic dance of the processes of assimilation and accommodation. At successive points in the construction of knowledge, learners may encounter contradictions to their cognitive structures – physical actions that do not achieve a desired result, theories that are in disagreement with one another, or a theory that has become insufficient in the face of new evidence. Piaget proposed that contradictions such as these cause a cognitive imbalance which then provides the motivation for accommodation.

The important point in constructivist theory is that these processes of assimilation and accommodation are an internal, self-organizing behavior on the part of the learner. Piaget believed that an individual’s cognitive structures generate new possibilities when they are disturbed. These possibilities are explored and, through reflective abstraction, may bring about an accommodation that transforms the learner’s original cognitive structure – an act we more simply define as learning.

Lev Vygotsky and the Socio-Cultural Theory of Constructivism

The main focus of Vygotsky’s work was the interaction between the individual and society, and thus the effect of social interaction, language and culture on learning. Like Piaget, Vygotsky believed that learning was an act of construction, but he differentiated between two types of conceptual knowledge, referring to them as “spontaneous” and “scientific” concepts.

Vygotsky defined spontaneous concepts as those which come from within children themselves as they reflect on everyday experience. He defined scientific concepts, on the other hand, as those which originate in the activity of classroom instruction, and which bring to the child formal abstractions and logically defined concepts. Scientific concepts, Vygotsky believed, are culturally agreed upon understandings, or what might be referred to as cultural knowledge. As a cognitive psychologist, Vygotsky’s concern was with what facilitates the learning that moves a child’s understanding from individually held spontaneous concepts to culturally shared scientific concepts.

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It is important to distinguish Vygotsky’s idea of scientific concepts from the ideas of behaviorism, however. Scientific concepts, Vygotsky explained, do not come to the learner in a ready-made form to be absorbed, and cannot be transmitted simply with language. Instead, these concepts undergo a process of development which is dependent upon the learner’s existing ability to comprehend the teacher’s presentation of the concepts themselves. Scientific concepts work their way down, Vygotsky believed, bringing logic to the child, while spontaneous concepts work their way up, meeting scientific concepts and allowing the learner to make accommodations in order to accept the “scientific” logic:

The development of a spontaneous concept must have reached a certain level for the child to be able to absorb a related scientific concept. In working its way upward, a spontaneous concept clears a path for the

scientific concept and its downward development. Scientific concepts, on the other hand, supply structures for the upward consciousness and deliberate use. Scientific concepts grow downward through spontaneous concepts; spontaneous concepts grow upward through scientific concepts. (1962/1986, p. 194)

Vygotsky used the phrase “Zone of Proximal Development” to describe where a child’s spontaneous concepts meet the logic of cultural reasoning. He believed that this zone varies from child to child, and reflects the ability of the learner to understand the logic of scientific concepts at various stages of development.

Whereas Piaget sought to illuminate the role of contradiction and equilibration in the construction of knowledge, Vygotsky sought to explain a process of dialogue in construction – the role of the adult and the learner’s peers as they converse, question, explain and negotiate meaning.

Coordinating the Cognitive and Socio-Cultural Constructive Perspectives

Vygotsky’s theories are sometimes considered controversial for constructionists who adhere to a strict cognitive theory as outlined by Piaget. Is an assumption being made, they ask, that a learner can simply absorb an adult’s conceptual understanding? Can meaning reside in symbolic representation, and can it be “transmitted” to a learner? This has led to an ongoing debate between the idea of learning as an individual, constructive cognitive process and ideas which emphasize social and cultural effects on learning. In the book *Constructivism: Theory, Perspectives and Practice*, however, Fosnot postulates that a blend of these ideas is appropriate:

We cannot understand an individual’s cognitive structure without observing its interacting within a context, within a culture. But neither can we understand culture as an isolated entity affecting the structure since all knowledge within the culture ... is taken as shared. (2005, p. 28)

“Taken as shared” is a phrase first used by Professor Paul Cobb of Vanderbilt University and refers to shared meanings which develop through negotiations in the learning environment, and which lead to the development of common, or taken-as-shared knowledge within a community.

Barbara Jaworski of the University of Oxford’s Department of Educational Studies builds on this definition:

People often have different views of a situation. If these views seem incompatible, there is a need for reconciliation which can lead to the social mediation of individual knowledge. Through discussion, the participants negotiate new positions which lead to shared meanings developing. (This) involves making an effort to listen to and understand other perspectives. As a result, common, or ‘taken-as-shared’ meanings develop in a classroom. Social interactions within the learning environment are an essential part of this experience and contribute fundamentally to individual knowledge construction.

(from a paper presented to the Mathematics Teaching and Learning Enquiry Group in Manchester, England, January, 1993.)

In a chapter written for *Constructivism: Theory, Perspectives and Practice*, Paul Cobb seeks to balance the two aspects of constructivist theory by probing the relationship between an individual's own cognitive processes and the effects of cultural knowledge on learning:

Since the process of construction is adaptive and requires self-reorganization, cultural knowledge held by members of the culture is in reality a dynamically evolving, negotiated interaction of individual interpretations, transformations, and constructions. At most, cultural knowledge can only be ... "taken as shared" by its members. Yet cultural knowledge is a whole larger than the sum of the individual cognitions. It has a structure of its own which interacts with the individuals who are also constructing it. (2005, p. 28)

The important perspective which Cobb brings to this discussion is not to ask whether individual construction or the influence of culture should be given priority in an analysis of learning, but instead to wonder about the interplay between them.

The idea of this dialogue leads back to Vygotsky's idea of the interaction between a learner's internal "spontaneous concepts" and more culturally oriented "scientific concepts". Within the context of this interaction, we can see a link between the cognitive and socio-cultural perspectives. Through an interactive process of mediation, the culture and the collective individuals within it create a language of shared experience. At times, the individual is "disequilibrated", or cognitively challenged, by this culturally based shared experience, a state which generally leads to a period of reflective abstraction, accommodation and a realignment of the individual's cognitive structure. At the same time, however, the culture itself is disequilibrated by individuals as they construct new meaning and then share their perspectives with those around them. The balance between the two theories of cognitive and socio-cultural constructivism, Cobb believes, lies in the idea that while individual thought may progress toward culturally accepted ideas, this happens only within the context of a dynamic interplay which requires creative innovation and cognitive construction on the part of the individual.

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The Implications of a Coordinated Perspective on Classroom Education

Both socio-cultural and cognitive theorists highlight the role of activity in learning. Socio-cultural theorists, however, link this activity to participation in culturally organized practices, whereas cognitive theorists give priority to the individual student's conceptual activity. Socio-cultural adherents focus on the kinds of social engagements that enable students to participate in culturally held knowledge and in the activities of the teacher, while cognitive theorists prioritize the cognizing individual moving through a process of self-reorganization.

As one might imagine, the seeming conflict between the cognitive and socio-cultural perspectives forms an important part of discussions surrounding the act of teaching. In a 1993 article in *The Elementary School Journal*, Deborah Ball of the University of Michigan asks, “How do I value (the students’) interests and also connect them to ideas and traditions growing out of centuries of . . . exploration and invention?” From a teacher’s perspective, Ball saw the differences in constructivist thought as an unfolding instructional dilemma.

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While strict cognitive constructivists may still have concerns that a child cannot simply absorb, or internalize knowledge, more and more researchers are moving toward a compromise position by recognizing that while learning is indeed an act of self-reorganization, that constructive act generally occurs while the learner interacts with other members of a community. Barbara Rogoff of the University of California supports Vygotsky’s notion of a child’s interactive internalization of cultural knowledge by arguing that children are engaged in a social activity when they observe and participate with others, so . . .

“ . . . with the interpersonal aspects of their functioning integral to the individual aspects, then what is practiced in social interaction is never on the outside of a barrier, and there is no need for a separate process of internalization.” (1990, p. 195)

Rogoff’s position is that the process of a child’s participation in a social learning activity involves the use of knowledge that is taken as shared by the group – that is to say, knowledge that has been jointly created by members of a culture. The child’s individual understanding of this knowledge is not the same as what was jointly constructed by the group, however. Rather, it is an appropriation of that shared understanding, and reflects the individual’s personally constructed cognitive understanding of socio-cultural concepts. At the same time, as Paul Cobb also observed, each individual’s own cognition influences the broader culturally accepted concepts with which the learner interacts. In an ongoing cycle then, the act of individual construction of knowledge forms the background for classroom instruction and work in cultural knowledge while, at the same time, this same guided work in the classroom is the background against which individual cognitive self-construction comes to the fore.

And so what of the dilemma in teaching that concerned Deborah Ball in her article? To be sure, she makes a strong point when she suggests that the tension in teaching which lies between individual cognitive construction on the one hand and the idea of a dialogue of enculturation on the other may never be resolved to everyone’s satisfaction. Regardless, a coordination of the basic tenets of constructivism leads to the conclusion that teachers must act with wisdom and judgment by continually developing ways in which students can fully interact with teachers themselves, with their peers, and with the classroom itself as a vehicle for cultural knowledge. Toward this end, teachers in a Constructivist classroom must prepare a learning environment with three goals in mind:

- that children have opportunities to verify and sustain their current cognitive understandings through activities which allow them to use their existing knowledge in useful and beneficial ways,
- that children have opportunities to create their own meanings by being challenged into processes of accommodation in order to construct understandings of new ideas,
- that children have opportunities for social interaction in learning contexts, so as to benefit from common cultural knowledge as they work to construct their own meanings, and so that the each individual student's interpretations might influence what comes to be "taken as shared" by the group for the betterment of all.

Looking at a child's school experience in this light is to see the classroom as a "prepared environment" which is consciously planned to enhance student learning. In this preparation, teachers create developmentally appropriate opportunities for both individual and group experiences which lead children to construct their own sense of meaning. Because of this role, some have come to refer to the leader of classroom activities not as teachers but as guides. Regardless of the title, however, those who work in Community Independent School's classrooms are in a privileged position to both witness and influence the unfolding of our children's young minds, and this is indeed a thing of wonder.

References

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