As a short definition, 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.

Constructivist theory is in accord with some of the best thinking in educational philosophy today. And yet, Constructivism itself is not new. Indeed, its main tenets were formulated in the mid 20th century. The purpose of this writing is to present an overview of the basic thoughts of two founding thinkers in Constructivist theory, Jean Piaget and Lev Vygotsky, and of how their slightly different ideas might inform our work here at Community Independent School. 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 thinking within Constructivism: 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. Through his research in developmental psychology, Piaget worked determine how knowledge grows within the individual mind. Piaget’s findings 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 cognitive 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 also worked extensively on ideas about cognitive development, particularly the relationship between language and thinking. Vygotsky’s writings emphasized the role of social factors in cognition and how cognitive development is guided by the roles of culture and interpersonal communication. Vygotsky observed that higher mental functions in children develop through social interactions with significant people in a child's life. Vygotsky believed that through these interactions children come to learn language and symbolic representation, through which they derive meaning and construct knowledge as individuals. 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 more as passive receptors of knowledge, given to them by teachers who have a preplanned curriculum which breaks content 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 a sense of cognitive equilibration, or balance, in relation to the new experience or idea.

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 either assimilation or accommodation. Rather, equilibration is seen as a dynamic dance of both assimilation and accommodation. At different points in the construction of knowledge, learners encounter both similarities and contradictions to their cognitive structures – physical actions which may or may not achieve a desired result, ideas that are either in harmony or disagreement with one another, or a theory that holds true in different contexts or becomes insufficient in the face of new evidence. Piaget proposed that cognitive input such as these provide the motivation for either assimilation with or accommodation to a child’s own 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 interplay 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’s concern was with the learning that moves a child’s understanding from individually held “spontaneous” concepts toward culturally shared “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 dialogue, 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. Vygotsky’s concern was with the learning that moves a child’s understanding from individually held spontaneous concepts toward culturally shared scientific concepts.

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 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 either assimilations or 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, scientific concepts. 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 assimilation and accommodation in the construction of knowledge, Vygotsky sought to explain the role of dialogue in knowledge construction, and the value of the adult and of the learner’s peers in a learning environment as they converse, question, explain and negotiate meaning.

Coordinating the Cognitive and Socio-Cultural Constructive Perspectives

Vygotsky’s theories are sometimes considered controversial for those who adhere to a strict theory of cognitive construction 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 the individual construction of meaning as it develops through negotiations in the learning environment, and which leads, in turn, to the development of common 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. Yet cultural knowledge is (also) a whole larger than the sum of the individual cognitions. It has a structure of its own which interacts with the individuals who are constructing it. (2005, p. 28)

The important perspective which Cobb brings to this discussion, therefore, 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” and a link between the cognitive and socio-cultural perspectives within Constructivism. Through an interactive process, the culture and its collective individuals create a language of shared experience. At times, the individual is “disequilibrated”, or cognitively challenged, by this culturally based shared experience, which generally leads to a period of accommodation and a realignment of the individual’s cognitive structure. At the same time, however, the culture itself can be 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.

**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 asked, “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.

Yet 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. Rogoff’s position is that the process of a child’s participation in a social learning activity involves the use of 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 individualized understanding of that shared knowledge, 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 thinking influences the broader culturally accepted concepts with which the learner interacts. In an ongoing cycle then, an individual’s construction of knowledge serves as an operating platform for classroom interaction while, at the same time, interactive classroom dialogue 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, Ball 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 classroom dialogue 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 engage in individual exploration while still fully interacting with their teachers, 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 several 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 assimilation and 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.
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’s 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 a teacher but as a guide. Regardless of the title, however, those who work in child-centered learning environments 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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