

Piaget's and vygotsky's constructivist theories

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Constructivism is based on the premise that learners construct their own learning from their experiences. Constructivism is of two waves: Piaget's psychological/individual constructivism; 'the first wave constructivism' or 'solo constructivism', and Vygotsky's social constructivism; 'the second wave constructivism'. The first, Piaget constructivism, is concerned with knowledge that focuses on the individual and psychological sources of learning. For Piaget, assimilation, accumulation and equilibration are essential processes for effective learning. The latter, Vygotsky's Social constructivist theory views language learning as socialization, not only as cognition. It recognizes that social interaction and culture are important in shaping individuals' learning. here "Zone of Proximal Development" (ZPD), mediation, and scaffolding are the basic terms.

Keywords: constructivism, Piaget's constructivism, assimilation, accommodation, equilibrium, Vygotsky's constructivism, ZPD, scaffolding, mediation

Le constructivisme est le courant qui permet aux apprenants de construire leurs propres savoirs. On distingue deux grandes écoles: le constructivisme individuel de Piaget et le constructivisme social de Vygotsky. Pour Piaget, assimilation, accommodation entre autres sont essentiels pour un apprentissage individuel. Tandis que pour Vygotsky, puisque c'est social, la culture et l'interaction avec la société conditionne l'apprentissage d'un individu.

Mots-clés: constructivisme, constructivisme de Piaget, assimilation, accommodement, équilibre, constructivisme de Vygotsky, ZPD, échafaudage, médiation



Educational Psychology deals with the different theories of learning. Learning is the acquisition of knowledge and for effective learning learners need to construct their knowledge by themselves. Constructivism is a learning theory that focuses on the active role of the learner in his/her own learning. Two of the major figures of constructivism were Piaget and Vygotsky. Piaget advocated the individual/ Psychological constructivism, whereas Vygotsky advanced social constructivism. The first focuses on the cognitive structure of knowledge, while the later emphasises the central effect of the social context on learning. Both scholars believe that learning is a construction of knowledge; however, they focus on different aspects. Therefore, their theories showed some similarities as well as certain differences.

1. EDUCATIONAL PSYCHOLOGY

Educational psychology refers to the application of psychology to education; it takes as its central themes the analysis of learning, its improvement, evaluation, theories and principles. Williams and Burden (1997) draw attention to the distinction between learning and education, as they are not synonymous. Learning is part of the process of education, while education gives value and meaning to the learner's life. They affirm that the learning/teaching settings that are not educative have a limited significance and merit. They further explain: "Learning is certainly part of the process of education, but to be truly educative it must give a broader value and meaning to learner's life. It must be concerned with educating the whole person" (ibid, p.6). However, Ertmer & Newby (2013, p. 45) illuminate that learning has been defined differently by researchers, theorists and educational practitioners. They add that there is no universal agreement on any single definition of learning. In fact, this article is mainly concerned with the constructivist definition of learning. Besides, Liu & Matthews (2005, p. 387) highlight the fact that constructivists consensually hold that knowledge is not mechanically acquired, but

actively constructed within the constraints and offerings of the learning environment, was commonly regarded as a shift in paradigm in educational psychology.

2.CONSTRUCTIVISM

According to Ültanır (2012, p. 195), constructivism is a learning or meaning-making theory that maintains that individuals create or construct their own new understandings or knowledge through the interaction of what they already believe and the ideas, events, and activities with which they come into contact. Carlson (2003) and Campoy (2004) assume that effective learning occurs when learners actively process the information in a way that is meaningful to them. Smith (2001) claims that constructivism embodies a commitment to a constant self-examination. For him, commitment is a process as well as a goal to enrich the learning settings. It is an active, conscious, wilful process that is guided by intentions and reflections. She explains that constructivism is promising at promoting learners' language as well as their autonomy. Then, Constructivism is founded on the premise that, by reflecting on their experiences, learners construct their own understanding of the world they live in.

3.CONSTRUCTIVISM PRINCIPLES

According to Ertmer & Newby (2013, p. 65), constructivism is based on certain principles as follows:

- An emphasis on the identification of the *context* in which the skills will be learned and subsequently applied [anchoring learning in meaningful contexts].
- An emphasis on learner control and the capability of the learner to manipulate information [actively using what is learned].
- The need for information to be presented in a variety of different ways [revisiting content at different times, in

rearranged contexts, for different purposes, and from different conceptual perspectives].

- Supporting the use of problem solving skills that allow learners to go “beyond the information given”.
- Assessment focused on transfer of knowledge and skills [presenting new problems and situations that differ from the conditions of the initial instruction].

Carlson (2003) and Woolfolk (2004) draw attention to two waves in constructivism: Piaget's psychological/individual constructivism; ‘the first wave constructivism’ or ‘solo constructivism’, and Vygotsky's social constructivism; ‘the second wave constructivism’. Piaget and Vygotsky were the most inspirational child development psychologists and theoreticians on learning (Matusov & Hayes, 2000, p.237).

4.PIAGET’S INDIVIDUAL/PSYCHOLOGICAL CONSTRUCTIVISM

Piaget's psychological/individual constructivists is concerned with knowledge as constructed by the learner; he focus on the individual and psychological sources of learning.

4.1.JEAN PIAGET (1896-1980)

Ültanır (2012, p. 201) provides a brief version of Piaget's life. His PhD was in biology, and his specialty was how organisms adapted to their environment. Piaget was a well-known French Swiss developmental psychologist and theorists. Initially, he built his theories observing his own children as they learned and played together. He was not at all an educator, and he only wrote one book on teaching and pedagogy. His basic research problem was epistemological and philosophical: *What is the nature of knowledge? How does it grow and develop?* Piaget's theory was little noticed when it first appeared, but gradually it ascended to a major position in the field of human development.

4.2. EQUILIBRIUM, ASSIMILATION AND ACCOMMODATION

Wardsworth in his book *Piaget for the Classroom Teacher* (1978) explains that Piaget considers cognitive development as essentially a process of maturation and experience. By maturation, Piaget refers to the growth and development of the tissues of the nervous system including the brain, while experience denotes the active engagement in the environment. Piaget sees that the developing mind is hunting for equilibration, that is, “The balance between what is known and what is currently being experienced” (Williams & Burden 1997, p. 22). Equilibration is self-regulated process in the cognitive development which is achieved by temporary balance between two complementary processes: assimilation and accommodation.

Assimilation is the process by which incoming information is changed or modified in our minds so that we can fit it in with what we already know, whereas, accommodation refers to the process of modifying or changing existing knowledge to take into account new information (Idem.). Besides, accommodation refers to the process by which human beings adapt their developing understandings and expectations to the realities and constraints of the social and physical world in order to arrive at better understandings or explanations (Moor, 2000, p. 7). Accommodation acts as a complement to assimilation. He adds, “Piaget’s suggestion that learning is an essentially active process of assimilations and accommodations, that does not depend on an adult” (Idem, p. 8)

Shunk (2012) concludes that cognitive development can occur only when *disequilibrium* or *cognitive conflict* exists. This state will develop a disturbance in learners’ cognitive structures (Idem, p. 238). Thus, an event must occur that produces a disturbance in the child’s cognitive structures so that the child’s beliefs do not match the observed reality. Equilibration seeks to resolve the conflict through assimilation and accommodation.

Therefore, Blake & Pope (2008, p. 61) explain that for Piaget the developmental ideal is a balance between assimilation and accommodation, which is also known as equilibrium. They further emphasize Piaget's view that individuals must adapt to their environment. Students are drawn towards disequilibrium because of their curiosity. Teachers should use disequilibrium to motivate their students because it allows for changes in students' mental structures.

PIAGET COGNITIVE DEVELOPMENT STAGES

According to Mascolo & fischer (2005, p. 49), Piaget maintained that psychological structures undergo successive transformations over time in a series of four stages. Within his theory, stages exhibit several important properties as follows:

- Firstly, each stage corresponds to a particular type or quality of thinking or psychological organization. From this view, infants are not simply small adults – they think in fundamentally different ways from older children and adults.
- Secondly, the stages form a hierarchical progression with later stages building upon earlier ones.
- Thirdly, the stages form a single, universal, and unidirectional sequence. Regardless of the culture in which a child resides, thinking develops in stages toward the common endpoint of formal operations.
- Fourthly, Piagetian stages form *structures d'ensemble* (i.e., 'structures of the whole'). Piaget's position on the organization of thinking within stages was complex. He also invoked the concept of *d'ecilage* – the idea that cognitive abilities within a stage develop at different times.

Then, Piaget refers to four stages of cognitive development that all humans go through. "Thinking at each stage builds on and

incorporates previous stages as it becomes more organized and adaptive and less tied to concrete events”(Woolfolk, 2004, p. 324). Salkind (2002, p. 415) clarifies the stages are as follows:

1. The sensory-motor period, typically occurs during the first two years of life. It is marked by Piaget’s observation that infants are initially unable to act or behave on the basis of their mental representations; what something means is based on whatever sensory or motor interactions the infant is able to have with the object, person, or experience.
2. The Preoperational period lasts until the age of seven. Gradually over the second and third years of life, young children begin to acquire the ability to act, in a very elementary fashion, on their mental representations of objects, people, and events. It is characterized by the child’s growing use of language, the increasing ability to engage in pretend play and imitation, and a growing ability to understand simple functional relationships. These young children, however, still have difficulty in appreciating the fact that others do not see things from the same perspective as they do (what Piaget referred to as egocentric thought), and they are still relatively easily fooled by how things appear to be rather than how they must be.
3. Concrete operational thought. They are now no longer easily fooled by their perceptions because they have the cognitive skills necessary to have their logic “correct” their perception. Concrete operational children demonstrate the cognitive skills necessary to arrange, organize, and classify information; use the types of logical operations necessary for the understanding of mathematical and scientific operations; and modify their comments to reflect the perspective of the listener (Idem, p. 416).

4. Formal operational adults are potentially able to apply logic to all situations- hypothetical or real. Piaget saw this ability to have “thought take flight”.

Subsequently, Piaget views learning as active construction of knowledge that challenges and guides thinking toward understanding. Learning is the process of exploration and discovery; experience influences thinking and thinking in its turn influences knowledge. Salkind (2002, p. 415) highlights that Piaget's opinions may help understand how the interaction between a child's learning and the world works if we look at his stages as a change from one level to another gradually as opposed to suddenly. Piaget's stages of development are all about the ability to learn at different ages in childhood based on logical development.

4.4. PIAGET'S THEORY AND EDUCATION

According to Blake & Pope (2008, 62), by using Piaget's theory in the classroom, teachers and students benefit in several ways. Teachers develop a better understanding of their students' thinking. They can also align their teaching strategies with their students' cognitive level (e.g. motivational set, modeling). Liu & Matthews (2005, p. 388) explain that *Piaget* emphasizes learner-centred and discovery-oriented learning processes, and the process of learning where social environment and social interaction work merely as stimulus for individual cognitive conflict.

For Salkind (2002, p. 415), his theory on assimilation and accommodation all have to do with the children's ability to construct cognitively or individually their new knowledge within their stages and resolve conflicts; “ Recognizing that this process occurs within each individual student at a different rate helps the teacher facilitate constructivist learning”. Shunk (2012, p. 239- 240) provides the following implications of Piaget's theory for instructions:

- **Understand Cognitive Development.** Teachers will benefit when they understand at what levels their students are functioning.
- **Keep Students Active.** Piaget decried passive learning. Children need rich environments that allow for active exploration and hands-on activities. This arrangement facilitates active construction of knowledge.
- **Create Incongruity.** Development occurs only when environmental inputs do not match students' cognitive structures. Material should not be readily assimilated but not too difficult to preclude accommodation. Incongruity also can be created by allowing students to solve problems and arrive at wrong answers. Nothing in Piaget's theory says that children always have to succeed; teacher feedback indicating incorrect answers can promote disequilibrium.
- **Provide Social Interaction.** Although Piaget's theory contends that development can proceed without social interaction, the social environment is nonetheless a key source for cognitive development. Activities that provide social interactions are useful. Learning that others have different points of view can help children become less egocentric.

4.5.PIAGET'S CRITICISM

According to Matusov & Hayes (2000, p. 215), a great deal of criticism to Piaget's theory of psychological development come from its' neglect to the social nature of human development. They add, "Cognitive development is embedded in social contexts and their separation is considered impossible" (Idem). Salkind (2002) further explains that Piaget considers the importance of the social environment in learners' cognitive development, but not social interaction as the central device for changing thinking. Moreover, Blake & Pope (2008) advance that some have noted that the stages in his theory have inconsistencies. He ignored social and cultural groups in his research. Besides, Piaget's tasks underestimated the

impact of culture by being culturally biased, and formal operational thinking is not universal.

Likewise, Mascolo & fischer (2005, p. 50) show that:

- Research has indicated that the developmental level of even a single child's cognitive actions can change with variations in the level of contextual support provided to the child, the specific nature of the task, the conceptual domain in which the task occurs, and the child's emotional disposition.
- Research also suggests that providing training and contextual support for concrete operational tasks lowers the age at which children succeed in performing such tasks.
- Researchers have also criticized Piagetian concepts such as equilibration, assimilation, and accommodation as difficult to translate into clear and testable hypotheses.
- Others have noted that Piaget did not pay enough attention to the ways in which social processes contribute to development.

Table 1 describes five basic problems and criticisms that emerged with regard to central principles in Piaget's theory of development.

Piagetian construct	Source of problem	Analysis of developing skills
Structural principles I. Inner competence as property of individual child. Individual cognitive structures function as basic units of cognitive activity. Cognitive structures are seen as properties of individual children.	Social context and affective state play a direct role in modulating level of functioning. Evidence suggests that performance on similar tasks in the same children vary dramatically with changes in contextual support and affective state.	Skill as property of individual in social context. Skills reflect actions performed on physical and social objects in particular social contexts. Child and social context collaborate in the joint construction of skills.

II. Limited number of broad stages. Piaget postulated four broad stages of cognitive development.	Variability in performances as a result of task complexity. Differences in the complexity of tasks used to test children's stage acquisition produce different assessments of operative ability.	Precise developmental yardsticks. Skill analyses allow both broad and fine-grained analysis of development across a total of thirteen levels with a large number of smaller steps between levels.
III. Stage as structure d'ensemble. Piaget held that cognitive structures entail broad abilities having wide application to multiple tasks.	D'écalage. Unevenness in the development of skills is the rule rather than the exception in ontogenesis, even for abilities presumed to be at the same developmental level.	Skills develop within particular tasks, domains, and social contexts. Rejecting the notion of globally consistent stages, skill analyses assess skill development within particular conceptual domains, tasks, and social contexts.
IV. Development as unidirectional ladder. Piaget proposed a unidirectional model of stage progression in which cognitive capacities in all cultures follow the same abstract progression of stages.	Varied sequences of development. Evidence suggests variation in developmental sequence in different children, tasks, and cultures, as well as failures to observe predicted Piagetian sequences.	Development as multidirectional web. Different skills develop along different trajectories for different tasks, domains, persons, contexts, and cultures. As such, development proceeds as a web of trajectories rather than as a ladder of fixed or universal steps.
Process principles V. Individual action as primary source of developmental change. Piaget viewed cognitive disequilibria as the primary mover of development,	Limited focus on social, cultural, biological, and emotional organizers of developmental change. Evidence suggests that social interaction, language,	Developmental change occurs as a product of relations between biological, psychological, and sociocultural processes. Biological, psychological, social,

suggesting a central role for the individual child as the main mover of development.	culture, genetics, and emotion play important roles in the constitution of psychological structures.	and cultural processes necessarily coact in the formation of novel psychological structures.
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Table 1: Critiques for Piaget's Theory (Mascolo & fischer, 2005, p. 51).

5.VYGOTSKY SOCIAL CONSTRUCTIVISM

Vygotsky's social constructivism is also known as Vygotsky's Cultural- Historical theory of development (Salkind, 2008, p. 1010). John-Steiner & Mahn (1996, p.191) show that sociocultural approaches to learning and development were first systemized and applied by Vygotsky and his colleaborators in Russia in the 1920s and 1930s. They are based on the concept that human activities take place in cultural contexts and are mediated by language.

5.1.VYGOTSKY SEMENOVICH LEV (1896–1934)

Salkind (2002, p, 228) provides a general overview of Vygotsky's life. Vygotsky was a developmental psychologist known for his sociocultural perspective. Born into a middle-class Jewish family in Orsha, Russia, Vygotsky's faith and social standing shaped many of his choices and views. Academically successful, Vygotsky entered Moscow University in 1913, where he studied law, being one of the few professions that allowed Jews to live outside restricted areas. He simultaneously attended Shaniavsky University to study social sciences. After an impressive presentation of his doctoral dissertation on William Shakespeare's play *Hamlet*, entitled *Psychology of Art*, Vygotsky was invited to join the research staff at the Psychological Institute in Moscow, where he met Alexander Luria, who was to become his colleague and collaborator.

Vygotsky turned his attention to children with disabilities. Considered ahead of his time, Vygotsky suggested that children with and without disabilities be educated together. He recognized that necessary social and cultural developments would be more

likely to occur in an integrated environment and that isolation caused by an inability to participate in collective activities might have an even more deleterious effect than the original problems. Vygotsky died of tuberculosis at age thirty-seven before he was able to offer a comprehensive theory of child development. His early death, Soviet dictator Josef Stalin's ban on Vygotsky's works for political reasons, the Cold War, and the popularity of Piaget's ideas caused Vygotsky's theories to reach the West slowly. Nevertheless his ideas on socialization, language, and children with disabilities have influenced modern child developmentalists throughout the world.

5.2. SOCIAL CONTEXT/CULTURE

John-Steiner & Mahn (1996, p.191) see that sociocultural approaches to learning and development were first systemized and applied by Vygotsky and his collaborators in Russia in the 1920s and 1930s. They are based on the concept that human activities take place in cultural contexts, are mediated by language and other symbol systems, and can be best understood when investigated in their historical development. They add, "The power of Vygotsky's ideas lies in his explanation of the dynamic interdependence of social and individual processes (Idem, p.192).

Smith (2001) explains that social constructivist theory views language learning as socialization, not only as cognition; it recognizes the learner as an active participant with prior knowledge and experience. It also views teachers and students as co-constructors of meaningful interaction. For Vygotsky (1986), social interaction and culture are important in shaping individuals' learning; learning is a collaborative construction of social knowledge and values. Hence, social constructivism emphasizes the importance of social interaction and cooperative learning in constructing both cognitive and emotional images of reality (Brown, 2007, p. 12). Vygotsky's theory, in particular, stress the

idea that learning is a socially mediated process (Shunk, 2012, p. 252).

5.3. PRIVATE SPEECH

Shunk (2012, p. 249) clarify that the mediating and self-directing role of the second signal system is embodied in Vygotsky's theory. Vygotsky believed that private speech helps develop thought by organizing behavior. Children employ private speech to understand situations and surmount difficulties. Private speech occurs in conjunction with children's interactions in the social environment. As children's language facility develops, words spoken by others acquire meaning independent of their phonological and syntactical qualities. Children internalize word meanings and use them to direct their behaviours. Vygotsky hypothesized that private speech follows a curvilinear developmental pattern:

1. Overt verbalization (thinking aloud) increases until ages 6 to 7, after which
2. it declines and becomes primarily covert (internal) by ages 8 to 10.

However, overt verbalization can occur at any age when people encounter problems or difficulties. Research shows that although the amount of private speech decreases from approximately ages 4 or 5 to 8, the proportion of private speech that is self-regulating increases with age (Fuson, 1979, quoted in Idem). Language develops from social speech, to private speech, to covert (inner) speech.

5.4. ZONE OF PROXIMAL DEVELOPMENT

From a Vygotskian perspective, children work with adults and peers in the creation of any higher-order developmental process. In social interaction, partners direct each other's actions and thoughts using language and signs (Mascolo & fischer, 2005, p.51). One of the most popular concepts advanced by Vygotsky was

the notion of a zone of proximal development (ZPD) in every learner: the distance between learners' existing developmental state and their potential development. Put another way, the ZPD describes tasks that a learner has not yet learned but is capable of learning with appropriate stimuli (Brown, 2007, p. 13).

Hence, Zone of Proximal Development (ZPD) refers to the distance between learners' actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in cooperation with others, during which the teacher acts as facilitator (John-Steiner & Mahn 1996, p.198). They explain, "The discrepancy between a child's actual mental age and the level he reaches in solving problems with assistance indicated the zone of proximal development" (Idem, p. 187).

ZPD shows how culture and cognition create each other; that is, culture creates cognition when the adult uses tools and practices from the culture and cognition creates culture as the adult and the learner produce new practices and problem solution to the cultural repertoire of the group. Therefore, higher mental processes develop through social negotiation and interaction; that is, collaborative learning, as learners develop their mature thinking by observing how teachers and peers approach the learning task.

5.5. CONSCIOUSNESS AND DELIBERATION

Brown (2000, p. 18) sees the notions of 'consciousness' and 'deliberation' critical to Vygotskian understandings of how learning itself develops and undergoes qualitative change.

The 'conscious', 'deliberate' learner is one who is able to reflect on what they have learned, and indeed on the language through which their learning is taking place. They are also able to elaborate and discuss their learning with peers and with their teachers, are capable of making

decisions and exercising choices in the pursuit of their learning, and can, to an extent, articulate preferences, beliefs and understandings that might previously have only existed in a 'common-sense', very partially apprehended way (Idem).

Liu & Matthews (2005, p. 394) clarify that in the development of consciousness, the sequence is from the social to the individual. They further refer to Vygotsky's distinction between consciousness and conscious awareness. Consciousness means being able to generate meaningful generalization and connecting relationships between objects and concepts, whereas conscious awareness involves the ability to interconnect processes of mental activities (Idem).

5.6. VYGOTSKY AND TEACHING

According to Brown (2000, p. 19-20), some of the implications of Vygotsky's theory in teaching include:

- the importance of not waiting to teach something until the child is deemed able to 'absorb' it (this can apply to the use of reading-schemes in primary schools just as much as to the development of scientific concepts with older students);
- an opposition to the use and typically limited or misleading results of diagnostic tests that forbid any help being given to students by other students or by their teacher;
- an emphasis on the development of independent *processes of learning* rather than the memorising and regurgitating of facts or 'knowledge';
- the importance of perceiving learning, in all phases of schooling, from a genuinely cross-curricular perspective.

He adds that a fuller list might include considerations of:

- the importance of working towards a student-teacher relationship which invites and encourages dialogue rather than monologue;
- the importance of establishing forms of classroom organisation which enable and actively encourage collaborative learning and the facility for students to switch easily and naturally between discussion with peers and discussion with the teacher;
- mounting an active challenge to existing notions of intelligence and ability;
- giving full recognition to students' learning as an active—and interactive—process, and to the changing, developing, provisional nature of a student's concepts and ideas;
- giving full and active recognition to the heuristic value of talking and writing.

For Hogan & Tudge (1999, p.39), Vygotsky's theory views human development as a sociogenetic process by which children gain mastery over cultural tools and signs in the course of interacting with others in their environments. This process of interaction between the child and a more competent other is said to effect development if the interaction occurs within the child's zone of proximal development.

Moreover, Vygotsky's theory requires an interweaving of different aspects of development, involving the individual and the cultural-historical as well as the interpersonal, and focusing on the processes of development themselves. Research that dwells solely on interpersonal aspects, relying on the concept of the zone of proximal development, reduces the theory in a way that seriously detracts from its value (Idem, p. 40). They further clarify:

Vygotsky's theory requires understanding of their interrelatedness. We cannot understand the interpersonal

processes that go on between people (whether child-child or adult-child) without knowing something about the individual characteristics (such as age, gender, motivation, competence) that each participant brings to the relationship. At the same time, we cannot understand the interactions between these individuals without knowing something about the broader context that provides much of the meaning. This context is both microsystemic (is this collaboration taking place in school or home?) and macrosystemic (the culturally and historically derived meanings and status of collaborations between children, of what is considered appropriate behavior in the home or in the school, and so on). (Idem).

Shunk (2012, p.246-7) sees that the field of self-regulation has been strongly influenced by Vygotsky's theory as it requires metacognitive processes such as planning, checking, and evaluating. Assisting students in learning can be achieved in many ways. An application that mirrors Vygotsky's theory is *instructional scaffolding*. It refers to the process of controlling task elements that are beyond the learners' capabilities so that they can focus on and master those features of the task that they can grasp quickly (Idem). He adds that instructional scaffolding has five major functions: provide support, function as a tool, extend the range of the learner, permit the attainment of tasks not otherwise possible, and use selectively only as needed. The key is to ensure that the scaffolding keeps learners in the ZPD, which is raised as they develop capabilities.

Another application is *reciprocal teaching* which involves an interactive dialogue between a teacher and small group of students. Initially the teacher models the activities, after which teacher and students take turns being the teacher. If students are learning to ask questions during reading comprehension, the instructional sequence might include the teacher modeling a question-asking strategy for determining level of understanding. From a Vygotskian perspective, reciprocal teaching comprises social interaction and scaffolding as students gradually develop skills.

Another application relevant to Vygotsk's ideas is *peer collaboration*, which reflects the notion of collective activity. When peers work on tasks cooperatively, the shared social interactions can serve an instructional function. Every member of the group should be individually accountable for the completion of the task.

An important application is *apprenticeships*. In apprenticeships, novices work closely with experts in joint work-related activities (Idem). Apprenticeships fit well with the ZPD because they occur in cultural institutions (e.g., schools, agencies) and thus help to transform learners' cognitive development. By working with experts, less experienced teachers develop a shared understanding of important processes and integrate this with their current understandings.

5.7. VYGOTSKY CRITICISM

Vygotsky's works were not circulated for many years, translations have only recently become available, and only a small number of sources exist (Shunk, 2012, p. 247). He further refers to the following critics:

- Researchers and practitioners have tended to focus on the ZPD without placing it in a larger theoretical context that is centered around cultural influence.
- When applications of Vygotsky's theory are discussed, they often are not part of the theory, but rather seem to fit with it.
- the term *scaffolding*, for example, they presented it as a way for teachers to structure the same instructional style would not be equally beneficial for all cultures.

Being able to differentiate instruction to fit children's learning preferences is a key 21st century skill. Moreover, in many

research investigations, the actual amount of private speech is small, and many children do not verbalize at all. Thus, the developmental pattern of private speech seems more complex than originally hypothesized by Vygotsky (Shunk, 2012, p. 249).

6. SIMILARITIES BETWEEN PIAGET'S AND VYGOTSKY'S THEORIES

Blake & Pope (2008, p.59) pinpoint that teachers who can incorporate the theories of Piaget and Vygotsky into their teaching strategies, will be better able to increase student achievement. They further explain that (p. 60):

- They shared the same field of study, which was developmental psychology.
- Both Piaget and Vygotsky thought learning is what leads to the development of higher order thinking.

Similarly, Matusov & Hayes (2000, p. 216-221) provide the following similarities between Piaget and Vygotsky's theories:

- Both approaches of Piaget and Vygotsky were entering the field of child development psychology in the early 1920s.
- For both of them, advanced development has only one direction and this direction has a predictable and given goal (the scientific logic for Piaget, and the Western 'high culture for Vygotsky).
- Both Piaget's and Vygotsky's approaches to development insist on the necessarily social nature of human development. Piaget focused more on relational while Vygotsky was interested in mediational features of development.

- Both Piaget and Vygotsky saw development as a decreasing gap between mental structures/functions of individual's actions and norms (scientific logic for Piaget, and cultural mediation for Vygotsky)
- They focused on what mental structures/functions an individual 'brings to and 'takes from an activity.
- For both, there is unavoidable dualism between the individual and the social. For Piaget, this dualism led to describe society as the 'social environment' of individual's activity that provides constraints and new 'perspectives' for the individual. For Vygotsky, the dualism set up a mystery of internalization: how the 'social plane' becomes the 'individual plane'
- Vygotsky seemed to share many of Piaget's concerns about formal education although their critique came from slightly different reasons. Piaget critique of public institutions, including schools, primarily focusing on the power asymmetry in teacher-student relationship that can inhibit authentic learning and development. In his critique of the mainstream educational institutions, Vygotsky focused more on issues of meaninglessness and a lack of relevancy in many schools.

Moor (2000, pp. 14-15) refers to the following key elements of Vygotsky's theory that are common to Piaget's:

- Learning is an active meaning-making process in which the learning process itself needs to be understood and prioritized.
- Learners move through age-related 'stages' in which learning undergoes qualitative changes.
- The importance to distinguish 'real' learning and concept development from 'rote' learning.

7.DIFFERENCES BETWEEN PIAGET'S AND VYGOTSKY'S THEORIES

According to Pass (2007, p. 277), many educators see the works of Jean Piaget and Lev Vygotsky as exact opposites when it comes to their pedagogies. Piaget focused on the primacy of the individual in his *Genetic Epistemology*. On the other hand, many believe that Vygotsky focused in his Cultural–Historical Theory on the social aspects of learning. Blake & Pope (2008, p. 61) refer to the following distinctions:

- Piaget's theory refers to qualitative periods or stages of development. Piaget's theory encourages hands-on learning.
- Vygotsky believed the learner constructed his or her own knowledge by interacting with other individuals.
- Developmental growth is another area of difference. Piaget's theory focuses on fixed stages of development, whereas Vygotsky's theory notes a more fluid, on- going repertoire of development.

Matusov & Hayes (2000, p. 219) explains that

- Piaget sees that participation in an activity for which child is not ready with a more knowledgeable partner leads mainly to imposing the partner's. Piaget focused on the nature of social relationships among participants in an activity and their consequences for the child development.
- Guidance with more capable partners (Vygotsky's ZPD) or cooperation of equals (Piaget's socio-cognitive conflict). A sociocultural perspective, development involves transformation of the individual's participation in a sociocultural activity rather than a change in the structure of individual's action (like in Piaget's theory) or individual's growing mastery of tool, sign, and speech use (like in

Vygotsky's theory) (Idem, p. 222). The notion of participation in a sociocultural perspective has not only an individual but also a social nature. It involves negotiation of individual's contribution to the activity.

- Piaget's approach privileging individual's point of view in a situation over other participants. According to Piaget, for the child, the adult is simply a part of the child's environment upon the child is acting. The fact that the adult interprets child's actions as culturally and socially appropriate and meaningful is a simple misunderstanding that confuses the solo nature of child's activity.
- Vygotsky would agree with Piaget that there is often a gap between child's and adult's understanding of the situation they both are involved. However, Vygotsky differed from Piaget in judgement of the consequences of this gap for child development. He argued that this difference, pointed out by Piaget, in understanding of what an infant does and how an adult sees the child's actions may be the very key for the child's socialization and development.
- The notion of transformation of participation differs from both Piaget's and Vygotsky's concepts because, unlike in their theoretical approaches, the assumption is that individual never leaves the flow of sociocultural activity. For Piaget, the development occurs when an individual 'takes out' an equilibrium of accommodation and assimilation from an activity. For Vygotsky, the development occurs when the individual 'takes out' mastery of tools and signs and self-regulation of behavior from the activity in the process of the so-called 'internalization'.

Whereas Piaget proposed that instruction should follow development, Vygotsky saw development and learning as acting together to create higher psychological functioning. Salkind (2002)

suggested that learning and development are facilitated in a hypothetical region called the zone of proximal development (ZPD). In addition, Matusov & Hayes (2000, p.222) see that both Piaget and Vygotsky emphasized the roles of the society, culture, and institutions in child development. However, they put different accents of these roles: relational versus mediational. Piaget focused more on power relations of symmetry and asymmetry as promoting or hindering individual development. Vygotsky focused more on semiotic and tool meditation as ways through which culture and institutions shape child's development.

Dunn & Lantolf (1998) see that Vygotsky's concept of the ZPD contrasted rather sharply with Piaget's theory of learning in that the former saw a *unity* of learning and development while the latter saw stages of development setting a precondition, or readiness, for learning (quoted in Brown, 2000, p. 14). Besides, Piaget stressed the importance of individual cognitive development as a relatively solitary act. Biological timetables and stages of development were basic; social interaction was claimed only to trigger development at the right moment in time. Conversely, Vygotsky maintained that social interaction was foundational in cognitive development and rejected the notion of predetermined stages.

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CONCLUSION

Educational Psychology is the realm of learning theories. Constructivism is a learning theory that believes in the active role of the learner for his own learning. Learning is no more the transmission of knowledge; rather it is the construction of knowledge. Piaget and Vygotsky proposed constructivist theories: Piaget individual/psychological constructivism and Vygotsky Social constructivism. Piaget focuses on the stages of cognitive development within the social context; he pinpoints the individual.

Vygotsky emphasizes the social context, interaction and language for the construction of knowledge. His theory is based on the zone of proximal development where the learners achieves the potential level with the assistance of more knowledgeable others. These theories are not totally different because they both stem from the same stream which is constructivism. It is advantageous for teachers to know Piaget's and Vygotsky's theories in order to improve their teaching and their students' learning.

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Jean Piaget (1896–1980)



