

## Piagetian and Vygotskian Concepts of Cognitive Development: A Review

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### ABSTRACT

This kernel of this article is to provide in-depth understanding of the developmental psychology concepts of Jean Piaget and Lev Vygotsky, who have laid the foundation for extensive research and scope for refinement their theories in developmental psychology, primarily in child and adolescent growth. The Piagetian stages, criticisms and limitations of Piaget's stages cognitive development, and critical works of Neo-Piagetians have been highlighted. Parallely, Vygotsky's Socio-cultural theory, limitations and criticisms of his theory, and the significant contributions of Neo-Vygotskians in refining and re-defining Vygotsky's works to fill the gaps in his research, have also been shed light on. Finally, an extensive comparison of the Swedish and the Russian Psychologist's theories is done, to grasp the concepts of the two clearly, and to better understand how teachers, parents, and psychologists alike can permutate and combine the concepts and practices of the two-most fundamental theories of developmental psychology.

**Key Words:** Lev Vygotsky, Cognitive Development, Jean Piaget, Developmental Psychology

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### INTRODUCTION

Lifespan Development refers to the physical, socio-emotional, cultural, cognitive, and evolutionary changes of an individual from conception to death. The two most prominent developmental theorists who have spearheaded the foundational theories in this field of psychology include Jean Piaget (1896-1980), and Lev Vygotsky (1896-1934). Both the psychologists have propounded their theories around the same time. However, the death of the “Mozart of Psychology” in June 1943 due to tuberculosis, lead the then Russian leader Stalin, to ban Vygotsky's works from public display. It was only after the collapse of the Soviet Union that Vygotsky's works were translated by his student, Alexei Leontiev. The main bone of contention between the two was that Vygotsky believed that an individual's development stems from the social to the individual, whereas Piaget claimed otherwise [1]. Let's look at the works of both these eminent psychologists and later, critically evaluate their respective theories, for a clearer picture on how a child's development can be better shaped.

### METHOD OF CONDUCTING THE REVIEW

The method of data collection involved extensive research of papers published on internationally recognized platforms such as JSTOR, SCOPUS, Springer, Google, Scholar, Academia etc., on the works of the two renowned developmental psychologists, Jean Piaget, and Lev Vygotsky. Original works of Lev Vygotsky, and Piaget and their commentary on each other's works have also been looked at for the preparation of this

review article. Comparison of the works towards the end of the paper involved critical analysis of the research papers thus reviewed, thereby enriching the reader's ability to better comprehend and delve deeper into the Piagetian and Vygotskian theories of cognitive development.

## PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

Piaget (1954) proposed that there are typically four "*progressive*" stages of cognitive development that run through the child's birth till the age of 11 and onward. He held that the infant's understanding of the world builds through the formation of mental representations or actions that organize knowledge, known as Schemes [2].

Schemes are developed through two Piagetian concepts:

**Assimilation:** It is a cognitive process by which a person fits new information into existing schemes. Example: A child sees a pigeon with feathers and wings and calls it a "bird."

**Accommodation:** The process by which pre-existing concepts/schemes are restructured to add new information to the existing knowledge about it. It involves either creation of new schemes or modification of old schemes to attain new knowledge. Example: A child understands an ant to be a small crawling insect. The child later sees a beetle and calls it an "ant", only to accommodate a new piece of information that the ant and beetle are both insects, and that all insects are not ants.

Children actively organize isolated behaviors/schemes into a hierarchical system, called Organization. The child's optimal usage of assimilation and accommodation throughout all the four stages of lifespan development leads to Equilibration. The child's motivation to achieve this state of equilibration is characterized by a pre-optimal stage of disequilibrium, wherein a child experiences cognitive conflict.

Example: A child who sees the larger string of clay as having more amount, when the same amount of clay is rolled into larger and smaller strings, faces disequilibrium, and the urge to correct this false perspective in later stages, adds to his quest for equilibration/ stable cognitive development.

Piaget affirmed that the level of cognition is different in every stage, and that each stage is "progressive" in nature as children tend to obtain higher-order complex thinking/intelligence as the stages progress. The four stages are explained below:

### SENSORIMOTOR STAGE

Piaget argued that cognition begins at birth, in the Autistic speech state, wherein the infant is self-centered and cannot speak through words. It lasts from birth to two years of age. The schemes at this beginner's stage are learnt by relating sensory experiences (such as seeing and hearing), to physical, motoric actions (such as grasping and sucking). There are six sub-stages of the sensorimotor stage according to Piaget. These include:

**Simple Reflexes:** This stage extends from birth to one month and coordinates sensation and action through reflexive behaviors such as biting and grasping that become the kernel of infant's physical and cognitive life. The baby repeats these reflexes even in the absence of the ensuing stimulus.

Example: When a baby's lips are touched, the baby turns towards the side of the sensation felt and opens the mouth in search of the breast/bottle.

**First Habits and Primary Circular Reactions:** This stage encompasses from one-four months, wherein infants primarily use the two schemes of 'habit' and 'circular reaction'. The babies habituate the reflexive actions incorporated in stage one such as sucking to other situations. Primary circular reactions are the repetitions of these schemes by-chance because they are pleasurable to the infant.

Example: Infants may generalize their reflex of sucking to include sucking their thumb, even though there is no breast or bottle near them.

**Secondary Circular Reactions:** This period extending from four-eight months of age, transcend the child's interest from the self towards the environment. They repeat an action because of its consequences and become more object-oriented.

Example: The child may move from waving his hands to waving a toy near him.

**Coordination of Secondary Reactions:** These secondary actions (coordinated through touch and vision/hand and eyes) that are inflicted upon the environment by the infant, are further reinforced during eight-twelve months, marking the beginning of "intentionality", culminating into goal-oriented actions. Here, the child understands the implications of "cause and effect" and achieves the concept of Object-Permanence or knowing that people/ objects exist even when they cannot be seen.

Example: A child may move a ball to pick another ball.

**Tertiary Circular Reactions:** From 12-18 months, infants are curious of the properties that an object possesses, making them to experiment novel behaviors. Children become more scientific, using trial-and-error methods to solve problems.

Example: Children may drop a spoon from the table to see what happens to it.

**Internalization of Schemas:** The last sub-stage from 18-24 months is evocative of the remembrance of images/past events, the showcasing of make-believe activity, and complex schematic understanding. Children start using primitive symbols to demonstrate their understanding of the world. Pretention is the child's earliest usage of symbols.

Example: The child draws a camel, pretends to be a camel, or rides on a broomstick to pretend to be riding on a camel.

## PRE-OPERATIONAL STAGE

It spans from two-seven years of age. Children shift from the sensorimotor way of thinking to using even complex mental representations, symbols, words, and gestures, and also learn to describe people and events.

This stage is dominated two main concepts:

**Conservation:** The child's learning that certain amount of quantity remains the same despite the change in its physical appearance or arrangement.

Example: When water from one container is poured into another longer container, and the child thinks that the amount of water in the longer one has "magically" increased.

**Centration:** The narrow-mindedness of children when they focus on only one aspect of the stimulus. They tend to make judgements based on the most outwardly aspect in their perceptual array of sight.

Example: Two balls of clay of the same amount but rolled in different sizes. The kid says one is lengthier than the other, thus focusing on the superficial aspect of length.

The centration stage is further divided into 2 substages –

1. **Ego-Centrism:** The inability to distinguish between one's own and another's perspective, in the view that others see things the way they see. The child, by two years, starts developing verbal, self-centered speech/egocentric speech, representing the Syncretistic thought process which retains much of the autistic state. Egocentrism was studied by Piaget and Barbel Inhelder (1969) through the three mountains experiment, wherein the child was shown a model of three mountains labelled as location A, B, and C respectively and a doll kept in location B; the child is made to sit in location A and asked what the doll can see. The child explains what she can see, and not from the doll's perspective [3].
2. **Animism:** Another limitation of the pre-operation stage is the use of animism by pre-school kids, wherein they attribute life-like qualities to inanimate objects that are capable of action. Opfer and Gelman (2011) contend that this 'personification' of qualities to non-living things, fails to

distinguish the appropriate situations for using human and non-human perspectives. Example: A child trips and falls by stamping on a banana peel and weeps that the peel tripped her [4].

### **STAGE OF CONCRETE OPERATIONS**

Egocentric speech slowly fades away, and social speech develops, communicating better with the environment, towards intellectual thought process. This stage occurs between seven-eleven years. The child learns to think and reason out more logically. Concrete operations are operations (mental actions that are reversible) applied on real, concrete objects. Children are better equipped to learn conservation tasks and are able to focus on multiple aspects of a stimulus, also known as “Decentering.” Children learn that transformations of a stimulus event can be reversed, a concept known as reversibility.

Example: The child now knows that a ball of clay when rolled into a line can be reversed back into a ball.

### **STAGE OF FORMAL OPERATIONS**

Children above 11 years, achieve abstract thinking, beyond concrete ones. Adolescent Egocentrism, wherein children feel like they are the Centre of attention is also evident of this period. David Elkind (1976) showed that personal fable as part of egocentrism involved children feeling they are unique and that aspects of their life are invisible to others. They are also capable of inductive and deductive reasoning, arriving at specific answers to general propositions or vice versa, and create hypothesis to solve problems. E.g.: If  $A=B$ , and  $B=C$ , then  $A=C$ , is solved by adolescent children [5].

### **Criticisms and Limitations of Piaget’s Theory**

- Piaget’s stages of development cannot be generalized to all children, as everyone has their own level of maturity. E.g.: Not all high-school children can perform Piaget’s formal -operational tasks [6].
- Many critics have interrogated the presence of four separate stages of thinking [7-8].
- The changes may seem more continuous than they seem. A three-year old persistently searching for a doll than an infant who doesn’t miss it, is a result of the developed memory over time [9].
- Another criticism was on the speed and continuity of the changes at every stage to all children alike. Children who show much slower cognitive development during the initial stages, can later experience large changes in abilities that seem abrupt [10].
- Piaget underestimated the cognitive abilities of children [11]. One study found that pre-school children know much more about numbers than Piaget thought [12]. Another study found that German kindergarteners examined all three dimensions- length, width, and height when estimating the volume of a wooden block [13].
- Evolutionary theorists claim that children may be born more cognitive abilities like object permanence, or the sense of numbers that form part of our evolutionary import [14].
- Piaget’s theory lacked explanation on how young children can still perform at an advanced level. [15].
- Piaget overlooked the cultural effects on child development [16]. A study wherein Brazilian children who sold candies on streets failed to perform well on a class-inclusion Piagetian task but possessed better cognitive abilities to understand and perform well on tasks involving candies than their other same-aged, school-going Brazilian counterparts [17].
- Piaget argued that cognitive functions such as conservation and abstract thinking cannot be accelerated. But research has shown that with effective instruction, children can learn to perform cognitive operations such as conservation and need not “naturally” discover it [18].
- Hallpike (1979) in his book, ‘The Foundations of Primitive Thought’, elaborates on “primitive” and “advanced” thinking. According to him, primitive societies demand less of cognitive stimulation, than advanced societies (as these demanded tools such as technological ones and are more cognitively demanding) [19]. Atlas (1986), in his review claims that Hallpike’s theory distinguished between Hallpike’s and Piaget’s notions of “primitive” thinking [20].

- Carlson and Buskist (1997) levelled another criticism on Piaget's theory, regarding the terminology used. It is important to derive an operational meaning in scientific terms, but Piaget has been vague in doing so. Eg: Piaget's definitions for "assimilation", and "accommodation" have been reduced to defining that they produce a certain change in the thinking of the individual, but what exactly is that change, has not been accounted for by Piaget [21].
- Gray (1994) drew flak on the cognitive abilities of children as they progress from one stage to another in life. Piaget's stages show increasing level of cognitive abilities in each stage of development, but Gray's claims are that the cognitive abilities of children rather develop at a slower pace than Piaget imagined them to [22].

### Neo-Piagetians

- The Vertical-Model (V) of development emphasised by Piaget, has been re-visited and reconstructed as Horizontal-Models (H) of development, concentrating on domain-specific functions [23].
- Emphasis has also shifted to inter-dimensional and intra-dimensional variations, in-between the V and H models [24-25].
- Demetriou [24] gave in an alternative three-pronged approach to cognitive development: the general processing system of general cognitive abilities of the mind, the hypercognitive system governing self-understanding and self-regulation, and the specialised structural system that processes in-depth different reality-domains such as analytical, spatial...Etc.
- Commons and Ross [26] argued that the formal operational stage cannot be the end of a child's maturity level and proposed four post-formal stages of development via: Systematic stage, Metasystematic stage, Paradigmatic stage, and Cross-Paradigmatic stage.
- Information-processing theories that highlight the significance of executive functioning, relating to attention, memory, visio-spatial abilities...etc., were suggested to be incorporated in Piagetian (and Vygotskian) studies [27].
- Robbie Case [28] refined the Piagetian theory to include stages of development within which specific domains such as storytelling, numerical concepts, motor development, social tasks...etc. are more developed in children.
- Fischer [29] re-constructed Piaget's theory, proposing three tiers of development that children move through different stages of development, on attaining the optimal age.
- Pascual-Leone [30], also tried to address the criticisms of Piaget's theory, and added a novel concept of M-capacity. Child's ability to learn is dependent on the growth of his mental attention.

## VYGOTSKY'S SOCIO-CULTURAL THEORY

Lev Vygotsky was a Russian teacher, who started studying learning and development to improve his teaching to the students. Culture, language, and social interaction are the main social processes through which children create their cognitive structures and thinking processes [31]. He defined development thus, "Transformation of socially-shared activities into internalized processes" [32].

Vygotsky rebuked Piaget's mechanical stages of development, and said that the child rather constructs his/her own knowledge, focusing on development through one's environment, both socially and culturally through the following concepts of learning -

### Zone of Proximal Development (ZPD)

The distance between the child's actual development (performance- E.g.: School achievement), and the potential/competence (the child's capacity to solve problems). The competence or the hidden potential of a child represents the upper limit to learning and development, whereas the child's performance on a given task represents the lower limit.

**ZPD has two main features:**

- i. **Scaffolding:** It refers to “changing the level of support.” The child’s maturity or rate of speed of cognitive development is determined much, during the initial ages of learning, through the assisted guidance of a skilled instructor/teacher or with the help of a more-skilled child, which in-turn allows him/her to reach nearer to the highest potential/upper limit of one’s ZPD. Example: A child may find it difficult to solve algebra in math, but with the help of his mother’s teaching, he later solves algebra at a faster pace.
- ii. **Reciprocal Teaching:** It represents an open-dialogue between the children and the teacher/instructor. Vygotsky contented that through dialogue, the learner is able to shape current knowledge (schemes) to accommodate new ideas and understanding. Scaffolds, through their needs-based support, amplify this movement of learning across the ZPD [33].

**Language and Thought: Social and Cultural Sources of Individual Thinking**

- iii. Vygotsky stated that every function in the child’s cultural development, happens twice (social and individual level) by developing three forms of linguistic speech during their cognitive periods of growth:
- iv. **Social level:** First, social speech develops between people. It is inter-psychological. Children start socialising much before Piaget thought. Till the age of three years, they try to regulate other’s behavior towards them, and so direct their attention and thoughts to form a co-constructed<sup>3</sup> process of development. Example: A child who lost a toy, is guided by his father who asks him where he last saw the toy, giving options. Both think through, assisting each other to remember where the toy is.

Guided participation and Collaborative learning were additionally, the practical ways children learn and develop holistically.

**Tools of Cognitive Development:**

There are two major tools of development that Vygotsky emphasised –

**Cultural Tools:** They resemble any tool that support communication and can be real or symbolic. Adults teach these tools to children on a routine basis, who later internalise them, thereby allowing the psychological tools to bring about individual consciousness. Apart from cultural tools, the new age Technological Tools such as printers, rulers, mobiles, computers...etc, also stimulate cognitive growth in children.

**Psychological Tools:** All higher-order mental processes such as problem-solving and reasoning, are mediated by psychological tools such as symbols, signs, and language, which act as mediators between objects of action and the mental functions. The kernel of cognitive development depended on mastering the use of psychological tools such as language, to accomplish advanced level of thinking and solving problems [34]. Children develop a cultural-tool kit gradually, to collaborate the psychological and the technological tools to aid their development. Richard Anderson and colleagues [35] looked at how fourth graders in small-group classroom discussions take and use argument stratagems that occur in the discussions. The results suggested that open-discussions of students asking and answering each other’s questions were better than teacher-dominated discussion for the development of these argument forms. Here, the child specifically learns summarization, question-formation, prediction, and clarification on any set topic/text/information. Studies have shown that this method of teaching fits suitably into the “ecological approach”, wherein the child, within the teaching setup, is encouraged to bring in familial, social and cultural experiences to the reciprocal conversations [36].

**Limitations and Criticisms of Vygotsky’s Theory:**

- Studies revealed that young children spend much of their lives in figuring out the world, before getting a chance to learn from adults/teachers and culture [14, 37].

- Vygotsky did not elaborate the notion of “general ideas” that children develop with. This impacted the practical application of his theories in classroom-settings. As a result, some of his concepts (Eg: ZPD), have been misrepresented at times [34].
- His theories were merely based on observations and lacked any experimental testing.
- Lateralization refers to the specialisation of the two sides/hemispheres of the brain. The left side enhances language, while the right side develops spatial and visual processing. Vygotsky placed extensive emphasis on language-development and underestimated the importance of sharpening a child’s attention and memory.
- Soviet psychologists critiqued Vygotsky’s proposition of the higher-and-lower order psychological processes, which held that the lower-order ones (direct perception, involuntary memory, and pre-verbal thinking) are ‘natural’, and that the higher-order ones (logical memory, creative imagination, verbal thinking, regulation of actions by will), are developed through social interactions within cultural-contexts through adults. Instead, they argued that the child is also actively interacting with objects and the environment, influenced by culture [38-39].
- Asnin [40] held that the process of Generalisation, is a result of the child/subject’s transfer of procedure adopted in solving one concrete activity, to applying similar methods to solve another new and different task. In his study, Asnin found that children who actively solved problems, were even able to solve the most difficult ones; while the passive children found it hard to imitate problem-solving methods and generalise it to more difficult ones. He concluded that neither instruction nor accumulated experience alone leads to generalisation, a view that is contrary to Vygotsky’s.
- Zinchenko and Vergiles [41], supported the above notion, by stating that lower-order processes are active in nature, and change in ontogenesis (Internalization to achieve higher- order thinking according to Vygotsky). Zaporozhets [42] reinforced this finding and claimed that lower-order functions are not passive, thus rebuking Vygotsky’s restriction of the influence of culture to social interaction with adults. Example: Visual perception in infants, culminated into perceptive acting (easily noticing/understanding events or concepts) in later childhood.
- Vygotsky restricted social interaction to speech. Some studies [43-45] concluded that mother-infant interactions in the pre-verbal phase of life are of fundamental importance for the development of verbal communication. Children do not communicate verbally and transcend different stages of interaction before Vygotskian stage of “internalisation” of learning, wherein infants are ACTIVE participants [46].

### Neo-Vygotskian Theories

Most of Vygotsky’s disciples (Leontiev, Zaporozhets, Zinchenko, Galperin and others) formed the ‘revisionist’ criticisms and/or extensions to Vygotsky’s socio-cultural theory.

- The official translator of Vygotsky’s work, Leontiev, like Zinchenko, was disappointed about the emphasis of human development on culture and human consciousness. They affirmed that apart from psychological tools such as signs, practical material actions must also act as mediators in development [47].
- Cole [48] expanded Vygotsky’s theory, on the role of culture on mental functioning by delving deeper into the role internal and external cultural/psychological and social artefacts or tools of development.
- Unlike Piaget, Vygotsky seldom focussed on children’s natural development and the relationship of that to their learning [49]. Wertch therefore extended Vygotsky’s concepts on mediations.
- Vygotsky’s socio-cultural theory was rooted in the Activity Theory of Russian psychologists. Most of the Neo-Vygotskians recalibrated this theory.
- Engeström [50] focussed on activity as an essential unit of analysis, increasing the range of activities, including socio-institutional structures and collective activities such as rules, community, and

division of labour. Eg: A teacher who wants to expertise her teaching (activity) is mediated by division of labour and social rules (community), within an institutional setting of a school, wherein teaching methods may act as effective mediating-artefacts to achieve collective goals.

- Aleksei Leont’ev [51], added new elements of division of labour and cooperation, shifting the focus from objects (goals/purposes) considered under individual dimension, to a collective one.

**Comparison and Evaluation of Piaget’s and Vygotsky’s Theories of Development**

The following table evaluates the theories of Piaget and Vygotsky at the cognitive, social, cultural, emotional, and sociological levels.

Domains	Piaget	Vygotsky
<b>Cognitive</b>	<p>Believed that cognitive conflict due to disequilibrium enhanced thinking, especially those interactions between peers that challenge each other’s views, along with an urge to change for the better.</p> <p>The stages are universally common to all children and represent general patterns of thought. The lower stages are self-constructed by children (no wiring cognitive development into the genetic code) and are integrated into the higher ones. All stages develop when concepts at each stage are internalised, signifying maturity of the child.</p> <p>No biological import or socio-historical linkage was explained.</p> <p>Intelligence is adopted behaviour or the ability to equilibrate assimilation and accommodation.</p> <p>Spontaneous concepts (Those developed by the child’s own mental efforts, are better assimilated by the child.</p> <p>Cognitive development ends with achievement of the formal-operational stage.</p>	<p>Children’s cognitive development is fostered by interactions with people who are more capable or advanced in their thinking—such as parents and teachers.</p> <p>General thinking, using general concepts at the beginning. Lower-order psychological functions such as sensation, attention, perception, and memory are biologically/genetically embedded in humans and animals alike and develop through Ontogenesis/internalisation. Calls 3-4 years, natural/primitive period. Only higher-order functions are acquired through tools, language, and social interaction.</p> <p>Biological development is followed by historical development, within which higher-psychological processes such as abstract thinking and speech develop.</p> <p>Intelligence develops through internalisation of concepts by mastering the usage of language/speech to social interact, along with the usage of tools, within a cultural context.</p> <p>Placed more emphasis on non-spontaneous (scientific) concepts and their interaction with the spontaneous ones.</p> <p>Cognitive development is a life-long process, within cultures.</p>



<p><b>Cultural</b></p>	<p>The underlying cognitive capacities of children in any culture, are the same.</p> <p>Did not emphasise on language as spurring cultural development.</p> <p>Imagination in childhood is diverting oneself from reality, inhibits logical thinking.</p> <p>Agreed that the child's social and cultural environment, structured and defined the child's action and environment.</p>	<p>Development of cognitive-abilities are culture-specific.</p> <p>Language is one of the most powerful cultural tools. Cultural experience is an active one.</p> <p>Every function in child's cultural development happens twice (at the individual and the social level).</p> <p>Only the ammunition of cultural tools, allows the transformation from lower-natural functions to higher-cultural/psychological functions.</p> <p>Imagination reflects real cultural knowledge, strengthening the behavioural, intellectual, social, and cultural development of the child.</p> <p>Individual emotions in late-childhood, take on cultural meanings, but must maintain their ZPD to enrich emotional development.</p>
<p><b>Emotional/Affective</b></p>	<p>Affectivity is both intrapersonal (need, interest, and effort...etc), and interpersonal (attractions... etc).</p> <p>Every scheme has both cognitive (intelligence) and affective elements and they are dissociable.</p> <p>Emotional and cognitive development happens simultaneously.</p> <p>For Piaget, objects are also cognitive and affective simultaneously.</p> <p>The emotional state of interest spearheads constructing knowledge and intelligence, as without it, the child would never make sense out of experience.</p> <p>The values attributed to others become the base for feelings-sympathies or antipathies and moral feelings.</p> <p>Feelings are conserved in schemes of reaction, which in totality, at a later</p>	<p>Emotions affect the development at both individual and social levels and accelerate creativity.</p> <p>Emotional life of drives and attitudes stimulates imagination, as much as cognition/intelligence does.</p> <p>Emotions and consciousness (internal) cannot be disconnected from its physical conditions (like facial movements, vasomotor changes, secretory and respiratory disturbances...etc).</p> <p>For infants/children, imaginary play is used to assimilate a number of emotions, wherein children realise desires in life that they cannot gratify, thus extending Piaget's concept of circular reactions.</p> <p>"The same words, but spoken with feeling, affect us differently than flatly pronounced".</p> <p>Emotions also inform "the body of the near future", wherein the child's emotion-identification, assists internal schema to regulate those emotional levels (eg: fear).</p> <p>Emotions are either <b>positive</b>, <b>negative</b>, or <b>neutral</b>, based on the three outcomes</p>

	<p>point of development, constitute an individual's character.</p> <p>Permanent feelings are regulated/conserved by one's "Will."</p>	<p>of behaviour, as process of interaction between organism and the environment.</p>
<b>Sociological</b>	<p>Piaget's theory has sociological roots that conform to the Theory of Symbolic Interaction.</p> <p>Piaget's and Karl Marx's theories merge in concrete sociological concepts of viewing the individual/society in terms of social-relations with the environment (here, including materialistic relations with objects).</p> <p>The theory, like in sociology, views humans as social beings.</p> <p>Like Marx's sociological theory of conflict arising in social relations that steers instability in society; Piaget acts cognitive conflict to be the cause for instable ego/mind.</p> <p>Social relations form the personality.</p> <p>Scanty focus on speech and socio-historical linkage to development by Piaget.</p>	<p>Vygotsky's theory also conforms to theory of symbolic interaction.</p> <p>Like Marx's sociology, views individuals in-terms of their social relations with others, with little emphasis on child-object relations (materialistic relationships).</p> <p>Termed the higher-order thinking processes as phylogenetic, drawing an analogy between the tools of labour (Marxist-sociological import), and the use of a sign in thinking and remembering.</p> <p>Does not talk of cognitive conflict.</p> <p>Emanates Marx's sociological thesis that one's psychological nature is an ensemble of internalised social relations, forming the personality.</p> <p>Marxist-sociology, like Vygotsky, regards speech and labor (activity) to be the two main factors, constituting the historical processes that distinguish human behaviour from that of animals.</p>
<b>Social</b>	<p>Two types of adult-child social interactions:</p> <ol style="list-style-type: none"> <li>i. <b>Heterogeneous:</b> The adult has coercive power and authority; children obey the adults without thinking/on impulse. Degrades development.</li> <li>ii. <b>Autonomous:</b> Adults and children driven by mutual respect and co-operation. Children think independently and creatively, stimulating development.</li> </ol> <p>Ego-centrism/private speech inhibits development. Social speech is interacting in the interest of others, not just self.</p>	<p>Social-interactions with adults and more-advanced peers steer cognitive development of children, only focussed on 'autonomous' child-adult relationships.</p> <p>Egocentric/private Speech is a sign of maturity and development.</p> <p>Social Speech starts from birth till three years, wherein children try to control other's behaviour toward them (is immature, matured speech-inner speech).</p> <p>Use of symbols in communication need not be understood by child or representations of something. The understanding of the semiotic function(symbolic) is scaffolded by language.</p>

	<p>Symbols are representations of children’s surroundings.</p> <p>Reciprocity in peer-peer relations can lead to decentring and perspective-taking.</p> <p>Children are more easily able to think and act ‘autonomously’ with other children than with most adults.</p> <p>social interactions through peers or adults, provide raw material for child's personality, and consciousness is a social-product of social interaction.</p> <p>Operations (logical thinking) and co-operation (social abilities) go hand-in-hand for child-development.</p> <p>Liberation of thought and will of others (from heteronomy), is a pre-requisite to Ego development, lack of which leads to inability to cooperate.</p>	<p>Assisted learning through scaffolding brings the child nearer to upper limit of ZPD, signifying requirement of friendly teacher-student and peer-peer bonds.</p> <p>Infants do not have the cultural tool kit to understand and interact and depend on already enculturated adults for socio-cognitive development in their early years.</p> <p>Imagination and realistic thinking is both social and verbal.</p>
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**OBSERVATION**

The cognitive development theories of Piaget and Vygotsky implicate some cognitive and tangible practices, incorporated by teachers, psychologists, psychiatrists, and parents alike. Some of the Piagetian and Vygotskian practical implications for teachers in classroom settings, is to encourage peer-friendship (and foster adult-child relationships by mentoring children on academic and non-academic matters) and mediate conflict-resolution amongst children. Cooperative, and collaborative learning by students and teachers, stimulate operational and co-operational development in children. Teachers and parents who allow their children to draw their own boundaries and set their own rules, reinforce obligation/responsibility-taking, and stir disequilibrium-motivated change in children, to learn better through heuristic experiences. There still lies ample scope for research in the psychiatric and psychological fields of life-span development. Psychiatrists can dig deeper on tangible ways of improving a child’s left and right frontal lobe activities that speed up their language and creativity, and logical thinking respectively to gain better resilience and to prevent psychopathologies at a later stage of development. Psychologists can also devise new ways of learning through the Piagetian and Vygotskian ways of thinking, such as combining Vygotsky’s “culture-specific learning” to Piaget’s “decentring”, thereby encouraging students to learn environmental concepts and life-skills by building and broadening their repertoires of learning perspectives from different cultures and environments.

**CONCLUSION**

This Paper offers a critical evaluation of the much-revered Jean Piaget’s and Lev Vygotsky’s theories of development. Both have converged in the internal development of concepts. However, they diverged in their main goals of development: Piaget claimed that the child, upon reaching the stage of formal, logical operations, attains the last stage of mental development. Vygotsky on the other hand, sees development of the mind as a life-long process that depends on our capacity to arm and re-arm the human cultural/psychological and historical tools as we grow, as an aid to our holistic development. While Piaget

focused on how children come to understand the world, Vygotsky, in addition developed practical concepts of teaching such as collaborative learning, scaffolding... etc that guides in child development. Moreover, Neo-Piagetians and Neo-Vygotskians have addressed the critiques in both the theories and filled the gaps in their respective developmental concepts, which in today's world bring to us, the best of both worlds!

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