

CONSTRUCTIVISM & STUDENT CENTERED LEARNING

4. LEV ZYGOTSKY & THE ZONE OF PROXIMAL DEVELOPMENT

4.1 Introduction

The work of Lev Vygotsky has become the foundation of much research and theory in cognitive development over the past several decades, particularly of what has become known as the Social Development Theory. Vygotsky's theory stress the fundamental role of social interaction in the development of cognition as he believed strongly that community plays a central role in the process of making meaning. Unlike Piaget's notion that children's' development must necessarily precede their learning, Vygotsky argued, learning is a necessary and universal aspect of the process of developing culturally organized, specifically human psychological function. In other words, social learning tends to precede (i.e., come before) development. Vygotsky has developed a sociocultural approach to cognitive development. He developed his theories at around the same time as Jean Piaget was starting to develop his theories, throughout the 1920s and 1930s, but he died at the age of 38 so his theories are incomplete, but some of his writings are still being translated from Russian. According to Zygotsky, individual development cannot be understood without reference to the social and cultural context within which it is embedded. Additionally, higher mental processes in the individual have their origin in social processes.

Vygotsky's theory differs from that of Piaget in a number of important ways. Vygotsky places more emphasis on culture affecting/shaping cognitive development, whereas this contradicts Piaget's view of universal stages and content of development. Vygotsky does not refer to stages in the way that Piaget does. Hence, Vygotsky assumes cognitive development varies across cultures, whereas Piaget states cognitive development is mostly universal across cultures. Secondly, Vygotsky places considerably more emphasis on social factors contributing to cognitive development, Piaget is criticized for underestimating this. Vygotsky states cognitive development stems from social interactions and guided learning within the zone of proximal development as children and their partners co-construct knowledge. In contrast, Piaget maintains that cognitive development stems largely from independent explorations in which children construct knowledge of their own. For Vygotsky, the environment in which children grow

up will influence how they think and what they think about. Next, Vygotsky places more (and different) emphasis on the role of language in cognitive development and again Piaget is criticized for lack of emphasis on this. For Vygotsky, cognitive development results from an internalization of language. Lastly, according to Piaget, language depends on thought for its development (i.e. thought comes before language). For Vygotsky, thought and language are initially separate systems from the beginning of life, merging at around three years of age, producing verbal thought also called inner speech. Like Piaget, Vygotsky claimed that infants are born with the basic materials/abilities for intellectual development, and Piaget focuses on motor reflexes and sensory abilities. Lev Vygotsky refers to Elementary Mental Functions as following;

- Attention
- Sensation
- Perception
- Memory

Eventually, through interaction within the sociocultural environment, these are developed into more sophisticated and effective mental processes/strategies which he refers to as Higher Mental Functions. For example, memory in young children is limited by biological factors. However, culture determines the type of memory strategy we develop. As an example, in our culture we learn note taking to aid memory, but in preliterate societies other strategies must be developed, such as tying knots in string to remember, or carrying pebbles, or repetition of the names of ancestors until large numbers can be repeated. Vygotsky refers to tools of intellectual adaptation as these allow children to use the basic mental functions more effectively/adaptively, and these are culturally determined (e.g., memory mnemonics, mind maps). Vygotsky therefore sees cognitive functions, even those carried out alone, as affected by the beliefs, values and tools of intellectual adaptation of the culture in which a person develops and therefore socio-culturally determined. The tools of intellectual adaptation therefore vary from culture to culture as in the memory example.

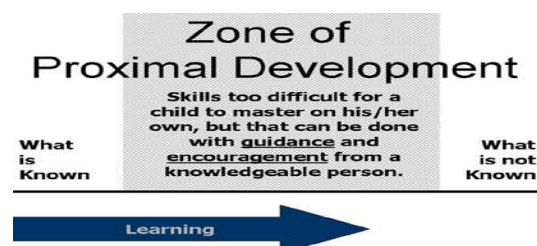
4.2. Social Influences on Cognitive Development

Like Piaget, Vygotsky believes that young children are curious and actively involved in their own learning and the discovery and development of new understandings/schema. However, Vygotsky placed more emphasis on social contributions to the process of development, whereas Piaget emphasized self-

initiated discovery. According to Vygotsky, important learning by the child occurs through social interaction with a skillful tutor. The tutor may model behaviors and/or provide verbal instructions for the child. Vygotsky refers to this as cooperative or collaborative dialogue. The child seeks to understand the actions or instructions provided by the tutor, often the parent or teacher, then internalizes them. Consider the example of a young girl who is given her first jigsaw. Alone, she performs poorly in attempting to solve the puzzle. The father then sits with her and describes or demonstrates some basic strategies, such as finding all the corner/edge pieces and provides a couple of pieces for the child to put together herself and offers encouragement when she does so. As the child becomes more competent, the father allows the child to work more independently. According to Vygotsky, this type of social interaction involving cooperative or collaborative dialogue promotes cognitive development.

In order to gain an understanding of Vygotsky's theories on cognitive development, one must understand two of the main principles of Vygotsky's work: the More Knowledgeable Other (MKO) and the Zone of Proximal Development (ZPD). The More Knowledgeable Other (MKO) is somewhat self-explanatory. It refers to someone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept. Although the implication is that the MKO is a teacher or an older adult, this is not necessarily the case. Many times, a child's peers or an adult's children may be the individuals with more knowledge or experience. For example, who is more likely to know more about the newest teenage music groups, how to win at the most recent PlayStation game, or how to correctly perform the newest dance craze, a child or their parents? In fact, the MKO need not be a person at all. Some companies, to support employees in their learning process, are now using electronic performance support systems. Electronic tutors have also been used in educational settings to facilitate and guide students through the learning process. The key to MKOs is that they must have, or be programmed with, more knowledge about the topic being learned than the learner does.

4.3. The Zone of Proximal Development



The concept of the More Knowledgeable Other is integrally related to the second important principle of Vygotsky's work, the Zone of Proximal Development. This is an important concept that relates to the difference between what a child can achieve independently and what a child can achieve with guidance and encouragement from a skilled partner. For example, the child could not solve the jigsaw puzzle, in the prior example, by itself and would have taken a long time to do so (if at all), but was able to solve it following interaction with the father, and has developed competence at this skill that will be applied to future jigsaws.

Vygotsky sees the Zone of Proximal Development as the area where the most sensitive instruction or guidance should be given, allowing the child to develop skills they will then use on their own, developing higher mental functions.

Vygotsky also views interaction with peers as an effective way of developing skills and strategies. He suggests that teachers use cooperative learning exercises where less competent children develop with help from more skillful peers, all within the Zone of Proximal Development.

A 1990s research conducted a study in which children had to decide which items of furniture should be placed in particular rooms of a doll's house. Some children were allowed to play with their mother in a similar situation before they attempted it alone (Zone of Proximal Development) while others were allowed to work on this by themselves (Piaget's discovery learning). It found that those who had previously worked with their mother (ZPD) showed greatest improvement compared with their first attempt at the task. The conclusion being that guided learning within the ZPD led to greater understanding/performance than working alone, discovery learning.

4.4. Vygotsky and Language

Vygotsky believed that language develops from social interactions, for communication purposes. Vygotsky viewed language as man's greatest tool, a means for communicating with the outside world. According to Vygotsky, language plays 2 critical roles in cognitive development:

- 1. It is the main means by which adults transmit info to children.**
- 2. Language itself becomes a very powerful tool of intellectual adaptation.**

Vygotsky differentiates between three forms of language: social speech which is external communication used to talk to others (typical from the age of two); private speech (typical from the age of three) which is directed to the self and serves an

intellectual function; and finally private speech goes underground, diminishing in audibility as it takes on a self-regulating function and is transformed into silent inner speech, which is typical from the age of seven. For Vygotsky, thought and language are initially separate systems from the beginning of life, merging at around three years of age. At this point speech and thought become interdependent, thought becomes verbal, speech becomes representational. When this happens, children's monologues internalized to become inner speech. The internalization of language is important as it drives cognitive development. Vygotsky was the first psychologist to document the importance of private speech. He considered private speech as the transition point between social and inner speech, the moment in development where language and thought unite to constitute verbal thinking. Thus private speech, in Vygotsky's view, was the earliest manifestation of inner speech. Indeed, private speech is more similar, in its form and function to inner speech than social speech. Private speech is typically defined, in contrast to social speech, as speech addressed to the self, not to others, for the purpose of self-regulation rather than communication. Unlike inner speech which is covert (i.e. hidden), private speech is overt.

In contrast to Piaget's notion of private speech representing a developmental dead-end, Vygotsky viewed private speech as a revolution in development which is triggered when preverbal thought and pre-intellectual language come together to create fundamentally new forms of mental functioning. In addition to disagreeing on the functional significance of private speech, Vygotsky and Piaget also offered opposing views on the developmental course of private speech and the environmental circumstances in which it occurs most often. Through private speech, children begin to collaborate with themselves in the same way a More Knowledgeable Other (e.g., adults) collaborate with them in the achievement of a given function. Vygotsky sees private speech as a means for children to plan activities and strategies and therefore aid their development. Private speech is the use of language for self-regulation of behavior. Language is therefore an accelerator to thinking/understanding. Vygotsky believed that children who engaged in large amounts of private speech are more socially competent than children who do not use it extensively.

Furthermore, he notes that private speech does not merely accompany a child's activity but acts as a tool used by the developing child to facilitate cognitive processes, such as overcoming task obstacles, enhancing imagination, thinking, and conscious awareness. Children use private speech most often during intermediate difficulty tasks, because they are attempting to self-regulate by verbally planning and organizing their thoughts. The frequency and content of

private speech are then correlated with behavior or performance. For example, private speech appears to be functionally related to cognitive performance. It appears at times of difficulty with a task. For example, tasks related to executive function, problem solving tasks, schoolwork in both language and mathematics. Vygotsky proposed that private speech is a product of an individual's social environment. This hypothesis is supported by the fact that there exist high positive correlations between rates of social interaction and private speech in children. Children raised in cognitively and linguistically stimulating environments, situations more frequently observed in higher socioeconomic status families, start using and internalizing private speech faster than children from less privileged backgrounds. Indeed, children raised in environments characterized by low verbal and social exchanges exhibit delays in private speech development. Children's use of private speech diminishes as they grow older. This is due to changes in ontogenetic development whereby children are able to internalize language (through inner speech) in order to self-regulate their behavior. For example, research has shown that children's private speech use peaks at 3–4 years of age, decreases at 6–7 years of age, and gradually fades out to be mostly internalized by age 10. With age and task mastery, private speech goes underground, diminishing in audibility as it takes on a self-regulating function and is transformed into silent inner speech or verbal thought. Vygotsky proposed that private speech diminishes and disappears with age not because it becomes socialized, as Piaget suggested, but rather because it goes underground to constitute inner speech or verbal thought.

4.5. Classroom Practice

A contemporary educational application of Vygotsky's theories is called reciprocal teaching, used to improve students' ability to learn from text. In this method, teacher and students collaborate in learning and practicing four key skills: summarizing, questioning, clarifying, and predicting. The teacher's role in the process is reduced over time. Also, Vygotsky is relevant to instructional concepts such as scaffolding and apprenticeship, in which a teacher or more advanced peer helps to structure or arrange a task so that a novice can work on it successfully. Vygotsky's theories also feed into current interest in collaborative learning, suggesting that group members should have different levels of ability so more advanced peers can help less advanced members operate within their ZPD. Vygotsky's work has not received same level of intense succinctly that Piaget's has, partly due to the time consuming process of translating Vygotsky's work from Russian. Also, Vygotsky's sociocultural perspective does not provide as many specific hypotheses to test as did Piaget's theory, making refutation difficult, if not

impossible. Perhaps the main criticism of Vygotsky work concerns the assumption that it is relevant to all cultures. Theorist Barbara Rogoff has dismissed the idea that Vygotsky's ideas are culturally universal and instead states the concept of scaffolding, which is heavily dependent on verbal instruction, may not be equally useful in all cultures or for all types of learning. Indeed, in some instances observation and practice may be more effective ways of learning certain skills.