A Behavioral Interpretation of Vygotsky's Theory of Thought, Language, and Culture

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Since the translation and publication of Vygotsky's work into the English language in 1962 his work has been widely cited and studied by western-European and American developmental psychologists and educators. This paper provides a description of Vygotsky's theory of culture and language and highlights the similarities of his views (e.g. scaffolding, assisted learning, private speech) and behavioral principles (e.g. shaping, cueing, chaining, and verbal behavior). While many philosophical differences exist between Vygotsky's theories and contemporary behavior analysis, identifying the similarities between these two positions may allow for a greater understanding of human development and for an increase in collaborative research between developmental psychologists and behavior analysts.

Vygotsky's views of development have become increasingly popular since the recent translation and republication of his work into English in 1962. There are similarities between Vygotsky's theories, of language and culture, and modern behavioral theory. Identifying these similarities may provide behaviorists with an opportunity to bridge with mainstream developmental psychology's interests and research.

Vygotsky's theory of thought and language is culturally and environmentally based. He offers a theoretical framework applicable to child development, schools, and applied learning. One of the primary assumptions of Vygotsky's psychology is that understanding the social relations of an individual is central to understanding the developmental path of that individual (Wertsch, 1985). "The social dimension of consciousness is primary in time and in fact. The individual dimension of consciousness is derivative and secondary" (Vygotsky, 1979 p.30). Vygotsky's argument is against reductionistic psychology such as methodological behaviorism on the basis that the S-R approach neglects the study of context and culture in which the individual develops. He stresses that the culture changes the private and public behavior of the individual (Wertsch, 1985). That is, human interactions can only be understood by looking at the culture in which the interactions are embedded.

Vygotsky's philosophy includes an interpersonal psychology that involves *learning* from other members of society while engaging in social interactions. Anything that is expressed in a child can first be detected in his/her environment: "Any function in the child's cultural development appears twice, or on two planes. First, it appears on the social plane, and then on the psychological plane." (Vygotsky, 1983, p. 163). There is a strong relationship between the social and psychological planes, in that the social plane can always influence the intrapsychological plane (Wertsch, 1985). In this way, Vygotsky emphasizes the role of shaping in the learning process especially as it relates to his description of the *zone of proximal development*.

Zone of Proximal Development and Scaffolding

The zone of proximal development is equivalent to the range of behaviors an organism can produce with the prompting or cues of a more "competent member of the culture, such as another adult or another child" (Novak, 1996, p.127). By this process (exposure to prompting and cues) the independent behavioral repertoire would be increased by *scaffolding*. Scaffolding is very similar to the behavioral process of shaping. By successively changing the criterion for reinforcement the behavior being shaped more closely resembles the targeted terminal behavior. Both scaffolding and shaping are examples of technologies derived from environmental determinism. That is, consequences of social interactions (behavior) act as determinants of behavior.

The view that the environment influences and changes behavior in different ways based on the historical and present context has also been incorporated into behavioral theory by several developmental behavior analysts (Morris, 1988; Hayes, Hayes, & Reese, 1988; Peláez-Nogueras & Gewirtz, 1997). That the individual's history with the environment, the current state of the organism, and other environmental influences combined to alter the probability, rate, form, and production of behavior is an overriding theme in Kantor's (1975) conceptualization of the event field in Interbehaviorism. The idea that a reciprocal interaction occurs between inter and intra personal psychology, that is, public and private behavior, has been emphasized by behavior analysis in the study of verbal behavior. The notion that intrapersonal experiences affect the interpersonal interactions is embedded in the behavioral notion of rule-governed behavior. While Vygotsky analyzed many types of phenomena, here we will examine only two aspects of his theory, language and thinking, pointing out similarities with behavioral models.

Thought, Language, and Culture

In Vygotsky's philosophy, language plays a central role in the theory of human cognitive development. Language plays multiple roles including culturally shaping the overt behavior

of individuals as well as influencing their covert behavior, such as thinking. Language has been defined as a psychological tool that shapes other mental functions while at the same time being socially-shaped itself (Kozulin, 1986). Vygotsky believed that language and thought initially have different roots but converge during the course of development and are influenced bi-directionally thereafter (Kozulin, 1986).

To understand Vygotsky's theory of individual consciousness, first we need to conceptualize thought as socially based (Vygotsky, 1979). In his view, higher mental functions are products of psychological tools such as verbal language, sign language, and logic. The use of socially-mediated language allows for interpersonal communication. Pre-intellectual language (e.g. screaming or cooing) and pre-intellectual thought (e.g. wants and needs) may develop concurrently but separately in children. Thought and speech begin as separate functions, with no necessary connection between them, but around age two language and thought come under bi-directional influence, when a child learns to functionally use social tools (such as verbal behavior). Until the child is able to learn or relate his/her actions to the social-environmental contingencies language cannot be acquired. Around this age, a relationship between language and cognition begin to develop. The relationship is more than the formal relation between the sign (or word) and its meaning. Language and other socially learned relations alter thought by setting up formal logical rules (derived relational systems) and methods of problem solving that are entirely verbal in nature (Vygotsky, 1986).

Vygotsky (1986) proposes that the first general concept acquired by verbal children is the understanding that every object should have a name. After the child is able to ***name*** objects, he/she can then express thoughts in the form of needs and wants. Once the child is able to name, and express wants, language and thought begin a reciprocal interaction that shape the form of thought and language through environmental experience and inner speech. The social shaping of appropriate vocal noises is dealt with in behavioral theory by differential reinforcement. The parents or caregivers give more attention to a child when they make noises that more closely approximate words. After the child has been able to properly produce the sounds of a word they get social attention that increases the future likelihood of similar responses (Skinner, 1953). After mastering the sounds needed to name an object the child can then use the name of the object first as an echoic (repeating the name after a verbal prompt), then as a tact (naming an object in the presence of the object) and as a mand (a demand or request for nonverbal action on the part of the listener). The child in this manner learns to name the object in the presence of a verbal prompt, learns to name the object in the presence of the object, and learns that by requesting an object in its absence he/she can acquire the object from the listener (Peláez, 1986). By repeated exposure the person can come under the functional control of the object (Skinner, 1957).

Inner speech. Vygotsky (1986) states that inner speech (private verbal behavior) is acquired in the same manner that all other mental operations are learned (including vocal speech). In language acquisition, the child starts forming words and is able to use the correct forms of grammar and structure before he/she has learned the formal rules of grammar. As the child becomes more experienced he/she begins to use external prompts, cues, and verbal behavior in the form of instructions to aid in problem solving. This is the beginning of egocentric speech. *Egocentric speech* is a form of self-talking with the function of inner speech, but an external form (a form of speech that has the function of altering the speakers own behavior). Examples of egocentric speech are reading to one-self quietly, verbally sounding out words, and counting on ones fingers. As egocentric speech develops the child is able to begin "internalizing" the outward form of language or using soundless speech, to count in his/her head and use logical memory (operate with given relations and derived relations in private verbal behavior). After the person comes under the functional control of language, language begins to have a large reciprocal effect with thought.

Thought and language are seen by Vygotsky (1986) as two interacting spheres. In his view, speech is involved in most thought, and thought is involved in most speech. However, development of thought and speech are not parallel. For example, there are aspects of thought such as emotions (e.g., anger, joy, disgust) that can be verbally discussed, but are not verbal in nature. That is, we can describe our own emotions but the experience of emotions is not necessary verbal. Conversely there are parts of speech in Vygotsky's conceptualization that do not require thought, such as reciting a well-known poem or prayer. While these spheres are mostly overlapping, the processes of thought and speech are not the same, even though both are influenced "indirectly by the process of verbal thought" or inner speech (Vygotsky, 1986).

An example of this interaction would be a person who smells a particular kind of flower and then remembers (through a history of conditioning) a long lost lover who used to ornament his/her house with this kind of flower. As the person uses inner speech in creating imaginary dialog of this memory he/she may experience sadness realizing that they should not have ended the relationship with this person (emotional response). In this case inner speech may affect and increase emotions indirectly. Reciprocally thoughtless speech (such as a recital of an extremely well known poem) can be influenced by inner speech by word *substitution* (e.g., saying the ex-lovers name in place of a similar sounding word in the poem).

In short, the bifurcation of function and structure of inner speech begins at the same time as the emergence of egocentric speech. For Vygotsky thought development is contingent on language, and language is socially determined. In this way a child's environment, and culture, play a pivotal role in language and thought development.

Skinner and Vygotsky

Similarities exist between Vygotsky's inner speech and Skinner's private verbal behavior. Both Skinner (1957) and Vygotsky (1986) state that thinking is a process learned from the verbal community, and learning to think is no different than language acquisition or other socially-learned behavior. Skinner goes so far as to say verbal behavior has no special properties and obeys no special laws when compared to other types of behavior (p.438). Vygotsky's egocentric speech is considered language (or verbal behavior), but the function of egocentric overt behavior (develops simultaneously with inner

speech) is different from the function of vocal verbal behavior (e.g. directed speech). The function of egocentric speech is to modify the behavior of the speaker (Vygotsky, 1986). This notion of a changed function, with the internalization of speech, is consistent with Skinner's statement that any speaker can be there own listener, and that individuals engage in self-editing. The similarity of the two positions in the acquisition of language and thought, or public and private verbal behavior, is central to the both theories because they philosophically share an externally based causation (that is, environmental determinism).

A Skinnerian interpreting the above example may conclude that a person who smells a particular kind of flower and remembers a long lost lover who used to ornament his/her house with this kind of flower because the response is under stimulus control of the smell of the flower). If the person uses inner speech in creating imaginary dialog of this memory (hearing in the absence of the thing heard) he/she may experience sadness or a similar emotion realizing that the person is not present any longer (emotional response influenced by absence of a source of reinforcement). In this case, the speaker acting as his/her own listener, may produce a verbal stimuli which evokes an emotional reaction on the part of the listener (in the same skin). Reciprocally verbal behavior (such as saying the ex-lovers name accidentally in place of a similar sounding word in the poem) can be influenced by multiple sources of control and response strength.

Both Skinner and Vygotsky omit some mental processes from their interpretations of thinking and inner-speech, or private verbal behavior (Vygotsky, 1986; Skinner, 1976) such as emotions. Emotions are considered by Skinner to be a reaction (or collateral byproduct) to environmental stimuli. Skinner (1957, p.155) states: "The emotional reaction is usually a by-product of some other verbal function" and Vygotsky (p.78, 88) argues that emotions are part of our thinking, which is indirectly influenced by inner speech, but not verbal in nature. Consequently, both Skinner (p.215) and Vygotsky (p.88) state that emotions can influence verbal behavior just as they can be influenced by verbal behavior but they are not verbal in nature.

CONCLUSION

While differences between behavior analytic theory and Vygotsky's developmental theory do exist, similarities were highlighted. These similarities offer exciting possibilities for collaborative research and expansion of the behavioral methodology and theory in developmental psychology. Vygotsky's emphasis on context, setting, and his use of culture make his theoretical approach to child psychology particularly interesting, and a good fit within the overall framework of behavioral psychology. Moreover, Vygotsky's focus on the social origins of higher mental functioning seems theoretically consistent with aspects of the behavioral theory of verbal behavior.

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