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## VYGOTSKY'S DEVELOPMENTAL PSYCHOLOGY

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*Summary.*—Contemporary child psychologists make increasing use of ideas formulated by the Soviet psychologist Lev S. Vygotsky. Only part of his work, however, has been translated into English. This makes our impression of Vygotsky's developmental psychology incomplete. The present paper seeks to provide additional relevant information, as yet unknown in Anglosaxon countries. The purpose is to complete our knowledge of Vygotskian ideas and to show that part of his theory is still relevant to present research in developmental psychology.

The writings of the Soviet psychologist Lev Vygotsky (1896-1934) continue to be a rich source of inspiration. The number of Western researchers in the field of developmental psychology referring to his seminal ideas is still increasing. Theorists of cognitive and language development have made ample use of Vygotskian concepts.

Lock (1980), for example, criticized nativist and empiricist theories of language development, because they share a 'prisoner in the cell' view. He defended instead the Vygotskian view that children in learning language rely to a great extent upon the abilities already developed by others, abilities which are transmitted to them through the process of social interaction. Social interaction is also a fundamental category for Bruner (1984), who is sceptical towards a Piagetian theory in which development is seen as a 'lone venture' for the child and opts for a Vygotskian view. His description of the language acquisition support system too is clearly compatible with a Vygotskian emphasis on the importance of social interaction and the zone of proximal development (Bruner, 1983).

Other researchers (Pea, 1980; Wertsch, 1978, 1979) tried to strengthen this point of view by providing detailed analyses of the negotiations of meaning which take place during adult-child interactions. Wertsch (1980), in particular, unearthed some of the semiotic mechanisms which probably take place during joint problem-solving.

Still other researchers (Kaye & Charney, 1980) analyzed preverbal communication patterns using Vygotskian ideas regarding the meaning of gestures. Kozulin (1984) described this part of Vygotsky's theory and Van der Veer (1985) explained some parallels with G. H. Mead's theory of gestures.

There seems then to be a common understanding (at least for a group of developmental psychologists) that Vygotsky's legacy can be used in a fruit-

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ful way to throw light on problems of (meta-)cognition and language development. Most researchers interested in Vygotsky's theory refer to Vygotsky (1962, 1978) or to Wertsch's (1981) anthology. These books cannot, of course, provide a complete picture of Vygotsky's developmental psychology. Vygotsky was a prolific writer and only a small part of his work has been translated into English. Our picture of Vygotsky's developmental and general psychology is, therefore, necessarily incomplete.

This paper attempts to present some unknown materials relevant to child psychology on the basis of both old and recent Soviet publications. The purpose is twofold: (1) To complete our picture of Vygotsky's developmental psychology our point of view has to be that of a historian of science. (2) To show that part of his work is still relevant to present research we have to judge Vygotskian notions making use of present knowledge and present standards of scientific rigour.

#### *The Nature of Child Development*

Vygotsky has written many articles and books on the development of the child. Known are the books "Pedology of the school age" (1928), "Pedology of adolescence" (1929), "Pedology of the teen-ager" (1930/31), "Thought and language" (1934), and "Foundations of pedology" (1935). Only part of this work has been republished in a recent six-volume edition of Vygotsky's writings (Vygotsky, 1984). In this paper I will concentrate on Vygotsky's theory of mental stages and on his description of the first years of life. My sources are chiefly Vygotsky (1935) and Vygotsky (1984).

It is important to note first that Vygotsky considered child development as a (dialectical) process of crises and revolutions. Periods of stable growth are followed by sudden transformations, periods of standstill and even regression. Child development, then, can be described as a series of qualitatively different stages. Vygotsky frequently used the word "drama" to characterize the nongradual character of child development. At points of 'revolutionary' development new factors of development enter the picture requiring new explanatory principles. One cannot, therefore, explain child development using a single set of explanatory principles (Vygotsky, 1984, p. 246). On these grounds Vygotsky criticized theories (e.g., orthodox behaviorism) positing a single explanatory principle (e.g., stimulus-response bonds). Vygotsky's idea becomes also clear from his description of the development of higher psychological processes. These functions go first through a 'biological' phase and then through a 'cultural' phase according to Vygotsky. The latter phase cannot be fully explained by referring to biological principles (Van der Veer & Van IJzendoorn, 1985).

Before I describe Vygotsky's theory of mental stages some of his con-

siderations regarding the nature of child development must be presented. In Vygotsky (1984) the following considerations can be found. First, Vygotsky pays attention to the contribution of the environment in human ontogeny. In his opinion the environment is often considered to be an absolute and immutable factor. This is wrong for two reasons. To regard the environment as an absolute factor is erroneous, Vygotsky writes, because the influence of certain environmental factors will depend on age and personality of the child. Different children experience the same environment differently. To regard the environment is an immutable factor is making another mistake, because it is a *social* environment. It may be true that for the animal the environment is relatively stable, so that the animal will have to adjust to be able to survive. But for the human child the situation is totally different: "For, the essential difference between the child's environment and the animal's environment is that the human environment is a social environment, that the child is part of a living environment, that the environment is never external to the child" (Vygotsky, 1984, p. 381). This social environment changes as the child changes. The crawling child lives literally in another environment than the child who is able to walk about. The same can be said about the preverbal and the verbal child. For Vygotsky then it is meaningless to regard manifest behavior as the simple sum of genetic endowment plus environmental factors.

Elsewhere Vygotsky (1935) pointed out that the development of the child has its own dynamics and that each period is to a large extent determined by earlier periods. In this book he also put forward another essential difference between a child's development and other types of development, like biological evolution. The important thing to note is that the final result of evolutionary development was in no way determined beforehand. The primal forms developed into their present form in a 'blind' way. Child development is obviously different. Here the 'primal form' (the child) and a model of the final result (the adult) exist together and the latter actively tries to mould the former (Vygotsky, 1935, pp. 71-72). If such a model were not present, specifically human processes, like speech, would not develop. A child growing up in an environment of deaf-mute adults obviously will not develop any speech abilities beyond primitive babbling. The model representing the final result of development is lacking. The development of the child, Vygotsky writes, is the result of a unique cooperation of infants and adults.

This is, of course, a slightly exotic and general way of formulating the concept of the zone of proximal development (Wertsch, 1984). Cooperation or social interaction is the source of all specifically human processes (Vygotsky, 1984, p. 265). I think it is clear that these considerations concerning the nature of child development were, on the one hand, directed against reflexological and behavioristic concepts of child development as a process of

gradual growth. They were, probably too, on the other hand, genuine attempts to use Marxist concepts in child psychology. The emphasis on human-animal differences and the treatment of development as a nongradual process form part of dialectical-materialist thought. Even the emphasis on the adult who actively tries to mould the development of his child should be seen against the background of social optimism in the Soviet Union in the 1920's and 1930's. Creating the right facilities would lead to the development of 'the new man' (Bauer, 1952; Kozulin, 1984).

#### *Developmental Stages*

When Vygotsky died in 1934, he had a book on the development of the child in preparation. Chapters of this book were found in his private archive. In the book he put forward a theory of mental stages (Vygotsky, 1984).

Period	Age
Infancy	0.2—1
Early childhood	1—3
Preschool age	3—7
School-age	7—13
Adolescence	13—17

FIG. 1. Developmental periods in childhood (after Vygotsky, 1984, p. 256)

Vygotsky asserted that the development of the child can be divided into five stages (see Fig. 1); all of these are so-called stable periods, during which development is more or less a process of stable growth. Each of the periods, however, is preceded by and concluded with a period of crisis, starting with the birth crisis. A period is characterized by a specific structure, that is, a coherent complex of psychological functions. Such functions as perception, speech, and memory become intertwined in a way specific for each period. In fact, Vygotsky's notion of consciousness is based on the interfunctional relationships between those functions. In his view, it is through changes in these interfunctional relationships that we can account for the development of consciousness in the child. In periods of crisis the child changes rapidly, which often results in minor or serious educational problems. The criterion for the existence of a new period Vygotsky considers the development of something essentially new, which he coined a 'new formation' (*novooobrazovanie*). An example of such a new formation is the so-called autonomous language (see below). In periods of crisis these new formations have a clearly transitory character.

Vygotsky especially wished to analyze periods of crisis in mental development, because these were supposed to be characteristic for child development's dynamic nature. The dynamics are determined to a great extent, as I have said before, by the child's social environment through his interaction with adults.

As Vygotsky's classification of developmental periods is rather conventional and as he elaborated his ideas primarily with regard to the first years of life, it is to this period we now turn to give concrete form to these rather abstract ideas. The reader is referred to Vygotsky (1984) for descriptions of the later developmental periods.

### *The Newborn*

The newborn child is the subject of a dramatic change of scenery. To illustrate this thesis Vygotsky quoted King Lear's famous words "When we are born we cry that we are come to this great stage of fools". Vygotsky tended to speak of a period of transition or crisis, which lasts approximately two months. To show the transitory character of this period, Vygotsky put forward the following arguments. In the first place the newborn child has been separated physically from the mother but not yet 'biologically'. He is still using nutrition produced by the mother's body. Vygotsky therefore considered this first period as a transition period between the intrauterine period of food-taking through the umbilical cord and the period of 'normal' food eating. Further, the newborn child goes through short and diffuse periods of sleep, sleeping preferably in the fetal position. The infant, moreover, shows some clearly transitory reflexes, e.g., the Moro reflex. These phenomena taken together led Vygotsky to the conclusion that the newborn goes through a period of transition. The 'new formation' (discussed below) of this period are the first signs of mental life. Vygotsky concluded, after an extensive discussion of the unfinished nervous system of the child (e.g., incompleteness of myelin sheaths of nerve fibers, suboptimal functioning of the neocortex), that a primitive mental life must be possible for the infant.

The first signs of mental life show a predominantly affective nature, which tallies with the fact that the lower, subcortical, part of the brain is already operational. Vygotsky pleaded for the existence of mental life in newborns on the following grounds. First, one can observe expressive movements of the face and limbs, which seem to betray inner life. Second, the infant shows 'instinctive' movements connected with cold, thirst, satiation, etc. (Vygotsky, 1984, p. 276). This, however, shows at best a very primitive form of mental, inner life. Vygotsky relied heavily on investigations by Charlotte Bühler and her students which seemed to show that the very young infant is characterized by diffuseness. He cannot yet distinguish between internal sensations and external influences, neither can he differentiate between physical and social stimuli. This would mean that real social interaction with the newborn is hardly possible, because such presupposes the child's realization of another person interacting with him. Assumed is the distinction of social, human 'objects' and physical objects.

The infant's smile when he hears human voices is regarded by Vygotsky

as the first really social reaction. This was based on investigations carried out by Hetzer, one of Charlotte Bühler's collaborators. Hetzer demonstrated that the first smile appears after approximately four weeks (Bühler, 1930). Other social reactions, like the ceasing of crying when an adult approaches the cradle, also evolve in this period. This led Vygotsky to the thesis that the first period of crisis ends here. Now the infantile period starts, lasting until the second year of life. This period is characterized by real reciprocal interaction of child and adult.

### *The Social Infant*

It is characteristic of Vygotsky to start the account of the infant period with a description of the infant's social situation. At first sight it might seem that the infant is a (almost) completely asocial creature. He is bereft of the main tool of social interaction: speech. But Vygotsky considered this to be a misunderstanding. *The infant, given his helplessness, is totally dependent on others and must perform all his activities through others, through adults.* Vygotsky (1984, p. 281): "In this manner the first contact of the infant with reality . . . is completely socially mediated. Objects appear in and disappear from the child's visual field thanks to the adult's actions. The child is transported on the arms of others. The alteration of his posture, even the simple turning around, turns out to be intertwined with the social situation. . . . Due to this situation evolves the unique and unrepeatable dependency of the child, which . . . gives a completely unique character to the child's relations with reality (and with himself): these relations always turn out to be mediated by others, they are always refracted by the prism of the relations with another person" (Vygotsky, 1984, p. 281). The infant's relation to the surrounding world is, thus, a social relation, and as Bruner (1983, p. 26) put it, "the infant's principal 'tool' for achieving his ends is another familiar human being".

Vygotsky considered the infant's situation to be paradoxical, because being in this maximally social situation, he lacks the most important means of communication: language. "Through the whole organization of his life he is forced to maximal social interaction with adults. But this social interaction is nonverbal, often silent interaction, a social interaction with an absolutely unique character" (Vygotsky, 1984, p. 282). It is in this paradoxical situation that the child's social reactions evolve. The smile on hearing a human voice is joined by the smile on seeing a human face. The infant turns to the adult, vocalizes, in short is ready for real social interaction. After approximately half a year the infant has developed a specific need for social interaction, as shown by vehement protests when the adult walks away from the cradle. Here again, Vygotsky's factual findings were taken from research done by Charlotte Bühler and her collaborators.

The social interaction we observe in the first year of life cannot be based, of course, on mutual understanding. It is to a large extent an emotional, affective bond. It is quite understandable, according to Vygotsky, that the child develops strong emotional ties with the adult. An important reason being that his activity is directly tied to the adult. If the latter leaves "he is as it were bereft of his arms and legs, the possibility of . . . grasping desired objects" (Vygotsky, 1984, p. 302). Because the caregivers show skillfulness in interpreting the child's wishes, the child will at first not make a clear distinction between himself and the caregiver. Borrowing from research done by, among others, H. Wallon, Vygotsky suggested that a child of this age does not have a clear conception of himself as an independent agent, as distinct from the adult. An individual consciousness has not yet evolved.

Such is the situation when at approximately twelve months of age a new period of crisis or transition starts. According to Vygotsky we can see three new phenomena in this stage: the child starts to walk, shows the first signs of speech, and demonstrates certain affective reactions. This last point referred to certain emotional reactions the one-year-old may show: protest, rage, etc. Vygotsky devoted the greater part of his analysis of this period to language development. The principal 'new formation' is 'autonomous speech'. This term borrowed from W. Eliasberg refers to the child's over-generalizing at this age. First only the feeding-bottle with milk is called 'milk', then perhaps also other liquids like coffee and tea, or other objects of the same color and form. What the child refers to with a certain word is therefore only understandable for insiders, and even they most of the time need contextual information. Vygotsky asserted that the first words are no more than verbal pointing gestures, which out of context have no meaning. "The words of autonomous speech have an indicative and nominative function, but they have no significative function. They cannot yet replace absent objects, but they can in a suitable situation point to certain of its sides or aspects and give these parts a name" (Vygotsky, 1984, p. 332). This implies that a child of this age is unable to talk about objects not in the visual field. Purely verbal thinking is therefore impossible according to Vygotsky, and it is only at a later stage that speech will become decontextualized.

Wertsch (1985) has done much to clarify Vygotsky's notions on decontextualization. Bruner (1983) wrote a fascinating account of the growth of reference and the development of request that seems to be in line with Vygotsky's ideas. The phenomenon of autonomous speech is transient and will be replaced by the first forms of 'real' language. This marks the beginning of the stage of early childhood which will not be dealt with in this article. The reader is referred to Vygotsky (1962) for a general account of his theory of language development.

*Conclusions*

In the above, part of Vygotsky's unknown work in the field of developmental psychology was presented. The focus was on the first year of life because here Vygotsky's writings are most detailed. I think it is fair to say, from an historical point of view, that Vygotsky had done few investigations with very young children when writing his books. He, therefore, had to rely heavily on research done by Charlotte Bühler, Wallon, and others. Still, his books are not simple compilations of research done by others. Vygotsky is, I think, original in his emphasis on at least three aspects of child development, (1) the crisis-like character of development, (2) the important role played by speech, and (3) the social nature of the very young child.

As said before, the description of development as a series of transformations and crises was probably directed against behaviorist and reflexological approaches. It was also directed against the Gestaltists, who too were in a position of saying that there is nothing essential that separates developmental phases in ontogenesis or even in phylogenesis. Vygotsky repeatedly criticized this "ahistorical" approach of the Gestaltists (Vygotsky, 1982, pp. 216-217, p. 282). At the same time his conception of development fitted well in dialectic-materialist thought. The emphasis on speech is also distinctively Vygotskian. Although important research was being done by people like Karl Bühler, Vygotsky was unique in the central role he attributed to speech. Clear examples of this attitude can be found (Vygotsky, 1962). Vygotsky's life-long fascination for the role of speech in mental development should be seen against the background of his personal biography (Kozulin, 1984; Radzikhovskiy, 1985). Finally, Vygotsky's emphasis on the social nature of the infant is remarkable. It, too, fitted well within the official ideology and was partly directed against theories like those of Piaget.

I find it difficult to give a fair judgement of Vygotsky's ideas from the point of view of present research. I think it is clear that Vygotsky's theory of stages is, on the one hand, rather conventional, and on the other hand, far too sketchy and general to be a source of inspiration for modern researchers. It cannot be compared, of course, with the picture that arises from the minute investigations done by Piaget and his pupils. The reader will have noted that his conception is also quite different (e.g., less "structural") from Piaget's. As regards Vygotsky's emphasis on the discontinuity of development, I am inclined to subscribe to Mussen, Conger, and Kagan's (1970, p. 23) opinion, that "it is impossible on empirical grounds to choose between [these] alternative conceptions of the course of development. In some theoretical contexts, the notion of stages seems useful and appropriate; in others, it does not".

Vygotsky's writings regarding language development seem to be more in line with modern research. I have already mentioned Bruner (1983) and

Wertsch (1978, 1979). Other extensions of Vygotskian ideas in this area can be found (Wertsch, 1985). This does not mean, of course, that Vygotsky's ideas in this respect do not need correction and extension. For one thing, he practically neglected (like his contemporaries) preverbal precursors of speech (Van der Veer & Van IJzendoorn, 1985). But it does mean that his semiotic approach (e.g., the concept of decontextualization) was a step forward.

Finally, the Vygotskian emphasis on the infant as a social being has a surprisingly modern touch. Current research pictures the young child as a competent being striving for social interaction with adults. Vygotskian concepts like the zone of proximal development and his notion of internalization (Vygotsky, 1978) fit well in this approach. In fact, the modern emphasis on joint problem-solving, joint reference, adult-child interaction, etc. (Hinde, 1979) suggests Vygotsky is right in at least one general aspect: the developing child has not engaged in a 'lone venture' but actively tries 'to get things done with words' (Bruner, 1983). It is possible that Vygotsky slightly underestimated the child's active contribution, but he certainly did see in the 1920's that interactions between adult and child allow the child to master his culture. It is through these interactions that mental development becomes possible.

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