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ABSTRACT The paper presents an overview of developments within the discipline of psychology from the early 19th century until the 1980s. Emphasis is placed on differences between Soviet and American schools of psychology teaching and research and on the possible role of Western European psychologists in bridging the gap between these divergent approaches. Major differences between America and Soviet approaches to psychology include that American psychologists stress behaviorism (study of behavior instead of mental states) and cognitive psychology (an information processing approach), whereas Soviet psychologists base their work on a Marxist philosophical framework (as in the work of Vygotsky during the 1920s) and on an action-oriented approach (actions are the main objects of study and are viewed in light of their relationship to the pursuit of an individual's goals). Until recently, the American processing approach and the East European action-oriented approach have developed almost entirely independently of each other. It is suggested that because Western European psychologists are familiar with both approaches, they can facilitate a more open exchange of ideas between Soviet and American psychologists and can help American psychologists benefit from the positive aspects of Soviet psychology including use and application of systematic teaching experiments and development of more sophisticated techniques of qualitative diagnosis. (EB)

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IN WESTERN EUROPE AS A POSSIBLE INTEGRATING FORCE

INTRODUCTION

Erik DE CORTE, University of Leuven, Belgium

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INTRODUCTION

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The school of new experimental psychology, which started now one hundred years ago when Wundt established his Psychological Laboratory in Leipzig, had its heyday in the fourth part of the 19th and the early years of the 20th century. During the first part of the 20th century several important criticisms of the Wundtian approach of human conscious experience gave rise to three influential schools of psychology - namely, the Würzburg school and the school of the Gestalt psychologists in Europe and Behaviorism in the United States (see e.g., Hayes, 1978).

Behaviorists conceived psychology as a science of behavior instead of the study of internal mental states. They also rejected introspection as a valid method for research on psychological phenomena. In the U.S., Behaviorism dominated the field of psychology during a major part of this century. In the years just before the onset of the outspoken Watsonian behaviorism there was certainly a rather strong influence perceptible of psychological theory on education; we mention here the work of Thorndike and Dewey. Noteworthy is Dewey's influence upon ways of thinking about learning as the product of schoolroom practices. In general however, one can say, there never existed a strong interaction between behavioristic psychology and education; they developed separately (Glaser, 1978).

In Europe, the reaction of Gestalt psychology against introspectionism was quite different. While behaviorists rejected Wundtian psychology on the basis of its subjectivism, they still accepted in a certain way the so-called atomistic view of behavioral phenomena. Gestaltists, on the contrary, did not object to the subjectivity but to the atomism of the Wundt-school. Indeed they did criticize the associationistic approach of analyzing psychological processes into their constituent parts - the brick-and-mortar-psychology -, because this is against the fundamental nature of these phenomena that are essentially "Gestalts" or organized wholes. Although the main idea of Gestalt psychology had a tremendous

influence on European education, there never existed a kind of interaction between Gestaltists and educationists.

The members of the Würzburg school, a group of psychologists trained in Wundt's laboratory at Leipzig, went their own ways. They strongly disagreed with Wundt on the topic of imageless thought and also on the question of whether higher psychological processes like thinking and problem solving were amenable to psychological investigation (see e.g., Humphrey, 1955). One of the most important psychologists who continued but also transcended the Würzburg line was Selz. In his work, he analyzed thinking as a dynamic event and showed that thinking involves organized structures. This latter contribution of Selz influenced certain Gestalt psychologists interested in thinking, esp. Duncker. An important conception of Selz was that intelligence is educable. Before the second world war Selz lectured a couple of years in Amsterdam and there he influenced several leading psychologists and educationists of the Dutch speaking countries.

It is, of course, also true that Behaviorism too has become rather well-known in Europe; however this school has never been as dominant as in the U.S. In Western Europe the typical European ideas and approach have remained more influential, especially in connection with educational problems. Later on, more precisely since the late fifties, these ideas have been complemented by the developmental psychology of Piaget, whose conceptions were having more and more impact.

In Eastern Europe, Behaviorism has had almost no influence. The most important psychologist of this century in that part of the world is certainly Vygotsky, who started his work in about 1925. Up till 1930 it was Blonsky who influenced Soviet education. Blonsky belonged to the world wide movement of progressive education, started in the U.S. by Dewey. Hilgard & Bower (1966, p. 299) state : "Progressive education, at its best, was an embodiment of the ideal of growth toward independence and self-control through interaction with an environment suited to the child's developmental level". Although he was influenced by Blonsky, the Gestalt psychologists and by Piaget, Vygotsky was not satisfied with their approach to and explanation of psychological phenomena. He developed his proper original psychological view, in which he was strongly oriented by the Marxist philosophical framework. His theory fell into disgrace in 1930 but since 1956 Vygotsky's main idea's have a great impact on the development of Soviet psychology in general and on Soviet instructional psychology in particular.

In the past twenty years American psychology has undergone a major change that is related to some European trends mentioned above. This change can be summarized as the shift from behaviorism toward cognitive psychology, which is now the dominant force in the U.S.A. Man is no longer conceived as a collection of responses

toward external stimuli but essentially as an information processor. This important development in American psychology started in the fifties. According to Simon (1979, p. 365), a pioneer in cognitive psychology, the information-processing approach to human cognition has arisen from "the marriage between ideas that had emerged from symbolic logic and cybernetics, on the one side, and Würzburg and Gestalt psychology, on the other. From logic and cybernetics was inherited the idea that information transformation and transmission can be described in terms of the behavior of formally described symbol manipulating systems. From Würzburg and Gestalt psychology were inherited the ideas that long-term memory is an organization of directed associations, and that problem solving is a process of selective goal-oriented search". The author refers in this connection to the work of Selz (1913) and of Duncker (1935). It can be added that De Groot's (1946) research has also had an important influence during the initial phase of the information-processing studies (Newell & Simon, 1972, p. 875; De Groot, 1979). De Groot himself was strongly inspired by the investigations of Selz on thinking.

The information-processing approach, which Greeno (1978, p. 10) has characterized as the modern counterpart of the Gestalt view, is now also dominant in the study of learning and instruction. In this approach, one is no longer satisfied with studying externally observable behavior but instead tries to analyze the internal processes and cognitive structures that underly performance. This is attended with a fundamentally changed conception of human cognition - namely, a shift from the earlier atomistic idea toward a (Gestalt) view that considers the organization of information as the central characteristic of cognition.

In the information-processing approach the critical data furnished by the experiments do not relate to performance as such but to the manner in which the performance is achieved. In Vygotsky's view the central question also is : What are the subjects doing ? or : How are they trying to satisfy task demands ? Because his approach takes the actions of the person as its central object, the Dutch psychologist Van Parreren (1979) has called it the action-oriented approach to psychological phenomena. An action can be defined as a purposeful activity executed on certain objects; it is consciously guided or controlled. Actions can be more or less complex. A more complex action will be constituted of more components than a simple one. The components of an action are related to each other in a certain way, and the action as a whole is also related to aspects of the environment. A detailed description of these different aspects is referred to as the structure of an action. The action-concept reflects also a conception of man as an active, future-oriented being, who pursues certain goals and, in so doing, uses more or less rational means - more or less because actions are also influenced by irrational elements. From this last statement, it becomes clear that this.

approach is inspired by a philosophy of man and world. Indeed, in Soviet psychology this action-oriented approach is strongly integrated within a Marxist theoretical framework; e.g., Marx's dialectical and historical materialism has substantially influenced Vygotsky's theory of higher cognitive processes. Cole & Scribner (1978, p. 6) call his sociocultural theory of higher mental processes rightly "a psychologically relevant application of dialectical and historical materialism". According to the same authors (Cole & Scribner, 1978, p. 14) several implications follow from Vygotsky's theoretical approach and method of experimentation. One is that experimental results will be qualitative as well as quantitative in nature. Another consequence is the need to break down some of the barriers that are traditionally erected between "laboratory" and "field". Finally Vygotskian psychological theory implies that educationists, sociologists, and anthropologists become partners in the research program. It can be added that Vygotsky's scientific program also explicitly proposes principles of education.

The American information-processing approach and the East-European action-oriented approach have until recently developed independently, albeit that they have some common roots. It is our opinion that an exchange of ideas between the two approaches can be mutually constructive and useful (see also De Corte, 1980). During the past few years a movement in that direction has begun; indeed, we see constantly more efforts in the U.S. to become acquainted with the ideas and investigations of Soviet psychology, esp. with the work of Vygotsky (Brown & French, 1979; Vygotsky, 1978; Wertsch, 1979).

In the perspective of such an exchange of ideas, it is desirable to have a view of some central characteristics of Soviet instructional psychology. One of these properties has already been mentioned, - the process orientation toward actions as opposed to the performance or achievement orientation. Without trying to be exhaustive, we will give in the following paragraphs a concise overview of some other important points.

(1) Research in instructional psychology should contribute to the improvement of the teaching-learning process. A consequence of this leading idea is the integration of two kinds of research that have been traditionally contrasted in the West : basic research oriented toward theory-construction and applied research having an accent on practical relevance. As Cole & Scribner (1978, p. 9) state it in connection with Vygotsky's work : "the need to carry on theoretical work in an applied context posed no contradiction whatsoever".

An elaboration of this characteristic can be found for example, in the writings of Kalmykova (1970, p. 128), who has made a distinction between an ascertaining and a teaching experiment. In a teaching experiment, a hypothesis concerning the learning process is tested through systematic intervention and stimulation of children's learning. Based on the hypothesis a teaching strategy is deve-

loped. If the strategy yields success, this is considered to be evidence supporting the hypothesized process. This kind of experiment is contrasted with ascertaining investigations, in which learning is studied under given conditions without any systematic intervention. Consequently, a good deal of Soviet Russian psychological research is undertaken with the classroom rather than the individual child as the basic unit of analysis. Techniques thought to foster intellectual growth are tried out in one or more classrooms and are contrasted with usual (control) procedures applied in other, similar classrooms

- (2) Research should take place in settings that are externally or ecologically valid. This characteristic is related to the first point. Indeed, research findings can be useful for improvement only if they are obtained in school-like situation. This statement itself derives from the background idea that learning and development can only be well understood if they are studied while taking into account the sociocultural and historical context in which they occur. According to Kalmykova (1970, p. 125-126), such an ecologically valid investigation is called a natural experiment, as distinguished from the laboratory experiment. A natural experiment "is accomplished in conditions of school work to which the students are accustomed and is usually based on academic material" The author adds, "At the same time, the researcher strives to approximate the natural experiment to the laboratory experiment as regards accuracy". In other words, there is also a concern for internal validity.
- (3) The idea of developmental instruction occupies a central place in instructional psychology. This characteristic derives from the basic view stated by Vygotsky in his sociocultural theory of higher mental processes - namely that development is culturally determined and that social interaction thus has a major impact on the development of those higher mental functions. This implies that cognitive growth can be influenced by learning and instruction. "The child learns to perform an operation of some kind. At the same time he masters a structural principle whose sphere of application is wider than that of the operation in which this principle was mastered. Consequently by taking one step in learning a child moves two steps in development" (Vygotsky, 1963, p. 26-27). Vygotsky has elaborated this view in his theory of cognitive development, in which he makes the now already well-known distinction between the actual developmental level and the zone of proximal or potential development (Vygotsky, 1963). This last concept is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

It is obvious that such a conception has implications for the task of the school. Instead of linking up instruction to the actual developmental level, one should orient it to the zone of proximal development. This means that instruction should : (a) help the children to master independently the behavior that constitutes this zone at a given moment; (b) stimulate cognitive development by continually creating a new zone of proximal development. From there it follows that a major task for instructional psychology is to search for the optimal processes of children's development and to design means for developmental instruction. Cole (1979, p. XII) has recently remarked that such developmental instruction based on Vygotskian psychological theory can be called "guided discovery" - "discovery guided by an analysis of the developmental stages through which the child's activity must pass and the conditions necessary to insure that the activity is generalized beyond the particular instances embodied in a curriculum".

- (4) A fourth characteristic is related to the preceding point and has to do with the role and the nature of diagnosis and evaluation. To be able to provide developmental instruction effectively, one should first have a clear image of the child's zone of proximal development. Thus, diagnosis is a necessary step to make, not as a basis for prediction however, but as a mean to establish the child's ability to learn. In this perspective, a diagnostic session can not take the form of standardized testing, because that would only allow measurement of the actual developmental level. Since diagnosis has to be oriented toward the zone of proximal development as defined above, it should necessarily take place in an interactive situation between child and adult. Therefore, a diagnostic session will generally be more or less similar to a clinical or individual interview.

A second aspect of diagnosis is related to the earlier mentioned major characteristic of Soviet instructional psychology : its process orientation toward actions. This implies that the objective of diagnosis is not primarily to obtain an achievement score but to collect data on the child's actions during task performance : how the child approaches the problem and how the child acts (materially, verbally and mentally) to reach a solution. It is obvious that the diagnostic data will then be mainly qualitative in nature. Venger (1975, p. 406) has contrasted this qualitative approach to the diagnosis of cognitive development with the Western quantitative approach. Tests that are used in Western psychology, he says, rank children according to their level of cognitive development; however, they are inappropriate to solve the diagnostic problems of Soviet psychologists. The major shortcoming of those tests is that they approach the characteristics of cognitive development in a purely statistical way. They attempt to measure cognitive development without having a clear insight in what is being measured.

As a final comment on this brief and incomplete overview of characteristics of Soviet instructional psychology, we would like to state that one should not think that all Russian researchers support those viewpoints. In the Soviet Union, too, there are different schools and tendencies, often referring to the same background ideas.

As we have already mentioned above, instructional psychologists in the U.S. are getting more and more informed about Russian work in the field. It can also be established that a lot of present work is clearly in accordance with some of the main characteristics of Soviet research. We mention a few examples. (1) The orientation of the information-processing approach toward the process analysis of cognitive functions is comparable to the action-orientation of the Russians. (2) In recent publications, one sees that the intercourse between psychological theory and education is quickly making a come-back, especially with respect to task-analysis in terms of cognitive processes (Glaser, 1978; Greeno, 1978; Brown & French, 1979). (3) The use of teaching experiments has become recognized as a valid research strategy; stated somewhat broader, more and more researchers agree in principle with Glaser's (1976) idea of instructional psychology as a science of design. (4) The concern for ecological validity is, for example, illustrated in the psycho-ethnographic approach adopted by Cole & Scribner (1975). (5) The Russian conception of diagnosis is recently receiving attention in connection with discussions in the U.S. on the role and functions of testing (Brown & French, 1979).

In Western Europe, especially in the Netherlands and Belgium, however, the Soviet-Russian ideas described above already entered research on learning and instruction almost ten years ago (Van Parreren & Carpay, 1972). It was probably easier for us to take over some basic views because Western Europe has not been overwhelmed by the Behaviorism, that caused a very strong break with the older schools in psychology in the U.S.A. In Europe there has been more continuity in this respect. As we have stated earlier, the Würzburg school and Gestalt psychology have always remained influential in Western Europe, and their main conceptions have been complemented by Piagetian psychology. It is also true that Vygotsky, who can be considered as the founder of the Eastern European action-oriented approach, has also been strongly inspired by the Gestalt school and by Piaget, albeit that he disagreed with both of them on some important topics. For example, although he has mainly criticized Piaget, he also has explicitly expressed his appreciation for the work of the Genevan developmental psychologist. In the original Russian edition of Thought and language (1934) he has ironically written "Strictly speaking, Piaget's theory involves everything in a hidden form" (Vos, 1976, p. 261).

Vygotsky's approach to the child's psychological development is profoundly human and pedagogically optimistic in so far as it ascribes to learning a crucial role in development. In this respect the theory is 'value free'. On the other hand it must be kept in mind that both the chronological setting and the qualitative characteristics of a given stage, are determined first and foremost by historical factors; society shapes those characteristics according to its needs. Up to now, very little attention has been given to the way in which 'Vygotskian' developmental instruction influences the social and emotional maturity of the child. According to Bronfenbrenner (1970) the Two worlds of childhood differ.

Considering the U.S. research arena from the old world, especially from our position at the North Sea where Soviet-Russian ideas have certainly been more integrated, it seems to us that the ongoing constructive trends in American instructional psychology can still learn something from Europeans. We are aware of the fact that developments are now moving at an extremely rapid pace in America, and we know that, with the massive research resources which are available and of which we are somewhat envious, it will certainly no longer take considerable time before the positive aspects of Soviet psychology are integrated and even further developed. However, it seems to us that, at the present time, Western European instructional psychology can perhaps still have a catalytic effect in that direction in connection with several of the central characteristics of Soviet research mentioned above - more specifically in connection with the elaboration of qualitative diagnosis, the design of developmental instruction, and the use and application of systematic teaching experiments. The present symposium will attempt to make a contribution in that perspective, by presenting and discussing three research examples that illustrate a Western European approach to topics that also receive a great deal of interest in current research in the U.S.A. - namely, problem solving, language learning, and (re-)structuring ability.

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