

AN INTRODUCTION TO THE DEVELOPMENTAL PSYCHOLOGY OF JEAN PIAGET AND SOME SIMILARITIES AND DIFFERENCES WITH OTHER SCHOOLS OF PSYCHOLOGICAL THOUGHT

by Dr. Dick Harte

Jean Piaget is a psychologist from Geneva, Switzerland who, though active for 30 years in studying the normal psychological development of children, has only come to the attention of psychologists and psychiatrists in the United States in the past 10 to 15 years. He has published 180 studies in the psychology of intelligence, including 21 full length books. The experiments and observations described in these volumes are the foundation on which Piaget has constructed a genetic theory of knowledge which postulates that motor action is the source from which mental operations emerge (i.e. that intelligent thought arises from primitive sensory-motor activity). Piaget feels that man's knowledge about the world derives from his concrete experiences with it; and that the unfolding of man's psychological potentialities exposes him to an ever expanding sector of reality.

The concept of intelligence developing from primitive sensory-motor activity is not new. One can read of sensory-motor education by Itard, (possibly the first child psychiatrist on record) in his book "The Wild Boy of Aveyron", by Segueine, "Treatment of Idiocy by the Physiologic Method", and by Montessori "Montessori's Own Handbook".

Both Piaget's developmental psychology and Freud's psychoanalytic theory are dynamic and genetic, (genetic in terms of genesis = from the beginning).

Dynamic implies the interplay of a number of forces or factors. The interplay of forces or factors referred to are the person's biological make-up, the pattern of current personality functioning, and current environmental forces or stresses.

Genetic implies viewing current patterns of feeling, thought and behavior as a result of a developmental sequence that has evolved over time from the interplay or interweaving of environmental forces acting on the organism. Thus the organism knows its environment and how to react as a result of previous experience. And the organism interprets incoming information in the light of this background of experience.

Only recently has learning theory evolved to a point where it is "genetic". Many Behaviorists, Learning Theorists, Operant Conditioners, and Conditioned Reflex Psychologists still primarily emphasize the "dynamic" and ignore or neglect the "genetic". To them the background history of the organism, its developmental sequence, and its patterns of learned behavior are not given major consideration. What is given consideration is that new learning can occur to replace older patterns of learning. Old learning can be "extinguished" or supplanted, the organism can be "conditioned" to function in a new manner.

Generally the behaviorists do not consider factors in the history of the organism that may cause certain patterns of feeling, thought or behavior to occur at an automatic level, pre-conscious level, or unconscious level of function. Operant conditioning generally ignores the learned patterns of adaptation that may cause varying types of responses to the same stimuli. Operant conditioning does not consider such modes of coping as repression, denial, avoidance, projection and the other defense mechanisms.

Recently Learning Theory has made a place for "intervening variables" between the stimulus and the response.

It is my understanding that even in Gestalt psychology, the genetic factors or the evolution of the organism is not given much weight. Gestalt psychology came from the studies of Wundt in his experimental laboratories of psychology in Leipzig where they were conducting studies of perception, association, memory, and higher thought processes. His studies were followed and elaborated on by Wertheimer of Frankfurt in the early 1900's and 1910's. Wertheimer noted that components in a perceptual process like different color tones could not really be

put together by association to form the whole. Actually there were many different ways in which supposed elements might be thrown together; it appeared the principle of organization of the individual elements was fundamental. The term "Gestalt" (meaning form) was used to denote the primacy of the problem of form or organization. The Gestalt principle applied first to perception, spread later to the study of emotions, higher thought processes, and personality as a whole. Although Gestalt psychology is truly dynamic, it is not genetic in the sense of psychoanalytic theory or Piaget's psychology. Gestalt psychology does not emphasize the development sequence, and the influence of the memory of previous schemes of information on our current evaluation of incoming information.

Piaget's psychology has several assertions; 1.) intelligence is only one aspect of the general biological adaptation to the environment. ("Intelligence is an adaptation.") 2.) Intellectual adaptation is the progressive differentiation* and integration* of inborn reflex mechanisms under the impact of experience. ("Life is a continuous creation of increasingly complex forms and a progressive balancing of these forms with the environment.") 3.) Differentiation of inborn reflex structures and their functions gives rise to the mental operations by which man conceives of objects, space, time and causality and of the logical relationships which constitute the basis of scientific thought ("Intelligence constitutes an organizing activity whose functioning extends that of the biological organization while surpassing it due to the elaboration of new structures.")

* Differentiation is the process by which something becomes different or is made different. Differentiation is a process by which relatively unspecialized cells, systems or activities develop into relatively more specialized cells, systems, or activities. The sperm and ovum join to form a single cell which reduplicates itself. These new cells also reduplicate themselves and become different from others as the process of differentiation occurs. The newborn infant may respond to irritating stimuli by a massive response of voluntary motor and autonomic system activity. The older infant has differentiated an appropriate response from this early mass reflex. He may only withdraw an arm from a painful source. Thus by the elaboration of and differentiation of inborn sensory-motor reflexes man progressively develops new systems of knowledge and information.

*Integration is the process or result of bringing together and unifying two or more parts into a whole. By bringing together parts from various sources and integrating them one produces a unit of a higher order. After the parts have been integrated they may lose their separate identity, though the parts may often still be distinguished if one specifically looks for them in the Gestalt, or whole.

Piaget claims his intention was to write the ontogenetic history of cognition, not to give an account of early personality development. (Ontogeny is the evolution or developmental history of the individual organism; cognition is a general term for all the processes involved in "knowing". This would include perception, memory, reasoning, understanding and thinking.)

Piaget's investigations fall into three stages which may be distinguished by the material he studied, the method he used, and the theoretical formulations which guided him.

PHASE I

His first phase was from 1923 to 1932 where he was concerned with the task of finding a biological explanation of knowledge. Piaget began his psychological studies by systematically recording the verbal productions of children from age 3 to 10. He recorded their talk while they played alone or with other children, and their conversations with him and his assistants.

His method combined the recording of spontaneous speech and clinical interviews which were adapted to the child's level of comprehension. In his interviews he often only elaborated the child's own questions and statements. Thus, Piaget avoided imposing his adult preconceptions on the childish and pre-logical world. Piaget wrote, "I engage my subjects in conversation patterned after psychiatric questioning, with the aim of discovering something about the reasoning underlying their right but especially their wrong answers." He collected and systematized the forms of verbal expression according to age levels and demonstrated a lawful sequence governing the development of the child's reasoning processes, his use of language, and his conceptions of physical and social reality.

Piaget observed, for example, that up to a certain age a small boy does not comprehend that if he has a brother his brother also has a brother. In other words, the child is incapable of conceiving of reciprocal relationships. Thus, he talked to many children in the age group 3 to 12 to find out when and how the notion of reciprocity of relationships was acquired. He found the concept of reciprocity of relationships was acquired only slowly and passes in several steps from a stage of "ego-centric immediacy" in which only isolated objects and instances are known and appear have no relation to one another. The above findings were reported in five volumes, published from 1923 to 1932. The first is called "The Language and the Thought of the Child", the second "Judgment and Reasoning in the Child", and third, "The Child's Conception of the World", the fourth, "The Child's Conception of Causality", and the fifth, "The Moral Judgment of the Child." From the above studies, Piaget concludes that thought passes through a series of stages from early *animistic thought, through *magical thought, and *artificialistic forms of thought, to rational thought. Piaget notes that at each level of thought the child constructs a systematic "cosmology" of the world according to the modes of reasoning available to him at that stage.

* Animism, or the stage of animistic thought is when the child, person, or culture believes that certain important objects in their environment are living, have a spirit or soul, and have many human mental properties such as the ability to think, see, hear, feel and comprehend. It is interesting to note that in many African cultures the concept of "Jok" is accepted without question. "Jok" is a spirit that exists in all objects, living and non-living. Non-living objects possess small amounts of "Jok". Vegetable matter possesses a larger amount of "Jok". Animals possess still larger amounts of "Jok". Man possesses the most "Jok". In some cultures it is believed you can obtain the spiritual power and wisdom of your enemy by eating him, and thus incorporating his "Jok" into yourself.

The small child who stumbles over a chair may turn around, kick the chair and say, "Bad chair", thus attributing bad intent to the chair.

* Magical thought is somewhat related to and is overlapping with animistic thought, artificialistic forms of thought and some religious thought.

In magic the forces that operate and how they operate are unknown and so the forces are attributed to supernatural powers. In many cultures if these supernatural powers are a part of an organized religion the forces are not considered magical. In much magic the symbol is confused with the event in that it is believed that by manipulating the symbol forces are brought to bear that influence the event.

* Artificialism or artificialistic thought is when the child or adult regards natural phenomena as being caused by a human agency or a human-like agency. Thus, the mean people caused it to rain to spoil our picnic. The witch put a curse on the person which caused him to become ill. The plant did not grow because of the sin of a man. Rain did not come because the gods were angry.

During the first phase of his work, Piaget concentrated on the content and form of the child's verbal behavior and did not concern himself with the underlying mental processes. Piaget at first assumed that verbal intelligence was identical with intelligence in gen-

eral. He also at first assumed that an analysis of speech samples as children grow older and acquire more intelligence would demonstrate the mental mechanisms involved in intellectual development. But his studies led him to conclude that verbal intelligence is only one particular expression of mental functioning. Piaget observed that the concrete manipulation of objects was another expression of the same mental process. He thus felt he would have to look beyond the manifest motor or verbal behavior to find common laws of mental functioning covering both expressions of intelligence.

PHASE II

Therefore, in the second phase of his studies, he studied infants (his own) during their pre-verbal development and relied on the infants' concrete manipulations of objects and the infants' responses to stimuli and situations as the behavioral criteria from which he inferred the underlying mental processes. In his biography he writes:

"I knew that thought proceeds from action but believed then that language directly reflects the act and that to understand the logic of the child one has to look at it in the domain of verbal interaction. It was only by studying the patterns of intelligent behavior of the first two years that I learned that for a complete understanding of the genesis of intellectual operations, manipulations and experience with objects had first to be considered."

Piaget has noted that thought can exist without language as in a deaf person. He feels that thought and language derive from two different types of experiences. Language derives from experiences which are not initially a product of the child's own activity, but are rather an imitation of the activity of others. Thought, however, is initially derived from patterns of sensory-motor interactions with one's environment and from one's ability to form generalizations or abstractions from one's own actions upon things. Thus thought derives from one's experimentations (actions) with one's environment and the retention in memory of the cause and effect sequence. Language (intercommunication by signs or symbols) on the other hand derives from the child's imitations of others. One may comprehend language without motor action or speech. To manipulate and experiment with objects in one's environment motor activity is necessary. Language and thought are dependent on one another if they develop beyond primitive levels. However, language and thought cannot be explained by one another, or reduced to one another. After language appears, it is in continual interaction with thought. Language (symbolism) can be viewed as the tool of thought (action or potential action), much like mathematics (symbolism) is the tool of physics (action or potential action).

In the second phase of his work, extending from 1936 to 1945, Piaget reported his observations on his own three children in the following books: "Origins of Intelligence," "The Construction of Reality," and "Play, Dreams and Imitation." The first two volumes deal with the sensory-motor phase of development, i.e. the development of motor functions and the acquisition of increasing skill in the manipulation of objects. The third, "Play, Dreams and Imitation", deals with the transition from sensory-motor intelligence to early symbolic activity as a substitute for motor action.

Piaget adapted his clinical method to the nonverbal child by substituting games for conversations as the experimental procedure. However, he still allowed the child to play spontaneously and to determine what games were to be played.

PHASE III

In the third phase of his work, from 1945 to the present Piaget and co-workers published books regarding the development of the concepts of Time, Space, Movement, and Probability.

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These and other books also concerned themselves with the development of concepts of conservation of mass, weight, and volume.

Piaget and co-workers also are continuing investigations in perceptual experience.

In 1950 Piaget published a three-volume work in French in Genetic Epistemology, focusing particular attention on the implications of this field for mathematics, physics, biology, psychology and sociology.

Epistemology is the theory of knowledge or the philosophical study of the origin, nature, and limits of knowledge. Genetic Epistemology is the theory as to how knowledge is started, grows, and is developed.

Though Piaget has contributed much to the fields of developmental psychology and child psychology, he does not consider himself primarily a psychologist. He claims as his identity that of a Genetic Epistemologist.

In his works Piaget usually does not concern himself with pathology or the practical aspects of his findings or the implication of his theories for education, child psychology or child psychiatry. He sees his role and function rather as developer of a theory of genetic epistemology.