Profile

PARTICIPATING IN PIAGET

Jaan Valsiner

Jean Piaget (1896-1980) has been labeled as a developmental theorist who had a youthful habit of collecting mollusks. Yet he may have actually remained, in spirit, a mollusk collector who observed children's forms of thinking—and who only slowly formulated his developmental theory by the end of his long life. Surely many people have heard of Piaget as a "stage theorist," and stories about sensory-motor, pre-operational, concrete-operational, and formal-operational stages may be retold in child psychology courses all over the world. Yet these features of Piaget's contributions are but secondary to his basic curiosity for how knowledge in its generic forms is created.

This basic curiosity was centered upon Piaget's own ego—of the young boy who wanted to find out how things—and minds—work. Through a series of coincidences, that young boy became known as world's foremost child psychologist. Yet he insisted upon remaining himself—a rare quality among consensus-sensitive psychologists.

Even when the focus on knowledge construction is restored to our story by emphasizing Piaget's self-defined role as *genetic epistemologist*, efforts to understand Piaget's reasons for his kind of empirical research may come to a halt. Instead of curiosity about the issues involved, Piaget's contributions can easily become dismissed as "too old" or "lacking statistical rigor." Such claims are, of course, the results of well-educated intellectual laziness and the following of accepted rules of methodology that dominate psychology in our times. That laziness often masks itself as commitment to the newest techniques of psychological investigation. The energy spent on following the "right" directions means diminishing interest in phenomena, and in efforts of researchers of the past.

But being "right" may turn out to end in an intellectual impasse. It is noteworthy that Piaget's own development in child psychology entailed the abandonment of the "right" methodological stance (of standardizing English IQ tests for French schoolchildren), and turning his curiosity toward the mental processes through which children arrived at *both* the "right" and the "wrong" answers. He, of course, was not the only revolutionary of this kind at the time. The study of the psychological processes as they unfold had been introduced to adult research in Würzburg from 1905 to1908; the "naturalistic experiment" had been propagated by Alexander Lazurskii in 1911. Piaget carried on in the child-study (*paedology*) area the traditions of Edouard Claparede, who brought him to the Rousseau Institute in Geneva in the 1920s. Approximately at the same time, Lev Vygotsky and his other young colleagues in Russia were eagerly learning from the work of (similarly young) Piaget how to investigate processes of children's reasoning.

The larger historical context for Piaget's work is largely forgotten since original sources are rarely considered. The reliance upon secondary sources for understanding the work of original thinkers, or even tertiary sources in the form of textbooks, has a role to play in the loss of previously available knowledge in our time. Glossy textbooks certainly provide entertaining bits and pieces of information that are well fitted for filling in multiple-choice questions on tests. They also communicate hero myths about key scientists. Piaget (sometimes with his pipe) appears often in that role. Yet the curiosity inherent in his thinking is not adequately reflected in textbooks.

The issue at stake is not just that of understanding Piaget. Textbook presentations of the work of any classic thinker create a certain mythical image about the hero figure. The intellectual goals of the classic authors are usually forgotten. Instead, mythical stories about the authors proliferate, and replace careful direct study of the author's actual—usually incomplete or cumbersome—thought. Famous scientists are presented as the ones who were "right" in their ideas—ignoring those sides of their creativity in which they clearly were "wrong." Yet scientific creativity includes "being wrong" as the ordinary and expected state. After all, any new and bold hypothesis is more likely "wrong" than "right"—scientists move only slowly toward making sense of complicated objects of investigation, erring constantly on their way. Textbooks do not report that cumbersome process—only the few selected outcomes that have come to the limelight of normative fixation of

knowledge. Students are supposed to learn that knowledge as the given truth, and guided against efforts to reconstruct it in new ways. They are informed about the achievements, yet ignorant about the possibilities for further advancement of knowledge.

Piaget is a good example of such hero-construction efforts. He has been considered to be a theoretician—yet one whose theoretical contributions have been often found to be difficult to understand or at times incomplete or inconsistent. His descriptions of stages—and indeed Piaget used the stage notion to order classes of developing forms of thinking—are presented often as if these are the center of his "developmental theory." He is also considered a "precocious naturalist", which adds to the story about him as a "hero-scientist."

As a result of all these we seem to know about him—yet our knowledge may be but a schematic skeleton of all the creative complexity of the original efforts. The reader of *The Child's Conception of Physical Causality*, for example, can feel that first hand. Instead of a glorious presentation of clear cases of "the data" we see here a laborious effort to make sense of children's efforts to understand the physical world. Even as the book title orients the reader to think in terms of causality—the book treats far wider issues. The painstaking efforts of children to understand the functioning of different phenomena are here displayed with the meticulous habits of a naturalist.

Piaget as a Naturalist

Piaget was a naturalist in his methodology. He gave careful consideration to the phenomena and created challenging experimental tasks that tested the limits of children's understanding. In our time, he would probably fit the category of an experimental human ethologist—somebody who studies naturally occurring phenomena through careful observation of experimentally set naturalistic problem solving. He was fortunate in creating his intellectual autonomy in the context of Geneva in the 1920s. Free from the peer-consensus pressures that guide the intellectual enterprise of child psychologists in our day, Piaget was at the heart of the phenomenologically original quasi-experimental tradition of cognitive developmental psychology in Geneva. That tradition has even been labeled after him (i.e., "the Piagetian approach"). This tradition needed no statistical mystiques to prove its claims, since the empirical methods used were kept close to the phenomena they were investigating, as well as directly linked with the basic theoretical notions of Piaget's invention. Statistical inference is of little relevance in psychology of the kind Piaget and his contemporaries practiced. It simply would not fit with the phenomena under study—which would be a sufficient basis for any thinking scientist to decide not to bring that kind of inference into one's science. Instead, Piaget relied upon naturalistic experimentation—interviewing children about real-life phenomena that they knew, or that could be produced immediately in the context of the study (e.g., shadows).

Indeed, Piaget produced numerous stage accounts. His and his research group's observations on children's understanding of how things work rendered age-related descriptions of stages. These are classifications and not much more. In ways similar to Charles Darwin, Piaget preferred to collect specimens and classify those into similarity groups. As those classified phenomena happened to follow an ontogenetic order, they became descriptions of stages in the development of the phenomena.

Piaget's work was mostly inductive—moving from collected specimens of children's thinking to their classification into stages, ordering the stages along the lines of ontogenetic progression. The reader of the present book will find descriptions of stages (and sub-stages) in each of the content domains in which issues of the nature of things are covered. The various stages are merely descriptive devices—in service of Piaget's efforts to arrive at the logic according to which human beings, children and adults, think.

Logic in Children's Thought

Logic was the highly esteemed standard of science in the beginning of the twentieth century. Piaget's empirical work was preceded by similar data-collection efforts by G. Stanley Hall, and theoretical efforts by James Mark Baldwin and Lucien Levy-Bruhl. The major question was the existence of logics that were different from the normative Boolean logic. Thus, the "otherness" of the thinking by people from other societies (which was then conveniently labeled "primitive thinking") was a central issue in Levy-Bruhl's thinking. Piaget acknowledged his indebtedness to Levy-Bruhl. Similar "otherness" was the case with children's logic.

What Piaget meant by "logic" was not (at least in his early years) a strictly formalized deductive system, but rather something far looser. In fact, what he emphasized under that label might better be viewed as "schemes of experience". He wrote: "Ego-centric thought and intelligence...represent two different forms of reasoning, and we may even say, without paradox, two different logics. By logic is meant here the *sum of habits which the mind adopts in the general conduct* of its operations—in the general conduct of a game of chess...to the special rules which govern each separate proposition, each particular move in the game. Ego-

centric logic and communicable logic will therefore differ less in their conclusions (except with the child where ego-centric logic often functions) than in the way they work."

The complex "habit of mind" notion of logic is certainly close to the collective representations notion (which Levy-Bruhl used, based on Durkheim). The inductive focus of such logic follows the efforts of James Mark Baldwin, whose efforts to introduce "genetic" (developmental) logic were Piaget's guidelines in doing his empirical work. It can be argued that the work of "early Piaget"—by which I mean Piaget from 1922 to mid-1930s—was a conscious effort to elaborate and put into empirical practice the Baldwinian system of "genetic logic".

Baldwin's major explanatory concept of imitation is also used by Piaget in order to generalize his data. Yet Piaget lacks theoretical precision here. Using the notion of imitation "in a very wide sense," Piaget claimed that "Imitation can be by gesture and by movement, as when the child who plays at being its model who is learning to talk, to walk, etc. Drawing is imitation. But imitation can also be of thought, thought being a compressed form of action. In all these imitations there is a motor element, and this is why it is worth while reducing all these processes to imitation by gesture."

Piaget borrowed LeDantec's focus on assimilation—which, years later, in conjunction with accommodation, became the cornerstone for his equilibration theory of development. In paraphrasing LeDantec, Piaget noted: "The organism left to itself tends to assimilate its environment, it tends...to *persist exactly as it was* before and *to deform the environment* so as to subject it to this assimilation. But *the environment resists and influences the organism*. According to the strength of this resistance *the organism is forced to change*, and each of these variations consists in a sense, in an imitation of the object which is exercising its constraining power."

So the relationship between organism and environment is that of a fight between forces of preservation of the organism (assimilating the environment) and those of changing under the influence of the environment (imitation). Notice that neither of these assumed processes are presented as constructing any new forms—assimilation is presumed to "take in" the environment in ways that preserve the organism, and imitation to *force* the organism to change by environmental influences. Either one forces the change in the other, or the other in the one.

Piaget added on his own behalf: "Assimilation and imitation work in the opposite directions, so that each pulls the mind its own way. Any mental attitude during the primitive stages will therefore *consist in a compromise between these two tendencies and not in their synthesis*."

Piaget claimed that the processes of assimilation and imitation do not remain stable themselves. By becoming complementary to each other, both of them change. Assimilating schemas become increasingly flexible in responding to the demands of the experience. Imitation loses its servility and becomes "intelligent" adaptation to the external world (Piaget, 290). The two become synthesized in the opposition of deduction and experience.

Theoretically, Piaget claimed an allegiance to Levy-Bruhl's "law of participation." Participation was a concept brought into early twentieth century by Levy-Bruhl, in conjunction with explanation of the uses of collective representations in human thinking. In what was then called 'primitive thinking', different objects could form relations with persons in the context of 'collective representations': "I should be inclined to say that in the collective representations of primitive mentality, objects, beings, phenomena can be, though in a way incomprehensible to us, both themselves and something other than themselves."

Levy-Bruhl's notion of participation was a terminological solution to the aberration of identity axiom of the Boolean logic. In the latter, if something is x, it cannot simultaneously be something else (non-x). Yet the evidence from the thinking of people from other societies indicated that there were no difficulties for being simultaneously two (or more) states of existence. Thus, Levy-Bruhl was fascinated by the report from South America that the members of the tribe of the Bororo Indians consider themselves simultaneously persons and red parrots—*araras*.

The example of *being simultaneously* two—myself and a red parrot—was a fascinating challenge to the canons of Boolean logic, which require elimination of such anomalies, yet the world of human thought is filled with it. Levy-Bruhl considered that "pre-logical mentality," which ignores the contradiction. The main development of mental participations entails the respective collective representations becoming internalized (or indirect). The participation becomes a phenomenon of feeling: "The Arunta who feels that he *is* both himself and the ancestor...knows nothing of ancestor-worship. The Bororo does not make the parrots, which are Bororo, the objects of a religious cult. It is only in aggregates of a more advanced type that we find an ancestor-worship, a cult of heroes, gods, sacred animals, etc. The ideas which we call really religious are thus a kind of differentiated product resulting from a prior form of mental activity. The participation or communion first realized by mystic symbiosis and by practices which

affirmed it is obtained later by union with the object of the worship and belief called religious, with the ancestor, the god."

Piaget's study was centered on the notion of participation. It was considered by him to be a result of syncretic fusion of particular observations. Piaget considered participation one of the forms of causality in the child's thinking—a type that disappears after age 5-6 years. He described it as involving "...two things between which there subsist relations either of resemblance or of general affinity, are conceived as having something in common which enables them to act upon one another at a distance, or more precisely, to be regarded one as source of emanations, the other as the emanation of the first. Thus air or shadows in a room emanate from the air and shadows out of doors...[the fifth form of causality—magical causality]...is in many respects simply participation: the subject regards his gestures, his thoughts, or the objects he handles, as charged with efficacy, thanks to the very same participations which he establishes between those gestures, etc., and the things around him. Thus a certain word acts upon a certain thing; a certain gesture will protect one from certain danger; a certain white pebble will bring about the growth of water-lilies...." He explained further: "There are, to begin with, during a very early stage, feelings of participation accompanied sometimes by magical beliefs; the sun and moon follow us, and if we walk, it is enough to make them move along; things around notice us and obey us, like the wind, the cloud, the night, etc.; the moon, the street lamps, etc., send us dreams "to annoy us", etc. In short, the world is filled with tendencies and intentions which are in participation with our own."

Piaget's empirical inquiry is systematic. We can gain a glimpse into children's thinking about air, wind and breath, clouds and heavenly bodies, water currents and levels, and shadows (on the side of natural understanding). Furthermore, Piaget used themes of artificial objects—boats, bicycles, the steam engine, airplanes, and automobiles—to provide the whole range of phenomena that can evoke children's interests. Each task is organized into a frame of presenting ontogenetic stage sequences in the understanding of the specific phenomena.

There is a beautiful autobiographical moment in his inquiries—the construction of a new form of a vehicle: "At an age which through various coincidences he can place at exactly between 8 and 9, one of us remembers having played a great deal with machines. He actually invented a new means of locomotion, which he christened the "auto-steam" (Fr. autovap), and which consisted in applying to motorcars the principle of the steam engine—boiler, piston, connecting rods. The inventor of the autovap even published his discovery in an illustrated work, which, incidentally, was written in pencil."

Piaget was an empiricist of the Continental European kind. This kind is similar to the Bororos who considered themselves to be red parrots: an empiricist is a researcher interested in empirical phenomena while using some general theoretical framework as a starting point. The latter need not strictly determine the former—although ideally it should. That ideal was not reached in Piaget's early work.

Piaget was a keen observer of phenomena that interested him—and triggered their further forms by introducing specific probes to the children so as to bring out into the open the complexity of their efforts to understand the ways in which different phenomena work. At the same time, Piaget used the relevant theoretical ideas of his time. Of course, all through his life, Piaget had a meta-theoretical goal—striving toward harmony, yet his own theoretical elaborations were developed slowly. For example, there is little trace of Piaget's own theory—that of equilibration—in the present book. The notion of assimilation exists in its mechanical version (as described above). The notion of accommodation is mixed with imitation.

In contrast, the empirical strength of Piaget's research program is visible in this book at its maximum. The world of children is filled with different events, many of those are challenges to the understanding of the child. Thus, children wonder about why different ordinary events happen. Researchers of children's psychological functions can gain an insight into children's thinking when observing children making sense of these challenging events.

Why Read Piaget?

There are many ways of answering this question. Perhaps the most important one is that of our own curiosity. *The Child's Conception of Physical Causality* is filled with creative experimental ideas of probing into the most sophisticated ways of thinking in children. Our encounters with the physical world are filled with miraculous puzzles—wind appears from somewhere, some heavy objects (like oil tankers) float nicely on oceans, but other objects go down to the bottom of our water-filled buckets. Steam engines puffed away in the industries of the past, shadows are cast on sunny days, and children were eager to turn from bipedalists into bicyclists—getting the funny two-wheeled transportation device to propel their balancing bodies toward their destinations.

Nowadays our experiences with steam engines may be meager (a tea kettle is not the best equivalent), but

new technological devices put our understanding of causality to further tests. After all, can we easily explain how some image arrives in our computer from thousands of kilometers away, though the World Wide Web or other networks? Technologies change—yet the creative curiosity of children remains, basically unhindered by the consumer society. We create new myths—about the power of the Internet, information overflow, and ever-increasing innovations of our work through computers. These are our examples of magical causality.

Piaget's data preserve the reality of the original phenomena in them. Our contemporary psychology needs ideas that relate to reality of phenomena. Careful return to the actual work of Piaget, as well as others of his time such as Lev Vygotsky, Kurt Koffka, Heinz Werner, William Stern, Kurt Lewin, Muzafer Sherif, allows our contemporary reader to begin thinking about the unity of psychological phenomena and their theoretical explanatory constructs. Collecting new data does not help in a field where the mind has developed from a constructor to the consumer of knowledge. Piaget's experience of walking through a street—and by that becoming confronted with a whole world—is today reduced to driving from one parking garage to another. Piaget's original writings help us to overcome the handicap of post-modern practices of intellectual laziness and the acceptance of given truths. As Piaget himself once said—the road to objectivity in science is not a given, but can be achieved only by careful, step-by-step investigation. This is the thought behind the stage—of Piaget's massive chorus of empirical contributions to the understanding of how children think. Surely there is a whole world behind the talk about stages, the world of curiosity, rather than that of classifications. The hero image surrounding Jean Piaget can then vanish, and we can enjoy our access to the curious child-watching mind of the clever naturalist from Neuchatel.

Jaan Valsiner is professor and chair of the department of psychology at Clark University. He is the editor of Culture & Psychology *and* From Past to Future, *as well as of monograph series Advances in Cultural Psychology from Information Age Publishers. This is a part of his introduction to the Transaction book* The Child's Conception of Physical Causality.