

The Enduring Influence of Jean Piaget

December 01, 2011

The *Psychology Today* interview with [Jean Piaget](#) took place in 1970 at the height of his influence. During that year, the international Jean Piaget Society was formed, and the society, as well as Piaget's influence, endure.

The interview captured many facets of Piaget's remarkable career: his roots in epistemology and natural history; his interests in the underlying processes of intelligence and reasoning, the development of morality, and the theoretical basis within developmental psychology for educational practices; and his comparisons between his theory and other major theoretical positions of the day. This commentary considers some of these aspects in the context of Piaget's legacy for contemporary psychology.

The interviewer, Elizabeth Hall, began with an ingratiating statement: "You and Sigmund Freud are regarded as the two giants of 20th-century philosophy." This statement by itself must be viewed as extreme hyperbole because she puts Piaget's philosophical role above that of — to name only a few — Ludwig Wittgenstein, John-Paul Sartre, Karl Marx, and William James. However, despite the hyperbole, it is clear that Piaget was an extraordinarily important contributor to the philosophical underpinnings of psychology. Various attempts to identify the most eminent psychologists of the 20th century, such as that of Steven Haggbloom et al. (2002), invariably place Piaget in the top tier. In Haggbloom's empirical scheme, Piaget ranked second in professional journal citations (after Sigmund Freud) and fourth in citations for introductory psychology textbooks (after Sigmund Freud, B. F. Skinner, and Albert Bandura).

Piaget claimed in the interview that all the problems he had undertaken had been epistemological. Throughout his career, he described himself as a "genetic epistemologist," which is an apt description for someone who endeavored to trace the nature and origin of knowledge from sensory-motor actions in infancy to formal cognition and logical operations in adulthood. (The term *genetic* in Piaget's parlance was a synonym for *developmental*.)

From the perspective of the early 21st century, three criticisms of Piaget's work stand out. First is his approach to methodology. He rarely reported anything about how he selected his participants, how many children he examined to arrive at his conclusions, or anything even remotely statistical beyond the age (in years and months) of individual children who gave answers to his queries. One of his most influential books, *The Origins of Intelligence in Children* (Piaget, 1952), had only three participants; his own three children. In that book, Piaget described a sequence of six sub-stages in the cognitive development of infants in what he called the sensorimotor stage of development. Perhaps the most famous of these sub-stages is the fifth, when object permanence develops. Despite reservations about Piaget's methodology, one must admit that he pioneered a technique for studying children that has yielded enormously influential results. Called the "clinical method," it was essentially an in-depth interview with individual children about their thinking.

The second criticism of Piaget concerns the nature of the stages themselves. Stage theories of development have fallen out of favor in developmental research. Although stages are seen as useful heuristics for describing the trajectory of human behavior, several problems have pushed stage theories aside. One problem is that stages often fail to capture the complexities of intraindividual and interindividual variation in development. Furthermore, in the case of Piaget's theory, intelligence is now viewed more as a modular system than as a unified system of general intelligence. In Piaget's system, once an individual has mastered an overall intellectual operation, it should apply across all domains of the mind, as a "structured whole" (or "*structure d'ensemble*," to use Piaget's phrase). Contemporary developmental approaches to intelligence consider modules of the mind to be largely independent, and do not assume a structured whole.

The third criticism relates to what might be called the endpoint of the development of intelligence. Piaget's theory implies that formal operations of intelligence are attained at puberty, around age 11 or 12 (Inhelder & Piaget, 1958). Formal operations entail the kind of hypothesis testing, abstract thinking, and deductive reasoning associated with scientific thought. The 13 tasks that Piaget and his colleague Bärbel Inhelder used to measure formal operations have a strong natural-science bias. The children were presented with tasks on the equality of angles, isolation of variables in chemical combinations, separation of variables in the flexibility of rods, exclusion of variables in pendulum oscillation, equilibrium in a balance, centrifugal force, and the use of floating bodies to test Archimedes' principle. If the criteria for formal operations outlined by Inhelder and Piaget are used, college students, in my experience, often fail to show formal operations. But Piaget implied that all children attain this stringently systematic hypothetico-deductive reasoning by about age 12. Perhaps such expectations are not surprising from a man who began publishing scientific articles on mollusk shells when he was 15, and whose first paper — a report on an albino sparrow — was published when he was 10!

Having implied that everyone gains formal operations at age 12 or so, Piaget went on to suggest that not much else happens in the development of cognition during adolescence and adulthood. Did Piaget seriously believe that the cognition of a 12-year-old was no less sophisticated than the cognition of a 25-year-old? It seems to me that his claims were too narrow and too broad: Narrow when it came to the types of tasks he used to measure formal thinking, and broad when he suggested that cognitive development is completed at such an early age.

Piaget's theory has been influential in curriculum design, with scores of books and papers addressing the application of his theory to education (e.g., Elkind, 1976; Furth, 1970; Furth & Wachs, 1975; Jardine, 2006). Piaget was dismissive of the American tendency to try to speed up cognitive development, which he sometimes referred to as the "American question" — the question of whether it is possible to speed up the acquisition of cognitive-stage milestones. In the interview, he posed a counter-question: "Is it a good thing to accelerate the learning of these concepts?" It was clear that he thought such a goal was not desirable.

Piaget's theory was highly influential in American schools in the latter half of the 20th century, but that influence may have waned. One example is Piaget's emphasis on active involvement in learning. As he said in the interview, "You cannot teach concepts verbally; you must use a method founded on activity." He favored education based on cognitive processes rather than cognitive products. However, American education has become quite product-oriented, with its emphasis on assessment and adequate yearly progress. Perhaps no child will be left behind because most children will not get very far. This notion is

related to the concept of readiness for education, and his view that one should not push children too early. Attempting to teach children concepts before they have arrived at them spontaneously “is completely useless,” as he put it.

Piaget’s interview ended with a question about how he saw the future of psychology. “With optimism,” he replied. “We see new problems every day.” More than 40 years later, I think it is fair to say that Piaget’s influence remains strong and that his optimism was justified. Much of the revolution in cognitive neuroscience was anticipated by Piaget’s approach. The “contemporary biological revolution” that he believed had bypassed the behaviorists has continued unabated since Piaget’s death in 1980. I think if he could be interviewed today, he would express delight in the direction of the field.