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Theories of cognitive development: From Piaget to today

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ABSTRACT

At the occasion of their fortieth anniversary, the Archives Jean Piaget, a foundation created by Bärbel Inhelder in 1974 for the preservation and promulgation of Piaget's oeuvre, invited in Geneva ten among the most prominent and influential developmental psychologists to the first Jean Piaget Conferences. Cognitive developmental psychology has undergone radical changes during these last four decades since the last formulations of Piaget's constructivism. In this double special issue, the invitees of the Jean Piaget Conferences elaborate on their own conception of developmental changes in a variety of domains and functions, offering a comprehensive overview of current theories of cognitive development.

Introduction

Jean Piaget, by the scope, depth and importance of his work, is undoubtedly the major figure of twentieth-century psychology. As Flavell, Miller, and Miller wrote in their textbook about theories of development: "theories of cognitive development can be divided into B. P. (Before Piaget), and A. P. (After Piaget), because of the impact of his theory on the theorizing that came thereafter" (Flavell, Miller, & Miller, 2002, p. 8), adding that Piaget had "the greenest thumb ever for unearthing fascinating and significant developmental progressions" (Flavell, 1996, p. 202). His direct entourage did not remain, of course, unaware of the prominence of his outstanding and unique contribution. In 1974, six years before Piaget's death, the late Professor Bärbel Inhelder, probably his most talented and devoted collaborator, took the initiative to create a research and documentation center, the Archives Jean Piaget,

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a private foundation for the preservation and promulgation of Piaget's publications and the vast literature he inspired. The foundation, allied with the Faculty of Psychology and Educational Sciences of the University of Geneva, has never ceased its activities, and after the recent donation by the family of the entire content of Piaget's office in his house of Pinchat in Geneva were he lived for about sixty years, the collections of the Archives Jean Piaget host almost all the manuscripts of the great Swiss psychologist nowadays accessible. In June 2014, on the occasion of their 40th anniversary, the Archives Jean Piaget invited to the University of Geneva prominent developmental psychologists to present their work as part of the first Jean Piaget Conferences. Piaget having set out the first major theory of cognitive development, the event was naturally entitled *Theories of development*. The present double special issue of *Developmental Review* extends this conference by gathering the contribution of its participants, who have been invited to present their most recent empirical and theoretical advances in the domain of cognitive development.

Theoretical evolutions after Piaget

Piaget's theory was so broad in scope though parsimonious in its number of theoretical constructs and postulates, it was so systematic in its approach and successful in discovering a range of unexpected developmental findings in a variety of domains that Flavell et al. (2002) did not exaggerate when describing an A. P. period in developmental theorizing. In large part, this period began when Piaget's work became more popular in North America, mainly through the influential books authored by Hunt (1961) and Flavell (1963), and came into contact with learning theory and the then emerging information processing approach. Much of the ensuing debates revolved around children's acquisition of conservations, and the putative role of learning and experience in this acquisition. According to Case (1985), the two postulates that provided the greatest difficulties were the idea that behavior at each developmental level is underpinned by logical structures, with different types of structures determining successive developmental stages, and that the transition from one type of structure to the other resulted from a process of equilibration through a mechanism of reflective abstraction. Horizontal *décalages* (the fact that two notions supposed to rely on the same structure present a systematic interval in their acquisition, such as matter and weight conservations), poor correlations among tasks assumed to pertain to the same developmental stage (Pinard & Laurendeau, 1969), and the lack of explanatory power of the notion of stage (Brainerd, 1978) undermined the idea of logical structure in a decisive way, while training studies suggested that cognitive disequilibrium triggering an equilibration process was not necessarily needed to access stable conservation understanding (Case, 1977). At the same time, factors such as language and cultural influences, which remained neglected in Piaget's theorizing, were assumed to shape cognitive development (Bruner, 1960; Vygotsky, 1962), while information processing approaches introduced, through the computational simulation of production systems, a rigor in theorizing that was then uncommon (Klahr & Wallace, 1976; Simon, 1962). Approximately at the same time, the emergence of new methods allowed for the investigation of cognitive processes in infants that went beyond Piaget's pioneering and influential contributions in this domain. As Piaget surmised "the explanation of cognitive behaviour by means of innate ideas is, in general, a facile and rather lazy solution, … however, after the excesses of explanation by learning alone, a return to nativism is to be expected" (Piaget, 1968, p. 978). Accordingly, the recent decades have been marked by an upsurge in nativist accounts of infant cognition and development leading to a modularist and domain-specific view of cognition (Cosmides & Tooby, 1994; Fodor, 1983) and the hypothesis that human beings come into the world endowed with some core knowledge to deal with especially relevant aspects of their physical and social environments (Baillargeon, 1994; Carey, 2009; Spelke, 2000).

Despite notable exceptions known as neo-Piagetian theories (Case, 1985, 1992; Halford, 1993; Pascual-Leone, 1970), these evolutions resulted in some abandonment of the notion of stage in describing and explaining cognitive development and in the appearance of domain-specific local theories aiming at accounting for the development of the main cognitive functions such as perception, learning, categorization, memory, language, reasoning, or problem solving. Nowadays, it seems that developmental psychologists no longer agree, as Case assumed in the eighties, "that any theory of development must ultimately provide an unified account of the changes that are revealed by tests of children's higher cognitive processes and by tests of their more basic processes and capacities" (Case,