



COMMENTARY

NCT and developmental psychology: a welcome rapprochement

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This is a commentary on Flynn *et al.* (2012).

For over 50 years, developmental psychologists have conducted research around the world to understand the relation between culture and cognition. In fact, psychologists have been interested in this topic for over a century. In the late 1800s, Wundt introduced *Elements of Folk Psychology*, the study of how culture becomes part of higher psychological functioning (Cole, 1996). Cole even traces this inquiry back to Herodotus in the fifth century BC. In short, the question addressed by Flynn and her colleagues is not new. But this does not mean that it is insignificant or resolved. This thought-provoking essay contains many interesting ideas about how human culture and biology define and support one another. It also calls for collaboration between evolutionary biology and human developmental psychology, a worthwhile suggestion.

The paper concentrates on Niche Construction Theory (NCT), the idea that organisms actively modify their environments, resulting in changes to the setting and organism that are transmitted over time. Human beings are not unique in niche construction; however, as the authors argue, they possess characteristics, including neurological features (plasticity) and capabilities (learning), that give human niche construction 'a special potency'. Like developmental psychologists, Flynn *et al.* also contend that human niche construction largely unfolds during psychological growth.

Four psychological approaches that emphasize social experience and cognitive functioning are highlighted: *natural pedagogy*, *Activity Theory*, *distributed cognition*, and *situated cognition*. These areas differ in developmental focus, with neither distributed nor situated cognition offering much account of psychological development. They also differ in assumptions about human nature; those who endorse natural pedagogy hold different views about the origins of human cognition from Activity Theorists. Two relevant developmental theories are

missing, evolutionary developmental psychology (Bjorklund & Pelligrini, 2002) and sociocultural theory (though its basis is discussed with Vygotsky and Activity Theory) (Cole, 1996; Gauvain, 1995). Here I use these theories to describe the relevance of socioemotional development and sociogenesis to human niche construction.

Evolutionary developmental psychology challenges a core idea of evolutionary psychology, a view based on mature systems in which human evolutionary change is largely about cognition. Cognition is certainly a chief component, as is evident in the vast potential of human learning. But the evolution of intelligence is also contingent on other species characteristics that underlie our ability to develop high levels of intellectual functioning in a single lifetime and that are tailored to the unique circumstances of growth. These features include, as previously stated, our social nature along with the immaturity of the brain at birth, the protracted developmental course, and the formation of emotional ties.

Development does not happen by the child alone. As described in sociocultural theory, the social world provides the core experiences, interactions, and tools through which children learn and develop. The social context of human learning and development is simultaneously a cultural context. Human beings live in organized social units, or cultures, in which members share values, beliefs, and understandings about the world, participate in common practices and activities, and transmit information and ways of living across generations. Over development, as children participate in social interactions and other inherently social processes (e.g. using cultural tools and symbols that organize and support thinking), the behaviors and understandings of the culture become part of a child's own thoughts and actions.

As Flynn *et al.* explain, the foundations for learning socially emerge early; young infants show a bias toward

social stimuli and display nascent behaviors integral to social interaction such as intersubjectivity and joint attention. As these capacities develop, they make learning through observation, instruction, and collaboration possible. What children learn is, in large measure, the types of problems confronted by the cultural group along with the techniques used to solve them. In other words, human beings were selected over evolution to learn vast amounts of information in social settings rooted in cultural needs and values. Importantly, these early social contacts involve people with strong emotional ties, which enhance learning. Deep and abiding affective relationships create a secure base for exploring and learning about the world, as described by attachment theory. They arouse emotions that foster children's interests and motivation and perhaps even help them achieve optimal learning states.

Flynn and colleagues discuss two time scales, evolutionary and individual change. Sociogenesis or cultural change is also an important developmental aspect of human niche construction. Certain characteristics of childhood, including inexperience with the world and a propensity toward play, provide children with availability and openness to experience markedly different from adults (Bjorklund and Pellegrini, 2002; Gauvain, 2009). These characteristics may help instigate societal changes that have consequences for niche construction. Close examination of the relation of onto- and sociogenesis reveals yet another feature of human niche construction. Inherited alterations to the niche can have great cultural value, and experienced cultural members try to get children to adopt them. But during socialization, there is an inherent tension. As active agents in development, children both embrace and resist socialization efforts,

which, in turn, regulate niche selection across generations. In addition, our social connections are not only our current partners. They include our ancestors who shape development through the values and practices instantiated in the culture. In this way, the artifacts that encode the historical record – written documents and myriad cultural tools that both enable and regulate action – define the human niche.

Flynn and colleagues offer a welcome rapprochement between two commensurate but largely separate fields of study. Bringing together NCT with contemporary developmental theory, especially sociocultural and evolutionary developmental approaches, is an ideal starting point for revisiting a longstanding and fascinating question about human nature.

References

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