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COMMENTARY

Developing Evolutionary Psychology: Commentary on Narvaez et al. (2022)

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Narvaez et al. (2022), in their article "Evolving Evolutionary Psychology," argue that mainstream evolutionary psychology is based on misguided neo-Darwinian adaptationist thinking and an antiquated computationalist, "mind-as-computer" framework and offer their own developmentally informed theory as an alternative. While applauding Narvaez et al. for promoting the role of development in evolutionary explication and as a potential metatheory for psychology, we point out that contemporary evolutionary-developmental accounts address the shortcomings of mainstream evolutionary psychology they describe, while maintaining an adaptationist perspective that includes a central role of evolved, domain-specific information-processing mechanisms.

Keywords: evolutionary-developmental psychology, developmental systems theory, life history theory

In 2001, at a symposium on evolutionary-developmental psychology at a meeting of the Society for Research in Child Development, discussant Steven Pinker remarked he foresaw a future in which the field of evolutionary-developmental psychology would not be necessary, for *all* of psychology would be built on a foundation of evolutionary theory. Twenty years later we believe that future is in sight, although the form of evolutionary theory to serve as psychology's foundation remains in debate. Narvaez, Moore, Witherington, Vandiver, and Lickliter, in their 2022 article "Evolving Evolutionary Psychology," argue that mainstream evolutionary psychology is not that theory and propose their own model ("Developmental Evolutionary Psychology Theory," or DEPTH) as an alternative. Their major criticism of evolutionary psychology is that it is based on misguided neo-Darwinian adaptationist thinking and an antiquated computationalist, "mind-as-computer" framework. In contrast, DEPTH emphasizes the interdependence of ontogeny and phylogeny, developmental plasticity, and the recognition of humanity's evolved developmental niche, among other things. However, we believe the field of evolutionary psychology has matured over the past decades and many of the faults described by Narvaez et al. (2022) with mainstream evolutionary psychology do not reflect contemporary positions in the field regarding evolution and development.

Concerning Narvaez et al.'s (2022) critique of adaptationist thinking, in previous publications (e.g., Witherington & Lickliter, 2016), they have advocated for a "hard" version of developmental systems theory (DST) to explain organism–environment interaction over ontogeny. DST holds that development is the result of emergent structure and function via interactions of elements at all levels of organization, from genes through culture. In the "hard" version of DST, natural selection operates only at the population level—on the organism–environment whole of replicable developmental systems. The organism cannot be separated from the environment, making adaptation by natural selection at the individual level impossible. In contrast, a "soft" form of DST proposes that the organism is the focus of selection pressures, making an adaptationist approach viable. Although this does not mean that organisms are independent of their environments, organisms and environments can be treated as distinct in evolutionary models. In an extensive review, Del Giudice and Ellis (2016) point out that psychologists use soft forms of DST to explain multiple levels of analysis, reciprocal effects among individuals and contexts, effects of experience on neurobiological development,

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person–environment interactions, and probabilistic relations between developmental antecedents and outcomes, all consistent with an adaptationist framework, and thus, in our opinion, not a misguided perspective at all.

Narvaez et al.'s (2022) principal problem with mainstream evolutionary psychology's adoption of the "mind-as-computer" model is that it implies that "innate rules of perception and cognition are presumed to be prespecified in the genes as a result of selection pressures in our ancestral past" (p. 781), reflecting a form of genetic determinism. However, one group of developmentally minded evolutionary psychologists has avoided the accusation of genetic determinism, proposing that infants are not born with fully functioning psychological mechanisms, but rather with low-level behavioral, perceptual, and cognitive biases and constraints that affect how children process information within the evolutionarily relevant domains of folk psychology, folk biology, and folk physics (Geary, 1995, 2005). These skeletal competencies develop through Gene × Environment × Development interactions, reflecting the inheritance of not only genes, but of entire developmental systems, and are fleshed out in ontogeny mainly through play. These cognitive mechanisms are expressed in a probabilistic fashion, and children will develop in a species-typical manner when they experience a species-typical environment (Bjorklund et al., 2007). In theory, child-initiated activities and engagement in a species-typical environment (e.g., parental attachment) adapt skeletal folk systems (e.g., language, navigation) to local conditions.

This is in keeping with Narvaez et al.'s (2022) emphasis on the importance of plasticity in DEPTH, and is central to other extant evolutionary-developmental models that view plasticity as an evolved characteristic of young children. However, rather than viewing plasticity as general malleability that precludes evolved "rules of perception and cognition," as Narvaez et al. do, contemporary evolutionary-developmental theories view plasticity as directed responses to recurring environmental conditions encountered over evolutionary history (Bjorklund, 2018, 2021; Ellis et al., 2009; Geary, 2005). This was articulated in a seminal paper by Belsky et al. (1991), who applied *life history theory* to human development, proposing that children's early experiences entrained their development in anticipation of future environments. Children experiencing harsh and unpredictable environments display faster rates of development and an opportunistic approach to life (a fast life-history strategy), whereas children experiencing more favorable and predictable environments develop more slowly and acquire a more futuristic perspective (a slow life-history strategy). From this account, early adversity does not so much impair biobehavioral systems as direct or regulate them toward patterns of functioning that, even if costly, are adaptive under stressful conditions. This is counter to Narvaez et al.'s notion of a species-typical childhood environment that "provides the resources needed for a healthy, well-functioning psychosocial neurobiology" (p. 432) and reflects a "positive climate of support for mother and child" that fosters optimal development (p. 433). A large cross-cultural literature shows substantial variation in parental investment on the basis of ecological factors such as warfare, famine, and pathogen stress (Quinlan, 2007); nevertheless, children adapt to these contexts by adjusting their life history strategies (Ellis et al., 2009). Ellis et al. (2020) have further proposed that children who experience adverse early environments develop different suites of cognitive abilities than children growing up in more favorable circumstances, becoming better-adapted to harsh environments, current and future. The authors discuss how educators can take advantage of these children's "hidden talents" to optimize their development.

We applaud Narvaez et al. (2022) for promoting the role of development in evolutionary explication and as a potential metatheory for psychology. However, we believe they are inveighing against an older version of evolutionary psychology and not one reflecting current conceptualizations of evolutionary-developmental psychology. Contemporary evolutionary accounts acknowledge the interdependence of phylogeny and ontogeny, the role of plasticity and children's sensitivity to early environments, and the dynamic interaction between children's biology and environment, all while maintaining an adaptationist and a (much modified) computationalist perspective.

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