

The Developmental Systems Perspective: Organism-environment systems as units of development and evolution

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Abstract

Developmental systems theory is an attempt to sum up the ideas of a research tradition in developmental psychobiology that goes back at least to Daniel Lehrman's work in the 1950s. It yields a representation of evolution that is quite capable of accommodating the traditional themes of natural selection and also the new results that are emerging from evolutionary developmental biology. But it adds something else - a framework for thinking about development and evolution without the distorting dichotomization of biological processes into gene and non-gene and the vestiges of the 'black-boxing' of developmental processes in the modern synthesis, such as the asymmetric use of the concept of information. Phenomena that are marginalized in current gene-centric conceptions, such as extra-genetic inheritance, niche construction and phenotypic plasticity are placed center stage.

Keywords: evolutionary developmental biology ecological developmental biology epigenetic inheritance natural selection phenotypic plasticity

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