Differential susceptibility to the environment: Toward an understanding of sensitivity to developmental experiences and context

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Science, like evolution, is often remarkably convergent in its generativity of new ideas and its exploration of novel conceptual territory. Just as evolution has repeatedly converged upon common phenotypic solutions to problems of survival and reproduction among species of differing lineage (Morris, 2010), the history of scientific inquiry, and that of developmental science in particular, has also been marked by concurrent and homologous discovery by a sometimes striking simultaneity in its arrival at shared theoretical insights along paths of differing origins and trajectories. Thus, it has been with the emergence of “differential susceptibility to the environment”: a construct—really, a shared solution to a set of compelling conceptual and empirical dilemmas—that forms the centerpiece of this Special Section of Development and Psychopathology.

Inspired by a provocative and broadly attended symposium (“Do Children Vary in Their Plasticity? Differential Susceptibility to Rearing Experiences”) at the 2009 Annual Meeting of the Society for Research in Child Development (SRCD), the Special Section explores the convergence of two theories conceptualizing reactivity to environmental stimuli as an indicator of sensitivity or susceptibility to environmental influence. The “biological sensitivity to context” theory advanced by Boyce and Ellis (2005; see also Boyce et al., 1995) originated in empirical observations of differences in children’s autonomic and adrenocortical reactivity to challenge and posited a context-sensitive endophenotype rendering a subset of children unusually susceptible to the risk-inducing and development-enhancing influences of both negative and positive early social environments. At the same time, the “differential susceptibility” theory posed by Belsky (1997, 2005) started with the question “Why should childhood experiences influence later development?” Based on reflections prompted by this question, it hypothesized that children should differ in their susceptibility to rearing environments as a bet-hedging strategy against an uncertain future. Both theories converged on evolutionary explanations of why and how individuals vary systematically in their sensitivity or “permeability” to experiential and contextual influences on development and health.

Most students of child development do not presume that all children are equally susceptible to rearing and other contextual experiences; a long history of research on Parenting × Temperament interactions clearly suggests otherwise. Nevertheless, much work still focuses on contextual effects that apply equally to all children and thus fails to consider the possibility that whether, how, and to what degree early experiences influence child development may critically depend upon individual characteristics. All four empirical papers presented at the SRCD symposium examined the extent to which such child characteristics moderate effects of early rearing experiences on children’s adjustment and development. Drawing on biological sensitivity to context or differential susceptibility theory, each paper focused on a phenotypic, endophenotypic, or genotypic marker of reactivity as a moderator of susceptibility to rearing influence. In the first two papers the moderator was biological