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Cognitive development in gifted children: Toward a more precise understanding of emerging differences in intelligence. Educational Psychology Review, 15, 215-246.
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Research in gifted education and cognitive development traditionally have proceeded in parallel. With some notable exceptions, our understanding of gifted children's thinking is not informed by cognitive developmental theory and methods. Cognitive developmental studies relevant to understanding gifted children's cognition are reviewed in this paper with the goal of informing a research agenda that unites models of intellectual development and gifted education in meaningful ways. As we move from IQ as a primary determinant of giftedness to more complex views of what giftedness is and how it develops, research can capitalize on the explanatory frameworks of cognitive developmental theories.

Four areas of cognitive developmental research – processing speed, nature of the knowledge base, metacognition, and problem solving and strategy use – provide a framework for thinking about what we know, what we need to know, and how we might forge research directions that will give us a more complete picture of what develops in gifted performances and how. Siegler's (1996) overlapping waves model of strategy development, applied longitudinally and microgenetically, is suggested as a valuable framework to help us understand how gifted children acquire and use strategies and the nature of the strategies themselves. This model also allows for the possibility of articulating how cognitive processes, usually studied in isolation, are part of intelligent behavior.

Studies of strategy development need to be united with "complex systems" theories of intelligence. Sternberg's (1985) triarchic theory and Ceci's (1996) bioecological theory are suggested as compatible with the study of strategy development because of their recognition of the complex situated nature of cognitive development. The research dialogue suggested in this paper includes the integration of contemporary models of gifted education (e.g., Barab & Plucker, 2002) in cognitive developmental research. This research agenda will inform assessment, education, and conceptions of intelligent behavior in ways that honor the complexity of giftedness and the developmental processes that underpin it. ❖

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