ACROSS THE GREAT DIVIDE: BRIDGING THE GAP BETWEEN UNDERSTANDING OF TODDLERS’ AND OLDER CHILDREN’S THINKING

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WITH COMMENTARY BY
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ABSTRACT

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Research on very young children’s cognitive development differs greatly from research on cognitive development in older children. The differences include the questions that are asked, the methods that are used to address them, the measures that are employed to provide relevant evidence, and the level of detail at which children’s knowledge is represented. The research approaches are so different that they create an impression that infants’ and toddlers’ thinking differs qualitatively from that of preschoolers and older children. This impression, however, may reflect differences in research approaches rather than differences in children’s thinking.

In the present study, we attempted to bridge this gap by applying to toddlers a type of process analysis that has proved fruitful in studies of older children. Overlapping waves theory, trial-by-trial strategy assessments, and microgenetic methods were used to analyze 1.5- and 2.5-year-olds’ problem solving and learning. The results demonstrated that changes in toddlers’ strategies could be assessed reliably on a trial-by-trial basis, that the changes followed the basic form predicted by the overlapping waves model, and that analyses of toddlers’ strategies could tell us a great deal about both qualitative and quantitative aspects of their learning.

A componential analysis of learning that previously had been applied to older children also proved useful for understanding toddlers’ learning. The analysis specified that cognitive change frequently involves five components: acquisition of new strategies; strengthening of the strategies in their original context; improved mapping of strategies onto novel problems; increasingly refined choices among variants of the strategies; and increasingly skillful execution of the strategies. Independent measures of these components indicated that strategic development in toddlers involves improvements in all five components. Analyses of individual
differences in learning showed that the effects of distal variables, such as age and sex, could be partially explained in terms of their influence on mastery of the components, but that the distal variables exercised additional direct effects as well.

The process of learning in toddlers closely resembled that of older children in other ways as well. Like older children, toddlers use multiple strategies over the course of learning; their choices among strategies are quite adaptive from early on; their choices become progressively more adaptive as they gain experience with the task; they switch strategies not only from trial to trial but within a single trial; their transfer of learning from one problem to the next is primarily influenced by structural relations between problems but also is influenced by superficial features; they show utilization deficiencies early in learning that they gradually overcome; and they show individual differences in learning that fall into a few qualitatively distinct categories.

Perhaps most striking, the 1.5- and 2.5-year-olds emerged as active learners, who continued to work out the lessons of previous instruction in the absence of further instruction. That is, they integrated the lessons of their own problem-solving efforts with the previous instruction in ways that magnified the initial effects of the instruction. Overall, the findings indicated that the gap can be bridged; that theories, methods, measures, and representations of knowledge typically used with older children can improve our understanding of toddlers’ problem solving and learning as well.