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"Don't try this at home": Toddlers' imitation of new skills from people on video

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ABSTRACT

Imitation of people on educational television is a potential way for very young children to learn new skills. Although toddlers in previous studies exhibited a "video deficit" in learning, 24-month-olds in Study 1 successfully reproduced behaviors modeled by a person who was on video as well as they did those modeled by a person who was present in the room (even after a 24-h delay). Neither displaced filming context nor cuts between actions affected toddlers' imitation from video. Shortening the demonstration in Study 2 affected imitation in the video condition but not in the live condition. In Study 3, 24-month-olds who viewed the original longer videos on their family TV screens (with which they had a viewing history) imitated significantly less than those who viewed the videos on the laboratory monitor. Imitation of a live modeler was the same across settings (home or lab). Implications for toddlers' judgments of reliable information sources and for the design of educational television programs are discussed.

Introduction

A distinguishing feature of human cognition is the ability to take advantage of the knowledge and skills of more experienced individuals (Tomasello, Kruger, & Ratner, 1993). Infants nearing their first birthday start to participate in the "referential triangle" in which they share focus with another person on an outside object. They become increasingly adroit at using others' social cues to learn about the world during the next year of life (Baldwin, 2000; Baldwin & Moses, 2001). Watching other people's

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actions, infants begin imitating what they do with objects. Children imitate to learn and also to communicate and identify with social partners (Meltzoff & Moore, 2002; Užgiris, 1981).

In industrialized countries, 21st-century children also see people on video screens and potentially could take advantage of knowledge and skills presented there. An avalanche of video products, including *Brainy Baby, Baby Einstein*, and "BabyFirstTV" (a television network broadcasting 24 h a day), have claimed to promote learning in very young children. In a recent survey, the majority of American parents with 2- to 6-year-olds believed that baby videos positively affect development (Rideout, 2007).

Video might seem to have potential as a teaching tool. It is perhaps the most iconic symbolic medium, maintaining the color, shape, and relative position of depicted objects. It also represents motion, allowing the clear depiction of events (Troseth, Pierroutsakos, & DeLoache, 2004). Video can show people's behavior, including social cues such as facial expression and pointing, with accompanying sound tracks providing further verisimilitude. The question is whether very young children actually learn from video as they do from real people and events.

Research has revealed that children under 3 years of age who are given information on video often do not perform as well on measures of learning as do those who get the same information directly. Toddlers have trouble using information appearing on a TV screen to learn new words (Krcmar, Grela, & Lin, 2007), solve problems (Deocampo & Hudson, 2005; Schmitt & Anderson, 2002; Troseth & DeLoache, 1998), recognize themselves (Povinelli, Landau, & Perilloux, 1996; Skouteris, Spataro, & Lazaridis, 2006; Suddendorf, 1999; Suddendorf, Simcock, & Nielsen, 2007; Zelazo, Sommerville, & Nichols, 1999), and imitate new skills (Barr & Hayne, 1999; Hayne, Herbert, & Simcock, 2003; McCall, Parke, & Kavanaugh, 1977), yet they find these tasks to be trivially easy if they get the information directly. Anderson and Pempek (2005) termed this pattern of results the "video deficit."

There are several potential reasons why very young children exhibit this difference in learning. When children interact directly with another person, they look to him or her for information about the shared environment (Baldwin & Moses, 1996). However, people on television do not share focus on elements of the viewing child's environment and cannot respond if the child attempts to communicate with them. During the middle of the first year, children become sensitive to the lack of interpersonal contingency exhibited by a person on a pretaped video and begin to respond differently than they do to a person who is present (Bigelow, MacLean, & MacDonald, 1996; Hains & Muir, 1996). To the young child, "Persons are special entities, the only entities in the world with whom I can share behavioral states" (Meltzoff, Gopnik, & Repacholi, 1999, p. 35). Yet people on television provide at best a "noncontingent, quasi-social" situation for the viewer (Hollenbeck & Slaby, 1979, p. 45). Due to their experiences in watching television, toddlers may rule out people on video as social partners who might offer relevant information.

A second potential contributor to the video deficit involves children's developing, but incomplete, concepts about the symbolic function of video images and other representational artifacts (Pierroutsakos & Troseth, 2003; Tomasello, 1999). The *dual representation* hypothesis (DeLoache, 1987; DeLoache, 1991; DeLoache, 2000) focuses on the dual nature of objects, such as scale models and video images, that have concrete qualities but also represent something else. For instance, a scale model is a miniature object or set of objects whose main function is to represent a larger space.

DeLoache (1987) had children watch an adult hide a miniature toy in a scale model of a room and then asked them to find a larger matching toy in the room itself. To do so, children needed to realize that the model provided information; it "stood for" the room. Across four test trials, 36-month-olds easily retrieved the toy, but 30-month-olds had great difficulty in doing so. Neither age group had trouble finding the toy they had seen hidden in the model itself, showing that the younger children's problem was not memory but rather a failure to use that event to infer what had happened in the other space. DeLoache reasoned that the younger children focused on the concrete qualities of the scale model itself (i.e., they viewed it as a toy) and did not also recognize its role as a symbol for something else.

As applied to video, dual representation entails thinking of a video image not merely as "something on TV" (the context in which children typically experience video) but also as a potential representation of something real—beyond the frame of the TV set. In a video version of the search task (Troseth & DeLoache, 1998), after watching on a video monitor as an adult hid a toy in an adjoining room, 24-month-olds did not reliably use what they saw on the screen to find the toy on four test trials. How-