Available online at www.sciencedirect.com
ScienceDirect
Infant Behavior & Development 31 (2008) 326–331
Infant Behavior & Development

Short communication

Televised social interaction and object learning in 14- and 18-month-old infants

Allison Cleveland, Tricia Striano *

Department of Psychology, Hunter College, CUNY, 695 Park Avenue, New York, NY, USA[1]

Received 12 June 2007; received in revised form 1 October 2007; accepted 27 December 2007

Abstract

We examined object learning in infants who viewed a televised adult speaking about a novel toy in videos that varied in the social cues provided. Novelty preference in following test trials differed as a function of televised social cues in 18-month-old, but not 14-month-old infants.

Keywords: Object learning; Social interaction; Television; Social cognition

Recent years have seen a marked increase in infants' use of electronic media, and television in particular (Anderson & Evans, 2001; Anderson & Pempek, 2005; Barr & Hayne, 1999; Hughes, 2005; Kanner, 2006; Linebarger & Walker, 2005; Rideout, Vandewater, & Wartella, 2003), with an estimated 43% of children between the ages of 6 months and 2 years watching television every day (Rideout et al., 2003). Despite the prevalence of television in infants' daily lives, as well as a large literature examining the educational and potentially harmful effects of television viewing in older children, few studies have examined whether infants pay attention to or learn from televised displays, or what aspects of programming affect learning and attention at early ages.

Among the small number of studies that have addressed such questions, results have been mixed. This is especially true for infants between the ages of 14 and 18 months. Research to date has examined the questions of what infants between 1 and 2 years understand from television primarily by utilizing imitation or vocabulary learning paradigms (e.g., Barr & Hayne, 1999; Grela, Krcmar, & Lin, 2004; Meltzoff, 1988). For example, in a pioneering study, Meltzoff (1988) found that 14-month-old infants who viewed an adult modeling a simple 1-step action on an object were more likely to perform the same action 24 h later when compared to same-aged controls. Subsequent studies have varied aspects of the paradigm to gain insight into the specific stimuli necessary for such results with similarly aged infants. These studies have suggested that performance during such tasks is highly dependent on the task and on the way that televised stimuli are presented to infants. Barr and Hayne (1999), for example, found that 18-month-old, but not 15-month-old infants imitated a more complicated task after viewing an adult model the action on television. However, when the task was made simpler and infants were tested immediately rather than after a 24 h delay, imitation occurred significantly more often than in age-matched controls among 15-month-old infants. Barr and Hayne (1999) suggested

* Corresponding author.
E-mail address: tstriano@hunter.cuny.edu (T. Striano).
[1] http://www.infancy-research.com.

0163-6383/$ – see front matter © 2008 Published by Elsevier Inc.
doi:10.1016/j.infbeh.2007.12.019

that 'sterile' programming of very short duration and with reduced distraction is not comparable to actual programming marketed for young children, and likely has an effect on infant imitation in controlled studies compared to real-life contexts. In testing this hypothesis, they presented infants with televised displays more representative of children's television shows, and found that imitation greatly decreased.

Several studies have also focused on the ways that young children, and sometimes infants, allocate attention in response to television program content. For older children, it has been argued that attention is positively correlated with understanding of content (see, for example, Anderson & Pempek, 2005). Although it was previously assumed that infants paid little attention to television because they could not understand it, studies with television programs designed for very young children have rendered this explanation questionable.

For example, several studies have shown that 18-month-old infants vary their attention to television programs based on content, allocating significantly more visual attention to programs marketed toward their age group, such as *Teletubbies*, than to news clips or shows geared to an older audience (Valkenburg & Vroone, 2004). In addition, 18-month-olds are sensitive to episodes of *Teletubbies* that are shown in random sequences, or with backward speech, compared to normal segments (Anderson, Lorch, Field, & Sanders, 1981). Even at 12–15 months of age, infants allocate a substantial amount of attention to baby videos (Barr et al., 2003), watching the screen 48–74% of the time. It is becoming clear that infants will spend substantial time focused on television given stimuli that they find interesting.

These prior studies leave open the question of infants' abilities to take information from television between 14 and 18 months, and suggest that the content of television programming has a strong effect on both infants' attention to and understanding of television. We tested this hypothesis in the present study by varying the televised social cues available to 14- and 18-month-old infants in order to examine the aspects of televised behavior that infants used to learn about a novel object. We tested the hypothesis that an interactive televised social partner who attempted to 'engage' the infant would be more effective in capturing infants' attention and in providing information about a novel toy than would an onscreen adult who provided more ambiguous and less interactive social cues.

1. Participants

Participants were 29 14-month-olds ($M = 4$ months, 3 days; S.D. = 6.0 days; range: 13 months, 22 days–14 months, 14 days; 13 males and 16 females) and 26 18-month-olds ($M = 17$ months, 27 days, S.D. = 7.6 days; range: 17 months, 16 days–18 months, 14 days; 13 males and 13 females). An additional 13 14-month-olds and 8 18-month-olds were tested but not included in the final sample due to fussiness ($X = 6$), technical problems ($X = 10$), mother interference ($X = 4$), or infants' failure to become engaged by the video (looked to screen for less than 20 s; $X = 1$). All infants were healthy and born full term, Caucasian, and living in a mid-sized German city. Infants were recruited from a database of caregivers who had expressed interest to participate in developmental studies. Infants were given a small toy for participation.

2. Apparatus and stimuli

Infants were tested in a quiet room at the infant laboratory. Each infant was seated on his/her caregiver's lap, facing a table on which a television monitor was situated but hidden behind a white curtain until the start of the procedure. White curtains surrounded the testing area to prevent visual distraction and to prevent the experimenter (E) from being seen by the infant during the procedure. Two video cameras captured the experiment; one captured the table and the infant's face, and the other captured a side profile of the infant and the video viewed by the infant. Caregivers were asked to wear a pair of opaque glasses and to refrain from interacting with their infant during testing.

3. Procedure

The procedure began when E, behind a curtain and out of the infant's view, raised the curtain to reveal the television (Fig. 1a). E then started the video, which in all cases played for 1 min, 30 s. In a between-subjects design, infants viewed one of two videos: in an *Infant–Object Attention* video, and adult female first spoke to the infant (in the infant's direction) for several seconds, then spoke in a positive tone about a toy situated either to her right or left (counterbalanced across infants), while alternating gaze between the onscreen toy and the infant's direction. The *Object Attention* video was identical, except that after the initial few seconds in which the adult spoke in the infant's direction, she did not look