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Age Differences in Young Children's Attempts to Grasp Photos

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Introduction

Are infants able to distinguish real objects from photographs of those same objects? Or must infants learn what photographs afford for action?

Recent research by French et al. (under review) has shown evidence that 12-month-old children grasp at objects in pictures. This work supports conclusions by DeLoache et al. (1998), which suggest that infants may not completely understand the nature of photographs, and learn over the first years of life what photographs afford for action. The researchers concluded that infants behaved as if they thought the objects shown in photographs of objects were real, not merely pictorial representations of three-dimensional objects.

The present study explored:

1. Whether infants produce different types of actions directed toward real objects vs. the same objects depicted in photographs.
2. Whether the frequency of grasping errors increases with age.

Methods

Participants

96 infants (Gender: 45 females, 51 males) were recruited from a database of families who responded to a letter soliciting participants for research. Infants participated in a 5-block experiment in which objects and photographs were presented. Parents completed 36 items assessing infant temperament (Gartstein & Rothbart, 2006). In exchange for completing the study and providing demographic information, families received \$20.

Materials

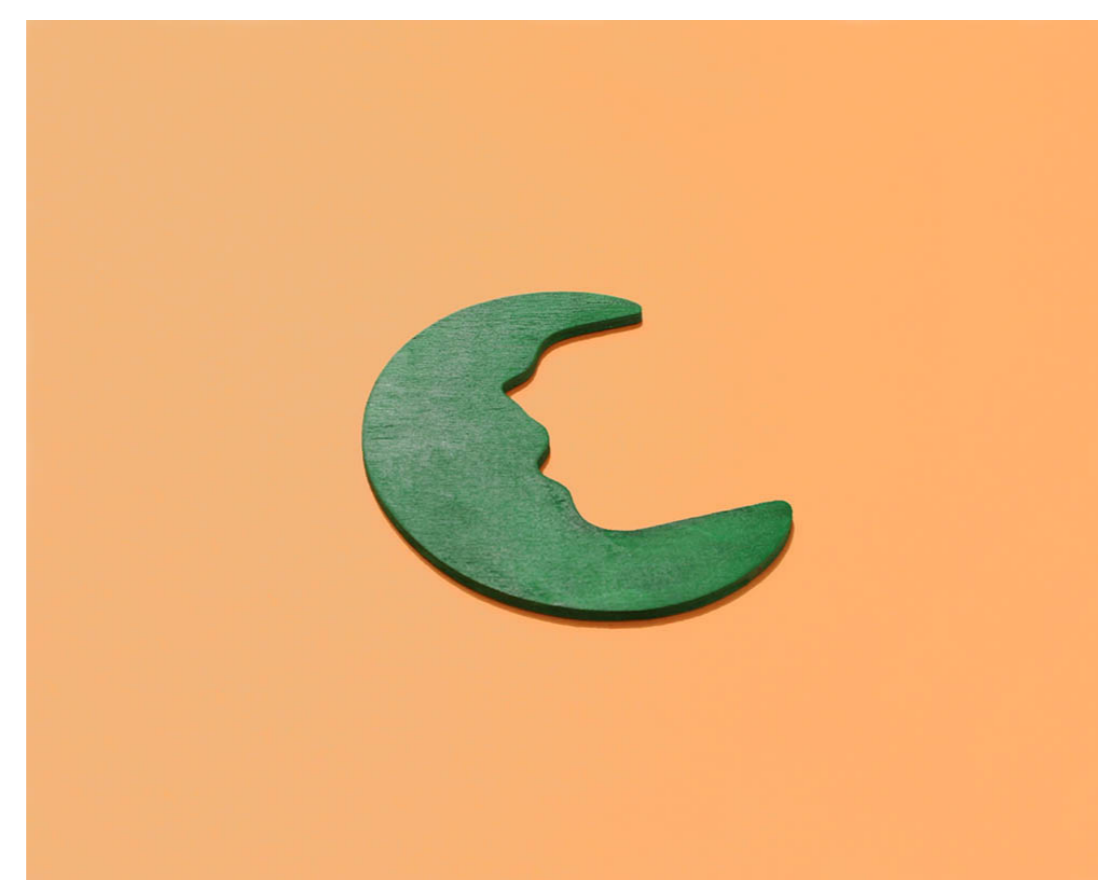
We presented infants with four different types of items:

1. Real objects.
2. Real objects glued to a surface.
3. Photographs of objects.
4. Photographs of textures.

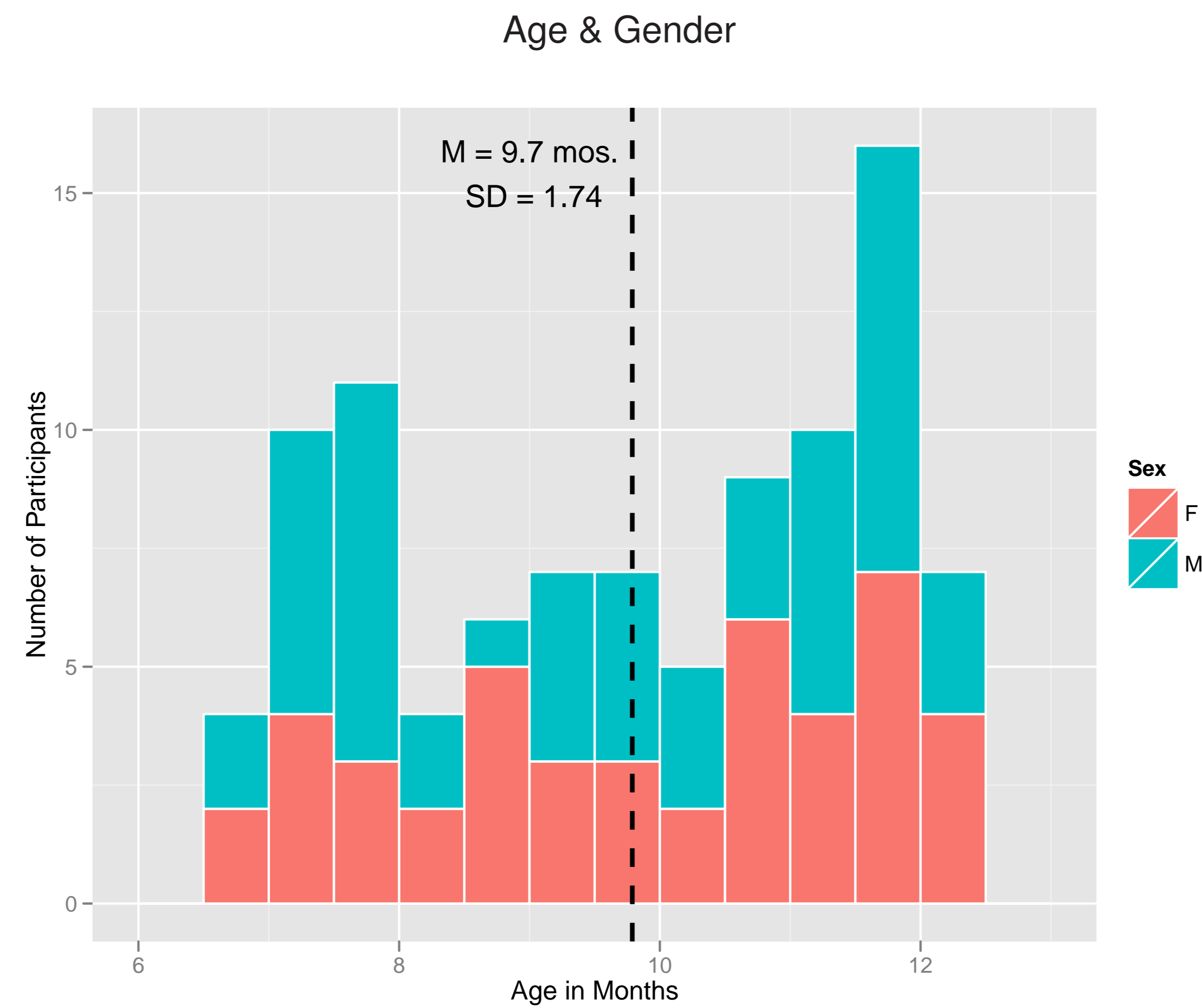
List of Behaviors

Behavior	Definition
Attempted Grasp	Subject's fingers move toward the thumb, or the subject's fingers move toward each other in a pincer motion.
Pat	Fingers or hand contact the display without movement across the surface of the display.
Rub	The pad of the fingers, the palm of the hand, or the back of the hand moving across the display surface.
Scratch	Fingertips or fingernails contact and move across the display surface while the fingers are bent inward toward the palm.

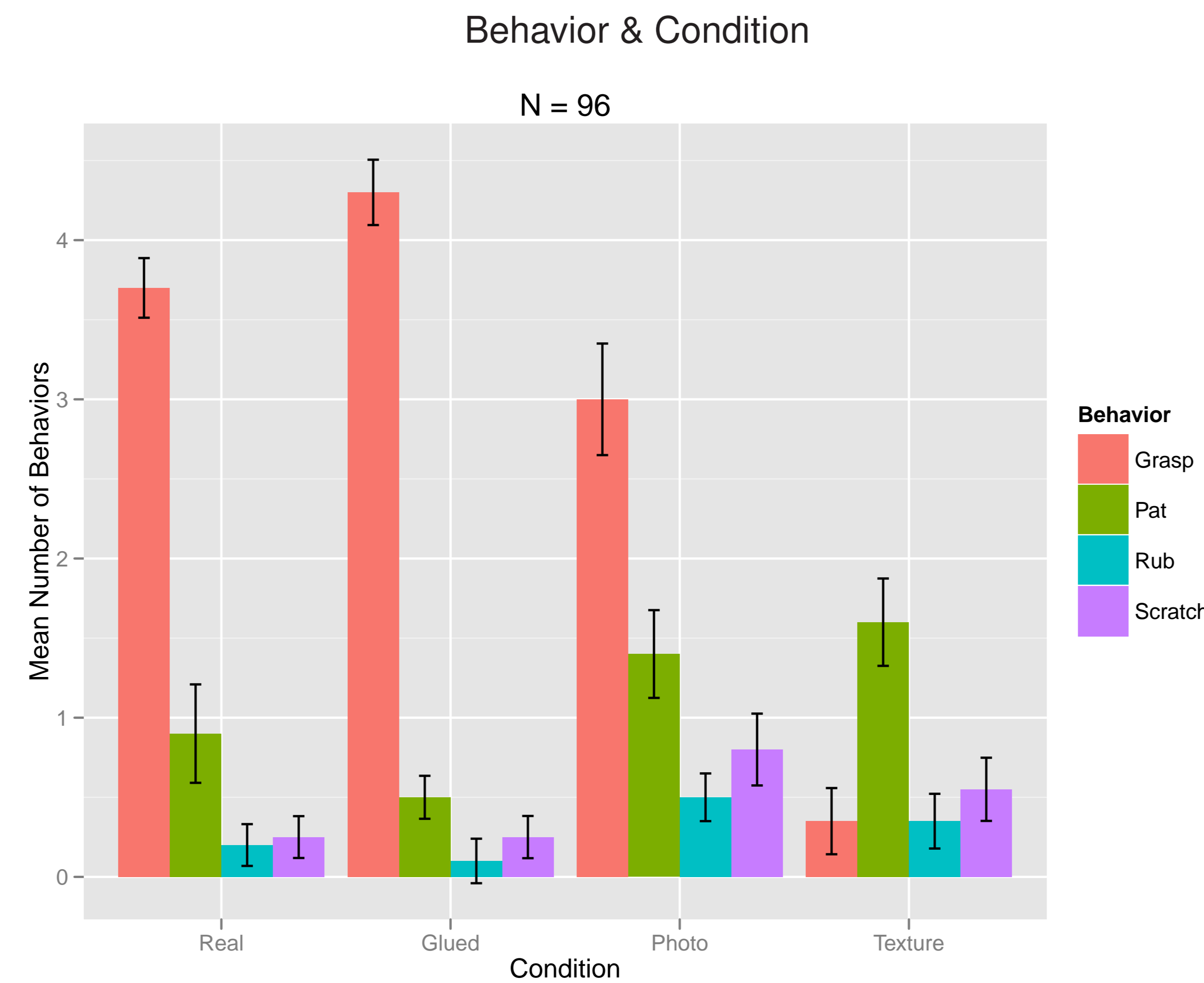
Sample Stimuli Items



Sample Characteristics



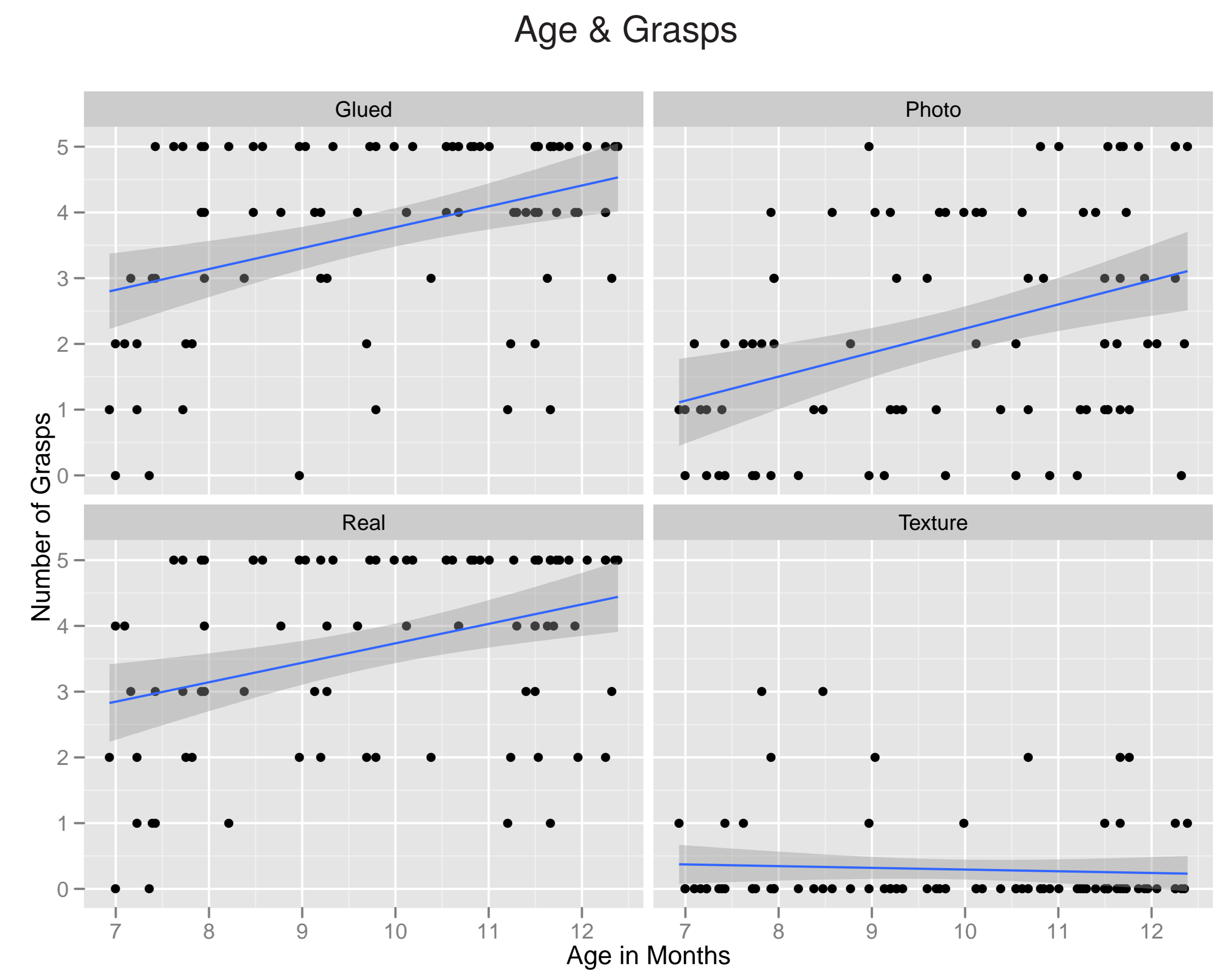
Differences in Behaviors Across Conditions



Tukey Grasp Comparisons

Hypotheses	Estimate	z value	p
Photo - Glued	-1.30	-3.73	0.001**
Real - Glued	-0.20	-0.57	0.940
Texture - Glued	-3.95	-11.34	<0.001***
Real - Photo	1.10	3.15	0.008**
Texture - Photo	-2.65	-7.61	<0.001***
Texture - Real	-3.75	-10.77	<0.001***

Grasps as a Function of Age



Grasping Error Correlations

	Real Objects	Glued Objects	Photograph	Texture
Age	0.35***	0.38***	0.38***	-0.07

Conclusion

Our results provide strong evidence that infants:

1. Attempt to grasp and pick up objects shown in photographs.
2. Differentiate between photographs and real objects.
3. Initially increase in their tendency to grasp at photographs as a product of age.

Our findings replicate the pattern found by DeLoache and colleagues in that grasping errors increase as a function of age. Older children are needed to determine the age at which grasping errors begin to decrease.

Overall our results provide empirical support for Beilin and Perlman's (1991) suggestions that children must learn about the representational nature of photographs. However, our work suggests a slightly more nuanced version. Infants can perceptually discriminate photographs and the objects that are depicted within them. However, very young children are not quite clear about the properties of photographs. That is, they perceive some differences between photograph of objects and the real objects, but in some cases they cannot inhibit the action that would be appropriate but for the real object. **Thus, we suggest that infants do need to learn about the nature of photographs and what they afford for action.**

