

BIOGRAPHICAL SKETCH

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NAME Amy Needham	POSITION TITLE Professor		
eRA COMMONS USER NAME aneedham			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Knox College, Galesburg, IL	B.A.	1987	Psychology
University of Illinois at Urbana-Champaign	M.A.	1989	Cognitive Psychology
University of Illinois at Urbana-Champaign	Ph.D.	1992	Developmental Psychology

A. Positions

Positions and Employment

2009-present Professor, Department of Psychology and Human Development, Vanderbilt University
2000-2009 Associate Professor, Department of Psychology and Neuroscience, Duke University
1992-2000 Assistant Professor, Department of Psychological and Brain Sciences, Duke University

Professional Memberships

Member, Cognitive Development Society
Member, Association for Psychological Science
Member, International Society for Infant Studies
Member, Society for Research in Child Development

B. Selected peer-reviewed publications (in reverse chronological order).

Kaufman, J., & **Needham, A.** (in press). The role of boundary seam and shape in 4-month-old infants' object segregation. *Visual Cognition*.

Needham, A., & Libertus, K. (in press). Neonativism. To appear in *Encyclopedia of Infant and Early Childhood Development*, M.M. Haith and J. Benson, Eds. Oxford, UK: Elsevier Press.

Needham, A. (2009). Learning in infants' object perception, object-directed action, and tool use. In A. Woodward & A. Needham (Eds.) *Learning and the Infant Mind*. (pp. 208-226). Oxford University Press.

Fitzpatrick, P., **Needham, A.**, Natale, L., & Metta, G. (2008). Shared challenges in object perception for robots and infants. *Infant and Child Development*, **17**, 7-24. Special issue on infancy-robotics relations.

Barrett, T., & **Needham, A.** (2008). Developmental differences in infants' use of an object's shape to grasp it securely. *Developmental Psychobiology*, **50**, 97-106.

Barrett, T. M., Traupman, E., & **Needham, A.** (2008). Infants' visual anticipation of object structure in grasp planning. *Infant Behavior and Development*, **31**, 1-9.

Barrett, T.M., Davis, E.F., & **Needham, A.** (2007). Learning to use a tool in infancy. *Developmental Psychology*, **43**, 352-368.

Needham, A., Cantlon, J.F., & Ormsbee Holley, S. M. (2006). Infants' use of category knowledge and object attributes when segregating objects at 8.5 months of age. *Cognitive Psychology*, **53**, 345-360..

Dueker, G.L., & **Needham, A.** (2005). Infants' object category formation in the real world: Context effects on category use in object segregation. *Visual Cognition*, **12**, 1177-1198. Special issue on real-world scene perception.

Sommerville, J.A., Woodward, A.L., & **Needham, A.** (2005). Action experience alters 3-month-old infants' perception of others' actions. *Cognition*, **96**, B1-B11.

Needham, A., Dueker, G. & Lockhead, G. (2005). Infants' formation and use of categories to segregate objects. *Cognition*, **94**, 215-240.

Dueker, G., Modi, A., & **Needham, A.** (2003). 4.5-month-old infants' learning, retention, and use of object boundary information. *Infant Behavior and Development*, **26**, 588-605.

Needham, A., & Ormsbee, S.M. (2003). The development of object segregation during the first year of life. In R. Kimchi, M. Behrmann, and C. Olson (Eds.) *Perceptual organization in vision: Behavioral and neural perspectives*, (pp. 205-232). Mahwah, New Jersey. Lawrence Erlbaum Associates. Publication from the Carnegie Symposium on Cognition.

Needham, A. Barrett, T., & Peterman, K. (2002) A pick-me-up for infants' exploratory skills: early simulated experiences reaching for objects using 'sticky mittens' enhances young infants' object exploration skills. *Infant Behavior and Development*, **25**, 279-295.

Needham, A. (2001). Object recognition and object segregation in 4.5-month-old infants. *Journal of Experimental Child Psychology*, **78**, 3-24.

Needham, A. (2001). Perceptual, conceptual, and representational processes in infancy. *Journal of Experimental Child Psychology*, **78**, 98-106.

Huettel, S. A., & **Needham, A.** (2000). Effects of balance relations between objects on infants' object segregation. *Developmental Science*, **3**, 415-427.

Needham, A. (2000). Improvements in object exploration skills may facilitate the development of object segregation in early infancy. *Journal of Cognition and Development*, **1**, 131-156.

Needham, A., & Baillargeon, R. (2000). Infants' use of featural and experiential information in segregating and individuating objects: A reply to Xu, Carey, and Welch (1999). *Cognition*, **74**, 255-284.

Needham, A. (1999) The role of shape in 4-month-old infants' segregation of adjacent objects. *Infant Behavior and Development*, **22**, 161-178.

Kaufman, J., & **Needham, A.** (1999). Evidence for objective spatial coding in 6-month-old infants. *Developmental Science*, **2**, 432-441.

Needham, A., & Modi, A. (1999). Infants' use of prior experiences with objects in object segregation: Implications for object recognition in infancy. In H. W. Reese (Ed.), *Advances in Child Development and Behavior* (Vol. 27, pp. 99-133). San Diego, CA: Academic Press.

Needham, A. (1999). How infants grasp two adjacent objects: Effects of perceived display composition on infants' actions. *Developmental Science*, **2**, 219-233.

Needham, A. (1998). Infants' use of featural information in the segregation of stationary objects. *Infant Behavior and Development*, **21**, 47-76.

Needham, A., & Baillargeon, R. (1998). Effects of prior experience in 4.5-month-old infants' object segregation. *Infant Behavior and Development*, **21**, 1-24.

Needham, A., & Kaufman, J. (1997). Infants' integration of information from different sources in object segregation. Perceptual Development Special Issue of *Early Development and Parenting*, **6**, 137-147.

Needham, A. (1997). Factors affecting infants' use of featural information in object segregation. *Current Directions in Psychological Science*, **6**, 26-33.

Needham, A., Baillargeon, R., & Kaufman, L. (1997). Object segregation in infancy. In C. Rovee-Collier and L. Lipsitt (Eds.), *Advances in Infancy Research*, (Vol. 11, pp. 1-44). Greenwich, CT: Ablex.

Needham, A., & Baillargeon, R. (1997). Object segregation in 8-month-old infants. *Cognition*, **62**, 121-149.

Baillargeon, R., Kotovsky, L., & **Needham, A.** (1995). Physical reasoning in infants. In G. Lewis, D. Premack, & D. Sperber (Eds.), *Causal Understandings in Cognition and Culture*. Fyssen Foundation Symposia. Oxford University Press.

Needham, A., & Baillargeon, R. (1993). Intuitions about support in 4.5-month-old infants. *Cognition*, **47**, 121-148.

Baillargeon, R., **Needham, A.,** & DeVos, J. (1992). The development of young infants' intuitions about support. *Early Development and Parenting*, **1**, 69-78.

C. Research Support

Ongoing Research Support

“Motor Transitions in Infancy” Needham (PI)
NIH/NICHD

The questions asked in this proposal represent a new way of thinking about motor transitions in infancy. Rather than focusing on *how* infants navigate the complicated physical tasks inherent to beginning to reach, the experiments in this proposal explore *why* they do so: what entices infants to act on objects in the first place? The model proposed here predicts that feedback from infants’ own actions on objects (first those produced accidentally, later those produced intentionally) is critically important for learning how to act on objects. This feedback is reinforcing and helps draw infants into more interactions with objects. Testing this model involves the use of sticky mittens, a device invented by the P.I. to study the transition into reaching during infancy. Infants will be placed in situations in which the feedback they would typically receive when acting on objects is altered by (for example) removing the synchrony between their own actions and the movements of the objects. This will be accomplished using a flat screen video monitor that will show hands that are not the infant’s own hands but rather another infant’s hands. Overall, this proposal breaks new ground in motor development research and offers a new lens through which researchers can understand motor transitions in infancy.

“Motivation to Reach in Blind Infants” Needham (PI)
NIH/NICHD

Blind infants with no motor or cognitive deficits begin reaching for objects months later than sighted infants do. The reason for this delay could be that infants need to perceive the consequences of their actions on objects in order to learn about their potential status as agent. If this is true, blind infants could benefit from receiving feedback about the consequences of their actions on objects. This proposal contains a plan for testing out the consequences of an intervention that will provide blind infants with this information

Completed Research Support

“Developing Effective Strategies for Grasping Objects” Needham (PI) 5/1/99-4/30/04
NIH/NICHD

This project was directed at understanding in what ways infants’ anticipation of object properties makes their actions on objects more accurate and effective.

Role: PI

“Object Segregation in Infancy” Needham (PI) 5/1/94 - 4/30/98
NIH/NICHD

This project investigated the development of infants’ perception of objects using multiple sources of information such as shape and color in the display itself and prior experiences infants have had with an object set.

Role: PI