

# Ability to “Tell the Difference” Declines as Infants Age

August 01, 2007

A new article published in the August issue of *Current Directions in Psychological Science*, a journal of the Association for Psychological Science, suggests that infants fine-tune their visual and auditory systems to stimuli during the first year of life, essentially “weeding out” unnecessary discriminatory abilities.

Lisa Scott, a psychologist at the University of Massachusetts at Amherst, and her colleagues examined several studies suggesting that infants begin to hone their perceptual discrimination to environmentally relevant distinctions by 9-12 months of age. At the same time, the discrimination of environmentally irrelevant, or less frequently encountered, distinctions declines.

In one study, for example, 6-month-old infants were able to differentiate two human faces as easily as two monkey faces whereas 9-month-olds could only differentiate between two human faces. Importantly, if infants are familiarized with monkey faces from 6 to 9 months, they maintain the ability to tell the difference between two monkey faces.

This phenomenon, called “perceptual narrowing” also occurs in other perceptual systems. In another study examining speech, 6-month-old infants could discriminate one sound from another from virtually every language, but by 9 months this ability declines — unless, of course, they receive experience with such sounds.

According to Scott, “what is most intriguing about these findings is that they collectively suggest that typical perceptual specialization and development is characterized by the gradual *decline* of abilities, not just gaining new ones.” Coincident with this decline, the brain is experiencing an exuberance of synaptic connections, followed by the pruning of these connections to adult levels.

“It is important to note that this does not suggest a developmental regression, but progression towards greater efficiency at perceiving and processing salient rather than less-salient environmental input” write the authors.

They go on to suggest that environmental input modifies and shapes of these neural connections throughout development, allowing infants to differentiate between non-native sounds, faces, and even musical rhythms.