



MEDIA CONTACT: Gisele Galoustian
561-297-2010, ggaloust@fau.edu

Florida Atlantic University Researcher Finds a Decline in Perceptual Ability as Infants Get Older

BOCA RATON, FL (April 18, 2006)—A study conducted by researchers at Florida Atlantic University and Princeton University, and reported on in the April 17, 2006 issue of the *Proceedings of the National Academy of Sciences* shows that infants start out life with perceptual abilities that subsequently decline as they get older. These new findings contrast with previous studies that have shown that perceptual abilities improve during childhood.

According to Dr. David J. Lewkowicz, professor of psychology in the Charles E. Schmidt College of Science at FAU, head of the Perceptual Development Laboratory, and principal investigator, “As we get older we become specialists, and when we specialize some of our initial perceptual abilities actually decline.”

In this study, Lewkowicz, in collaboration with Dr. Asif Ghazanfar of Princeton University, tested whether infants could use their ability to associate human faces and voices as a way to associate the faces and voices of monkeys. The researchers reasoned that because infants normally do not have experience with monkey faces and voices they may not be able to associate them when they are young, but may when they get older. To test this possibility, the researchers presented two side-by-side videos of the same monkey face producing two different visible vocalizations and played one of the audible vocalizations through a speaker at the same time. Interestingly, and contrary to conventional wisdom, the findings showed that young infants (4- to 6-month-old) matched the vocalization to the corresponding face by looking longer at the face whose vocalization they were hearing, but the older infants (8- to 10-month-old) did not.

“Previous research has shown that throughout the first year of life infants can perceive which of two human faces produces a particular speech sound. In other words,

the ability to match human speech and human faces does not decline during the first year of life,” said Lewkowicz. “Our study shows that infants’ ability to associate human faces and voices is only part of the story, and that their ability to correctly associate particular faces with particular voices depends on what species those faces and voices belong to and whether or not they have had experience with them in their everyday life.”

Based on the results of their study, Lewkowicz and Ghazanfar conclude that as infants develop and become more experienced with human faces and voices, they shift from being generalists to being experts. “The surprising result that younger but not older infants can make matches of monkey vocalizations and faces reflects a process of perceptual narrowing. This process results in an age-related decline in certain perceptual skills that are not important in the context of our ecology, whereas those that are important are retained and, in fact, become better over time,” said Lewkowicz.

This research was funded by a grant from the National Institutes of Health and conducted by David J. Lewkowicz, Ph.D. in collaboration with Asif Ghazanfar, Ph.D., assistant professor of psychology at Princeton University. Lewkowicz has specialized in developmental psychology, with a focus on infant development, for more than 30 years. Before joining the FAU faculty in 2003, he conducted research at the New York State Institute for Basic Research for Developmental Disabilities.

“Dr. Lewkowicz’s research has shed tremendous light on how and when the developing brain learns how to combine information from different senses,” said Dr. Larry F. Lemanski, vice president for Research at FAU. “By studying the ways that infants gather, process and integrate information, Dr. Lewkowicz and other researchers are uncovering important differences between normal development and those who are at risk for developmental disabilities such as autism.”

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Florida Atlantic University opened its doors in 1964 as the fifth public university in Florida. Today, the university serves 26,000 undergraduate and graduate students on seven campuses strategically located along 150 miles of Florida's southeastern coastline. Building on its rich tradition as a teaching and research university, with a world-class faculty, FAU hosts eight colleges - the Dorothy F. Schmidt College of Arts & Letters, the Charles E. Schmidt College of Science, the Christine E. Lynn College of Nursing, the Harriet L. Wilkes Honors College, and the Colleges of Business, Education, Engineering & Computer Science, and Architecture, Urban & Public Affairs.