2010-04-01

12-Month-olds’ Discrimination of Monkey Faces: Evidence for Perceptual Narrowing?

Jacob C. Jones
jonesykid1@yahoo.com

Scott Stevens

Melissa Wright

Amanda Phillippi

Follow this and additional works at: https://scholarsarchive.byu.edu/fhssconference_studentpub

Part of the Neuroscience and Neurobiology Commons

The Annual Mary Lou Fulton Mentored Research Conference showcases some of the best student research from the College of Family, Home, and Social Sciences. The mentored learning program encourages undergraduate students to participate in hands-on and practical research under the direction of a faculty member. Students create these posters as an aide in presenting the results of their research to the public, faculty, and their peers.

BYU ScholarsArchive Citation

Jones, Jacob C.; Stevens, Scott; Wright, Melissa; and Phillippi, Amanda, "12-Month-olds’ Discrimination of Monkey Faces: Evidence for Perceptual Narrowing?" (2010). FHSS Mentored Research Conference. 1. https://scholarsarchive.byu.edu/fhssconference_studentpub/1

This is brought to you for free and open access by the Family, Home, and Social Sciences at BYU ScholarsArchive. It has been accepted for inclusion in FHSS Mentored Research Conference by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen amatangelo@byu.edu.
12-Month-olds’ Discrimination of Monkey Faces: Evidence for Perceptual Narrowing?

Jacob Jones, Scott Stevens, Melissa Wright, Amanda Phillippi, Harrison Allen, Danny Boysen, & Ross Flom

Department of Psychology and the Center for Neuroscience, Brigham Young University, Provo, UT 84602

Introduction
It is well known from birth that faces are salient, preferred over other stimuli, and are readily discriminated.

It has also been shown that over the course of development infants’ proclivity for face discrimination is influenced by their social environment.

Pascalis, de Haan, and Nelson (2002), for example, demonstrate that 6-month-olds are able to discriminate various monkey faces as well as human faces whereas 9-month-olds can only discriminate different human faces. Importantly, however, if 6-month-olds receive 1-2 minutes per day of familiarization with photographs of monkey faces three months later the new 9-month-olds can still discriminate unfamiliar and familiar monkey faces.

Like face perception, infants’ discrimination of speech also varies as a function of experience and exposure. Four- to 6-month-olds discriminate speech sounds in their native and non-native language; however, by 10 to 12-months of age infants can only discriminate speech sounds common to their native language.

The fact that within first months of life infants discriminate a variety of faces and speech sounds and by infants first birthday this ability has “narrowed” to reflect infants’ perceptual experience has become known as “perceptual narrowing.”

Critical, however, is the assumption that perceptual narrowing reflects a relatively permanent change in perceptual abilities as well as a change in early neural architecture (Scott, Pascalis, & Nelson, 2008). The purpose of this experiment is to examine whether infants’ ability to discriminate unfamiliar monkey faces truly narrows.

In the current experiment we examined:

1) We explored whether we could replicate the results of Pascalis et al. (2002).
Specifically we examined whether 12-month-olds can discriminate unfamiliar monkey faces.

2) We examined the “permanency” of perceptual narrowing.
Can 12-month-olds discriminant unfamiliar monkey faces when they are provided longer periods of familiarization and longer times to visually compare the two faces?

Experiment 1: Method
Ninety-six 12-month-olds were familiarized to a static color display of a Barbary Macaque (Macaca sylvanus). The faces used by Pascalis et al. (2002) were used in the current experiment.

Infants were familiarized to one monkey face for 20 or 40s (n = 48 at each cond.)

Following familiarization infants received two 5s or 10s test trials. On each trial the novel face was paired with the face of familiarization.

Experiment 1: Results

Following the two test trials - infants were familiarized to a second face and completed two additional test trials.

Experiment 1: Conclusions
We were able to replicate the results of Pascalis et al. (2002). The ability to discriminate unfamiliar monkey faces is “narrowed” by 12-months of age (using 20s fam. & 5s test).

However, if familiarization and the time to visually compare the faces is doubled (40s familiarization & 10s test trials) 12-month-olds show discrimination.

Experiment 2: Purpose & Method
We wanted to examine whether we could replicate the results of Experiment 1 - using a 40s familiarization and two 10s test trials.

We also wanted to examine whether we could further “extend” this ability by providing additional exposure to monkey faces.

Experiment 2: Phase 1
Was identical in all respects to Experiment 1: 40s familiarization & two 10s test trials as in Exp. 1 infants were familiarized to a second face and completed two additional test trials.

Experiment 2: Phase 2
Following Phase 1 - infants and their parents were given one of three “study picture books”:

A) A book of monkey faces
Can infants learn the faces in the book (Test of learning)

B) A book of monkey faces
Does exposure to monkey faces generalize to other monkey faces (Test of generalization)

C) A book of human faces
Does exposure to faces in general promote learning of monkey faces (Control)

Parents were instructed to show/interact with their child and the book for 2-3 minutes per day for two-weeks.

Following the week delay infants were familiarized for 40s to A) a face from the book, B & C) a novel monkey face not in the book and not seen before. Test trials were 10s (2:10s test trials).

General Conclusions
We replicated the results of Exp. 1 (40s fam) The results of the 2-week delay and picture book manipulation are inconclusive (low trs).

In general, however, these results demonstrate the ability to discriminate monkey faces does not decline - thus perceptual narrowing does not seem to be permanent.

These results further highlight the experience dependent nature of perceptual discrimination and learning.