INTRODUCING THE NEWSLETTER

Since 1995, our lab has been conducting research on the development of infant learning and memory in the first year of life. We seek to understand what type of information infants and children pick up from their environment, as well as how they organize this information into meaningful representations of objects and events. We are currently examining the nature of the information that infants process in faces and bodies of people around them, how they learn to recognize and mentally organize humans and objects in their environment, and the neural processes underlying cognitive development. Our research is funded by grants from the National Institute of Child Health and Human Development.

In order to keep our current and past parents and families updated on the results of our research we plan to issue an electronic newsletter annually. The newsletter will describe our lab's most recent publications. You can also visit our website for more information.

BODY REPRESENTATION

Knowing what a body looks like is important since we interact with people in the real world and need to be able to extract information from bodies (such as emotion).

We completed a series of studies in which we showed infants two images side by side; one of a normal female body, the second of the same female except with her torso and neck lengthened while her legs were shortened. We compared looking times to the two images to see if they had a preference.
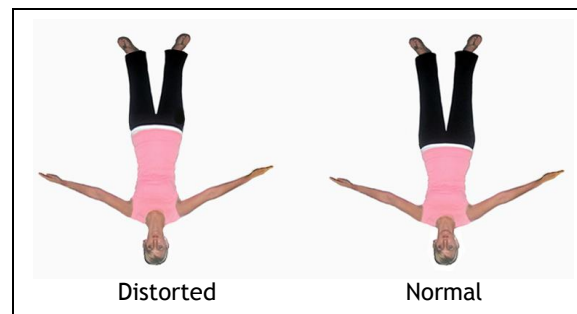
We found that while 5-month-olds showed no preference in looking between the normal and proportionally distorted images, 9-month-olds preferred to look at the normal image.

Distorted   Normal
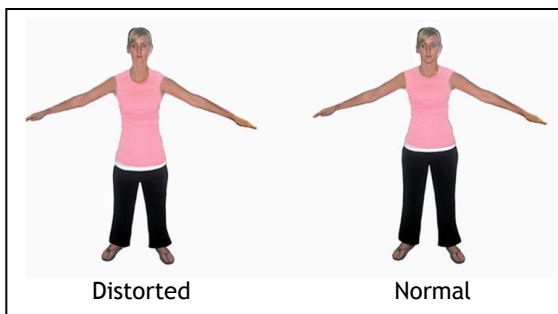
To test whether this was based on body knowledge rather than some other type of preference (such as preference for the picture with more of the "dark" object in the image), we also showed the infants the pictures upside down.

We found that 9-month-olds did not have a preference when we turned the bodies upside-down, which tells us that their preference for the normal body when the pictures were upright was based on their understanding of bodies and not some other preference. Taken together, these results indicate that by 9 months of age babies have an understanding of what typical bodies look like.

In a follow-up study, we showed babies two of the same picture until the baby looked at those pictures for a total of 30 seconds. By showing babies these pictures, we are allowing them to become familiar with the pictures so that when we show them a slightly different picture paired with the familiar picture they can look between the pictures and decide that there are differences.

Distorted   Normal

We found that both the 3-month-olds and the 5-month-olds showed a preference for the new (normal) body, although it took the younger babies longer to show a preference.

PERCEPTUAL ORGANIZATION

OBJECT GROUPING

We use several rules of grouping to quickly and efficiently group information. One way in which we group information is based on the context; we use part structures to determine where boundaries are so that we can group information within rather than across parts.

The current study examined whether 6.5- and 3.5-month-old babies also use part boundaries to organize information. Babies were shown two of the same image repeatedly until they reached a preset criterion for looking. At this point, we believe that babies remember what they have seen.

They were then shown an image in which the group of shapes was familiar (previously seen within a part) or novel (previously seen across the part boundary). The idea here is that if babies use the deep concavity to signal a part boundary, that they should more readily group the shapes that are within the part rather than grouping together those that cross the part boundary. The

deep concavity signals a part boundary, where one would naturally break the image into 2 parts.

The results of this study indicate that 6.5-month-old

Habituation

Test

*Novel Grouping
(across boundary)*   *Familiar Grouping
(within boundary)*
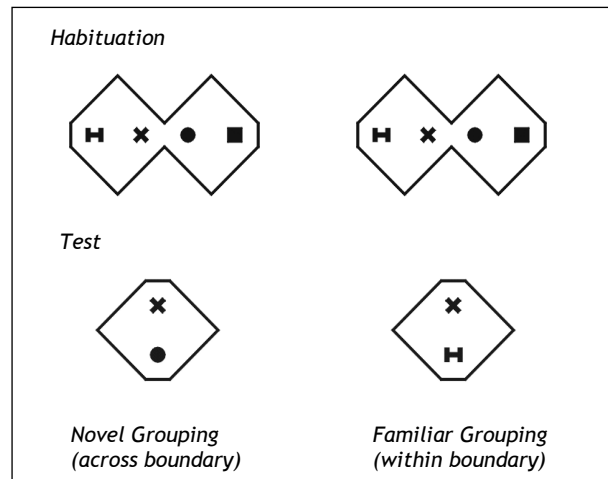
SHORT CUT RULE

It is believed that in order to recognize an object, we first have to deconstruct the image into its parts and recognize the individual parts before we can recognize the whole object. Past research suggests that adults deconstruct objects using the shortest cut, thereby breaking the object into smaller pieces. Recently, we completed a study where we examined how 6.5-month-old babies deconstruct an object.

After the initial presentation of the shape, babies were shown two deconstructed cross shapes; one that was broken apart based on the shortest cut and the other was broken apart using an alternate cut (see Figure 1).

We found that by 6.5 months of age, babies recognize the shortest cut as the accurate way of deconstructing an object; as evidenced by their longer looking toward the alternate cut object. Therefore, we now know that 6.5 month old babies, like adults, deconstruct objects into smaller pieces to recognize the whole shape.

Familiarized Shape

Test

Alternate Cut   Short Cut

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