THE UNIVERSITY OF TEXAS AT DALLAS
DEVELOPMENTS
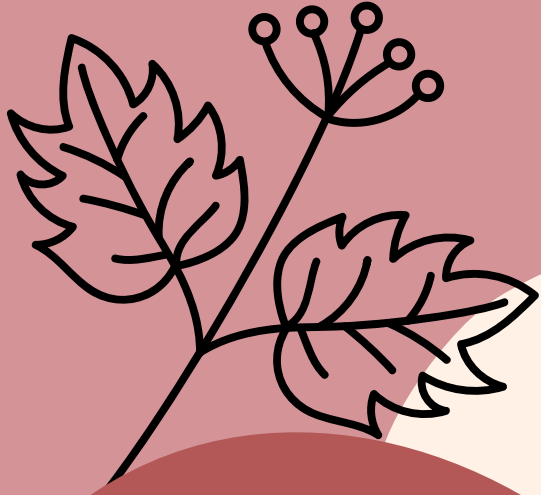
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THE UNIVERSITY OF TEXAS AT DALLAS

School of Behavioral and Brain Sciences

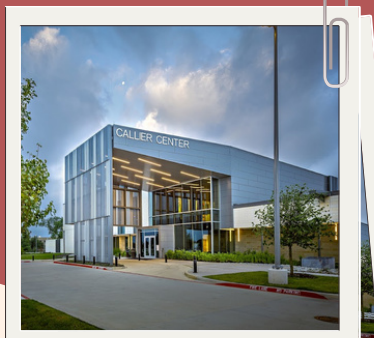**Faculty Advisor: Melanie Spence, Ph.D.**

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CALLIER CENTER
FOR COMMUNICATION DISORDERS

2023 FALL LAB TEAM

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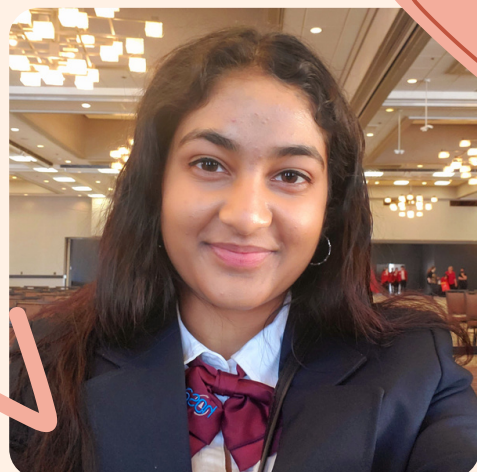MARIB MALIK
LASYA MANNE
ISHA ROJANALA
PREETHI SETHURAMAN

WELCOME
TO OUR NEW LAB MEMBERS

Isha Rojanala

Marib Malik

WHY THE PARENT'S GAZE IS SO POWERFUL
By: Preethi Sethuraman

Infants begin paying attention to and focusing on the objects in the environment around them from an early age. The interactions with their environment helps propel an infant's language and development later on in life. Parents or caregivers play a large role in directing attention and engaging in communication with an infant. Various referential cues such as looking, speaking, handling of objects, or a combination of these are used by parents to help their children focus on objects and learn. Although this has been an area of interest for some time, not much is known about the exact mechanisms that connect attention and cues. Because of this, Sun and Yoshida's (2022) present study looked into the preference of referential cues used and how effective they are when used alone versus together, as well as whether the parent guides attention or simply follows the infant's attention and interactions.

Sun and Yoshida (2022) recorded 43 parent-infant dyads, with infants ranging in ages from 5 to 18 months, in a play session for 5 minutes and 20 seconds. The study incorporated 8 trials, each 40 seconds, with a different word theme for each. The parents were asked to play with their infant as they would at home, but also incorporate a given word that coincided with the theme for each trial. The dyads broadly represented the distributions of ethnicity in Houston, where they were recruited: non-Hispanic Caucasian at 33%, Hispanic at 30%, Asian at 12%, African-American at 9%, bi-racial at 9%, and 7% gave no response. For their prediction that parents would prefer to use a combination of cues to direct infant attention, the authors referred to each referential cue's time distribution during the play session. Sun and Yoshida (2022) examined the temporal relationship between parent's looking and infant's looking at the target objects and expected to see that parents would follow their child's gaze and interactions as they grew older. Additionally, they predicted that when parents employ the use of 2 or more referential cues together, the child's attention to the object will be prolonged.

Watec (WAT-230A), the cameras mounted on each participant's' head, was used to track eye movements of both the infant and the parent. These recordings were put into Datavyu where two coders that were blinded to the experiment variables annotated the referential cues and behavioral correlations. Through this, it was found that object handling was the most preferred referential cue used by parents (34.7%). Observing multiple referential cues being used to guide attention of an infant, parents' looking along with handling of the target object accounted for 82.9%. Both of these preferred cues, individual and combined, happened in the presence of relevant labeling of the target object and irrelevant labeling, through which there was only a 10% difference. The use of multimodal, or combined, referential cues helped infants to maintain sustained attention on the target

objects. The authors suggested that the sustained attention through multimodal cues is what boosts language development and formation of links between words and meanings.

Observing the temporal relationship, or "who leads whom?", the authors found a shift in the order of the parent and infant's attention. Joint attention, which is when one person lines their attention up with anothers', is initiated by the parent and responded to by the infant as early as 9 months of age. When an infant gets to 15 months of life, that temporal order reverses, depending on the child's development and the parent's input. The researchers predicted that the shift can also be due to growth in motor and language skills. The more a child develops, the more likely they are to manipulate objects and initiate an active role in their lives just as they see their parents do through play time. However, researchers found that a parent's gaze alone doesn't significantly influence the infant's attention or development. The conjunction of gazing with another referential cue is what drives joint attention and the eventual shift that is seen as an infant ages. In this experiment, researchers revealed that almost 91.81% of joint attention is made up of multiple referential cues working together. The coordination of cues used together can help infants, not only with word learning but also by developing their sensorimotor skills as infants are more likely to handle and interact with an object if they see multiple interactions from their parents. Additionally, receiving already used or learned cues with new cues in novel situations can help with sustained attention and more responsiveness to a parent's gaze by itself.

Through the present study, a parent's referential cues significantly guide an infant's object viewing. Starting from a young age, parents have the ability to boost their child's learning and development through social situations and their own input. The researchers found that the use of multiple cues and the overlap of them help to strengthen a child's resulting response to their guidance. Comparing these observations with other joint attention literature reiterates the impact that a strong foundation in attentional roles is crucial for advancement in other learning areas. There is a possibility that other cues (pointing, moving an object closer, hand movements conveying a different meaning) can change the significance of the tested cues when used in conjunction. It is necessary to continue future research with the inclusion of these other social cues to see if they hold some kind of meaning significant enough to shift attention. Despite the limitations of the present study, the researchers' results generally coincide with past research into this topic. Thus, it is important for parents to play an active role very early on in an infant's life to propel the development of their child.

Citation:
Sun, L., & Yoshida, H. (2022). Why the parent's gaze is so powerful in organizing the infant's gaze: The relationship between parental referential cues and infant object looking. Infancy, 27(4), 780-808.
https://doi.org/10.1111/infa.12475

THE ROLE OF LAUGHTER IN INFANT SOCIAL DEVELOPMENT

By: Isha Rojanala

A recent study investigated infants' perception of col-aughter to discern affiliative relationships between individuals. co-laughter is considered simultaneous laughter between people. It can be used to signify the relationship/affiliation between people. This research explored whether infants could differentiate between co-laughter among friends and co-laughter among strangers, as well as whether they recognize the appropriate social context for each type of co-laughter.

Experiment 1 involved 5-month-old infants hearing alternating trials of friend and stranger co-laughter. First, researchers placed a monitor in front of the infants. The monitor would light up with a colorful expanding circle to get the infant's attention. Then, they would play either the friendly or the stranger co-laughter audio while the infant stared at a checkerboard pattern on the monitor. Looking time was measured as the amount of time the infants spent looking at the monitor without looking away for more than two consecutive seconds. Researchers found that infants spent more time looking at the monitor when friendly co-laughter was played, which suggested that infants listened longer to co-laughter between friends.

Experiment 2 examined if infants could recognize the social context suitable for each co-laughter type. The researchers would first play a video showing affective (two people smiling at each other) or disengaged (people facing away from each other) behavior. Then, they would show the infants a still frame of the same people facing forward (toward the infant) and record the infant's looking time at the still frame. Scientists found that when the social context and co-laughter were incongruent (ex, disengaged video followed by friendly co-laughter), infants looked longer than when social context and co-laughter were congruent, demonstrating their ability to sense the mismatch.

Overall, this study found that infants as early as 5 months old exhibit a preference for friendly co-laughter, which suggests that they can discern the difference between interactions with friends vs. interactions with strangers. This ability could stem from infants' detection of acoustic features in laughter, like variations in pitch and regularity, which can indicate differences in arousal or emotional positivity. Additionally, infants matched the appropriate social context to the type of co-laughter, showcasing an understanding of affiliative cues across both auditory and visual mediums.

Laughter is a rich communicative tool that can provide cues about social relationships. Therefore, these findings underscore infants' capacity to extract meaningful information and make social inferences from nonverbal vocal signals, such as laughter. This ability to extract meaningful information from vocal signals enables infants to navigate and comprehend the social world from a remarkably young age.

Citation:
Vouloumanos, A., Bryant, G.A. Five-month-old infants detect affiliation in colaughter. Sci Rep 9, 4158 (2019). https://doi.org/10.1038/s41598-019-38954-4

LAB NEWS
Congrats Isha

Isha is graduating with a B.S. in Psychology. After graduation, she plans to attend medical school and eventually work in the pediatric field!

Thank You!

Thank you, Isha, for everything you have done in the lab! We appreciate all of your hard work and wish you all the best. We can't wait to see everything you accomplish!

CURRENT STUDIES Fall 2023

This semester, our lab is conducting two **online** studies.
- Infant Response to Faces and Speech
- Infants' Perception of Humor

UT DALLAS
THE INFANT LEARNING PROJECT

PARTICIPANTS NEEDED!

HELP US LEARN MORE ABOUT HOW BABIES DEVELOP LANGUAGE-LEARNING SKILLS

This study aims to understand if infants can recognize the difference between baby talk and adult talk AND if both auditory and visual components are needed to differentiate the two types of speech.

THIS STUDY IS OPEN TO 4-,5-, AND 7-MONTH-OLD-INFANTS!

VISIT

https://lookit.mit.edu/studies/ef8f23fc-43f1-4ae0-9964-932bbc332e24/

SCAN FOR STUDY LINK

For more information, contact the Infant Learning Project (infantlearningproject@utdallas.edu)

CURRENT ONLINE STUDIES
Infants' Perception of Humor

UT DALLAS
Infant learning Project

Participants Needed!

HELP US LEARN MORE ABOUT INFANTS' PERCEPTION OF HUMOR

IN THIS STUDY, WE'RE INTERESTED IN STUDYING HOW BABIES PERCEIVE HUMOR AND SOCIAL INTERACTIONS BETWEEN OTHERS. YOUR BABY WILL BE EXPOSED TO COMBINATION OF VIDEO STIMULI INVOLVING SOCIAL INTERACTION BETWEEN RESEARCHERS

INFANTS BETWEEN 5 AND 10 MONTHS OLD ARE ELIGIBLE TO PARTICIPATE IN THIS STUDY.

Please visit

https://lookit.mit.edu/studies/c3f6561f- 8171-4fb7-aa63-c935337ce67b/

Scan for study link

FOR MORE INFORMATION, CONTACT THE INFANT LEARNING PROJECT LAB AT INFANTLEARNINGPROJECT@UTDALLAS.EDU
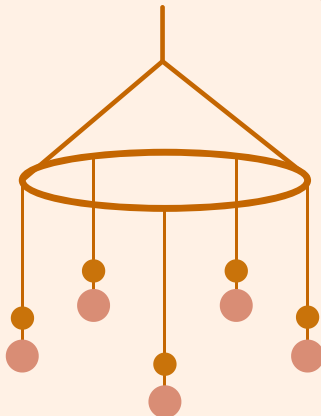
AT-HOME RESEARCH OPPORTUNITIES

Children Helping Science

CHS

ChildrenHelpingScience.com

Dr. Candice Mills from UT Dallas is one of six scientists from six universities who joined forces to launch the Children Helping Science project. This website has studies you and your child can participate in from your home. There are studies for all families, and each study indicates the age range or other criteria for participation, so you can find the perfect one for your child to help science.

Your family can contribute to research about how children learn by doing fun activities together right in your web browser. You can participate with your child from any computer with a webcam.

Visit https://lookit.mit.edu/ to get started!

Thank You!