Thank you, parents!

The UMass Boston Baby Lab would like to thank our parents for their continued support and contributions over the years! Your participation in our studies is crucial. Thank you for bringing in your children to help us explore how babies learn and perceive the world around them. With your desire to know more, and help Baby Lab to do the same, we have been able to put these studies together. The environment of trust we have built has enabled us to plan new studies. We hope to work with you closely in these upcoming studies as well.

New graduate student joining the Baby Lab

Mollie Hamilton will join the lab in Fall to work on her PhD with Dr. Kaldy in the Developmental and Brain Sciences program. With Mollie’s addition, the Baby Lab will have 7 graduate students.

Conferences and presentations

Baby Lab attended various academic conferences and will be travelling to Philadelphia, Florida, Toronto and Wisconsin to present data and discuss our findings with other scientists.

Visit: babies.umb.edu for more up-to-date lab news!
Current and Upcoming Studies

*Memory Game Studies:*

i) *How precise are your memories?*

*Investigating the fidelity of the visual working memory.*

In this study we aim to understand the precision of toddlers’ visual working memory. We think it’s harder for infants to remember objects when the distractors are similar to the target. We are currently investigating this hypothesis in 24-36 months old toddlers. In the video, we show toddlers three items: one target, another similar object and a third, very different object and one non-target that does not share any similarity at all. We are curious whether they make more mistakes recalling the similar object.

ii) *Examining the ability of tracking ‘what’ goes ‘where’ in young toddlers.*

In this study we aim to examine the ability of memory updating. In the video, babies watch the cards flip over to show the faces and then flip back. Before the additional card flips, the facing-down cards will move to new locations. In order to succeed in the game, babies need to remember both the faces of the cards and update. Our current findings suggest that 25 months old could successfully remember and update their memories for the objects’ locations, however, 20 months old could not.

iii) *Exploring the source of individual differences in visual working memory.*

In this study, our goal is to examine the sources of individual differences. A previous study showed a stable trend of infants’ performance in memory games between two different visits. In this project, infants will participate in the memory game at three different age points: 15-, 20-, and 24-months old. We show them the same memory game video and compare their performances across three visits. It allows us to have a better understanding of individual stability in VWM during the second year of life.
Language Learning Study:

It is well established that young infants can distinguish not only their native speech sounds but also non-native speech sounds. However, they lose discrimination capacities for non-native contrasts and begin strengthening native contrasts by their first birthday. The mechanism to explain how infants undergo this developmental process is not well understood. Infants might be able to use statistical information in their input (a.k.a., frequency distribution) and/or visual information corresponding to sounds. In this study, we are investigating whether young infants can use multiple cues to acquire their native phonology.

Language and Thought studies:

i) How babies learn object-related and action-related events?

This study is investigating infants’ ability to understand these two kinds of events. Infants are presented with either object-related event videos in which the types of objects (e.g., green sphere or red cube) determine where the objects re-appear, or action-related event video in which the types of action (e.g., jumping or rolling) determine where the object re-appears. Ultimately, these understanding may be associated with language development, such as noun and verb learning. We want to see if understanding these two events is related to noun learning and associated with verb learning.

ii) Are certain thoughts might only be possible when infants acquire language?

During the study, baby will watch videos of dogs and cars doing some actions, where only one action was highlighted. We suggest that if the babies can solve this task at such a young age, perhaps their thinking and reasoning might not rely on learning language and they are capable of more complex thoughts that their language skills allow. Overall, our findings would assist comprehending current thoughts on how babies think about events in the world, and how this is tied to language learning.

Visual Search Study:

Our visual system is bombarded with a continuous flow of sensory information that must be organized, over time, into objects, scenes, and events. In our research we are interested in looking at how 18-36-month-old toddlers process our dynamic, visual world across time using eye-tracking technology where toddlers passively watch a short video while we monitor their gaze. Interestingly, we find that toddlers’ temporal processing is a little bit slower than adults’ and even 5-7-year-old children. Understanding the typical development of visual temporal processing is important to further understand sensory processing differences in neurodevelopmental disorders like autism spectrum disorder.
Meet us at the Museum of Science!

Every week our team visits the Museum of Science in Cambridge to conduct studies in the Living Laboratory. We examine how people associate what they see, hear, and touch and how they process information across the life span (from 8 to 90 years old) using simple computer games. We are curious as to whether receiving emotional information (for example, from an emotional face or voice) might alter how we perceive faces later on. Feel free to come check out the exciting research being conducted at the museum.

Does a pointy object feel /kiki/ to children and adults?

Face study with adults:

Interpreting emotions is very important in our daily lives. We use this ability to guide our social interactions. Emotion processing involves multiple senses. In this experiment, we study how people process emotional information from faces we see and sounds we hear. How do these two pieces of information give rise to our perception of emotion? Does it change as we age? To learn more click on the “Research” tab on our website.

Have you ever described someone’s voice as ‘smooth’ or the flavor of a cheese as ‘sharp’? Adjectives like ‘smooth’ and ‘sharp’ can describe information picked up by our senses other than seeing and touching. It begs the question of what and how information from our different senses is associated with each other. At the Living Laboratory, Museum of Science Boston, we study whether and how children and adults make association across the senses. Our latest series of studies found that children of 6 to 8 years of age associate abstract shapes (e.g., pointy shape) to non-sense words (e.g., /kiki/) not only when they see the shapes, but also when they touch the shapes. Importantly, they showed the expected association by touching only after they have seen the shapes. Our research suggests that visual experience might be critical to how we form these associations across the senses. This work helps us understand how we have a unified percept of the world, and shines light on how we might help individuals with atypical sensory processing issues.

How can you participate?

- Sign up online! babylab.youcanbook.me
- Call us! 617-287-6363
- Email us! babylab.umb@gmail.com

Baby Lab Team