BERKELEY EARLY LEARNING LAB

SPRING 2025 NEWSLETTER

Thank you for your contribution to developmental science!

Dear Parents, Children, Teachers, and Directors,

Thank you very much for participating in our research for the past year! Our research is made possible by the generosity of families, schools, and museums like yours, and we greatly appreciate your support. The overarching theme of our research is on children's learning: What types of learning mechanisms are available to infants and children, and how do they use them in different domains of learning, e.g., cognitive, language, and social development? We have found that young learners have remarkable learning capacities; they are rational, constructive learners who can evaluate evidence and build new knowledge and concepts, much like scientists do. This newsletter highlights some of the studies your child or student may have participated in during the past year and gives an overview of our findings.

If you have any questions about our research, please feel free to contact us at babylab@berkeley.edu, and please feel free to visit our lab website (babylab.berkeley.edu) for our publications.

Best wishes,

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How do children use new information to re-evaluate probability?

Researcher: Stephanie Alderete • salderete@berkeley.edu
Alyson Wong • alyson_wong@berkeley.edu

When reasoning about uncertain events, we make predictions based on the information available at the moment. Posterior probability is the result of people using new information to update their belief about the probability of something happening. In these studies, we study whether infants and children could reason about posterior probabilities and revise their probability estimates in light of new evidence.

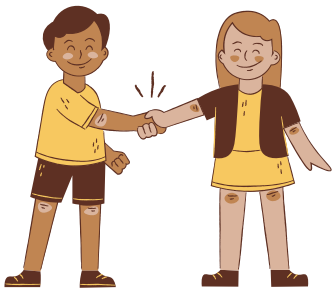
How do children think about friendship?

Researcher: Rongzhi Liu • rongzhi_liu@berkeley.edu

Recent studies have examined children's developing understanding of friendship. These studies have shown that children have a multifaceted concept of friendship; they understand the importance of various factors in friendship, such as spending time in proximity, similarity, prosocial behaviors, and loyalty. However, the role of reciprocity has largely been overlooked in these studies. In this study study, we examine whether children think reciprocity (bidirectional prosocial behaviors) is a stronger predictor of friendship than unidirectional prosocial behaviors, at the beginning stage of friendship.

How do children learn words from social interactions?

Researcher: Elena Luchkina • elenaluchkina@fas.harvard.edu



In this set of studies we are looking at the role of socially contingent interactions, such as turn-taking in speech or reacting to someone's speech with actions, in shaping children's understanding that language is communicative and referential. We look at naturalistic parent-child interactions and online experiments to explore these questions.

What are children's neural activities in number cognition tasks?

Researcher: Nick Zhang • zyunqi@berkeley.edu

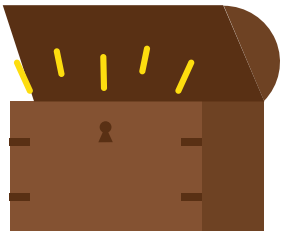
Numerical cognition is central to humans as it constantly informs our judgments and decisions. While previous studies have already identified several behavioral and neural signatures of number processing, little is known about the neurocognitive development in children. We use functional Near-Infrared Spectroscopy (fNIRS), a non-invasive, motion tolerant, and child friendly brain imaging device, to measure the participants' neural activity during number comparison tasks.

How do children combine abstract concepts?

Researcher: Alyson Wong • alyson_wong@berkeley.edu

When do we develop the ability to combine or compose concepts? This project aims to understand whether concepts combine in the same way that words combine into sentences by testing both preschoolers and pre-linguistic infants. Compositionality is a key component of human cognition, learning, and development. Understanding how compositionality develops will be important when thinking about how to create intelligent machines that think and learn like children and adults.

How do children develop and change intergroup biases and social stereotypes?



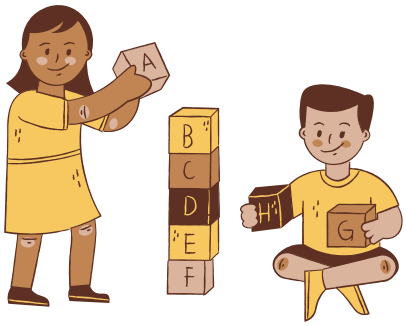
Researcher: Rongzhi Liu • rongzhi_liu@berkeley.edu

In these studies, we investigate whether children's intergroup biases (attitudes and beliefs about their own social groups versus other social groups) can be changed given new evidence. We study both novel social groups and real social groups (racial and ethnic groups). These studies would help us understand the malleability of biases in childhood and help us design interventions to combat biases from a young age.

How does the teacher's race influence children's word learning ?

Researcher: Cristina Sarmiento • csarmiento@berkeley.edu

Previous literature has shown that underrepresented students perform better academically when they have an own-race teacher (a teacher that is the same race as the student). However, the developmental origins of this learning advantage from own-race teachers has not been investigated. Do infants learn better from teachers of their own racial group? That is, do early in-group/out-group representations influence infants' learning? Past research has shown that by 3 months, infants can distinguish own-race and other-race faces, but with a lack of exposure to other races, the ability to distinguish other-race faces perceptually narrows by 9 months resulting in an own-race bias. The own-race bias, however, diminishes with exposure to other-race individuals and racially diverse environments in early childhood. This study investigates the presence of an implicit bias for word and object property learning from an own-race teacher beginning in infancy and whether infants' prior experiences with races in their environment influences this potential bias.



Can infants learn from belief-violating evidence?

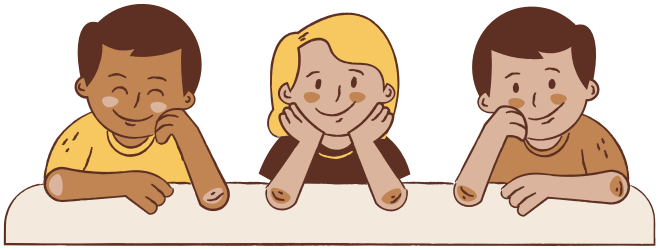
Researcher: Anna Cao • wenqing_297@berkeley.edu

From an early age, infants have core beliefs about how objects move and how people behave. For example, a ball could not appear in a new location without moving there, and agents reach for an object as their goal. This study investigates whether infants can revise their beliefs when they are shown evidence that contradicts these principles. We are interested in whether infants are flexible learners who can learn from new evidence quickly and update their prior beliefs.

How does children's proportional reasoning ability develops?

Researcher: Anna Cao • wenqing_297@berkeley.edu

Proportional reasoning requires shifting focus from discrete number information to the relational information between parts and whole. Past research shows that children up to 10 years of age still struggle with non-symbolic proportional reasoning when the stimuli involve discrete units. In this study, we explore whether presenting proportional information in a more naturalistic way helps younger children reason about non-symbolic proportions. Participants see fictional stories and compare event incidence rates in two populations.



Thank you once again for you and your child's contribution to science and learning!

Find our lab at:

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Find the UC Berkeley Developmental Labs at:

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