Other Ongoing Projects

Deciding What is Helpful to Teach
Do children try to make learning easier for another person by teaching what's hard? In this game, children play with different toys that vary in both difficulty and “coolness,” and pick which toy should be taught to a learner who knows nothing about the toys but will play with them later on her own.

Shared Preferences
What does it mean to like the same things that someone else likes? We are curious about whether children prefer people with rare shared preferences over those who share common preferences.

Robot minds
Do children think robots get hungry, have feelings, or think? We examine what 4- to 9-year-olds believe about robots' mental capacities, and how their beliefs about robots' "minds" affect their moral reasoning about robots.

Understanding Effort: Time and Difficulty
How do children reason about effort? Children view initial states and final states of people building with blocks and are asked which structures are easier and quicker to make.

Disclosing Information about the Self
Do young children strategically communicate with others about the self? We examine whether 3 to 5 year-olds attempt to correct or maintain others' impressions of them in a card game and a balancing game.

Children's Sensitivity to Rarity
As adults, we often assign greater value to items that appear less frequently in the world—those that are rare. To see whether children are also sensitive to rarity, we show children sets of marbles where there are many more of one color than another color, and ask them to choose one.

Lab Director
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PhD in Cognitive Science, MIT (2012)

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If you have any questions, please feel free to contact us!
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Members of the Social Learning Lab are interested in how children learn about the world and communicate what they know. Young children are powerful learners - they face a daunting task of figuring out “how the world works”, and they do so seemingly effortlessly in just the first few years! Even the most advanced artificial intelligence algorithms have not come close to matching how quickly infants and children learn about the world.

As scientists, we study how young children achieve this remarkable feat to better understand how the human mind works. We are especially fascinated by social learning - how humans learn from others. To study children, we bring carefully designed studies to JMZ that address scientific hypotheses about children's decisions and judgments in social contexts, such as how children interpret information from others around them, and how they share information with others. We hope this newsletter will give you a glimpse of our specific questions and the answers children at JMZ have offered.
Let’s consider two statements: first, “Zebras are like horses,” and “Horses are like zebras.” These mean the same thing, right? Yet, children consistently prefer to say, “Zebras are like horses.” This is because statements in this subject-complement structure frame the subject (Zebra) as the “less typical” variant and the complement (Horse) as the “more typical” or “important” reference point. When statements contain made-up words, this actually serves as a learning mechanism. Upon hearing, “The zum is like the gax,” for example, children infer that the gax is more important or more typical than the zum.

At JMZ, we have been exploring another important implication of these statements. One common way of encouraging girls and women to enter STEM fields is to say, for example, “Girls are as good as boys at math.” While this comes from the best intentions, for children who do not yet know math-related gender stereotypes, such statements may actually suggest several things about boys and math: that they are more typical or of higher status than girls in this domain, or even that they might have greater raw math talent. This has important implications for how we should talk about comparisons between groups in STEM classrooms and beyond. In our study, we showed children some statements about what boys and girls on another planet could do, and then asked them about boys’ and girls’ ability on those skills.

Across all the skills presented, when boys were compared to girls (a), 59% of children stated that girls have more natural ability, and 73% stated that boys have to work harder to be good. However, when girls were compared to boys (b), 44% stated that girls are naturally better, and only 38% stated that boys have to work harder. Thus, subject-complement sentences expressing equal ability can nevertheless instill beliefs about gender differences. The statement, “Girls are as good as boys at math,” though well-intentioned, could actually backfire and teach children that boys have greater raw math ability.
**Children as Scientists, Engineers, and Teachers: Importance of informal STEM education**

Hyowon Gweon, PhD (Director of the Stanford Social Learning Lab)

Decades of cognitive development research has shown that infants and children are much smarter than previously thought. Even infants know a lot about people, objects, numbers, and abstract concepts such as mass and weight, goals and beliefs. But it’s not just that children know more than we thought; they learn in smart ways. While infants and preschoolers show behaviors that might seem like “random playing”, carefully designed studies can reveal the remarkably systematic ways in which children explore their environment. They test causal hypotheses, isolate confounded variables, and draw surprisingly rich inferences to learn about how the world works. This body of work (including work done in the SLL!) shows that the foundations for STEM and formal scientific inquiry are present early in life, adding support for the value of early informal STEM learning to foster these abilities from early on.

At the Social Learning Lab, we are also interested in how young children’s reasoning abilities support their understanding of the inherently social, collaborative, and economic nature of STEM domains. Scientists and engineers learn from (and build on) others’ discoveries and technologies, while communicating their own. They create teams to collaborate with people with different expertise and knowledge and they create new tools and technologies to achieve their goals more efficiently. We believe that the foundations of such abilities are also present early on, and our research at JMZ will aim to better understand how these STEM skills develop in early childhood.

SLL’s research on “children as budding scientists, engineers, and teachers” will help foster school readiness and meaningful engagement in STEM classrooms. Our studies usually target pre-K children. The age range of our studies complements JMZ’s Science Outreach Program, which offers science classes at no cost to schools in underserved communities.

The research partnership between the SLL & JMZ has been a wonderful experience so far. Children have a fabulous time participating in our “fun games”, and parents enjoy hearing more about our research. Next time you visit, look for our researchers who regularly staff our research space – they’re not only looking to collect valuable research data, but also to tell you about the science of early childhood cognition. We are all very excited about the upcoming transformation of JMZ, with its potential to further our research efforts and to include research-inspired exhibits in the new space!