



Infant and Child Studies Centre

FROM THE DIRECTORS

The Infant and Child Studies Centre at the University of Toronto Mississauga would like to start off by thanking all the families who have participated in our studies. We are learning so much about early language, music, gender, and social-emotional development in infants and children. Without your help, none of this research would be possible. It is our pleasure to share some of our recent findings with you. Please share this newsletter with anyone else you feel would be interested in learning more about our studies or would like to participate.



DIRECTORS

- Dr. Elizabeth Johnson
- Dr. Tina Malti
- Dr. Samuel Ronfard
- Dr. Glenn Schellenberg
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GRADUATE STUDENTS

- Erin Acland
- Joanna Peplak
- Priscilla Fung
- Laura MacMullin
- Emma Galarneau
- Eleanor Myatt
- Madeleine Yu

SUPPORTING MATH DEVELOPMENT

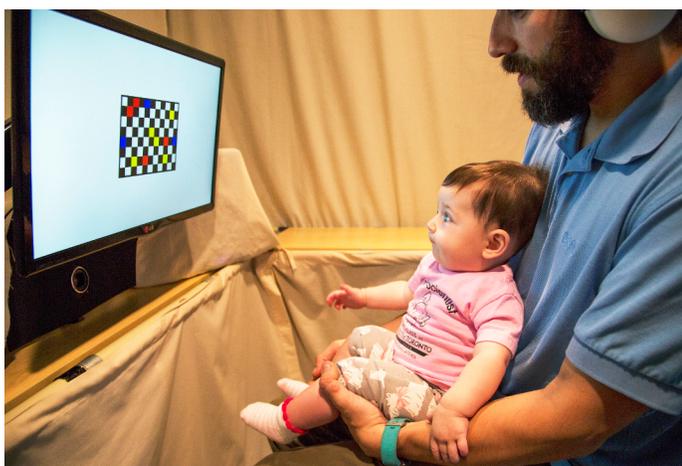
Developing math skills early is essential for later success in science, technology, engineering, and math (STEM). Although girls and boys do equally well in math in school, girls go into STEM less. Researchers at the BIG lab were interested in whether this “leaky pipeline” is related to the stereotype that boys are better at math than girls, which children seem to learn as young as age 6. Children 6 to 10 years old were interviewed about their thoughts and interests regarding math and completed standardized tests of math abilities. Girls and boys had similar math abilities and, thankfully, did not strongly endorse the math gender stereotype. This suggests recent efforts to encourage all children in math are paying off. But some children did endorse the stereotype and the consequences were negative for girls in particular. Girls who endorsed the stereotype had lower beliefs about their own math ability, which might influence decisions about education or career paths. So, while encouraging and supporting all children to do well in school is important, helping girls build-up the belief that they can be good at math is especially important. This belief from a young age might be key to helping girls continue on in STEM.

HOW DO I PARTICIPATE?

For more information on how your child can become a junior scientist call us at (905) 828 5446

LOOK - WHO'S TALKING?

Newborns can recognize their mother's voice, but how good are infants at identifying the voices of others? Madeleine Yu, a PhD student in the Child Language and Speech Studies Lab, is using a change detection task to investigate when and how children develop adult-like voice identification abilities. In her studies, infants are tested on their ability to recognize when the voice that they are listening to changes to the voice of a different person. Her results show that infants as young as 4-months-old are very good at telling apart two similar-sounding *female* voices, but they are very poor at telling apart two similar-sounding *male* voices. Why might this be? Infants' superior performance with female voices does not appear to be due to greater interest in female voices. Instead, it is possible that 4-month-olds tend to be more familiar with female than male voices, and this leads to an enhanced ability to recognize the differences in female voices. Another possibility is that female voices are easier to tell apart than male voices. Madeleine is testing these possibilities. Regardless of the outcome, infants are well on their way to becoming experts at navigating the complexities of their auditory environment by 4 months of age!



TIRED OF SINGING THE SAME OLD SONG?



In the Music Development Lab, we want to know more about how infants perceive and enjoy songs. In one study, we wanted to know: when a baby is listening to a song, does it make a difference if the singer's voice is familiar? How much does it make a difference if the song is familiar? To find out, 8- to 10-month-old babies heard some songs that their parents rated as relatively familiar or relatively unfamiliar to them. Sometimes those songs were sung by their own mother, and other times, they were sung by a different mother. An experimenter (who could not hear the songs) measured how long babies were interested in hearing familiar vs. unfamiliar songs, sung by their own mother vs. another mother. Our results suggest that babies are more interested in the songs they know – no matter if it's mom singing those songs, or someone new! While this might be surprising, it jives with other research showing that babies and young children use songs as cultural markers for helping us know who is part of our social group: "if you know the same songs I know, we must be similar in other ways."

LOOKING FOR WUGS IN ALL THE RIGHT PLACES

Initially, children learn words slowly, but around 18 months of age they have a "word spurt" and start learning very quickly. One reason why children might become faster is that they become better able to use the language they already know to extract the meanings of new words. The C.L.A.S.S. Lab is currently conducting a study looking at 2-year-old's abilities to learn new words using prepositions (e.g., *in*, *on*). Toddlers see pictures of novel objects on a screen while listening to sentences like *The blicket is on the table*. Using an eye-tracker, which measures where children are looking, we will be able to see whether phrases like *on the table* can direct children's attention to the appropriate novel object. We will also look at cases where children hear sentences like *Where is the blicket?* without any prepositions, allowing us to see whether the novel words alone can direct children's attention to the appropriate object. If so, this would show that within just a few minutes, children can exploit their current linguistic knowledge to quickly acquire new words!



CHILDREN'S INTERACTIONS WITH THEIR REFUGEE PEERS

With many refugees resettling in Canada, it is important to learn about how Canadian children are adapting to these changes and how they may be accepting refugees into their communities. At the SEDI Lab we are investigating children's emotions within their interactions with refugee peers. For example, we ask children how they would feel if they saw a refugee peer being excluded in their classroom. Children's emotions within these situations (such as empathy and guilt) may play important roles in the development of children's inclusion of and compassion toward others who are different from them. This study is also being conducted internationally in Italy and Japan with the goal of developing strategies to combat discrimination and promote kindness, both locally and globally.

HOW CHILDREN LEARN TO INVESTIGATE SURPRISING CLAIMS

In the ChiLD lab, we are studying how children learn to be skeptical of what adults tell them. One way children learn about the world is from what others tell them. Some of that information is surprising to children because it conflicts with what they currently know about the world. For example, an adult might tell a child that some equal-sized cubes will float and others will sink. This might be surprising to children because the cubes are identical in appearance. Children could test that claim by putting the cubes in water. If children are given the opportunity to test a surprising claim, will they do so, or do they accept what they have been told? The study is ongoing, but we hope to be able to share results soon. You can read more about this topic here.

WORD LEARNING IN BILINGUAL TODDLERS



Word learning is hard. Imagine you say 'dog' while pointing at a dog. How does a child know you are referring to the whole dog rather than its fur, or its colour? One theory is that children learn words easily because they are born with built-in expectations about what is being labeled. For example, a toddler will assume you are referring to the whole dog when you first label it. Subsequent labels will be assumed to refer to an attribute of the dog (e.g. the dog's colour). But does this explanation work for bilingual children, where each object in the world usually has two labels (e.g., *dog* in English and *chien* in French)? A recent study by the C.L.A.S.S. Lab's Priscilla Fung suggests that monolingual and bilingual toddlers are equally capable of learning new words. They do this by tracking the statistics of their input. It seems children are well-equipped to learn more than one language at once!

RECENT PUBLICATIONS

Cirelli, L. K., Jurewicz, Z. B., & Trehub, S. E. (2019). Effects of maternal singing on mother-infant arousal and behaviour. *Journal of Cognitive Neuroscience*, 1-8.

Dyas, S. P., Peplak, J., Colasante, T., & Malti, T. (2019). Children's sympathy and sensitivity to excluding economically disadvantaged peers. *Developmental Psychology*, 55, 482-487.

Fecher, N., Paquette-Smith, M., & Johnson, E.K. (2019). Resolving the (apparent) talker recognition paradox in developmental speech perception. *Infancy*, 1-19.

Kwan, K. M. W., Shi, S. Y., Nabbijohn, A. N., MacMullin, L. N., VanderLaan, D. P., & Wong, W. I. (2019). Children's appraisals of gender nonconformity: Developmental pattern and intervention. *Child Development*.

Wei, R., Ronfard, S., Leyva, D., & Rowe, M. L. (2019). Teaching a novel word: Parenting styles and toddlers' word learning. *Journal of Experimental Child Psychology*.



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