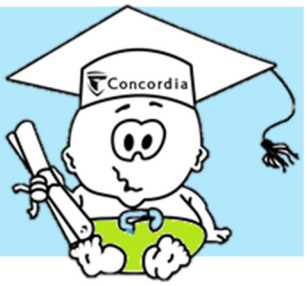
News from the Cognitive and Language Development Laboratory!



Young children are amazing!

Young children learn about objects and people in the world around them at a surprisingly early age! They also learn new words very quickly and with little effort! How children manage these tasks and the strategies they use is the focus of our research at Concordia University. We would like to provide you with an update on some current findings from the lab. We appreciate the support and enthusiasm of the parents and children who have participated in our studies!

A fresh look at a classic theory of mind task

For a little over a decade, research has shown that young infants understand other people's thoughts (called theory of mind). An example of this is understanding that someone else *thinks* an object is in one box, when in fact it is in another box. This ability is measured in young infants by measuring their level of interest (e.g., looking time) while an actor acts out a scene where she is looking for an object. For example, if infants understand that an actor thinks the object is in one location, they will be surprised (e.g., look longer) if the actor searches in the correct location, despite their false belief. It was recently pointed out that it is possible that infant's looking patterns may be driven by other aspects in the scene (e.g., simple properties in the scene like the colour of the location where the toy is hidden). In other words, perhaps these tasks are not measuring theory of mind, which is a social-cognitive ability. To test this, Ph.D. student Kimberly Burnside precisely replicated a classic task used to measure theory of mind, but used a toy crane instead of an actor. In this task, infants watched as the toy crane repeatedly moved toward a plastic cup. At test, half of the infants watched a scene where the crane searched for the cup in its prior location, and half of the infants watched the crane search in the cup's actual location. Infants' looking pattern in the original study using a human actor was replicated. This means that infants' longer looking when the object is searched in its actual location is not based on an understanding of the mental state of false belief. These results are striking because this is the first study using a non-living "actor" and showed that these tasks do not measure a mature understanding of theory of mind as previously believed. We are planning to submit these findings to a scientific journal shortly.

"One of these is not like the others": Do words boost object categorization?

We have known for several years now that the addition of a label when teaching monolingual infants about object categories helps them form categories. The addition of a label during categorization highlights the similarities between two objects given the same name and helps children notice objects that do not belong to the category. We also know that, while monolingual infants learn that each object is associated with one word, bilinguals, as a consequence of learning two languages, do not expect each object to have only one possible label. Yet, little is known about how this difference in word- to-object association between monolingual and bilingual infants affects their categorization abilities. Alexa Ruel, a Master's student, has examined if bilinguals and monolinguals differ in how they learn about object categories, and if this is affected by their expectations about the relationship between words and object kinds. Eighteen-month-old-infants participated in two short activities. In the first game, infants recognized that a series of objects were from the same group after an experimenter labeled them with a single novel word, or two novel words. During the second part of the session, infants were shown a video in which familiar objects (e.g. car, ball, cup) and one unfamiliar object were presented. During each presentation, a female voice labeled one of the two objects displayed. Although the number of bilinguals tested is currently too small to allow us to draw conclusions, our findings show that monolingual infants successfully categorize when presented with 1-label as well as 2-labels for each object within the same category, even though the objects and their labels are novel. Contrary to what we expected, monolingual infants did not experience more difficulty forming categories when presented with 2-labels for the same category. Future studies will examine why monolinguals had no difficulty categorizing with 2-labels, as well as the differences between monolingual and bilingual infants, specifically whether categorization is due to their differential expectation of how words refer to objects. These findings have been presented at the 30th Congress of the Association for Psychological Science held in May in San Francisco.

Come join us!

We have many studies in the lab that are ongoing or about to begin!

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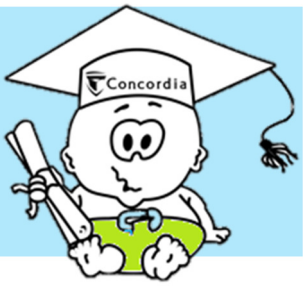

Knowing who knows: The mechanisms underlying selective social learning in infancy

Children mainly learn from others, a phenomenon called social learning. However, learning from the right people—those who are knowledgeable and competent— is crucial. In fact, infants are sensitive to several social cues that guide their learning. For instance, it has been shown that infants rely on informants' accuracy, age, and confidence to help them decide from whom to learn. However, little research is dedicated to understanding how this learning occurs. Olivia Kuzyk, a Master's student, examined whether infants have the capacity for metacognition—the ability to reflect on one's own mental states (e.g., thinking and learning)—and whether infants who have stronger metacognitive abilities are better at differentiating between a competent and an incompetent speaker in a word learning game. Eighteen-month-old infants were either exposed to a speaker who correctly labeled a familiar object (reliable) or incorrectly named the same object (unreliable). Infants' willingness to learn a new word from the same speaker was then examined. They also played a series of games that assessed their abilities to monitor their confidence after making a decision about where to find a hidden toy (when to keep searching when failing to find the object) and what blocks can activate a "magic" box. Our results show that young children who displayed less confidence in their own knowledge were more likely to learn a new word from an unreliable speaker. In addition, infants were also more likely to draw on causal reasoning skills to better learn the association between a new label and a novel toy. This study is the first to show that infants' non-verbal metacognitive judgments play a role in their social learning. Olivia will present her findings at the International Congress for Infant Studies in Philadelphia in July.

Infants can detect unreliable speakers

Infants are exposed to a wealth of information from their surroundings. However, to effectively learn from others, infants cannot be indiscriminate in their learning. It is well known that infants are sensitive to a speaker's accuracy in labeling familiar objects, and therefore prefer to learn from reliable sources of information. However, little is known about how infants become selective in their learning. Shawna Grossman, Honours Psychology undergraduate student, and Cristina Crivello, Ph.D. student, examined whether infants who have a better understanding of others' mental states (e.g., beliefs, desires, and intentions) were better able to differentiate between a reliable and an unreliable speaker in a word learning game. Eighteen-month-old-infants were exposed to a speaker who correctly labeled a familiar object (reliable) and another speaker who incorrectly named the same object (unreliable). Subsequently, the infants were asked to learn a novel word from the speakers. Infants then played a series of games to assess their abilities to understand the experimenter's beliefs and knowledge that were different from their own. Interestingly, the results demonstrated that infants tended to learn a novel word more from the reliable speaker than the unreliable speaker. However, this ability was found to be unrelated to their understanding of the experimenter's beliefs and knowledge. These findings will be incorporated into a manuscript that will be submitted for publication shortly.

For more information about the lab, please consult our webpage:
http::://www.cldlab.com/

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