



# EARLY DEVELOPMENT RESEARCH GROUP

## 2019 NEWSLETTER

### WHAT IS THE EDRG?

Since 2004, the Early Development Research Group has been advancing knowledge of how language, learning, and social understanding develop in infants and children. We are composed of six research centres in the UBC Department of Psychology. Through our ongoing studies, we are discovering more about how children learn at different stages of development.

### A TYPICAL VISIT

Participating in a study typically involves a one-time visit to UBC for 30-60 minutes. The studies themselves are brief (5-15 minutes) and often involve a puppet show, video, or game. At the end of a visit, your child would receive a UBC degree certificate and a gift from a selection of UBC 'child scientist' prizes! We provide free reserved parking for families who drive, or compass tickets for those who come by transit.



### SIGN UP ONLINE

[edrg.psych.ubc.ca](http://edrg.psych.ubc.ca)

### OR CALL US

604-822-9540



### NEW THIS YEAR: ONLINE STUDIES!

We now offer **online** language development surveys via Stanford University's **Wordbank project**. Families in the EDRG will be invited by e-mail to fill out the surveys when their babies are approximately 12, 18, 24 and 30 months of age.

## INFANT STUDIES CENTRE

The Infant Studies Centre is directed by Dr. Janet F. Werker and we explore how babies perceive speech and acquire language in the first few years of life. It has been a very exciting year for us!

In a study we recently published in *Developmental Science*, we investigated the word-learning strategies of 18-month-old toddlers, comparing those learning one language at home (monolinguals) to those learning two (bilinguals). Toddlers watched a video where a voice labelled cartoon cats and dogs. At times, rather than saying familiar labels ("cat" and "dog"), the voice would say an unfamiliar word, "zabe". We found that monolingual toddlers interpreted "zabe" as referring to the colour of the dog, whereas bilingual toddlers interpreted it as an additional label for dog. These differing interpretations reflect the children's differing language experiences: bilingual children encounter multiple labels for a single object (e.g. both "dog" and "chien" for dog) much more frequently than monolingual children. Thus, toddlers are able to develop word-learning strategies that are optimal for their particular learning environments!

This past year, our postdoctoral fellow, Dr. Drew Weatherhead, completed a follow-up of the 'zabe' study. She used the same design, but this time included a video of the person labelling the cats and dogs. Some toddlers saw a speaker of a familiar ethnicity and others saw a speaker of an unfamiliar ethnicity. Fascinatingly, we found that when the ethnicity of the speaker was familiar, both groups interpreted "zabe" as referring to the colour of the dog, but when the speaker's ethnicity was unfamiliar, both groups interpreted "zabe" as another label for dog. This suggests that while monolingual and bilingual babies may at times employ differing word-learning strategies, both groups are integrating information regarding the identity of the speaker into these strategies. Specifically, our findings suggest that toddlers expect people of familiar ethnicities to speak their own language, and that such a person will not use a second label for an already-known object, so interpret the new word as an adjective. On the other hand, both groups are willing to imagine that individuals of a different ethnicity may speak a different language, and hence may use a second label. The cognitive flexibility that 18-month-olds show across these two studies is wonderfully impressive! Drew is currently designing a follow-up study that investigates whether speaker characteristics influence other aspects of toddlers' word-learning, such as retention.



## SOCIAL COGNITIVE DEVELOPMENT LAB

Dr. Andrew Baron directs the Social Cognitive Development Lab at UBC and the Living Lab at TELUS Science World.

This year, we are trying to learn more about how infants and young children develop an understanding of other people. In one recent study, we explored how 17-19-month-olds think about teamwork and cooperation. We showed children animations depicting two teams, where one individual from each team was competing against the other. Children then saw two different events. One where someone from Team A helped someone from their own team (A), and another where they helped someone from the other team (B). So far we are learning that children do not expect cooperation between people of different teams, but do expect it of people from the same team.

At the Living Lab at Science World, we are participating in a 7-year Canada-wide research project exploring the psychological barriers to greater participation in STEM among women ([www.successinstem.ca](http://www.successinstem.ca)). We are currently exploring when in development children internalize gender stereotypes about math and how these stereotypes can influence their interest in and engagement in math. Other studies have shown that during primary school children may come to think that math is more associated with boys (even though boys and girls perform similarly well in math classes!). Recently, our researchers have completed a project that looks to change these math-gender stereotypes so children don't continue to think that math is more for one gender. With this and other work in the lab, we hope to identify effective strategies to increase math and science engagement amongst girls.



## CENTRE FOR INFANT COGNITION

This year at the Centre for Infant Cognition, directed by Dr. Kiley Hamlin, we have continued to explore what infants, toddlers, and preschoolers understand about the social and moral world.

We recently completed a project exploring whether preschoolers consider others' intentions when evaluating their actions. To examine this, we showed 3- and 4-year-olds a puppet show featuring a protagonist who struggled to achieve his goal. The protagonist was then successfully or unsuccessfully helped or hindered by two other puppets. Preschoolers were then asked which puppet they liked, which puppet was nicer, and which puppet should get in trouble. Across several studies, preschoolers tended to focus on others' intention – for example, by positively evaluating character who at least tried to help the protagonist. Overall, even 3-year-olds are quite in-tune with the intentions of others' actions, rather than just the outcomes they are associated with. We also explored the role of emotions in infants' preferences for helpful characters over unhelpful characters. We examined whether infants and toddlers express

different emotional reactions after observing one puppet return a dropped ball and one puppet steal a dropped ball. We found that infants displayed more positive facial expressions after viewing helpful events compared to unhelpful ones at both 7 and 21 months. These results support the possibility that emotional reactions play some role in infants' sociomoral evaluations and decisions. As such, we are currently further investigating this line of inquiry, by evaluating infant's emotional responses using facial electromyography (EMG). This technology measures the muscles involved during smiling and frowning, and can register muscular movement undetectable by the human eye, therefore providing a more reliable and objective measure of infants' emotions.



## CENTRE FOR COGNITIVE DEVELOPMENT

The Centre for Cognitive Development, directed by Dr. Darko Odic, studies how children intuitively represent the world, especially how they reason about number, time, and space, and how the acquisition of language enriches these representations to allow children to learn advanced concepts, such as mathematics and science.

This year, we have completed a number of studies that we are excited to share with you. Previously, our Centre has shown that children have a highly robust and intuitive sense of number: given a choice of two plates of cookies, children will be able to tell which one has more (provided, of course, that the numbers are far enough apart). However, this sense of number could easily be confounded with the sense of size, and children could be reasoning about the size of the cookies rather than their number. Earlier this year, one of our research assistants (Nicaela Weigel) attended the National Collegiate Research Conference at Harvard University where she was awarded third place for her presentation. The study presented at the conference investigates the effectiveness of certain strategic behaviours, such as talking to oneself in the third-person, on children's performance in a number task.

In another study, we tested whether children also possess a domain-general sense of confidence over otherwise independent perceptual dimensions. Children completed either three simple perceptual discrimination tasks: a number task ("Which group has more dots?"), an area task ("Which blob is bigger?"), and an emotions task ("Which face is happier?"), or three relative confidence tasks, selecting which of two trials they are more confident on. We found that while children's discrimination performance across the three tasks was independent and constituted three separate factors, children's confidence in each of three dimensions was strongly correlated and constituted only a single factor.

## THANK YOU, FAMILIES!

We are so very grateful to the hundreds of local families that support our work through their participation each year. **Our research would not be possible without you!**



## LANGUAGE DEVELOPMENT CENTRE

The Language Development Centre, directed by Dr. Geoffrey Hall, studies how infants and young children learn the meanings of words in their native language.

Recent research suggests that infants learn the meanings of words at a younger age than previously believed. This work indicates that 6- to 9-month-olds understand a range of words for people (such as their caregivers), common objects (such as ball), foods (such as banana), and body parts (such as hand). Yet what is the nature of infants' earliest word comprehension? Are they capable of learning words that differ in their referential scope? For example, do they understand that a word for a caregiver (e.g., "Mommy" for their mother) is a label for a particular individual, but a word for a common object (e.g., "ball" for their ball) or body part (e.g., "hand" for their hand) is a label for an entire category?

In a recent study involving 6- and 9-month-olds, we have been trying to answer these questions by examining infants' understanding of a familiar word for their caregiver ("Mommy") and another familiar word for either a common object ("ball") or one of their body parts ("hand"). We have found that infants in this age range restrict a word for their caregiver (e.g., "Mommy") to their own caregiver, but extend a word for a common object ("ball") or body part ("hand") to other exemplars of the same category. These results provide new insight into early language development by showing that 6- to 9-month-olds can learn words with both narrow and broad scope, consistent with the possibility that they have the ability to learn both proper names and common nouns. These capacities are appearing much earlier in development than once thought possible!



## QUESTIONS?

**CALL** 604-822-9540

**EMAIL** [edrg@psych.ubc.ca](mailto:edrg@psych.ubc.ca)

## NEW: STUDIES FOR ADOLESCENTS!

The K.I.D. Studies Centre has opportunities for families with older children and adolescents to participate in studies:

**For children 8-15 years old**, a study about perfectionism in the family context. Please email [kidsperfectionism@psych.ubc.ca](mailto:kidsperfectionism@psych.ubc.ca) to learn more.

**For children 13-18 years old**, a study about bullying, which adolescents can complete online with parental consent. Participants have a 1/50 chance of winning a \$50 giftcard. Please email [kidlab@psych.ubc.ca](mailto:kidlab@psych.ubc.ca) for more info.

## K.I.D. STUDIES CENTRE

The K.I.D. Studies Centre, directed by Dr. Susan Birch, examines children's social perspective-taking and social learning.

The 'curse of knowledge bias' is the tendency to be biased by one's own knowledge when reasoning about what others know. This bias has profound implications for social perspective-taking and communication. In a study recently accepted for publication, we examined whether this bias exists in cultures very different from North American culture. We visited a nomadic culture (the Turkana) who herd animals in Kenya and asked children to predict how widely-known different facts were among their peers. In contrast to North American children, only Turkana boys were biased by their knowledge of the facts when predicting their peers' knowledge; this bias did not decrease with age. The cause of these cultural differences is unknown but we suspect Turkana girls are better able to reason about their peers' knowledge because they spend more time interacting with others, compared to Turkana boys who spend more time alone (e.g., herding sheep).

These findings illustrate that this bias exists across very different cultures, while also emphasizing how social interaction shapes how we think about others.

