

EARLY DEVELOPMENT RESEARCH GROUP

2017 NEWSLETTER



LANGUAGE DEVELOPMENT CENTRE

The **Language Development Centre**, directed by Dr. Geoff Hall, focuses on how children learn the meanings of words.

Infants begin to produce their first words at around one year of age, but recent research indicates that by six months of age they already understand a number of labels. Among infants' earliest words are labels for caregivers, such as "Mommy" or "Daddy". In our lab, we have been examining infants' early understanding of these words. In a series of studies, we asked whether infants understand the labels for their caregivers as words for specific individuals (i.e., for only their own parents) or for entire categories of individuals (i.e., for any woman or man). In our first study, we showed infants images of their mother and father and tested them on the labels for their caregivers (e.g., "Mommy", "Daddy"). In this study, we found that by 6-months of age, infants understand the labels "Mommy" and "Daddy" as referring to their own parents and not to unfamiliar women and men. In a second study, we examined whether infants extend the label for their mother (e.g., "Mommy") to other familiar people (such as grandmother, aunt, nanny). We found that infants restrict the label "Mommy" to their own mother and do not simply extend this label to any familiar woman. Additionally, infants who saw their grandmother for only a few hours a week showed an understanding of the label for their grandmother. This work provides evidence that infants understand words for caregivers as labels for individuals and understand labels for multiple familiar people from the same gender category.

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're composed of six research centers in UBC's Department of Psychology, and in ongoing studies, we are trying to answer many fascinating questions about how children learn at different stages of development.

THANK YOU FAMILIES!

We would like to thank the many parents and children that have supported our research through their participation over the years. It would not have been possible without you!

WOULD YOU AND YOUR CHILDREN LIKE TO PARTICIPATE IN OUR STUDIES?

**CALL US
(604) 822-9540**

OR

**SIGN UP ONLINE
EDRG.PSYCH.UBC.CA**

INFANT STUDIES CENTRE

The Infant Studies Centre, directed by Dr. Janet F. Werker, focuses its research on the development of language.

In adults, speech perception is richly multisensory, meaning that it involves the integration of multiple senses like sight, hearing, and touch. For example, when speaking, we sometimes release sudden bursts of air from our mouths - you can demonstrate this for yourself by holding your hand about an inch from your mouth while you say the word "puff". We know that sensing this airflow is an important cue for adult speakers and can actually influence our speech perception! But how and when do we learn to use this cue? Could it be from feeling our own airflow against our lips? Or, perhaps from feeling a caregiver's airflow? To try to answer these questions, our Centre has begun to run a speech perception study with 6-8 month old infants.

In this study, infants sit in a high chair and listen to sequences of familiar English sounds, some of which naturally create airflow when spoken. During some of the sounds, a gentle puff of air is delivered to the infants' necks via a rubber tube. We want to know if feeling the airflow affects the infants' perception of the speech sounds they are hearing. Given that 6-8 month old infants are not yet speaking themselves, we obviously cannot ask them directly what they are perceiving. Instead, we use a video camera to record their looking time to a computer monitor, which is a measure of their attention to the different sounds. Our preliminary results suggest that infants treat the airflow as part of the speech sounds they are hearing, even before they have experience making these sounds themselves! This study is one of several from our Centre that will help us to better understand the early foundations of multisensory processing of speech.

JOINT EEG STUDY!

We are proud to announce that two of our Centres, the Infant Studies Centre and the Centre for Infant Cognition, have joined forces to bring some very exciting new equipment to the EDRG! We are now using EEG (electroencephalography) methodology, which allows us to safely record electrical activity from the infant brain. It is fun and easy to participate in an EEG study: your baby would sit on your lap and wear a stretchy cap, much like a swimmer's cap, made up of soft spongy sensors. Then, while your baby watches and hears something on a TV monitor (e.g. faces, speech sounds), the cap would pick up and record his or her brain responses. This procedure is safe and non-invasive and will allow us to better understand things like infant speech processing and the cognitive development of morality!

CENTRE FOR INFANT COGNITION

The Centre for Infant Cognition, directed by Dr. Kiley Hamlin, studies the role of evaluative processes in infants' every day cognitions about the world.

Previous studies from the CIC have shown that babies prefer prosocial over antisocial individuals. However, in reality, someone may act helpful and unhelpful depending on the situation. Recently, we presented 9-month-olds with characters who were inconsistently prosocial and antisocial, and examined their social preferences. We found that infants did not reliably prefer the most prosocial individuals, suggesting that behavioural inconsistency may confuse them.

Another recently completed study found that toddlers are selective in their interactions with prosocial and antisocial others. After watching a puppet be helpful or unhelpful, 20-month-olds were more likely to give the helpful puppet a toy she liked. Toddlers were also more likely to refuse to share any toys with unhelpful puppets, rather than helpful puppets. Overall, these findings suggest that toddlers consider others' toy preferences and deservingness when deciding whether to share.

Infants also take into account someone's gaze when making evaluations about helping and unhelpful characters. In a "hill paradigm", a protagonist character tries to climb a hill but ultimately keeps falling to the bottom. A helpful character came and "bumped" the protagonist to the top, while the unhelpful character knocked the protagonist to the bottom. When the protagonist's eyes were pointed uphill, thus indicating the intent to climb, 6- to 11-month-olds preferred the helper. However, when the protagonist's eyes were pointed downhill (showing no intent to climb), infants chose randomly. This indicates infants take into account social intent, rather than the preference being due to a simple physical difference in characters.

K.I.D. STUDIES CENTRE

The **Knowledge, Imagination, and Development (K.I.D.) Studies Centre**, directed by Dr. Susan Birch, has been investigating how children decide how widely known information is among their peers (i.e., other children their age). In a recent study, we found that when children aged 4-8 years heard new (unfamiliar) information (e.g., the bird that can fly the highest is the Ruppell's Vulture), they judged that their peers would likely not know that information. That is, children wisely use their own familiarity with the information to gauge how likely it is that their peers will know that information. But, can children's own familiarity with the information sometimes lead them astray in judging how well known it is to others? In a related study, we tested whether increasing children's familiarity with the information through repeated exposure would alter their judgements of how widely known that information is among their peers. We manipulated the frequency with which children heard about new animal facts within a series of short stories: some animal facts they heard frequently and other animal facts they heard only once. The results revealed that the facts children heard more frequently were judged to be more widely known among their peers. These results suggest that, like adults, children can misinterpret their own familiarity with a fact as an indication of how widely known that fact is among their peers. These findings help us understand how children reason about what others know and help us understand the development of children's social reasoning abilities. In doing this work, we also discovered that children aged 4-8 years learned new factual information equally well from a game they played on an interactive device (an iPad) as they did playing the game in a face-to-face interaction with an adult researcher. These results suggest that interactive media can be an effective teaching tool under certain conditions. To further explore these issues, we designed an app that allows children aged 4-8 years to participate in one of our research studies from home! For more information please email kidlab@psych.ubc.ca or call 604-822-6615.



EXCITING NEWS!



Rising Star Award

Dr. Kiley Hamlin has been awarded the 2015 Association for Psychological Science (APS) Rising Star Award in recognition of her exceptional work achieved in the early years of her research career. This award seeks to distinguish psychological scientists who have made significant contributions to research early in their careers. Not only does this award recognize exceptional past achievement, but also promises future excellent contributions!

UBC Killam Research Prize

Dr. Hamlin is also the recipient of the 2015 UBC Killam Research Prize in the Arts and Humanities Junior Category. This award recognizes outstanding research and scholarly contributions at UBC! Please join us in congratulating Kiley on her outstanding achievements!



University Killam Professorship

Dr. Janet F. Werker has been honoured as one of UBC's three 2016/17 University Killam Professors! This distinction is the highest honour that UBC can bestow upon a faculty member. The Killam Professorship was awarded to Janet in recognition of her internationally renowned research contributions to developmental psychology, as well as her leadership within the University's academic communities; Janet is Canada Research Chair in Psychology and co-founder of the UBC Language Sciences initiative.

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 concept, such as mathematics and science.

This year, we have completed a number of studies that we are excited to share with you. Previously, our lab 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. In a recently completed study, we compared and contrasted children's ability to intuitively represent five dimensions: number, size, length, density, and time. We found that children's sense of number develops and peaks until around age 16, but importantly does so independently of their sense of other dimensions. In other words, we find that children really do have a sense of number.

In another study, we tested how children reason about the trust they put into others in simple number games. Children were introduced to two puppets who enjoy playing number games, except that while one of them is excellent at numbers the other is quite poor. Children were then allowed to choose which problem each puppet would be given to solve. Children were not only very sensitive to the difficulty of the problem itself, but also matched it to the puppet: the better they believed the puppet to be, the more difficult a problem they have them, and vice-versa.



SOCIAL COGNITIVE DEVELOPMENT LAB

Dr. Andrew Baron is the director of the **Social Cognitive Development Lab** and the **Living Lab** at Science World.

At the **Social Cognitive Development Lab**, located on campus at UBC, we examine whether babies are able to reason about complex social relationships within the first few months of life. In one of our recent studies, we found that babies (6- 12 months old) think that a person with more friends is socially dominant to those with fewer friends. This is interesting because it suggests that at just 6 months of age, babies already understand that there is “strength in numbers” such that you may get more help and support from having more friends.

At the **Living Lab at Science World**, a recent study with preschool children (3-6 years old) examined whether stereotypes about math and gender could affect children's performance on a number task. We found that girls who believed boys were better at math and liked math more did worse when we told them the number task was a test instead of a game. These results suggest that negative stereotypes can affect girls' math performance as early as preschool. This study shows that it's important to teach children early on in childhood that boys and girls can both be good at math. The living Lab at Science world provides great opportunities for museum visitors to participate in real research studies and help scientists in areas of psychology, linguistics and neuroscience to learn more about the human mind! We always have active studies for anyone over 6 months old, including parents. For more updates about our research at science world, please visit: www.scienceworld.ca/lab