



# ELLA 2019 Newsletter

University of Auckland



Kia Ora Families!

Welcome to our 2020 ELLA update which is where we take the opportunity to express our gratitude to all of you by sharing what we have been up to this year. We continue to be very grateful to the parents and children who have participated in our studies, and those who have expressed interest in our research! Your participation and support has added to our understanding of early child development, and contributed greatly to the larger scientific community. Our research has been presented at professional conferences around the world, and we now look forward to sharing that progress with you. This newsletter presents an update of some of our current and upcoming research projects, and we hope you enjoy it!

For those families who may not have been in our studies (yet!), we are located in the School of Psychology at the University of Auckland, City Campus. The Early Learning Lab, ELLA for short, was founded by Associate Professor Annette Henderson in 2010 and has been dedicated to furthering our understanding of several aspects of development, particularly communication, cooperation and learning, through the use of interactive research designed for children and parents. Our studies use techniques and tasks to encourage children to engage and have fun on their way to becoming little scientists!

As always, none of this would be possible without your continued support. Thank you!

The ELLA Lab

IN 2019

Data collection was happening for **seven projects**.

This involved a total of **860** families visiting our centre.

**Three projects were new collaborations** with researchers outside of the University of Auckland, with University of Otago and University of Leipzig.

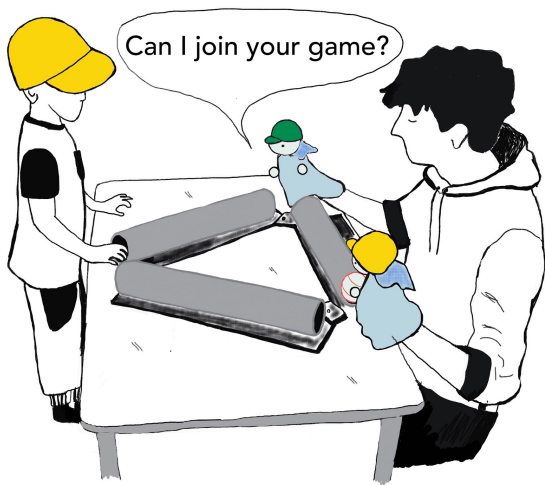
**280 new families** asked to learn more about our child development research.

Here are summaries of the projects that many of you and your children were a part of this year...

## How do 4- to 6-year-old children react to the social exclusion of others?

Children played with: **Laura, visiting us from Germany!**

Ostracism, or social exclusion, happens frequently, to adults and children alike. Previous research has shown that after witnessing someone else being excluded from a group, children as young as 4 years old show behaviour intended to strengthen social bonds. In this study, we investigated whether children show these 'friendly' behaviours equally towards those available or if they focus on people they consider members of the same group.



Children watched short videos of social interactions (some of them contained someone being excluded by others). Afterwards they played a ball game with two hand puppets in which they could decide if they wanted to include both puppets or only play with the puppet who was in the same team as them. After they watched the videos again, children were shown a game in which they could "feed" marbles to an elephant, which made a jingling sound. They were then told they could play by themselves or wait for another child so they could play together and were then left alone in the room so we could observe what they decided to do.

As expected, even young children noticed exclusion and understood that being excluded makes you feel sad. More than half of the children, especially the younger ones, included the second puppet in the game, even though it wasn't in their team.

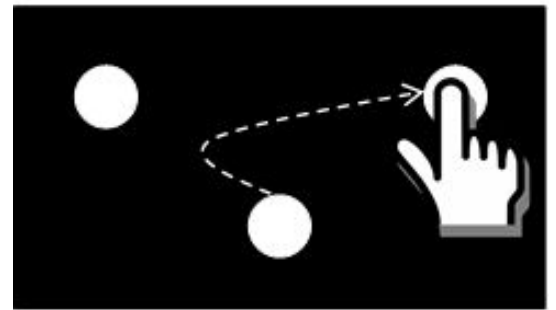
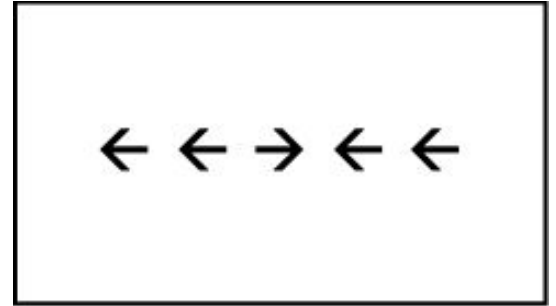
Surprisingly, older children seemed to be a little less inclusive - they played with only their same-team puppet more often. But this was only the case for children who had seen neutral interactions - the age difference did not exist among children who had seen someone else being excluded. In the elephant game, older children were more willing to wait for another child to play with the elephant together than were younger children, but the kind of social interaction they saw had no impact. Altogether, these findings suggest that children understand that exclusion is hurtful, and that this could lead older children especially to adapt their behaviour to be more inclusive toward dissimilar others.

Laura is currently writing her results up for the completion of her Masters degree at the University of Leipzig. *Illustration by Nori Blume.*

## How do children develop the ability to control their thoughts and actions?

Children played with **Katie, assisted by Sam, Rachael, Hasini, Tara & Fiona!**

In this study, we recorded 5- to 8-year-olds' hand movements and eye movements as they performed a computer game designed to measure attention and self-control. Participants pressed a left or a right button to identify which direction an arrow in the middle of the screen pointed. On some trials, the arrow in the middle of the screen was surrounded by arrows that pointed in the same direction (e.g., →→→→→). On other trials, the arrow in the middle of the screen was surrounded by arrows that pointed in the opposite direction (e.g., ←←←←←). Recording children's eye movements allowed us to identify where children focused their attention before the arrows appeared on the screen (Did children prepare for the task by focusing at the location where the middle arrow would appear?). Recording their hand movements enabled us to see whether children were "pulled" in the wrong direction on trials in which the arrows pointed in different directions. This approach will enable us to better understand how self-control improves across childhood. We are almost done collecting data for this project, and we look forward to sharing what we find with you in our next newsletter!



## How do families remain resilient? How can we enhance child wellbeing in NZ?

Families in this study may have met: **Rachel, Valerie, Caitlin, Nina, Sasha, Olivia, Chloe, Beth, Debbie, or Inge!**

Over the past 1.5 years we have been conducting a new study on family resilience and well-being. This project aims to uncover the different ways that parents and children respond to the inevitable challenges of life. We know that people find different strategies helpful in various contexts. So, rather than identifying the way families should be resilient, our study aims to identify how different ways of feeling, thinking and behaving work for across parents, children and contexts. And, because families are so important, our study is looking at what parents do, what children do, and what parents and children do together that fosters resilience and wellbeing.

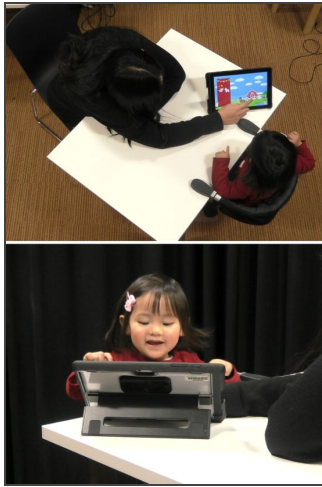
Since we started this project, we have had over 240 families come and take part. We have also started a second phase of this project during which we invite the families who we have already seen to come back for another visit one year later. We currently have several students working on this project and we aim to share our findings with you over the next few years.

To find out more about this project send an email to [familyresearch@auckland.ac.nz](mailto:familyresearch@auckland.ac.nz) and let us know: your child's birth date and gender; the length of time you, your partner and your child have been living together; whether your family speaks English at home.

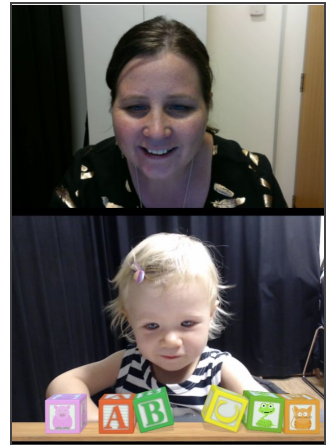


# How do parents and children communicate and learn using digital media?

If you came in for this study, you may have met: **Siobhan, Sam, Alecia, Issy, Naisargi & Rodolfo!**



Communication plays a crucial role in our lives, and in the first two years of life, infants make remarkable strides in their communicative development. Parents are particularly important in shaping such development through their everyday interactions with their baby. Infants quickly acquire verbal (i.e., words) and nonverbal (i.e., gaze direction, points, gestures) means to effectively communicate with the members of their social world. However, the social landscape is changing as screen media becomes ubiquitous in our, and our children's, daily lives and digital communication (e.g., Skype with grandparents) occurs with greater frequency. The aim of this study is to investigate early communicative development, and how screens

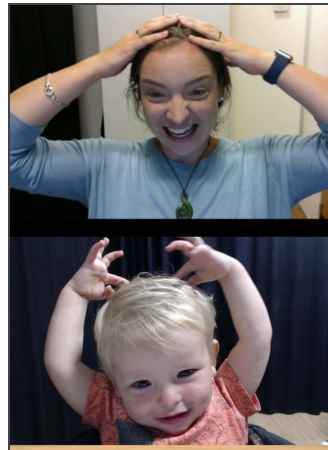


impact the dynamic structure of parent-infant interactions.

In this study, infants between 1.5- and 2-years of age and their parents are invited into our centre to take part in three mini interactions that involve using a small tablet in a face-to-face interaction, a large touch screen via a Skype-like interface, and lastly, a more traditional interactive context using actual toys. During these interactions we ask families to play social



games, such as peek-a-boo, or just play as they would do so at home. This design allows us to look at the differences in communication and behaviour across various interactive contexts that are relevant to how parents are likely to interact with their infants at home. We hope to learn more about the ways in which technology can support (or hinder) early parent-infant interactions.



This study is ongoing and so, please let us know if you, or someone you know, has a 1.5- to 2-year-old child and would like to participate. What's the long-term plan for this project? The enhanced understanding of

parent-infant interactions that we will attain from this project will inform the development of BabyX, a psychobiological simulation of an infant (see a video here: [BabyX](#)). BabyX is designed to test new and existing theories of early development that could not otherwise be explored!

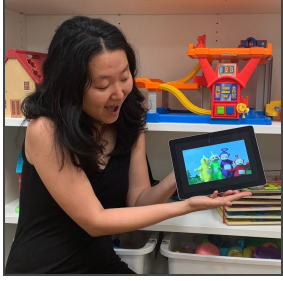


## Can simple cues affect children's decision making?

Children in this study would have played with MSc student, **Soly!**

Teaching children appropriate behavior has many challenges. For instance, it's not practical or ethical to reward or punish to an extreme.

One way that children are taught to approach or avoid something is through learned cue-outcome associations. For instance, children learn that in some situations, the colour red means STOP and green means GO. The aim of this study was to see if a simple cue paired with a specific outcome would produce learning. 4- to 5-year-old children played a tablet-based game where they were encouraged to select one of two buttons that changed colours, and different outcomes could occur from their selection: either they received a reward (fun video clip) or no reward (no video clip). We predicted that if children learned the association between colour and outcome, they would avoid the colour previously associated with no reward when presented with different buttons to choose from.



Surprisingly, findings suggest that while some did avoid the no-reward colour, others chose it more often. Some younger children seemed to avoid the no-reward colour more so than older children, but this was only a slight trend. Why might this be? One possibility is that older children may have formulated more complex ideas around what was happening in the task. For instance, some children have learned from their previous experiences that persistence is the key - they expected buttons to do something, so they often wondered if the no-reward coloured button was simply broken, and tried harder to make it work. Like trying to turn your computer on again and again if it doesn't work the first time! This reaffirms the important notion that, when studying people, individuals bring their own prior knowledge and experience to aid them in learning new things - no matter how young.

In the future, studies like this will explore how best to teach cue-outcome associations to those with intellectual or developmental disabilities, who may not have not have as complex a learning history and may therefore be most receptive to, as well as possibly benefitting the most from, simple cue-outcome based teaching.

Soly has recently submitted her Masters of Science thesis. Great work Soly!

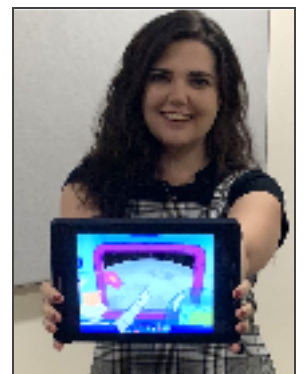
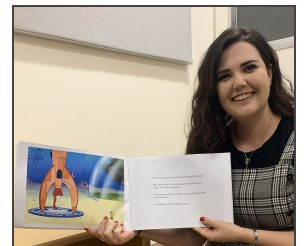
## How does engaging with television shows affect children's behaviour?

Children in this study would have played with our senior research assistant, **Kristina!**

Technology use has expanded rapidly over the past thirty plus years, with substantial increases in screen media engagement. We can access games, applications, television shows, and social media with the press of a few buttons or a couple of taps on a screen. Accompanying this expansion, there has also been an increase in the number of children's television shows, both fantastical (e.g., a squirrel flying to the moon in a rocket) and realistic (e.g., a class full of children exploring a dinosaur museum). This brings up the question of how these shows affect children's behaviour, such as their ability to follow rules, solve puzzles and exercise self-control. Previous research so far has garnered mixed results.

In this new collaboration with the University of Otago, we are examining whether engaging with books with fantastical or realistic themes produces similar effects to the television counterparts.

Children aged between 5- and 8-years-old completed a variety of tasks, such as playing Simon Says and using props to solve problems, then they were exposed to





one of five media types (fantastical show, fantastical book, realistic show, realistic book, or a colouring-in activity), and then they completed some more similar tasks. We are in the midst of coding and analysing all of the data collected, so stay tuned for the results from this exciting study!

## The Origins of Cooperation Longitudinal Study - Examining How Social Skills Develop across Early Childhood

Families who came in for this study this year may have met: **Jess, Livia, Nichole, Kristina, Brian, Miffy, Debbie, Sina, Beth & Jayde!**

It's been a big year for our longest running study! This longitudinal study started in 2012 and looks at when and how children learn to work with others. Using fun, game-like activities, we examine how children's cooperative understanding (understanding when tasks require two people to coordinate their actions to attain a goal), ability (being able to successfully coordinate one's actions with others) and motivation (desire to work together with other people) develops. Studying cooperation development is really important because everyday functioning and well-being depends on our abilities to work well with others.



Families participating have come into the lab up to 7 times since children were 9-10 months of age! In 2019, we completed data collection for the 6th phase when children were around 4 years old and because each session involves TWO children coming into our centre, this involved seeing over 325 children! 2019 also marked the beginning of data collection for the 7th phase, and a whole bunch of coding of previous phases.

We've also been hard at work coding and analysing all the data that we have collected. It's been a very productive year on this

front and we should be able to share our publications soon... Until then, here is a summary on three big questions we began to explore this year:

1) *How do parents' expectations, values and personality influence children's cooperative ability?*

Parents of the children in this study have been working hard at each visit too, answering questions about their child, but also questions about their own expectations, values, beliefs and personality. We have just begun to examine parents' responses in a detailed way and started by looking at the extent to which parents' views about cooperation and the world shape their children's cooperative ability. Perhaps not surprisingly, we have preliminary evidence that parents who emphasise the prosocial aspects of cooperation (i.e., children should cooperate to help other people) or parents who value authority (i.e., people should cooperate when it is expected) influence infants' ability to coordinate their actions with our adult. We are exploring these associations in more detail by exploring how specific parenting behaviours (like responsiveness and warmth) might contribute to these effects. Some of these findings were written as part of Miffy's Honours dissertation. Nichole is also writing some of these findings up for publication in a journal article and as part of her PhD thesis. Well done Miffy and Nichole!



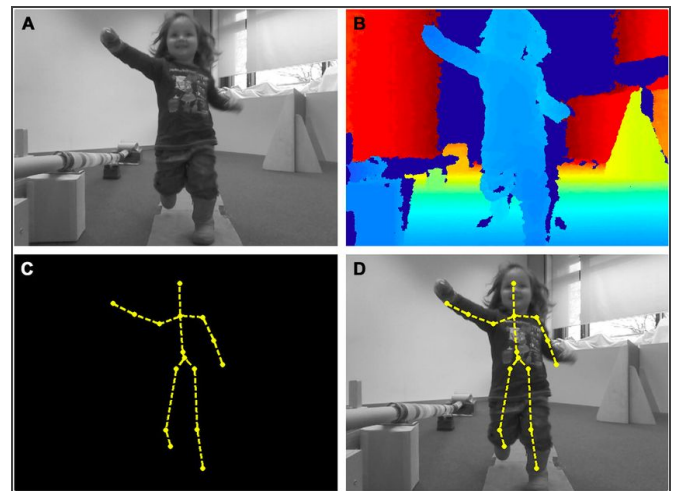
## 2) Does biology influence infants' cooperative ability?



Another exciting project this year was our first detailed investigation of the biological basis of cooperation by exploring the extent to which variations in five genes (DRD4, MOAOA, COMT, OXTR, CHRNA) shape 22-month-old infants' ability to coordinate their actions with an adult researcher. Preliminary results suggest that genetic variation does not influence cooperative ability this early in life, but variability in the CHRNA4 and OXTR genes was associated with infants' attention to the social aspect of cooperation. Livia has written these results for her recently submitted Masters thesis. Well done Liv!

## 3) Are there associations between children's tendency to show prosocial emotions and their helping behaviour?

Prosocial behaviours, such as helping, are essential for human relationships - but what emotions play a role in fostering and maintaining these behaviours in children? In a new collaboration with Junior Professor Dr Robert Hepach, at Leipzig University in Germany, we have been using a new and exciting method of measuring children's prosocial emotions—tracking their body posture! This new technology is allowing us to examine whether children show elevated postural changes (like when we experience pride) when witnessing another person's helping behaviour. We are also examining how children's personality, their own helping behaviour, and parents' modeling of helping behaviour influences differences across children in their elevated posture.



Sina, a brand new PhD student, began this exciting work during her Masters in Germany, and we are thrilled that she will be continuing it here at ELLA. Photo source: Adopted from Hepach, Vaish, & Tomasello (2017).

### *What's next for our cooperation study?*

In 2020 we will continue to contact our participating and new families to help us with our 7th phase, which involves 5- to 6-year-old children.

Thanks to funding from the Royal Society of New Zealand, we are planning an 8th phase when children are between 7- and 8-years-old which we hope to begin mid-2020. This phase is critical as it will provide us with important information about how attending school has influenced children's cooperative tendencies and broader social development.

As you can see, we still have opportunities for families to get involved in this study, so please tell everyone you know with a child 4.5- to 8 years of age about us!

# Highlights and Achievements

## Team ELLA Out & About



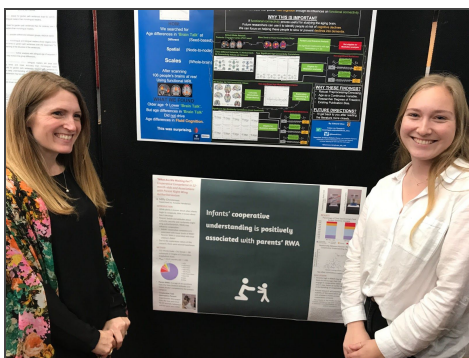
An important part of being an ELLA team member is taking part in various community events to talk to people about Psychology and introduce people to the wonders of Developmental Science research. In 2019, our team enjoyed talking to members of the public at four events: University of Auckland's Brain Day, University of Auckland's Open Day, the MOTAT Science and Technology Science Fair, and, our annual tradition, the Baby Show.



## Sharing our Research Findings with the Scientific Community

Our team members shared our findings at three international conferences this year! In May, Rachel presented findings from her PhD project at the annual meeting of the Association of Psychological Science, Washington, DC, USA. showing that children's ability to regulate their emotions after a frustrating task influences the quality of subsequent cooperative interactions with a social partner. In October, PhD student Nichole and lab director Annette presented some findings from the cooperation longitudinal study at the Biennial Meeting of the Cognitive Development Society, Louisville, Kentucky, USA. Annette presented findings showing links between infants' social cognition and social competence. Nichole presented her work linking parents' expectations about cooperation to infants' cooperative ability. Nichole's poster would go on to be a finalist at the Exposure Research Showcase here at the University of Auckland! Finally, 8 team members presented some of the findings described above at the first online conference of the Australasian Human Development Association.

### *Cognitive Development Society, Louisville, KY 2019*





# SPREAD THE NEWS

That's (nearly) all folks!

We hope that you have enjoyed reading about ELLA's busy year. Just before closing, we wanted to say thank you once again for your continued support of our research. We know time is valuable and the fact that so many of you have shared you and your child's time with us is amazing. We are always adding new studies to our "to do" list and so, please don't forget to keep us updated on any new children joining your family or if your contact details have changed.

If you are passing on our details to other people with children who may be interested in hearing more, please be sure to let them know these important pieces of information:



By contacting us, **you are not obliged to participate in our studies.**

We will contact you when we have a study in your child's age range.

If you are interested in participating in the study, we know how busy you are, and so **we do our best to schedule at your convenience, offering weekday and weekend appointments when available.**

Studies are typically run in our centre on campus, a child-friendly space equipped with a playroom filled with toys and a group of researchers who are excellent with children.

**Free parking is provided.**

**Siblings are welcome.**

After the session, **children always receive a thank you gift for their help and parents are entered into draws for gift vouchers.**

We look forward to having you and your family join us in the future!

## ELLA Contact Details

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