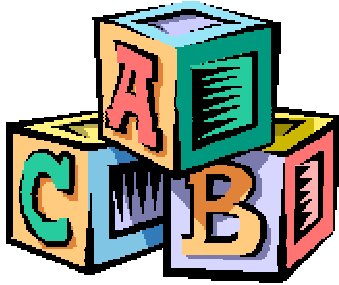


# Childhood Cognition and Learning Laboratory

## Annual Newsletter

January 2008  
Issue 3



### Lab Director

Cristina Atance, Ph.D.

### Lab Coordinator

Emily Cartledge

### Ph.D. Candidates

Michèle Bélanger

Laura Jackson

Jennifer Metcalf

### Honours Students

Elizabeth Quon

Cheryl Walker



uOttawa

We're on the Web!  
[www.sciencessociales.uottawa.ca/ccll/](http://www.sciencessociales.uottawa.ca/ccll/)

## Dear Parents,

It's been a busy year at the CCLL! We'd like to send out a big thank you to all the children and parents who have participated in our studies! Our research would not be possible without your help. We'd also like to thank all the facilities that allowed us to conduct on-site

research. We welcome all the new families to our lab and look forward to meeting you soon!

Best wishes for a safe and happy New Year,

—The CCLL Staff

## What We Do and Who We Are

We're interested in young children's thinking, and how it changes and develops during the preschool and early school years. We are currently studying children's perspective-taking, planning, and future thinking skills.

Our lab was formed in the Winter of 2004 and since that time we've been asking some very interesting questions about children's development. For instance:

1) What do young children know and understand about the future? For example, can young children think hypothetically about a future situation (e.g., going to the park) and how this situation may cause them to feel?

2) How do perspective-taking skills change across the preschool years? For instance, how adept are young children at understanding that although they may feel a certain way (e.g., tired, thirsty) or feel a certain desire or emotion (e.g., happiness), others may have different internal states, desires and emotions?

3) How do children make sense of their own, and others', actions in contexts in which the cause is not always clear? For instance, do young children understand that mistaken beliefs can lie at the root of action?

We are currently running many different studies to help us answer these questions, and are always happy to have parents of preschoolers and early school-aged children bring their child into our lab to participate in these studies. All of our studies involve a series of engaging and "child-friendly" games. By watching how children play these games, we learn a great deal about their thinking.

## Our Completed Studies

### “Anticipating Action Sequences”



This study focused on the development of anticipation skills in preschoolers. To assess these skills, we asked children to plan how they could achieve a specified goal. For instance, children were asked which piece of an ant costume (the head or the body) needs to be put on first to dress up like an ant. Or, children were asked to plan what size ball they needed to roll down a series of tubes to knock down a domino at the bottom.

**Results.** In a first experiment, children showed significant improvement with age on these planning tasks. Whereas 3-year-olds were often unable to correctly anticipate the sequence needed to achieve the goal, the 5-year-olds were correct almost 100% of the time. This is likely because older children’s problem-solving skills are more developed and also because they

have had more experience with the types of contexts that were presented to them (e.g., putting things on, rolling things, etc). Another possibility that we recently tested was whether younger children may have had difficulty with the planning tasks because they were unable to stop themselves from responding automatically without first giving a solution some conscious thought (this ability is typically referred to as “inhibitory control”). In a second study, we did indeed find that children’s performance on some of the planning tasks was related to their performance on inhibitory control tasks. This suggests that younger children’s “lapses” in future thinking may sometimes be the result of their inability to stop and think through a solution.

### “Explaining the Actions of Self and Other”

In this recently-completed study, children were shown various situations that changed unexpectedly. For instance, children saw a stuffed dog on the table and were told that there was a bone that they could get to feed the dog. In the child’s absence, the dog was removed and a mouse appeared. Children were then asked why they went to retrieve the bone. We were interested in how children explain their actions in this type of situation. For instance, would they remember that the dog was the reason they went to get the bone? We were also interested in how children would explain their action in a context in which they held an incorrect belief about the world. Thus, children were shown a crayon box and told to retrieve a piece of paper to draw on

with the crayons. After retrieving the paper, children were shown that the box contained candles. Children were then asked why they went to retrieve the paper. We also ran an experiment in which children were asked to explain another individual’s actions in these same situations.

**Results.** We found that 4-year-olds outperformed 3-year-olds on these tasks (both in explaining the actions of self and the actions of other). However, overall, both 3- and 4-year-olds had more difficulty explaining an action that was based on an *incorrect* state of mind (e.g., the belief that the crayon box contained crayons) rather than a previous state of the world that had changed (e.g., dog replaced by a mouse).



## “Autism Study”

Last year, our laboratory began a study examining future thinking skills in children with Autism Spectrum Disorders. We are interested in determining whether these children experience difficulties with future thinking skills and, particularly, tasks which require them to project themselves into the future. Because some children with autism have difficulties with imagination and pretend play, we suspect that thinking about the future may pose a challenge for them. We found some initial evidence that supports this hypothesis and, in the upcoming year, we plan to investigate these findings even further. In upcoming studies, we will be looking at future thinking skills in more detail, and also how future thinking skills relate to other types of skills, such as theory of mind skills (which allow us to understand that others can have a different perspective on the world) and executive function skills (which allow us to control our actions and responses). We suspect that children with autism will show very different profiles on these skills as compared to typically-developing children. We look forward to seeing many of our participants again soon for these studies!



Graduate student Laura Jackson

## Our Ongoing Studies



### “Parental Reactions”

In this study, parents actually get to participate with their children; this is because we are interested in observing how parents and children discuss events that are mildly surprising or unexpected. Because we want parents’

interactions with their child to be as natural as possible, we prefer not to give you too much information about this particular study! However, we promise to give you an update in our next Newsletter!

### “Action Explanation”

This set of experiments explores whether young children will ever incorrectly explain their own actions in terms of knowledge gained *after* they acted. For example, children are shown a box and asked if they would like to get some pennies to put in it. While children leave the room to get the pennies, the box is removed and replaced with a piggy bank.

Upon their return, children are asked to explain why they went to get the pennies. Of interest is whether children will correctly state that they got the pennies to put in the box, or whether they will incorrectly state that they got the pennies to put in the piggy bank. We will give you an update on what we find in the next Newsletter!



## “Two-Rooms Tasks”

This study focuses on children’s abilities to plan ahead. To perform the tasks correctly, children must make decisions with the future in mind. In this study, children are presented with a problem, and later in the session are presented with various objects, one of which can be used to solve the problem. We are in the process of conducting this study with 3-, 4-, and 5-year-olds. Look for an update in next year’s Newsletter!



## “Present for Mom”

The main goal of this study is to examine children’s ability to adopt multiple perspectives on their own, and others’, desires. To do so, we’ve designed a “present-giving” task in which children are asked to choose presents for themselves, for Mom, and for themselves when they’re all “grown-up.” We’re interested in seeing whether children’s choices for “Mom” and for their “grown-up self” are influenced by what children like or “desire” right now. We’re excited to see what we find!

### Publications and Presentations

We’ve had a busy year presenting our work at various research conferences and publishing our results in psychology journals. Here is a sampling of some of our conference presentations and journal articles:

1. Atance, C. M., & Meltzoff, A. N. (in press). How developmental science contributes to theories of future thinking (Commentary on Suddendorf and Corballis). *Behavioral and Brain Sciences*.
2. Bernstein, D. M., Atance, C. M., Meltzoff, A. N., & Loftus, G. R. (2007). Hindsight bias and developing theories of mind. *Child Development*, 78, 1374-1394.
3. Metcalf, J. L., & Atance, C. M. (October, 2007). *Under what circumstances do children appeal to causally-irrelevant information to explain their actions?* Poster presented at the biennial meeting of the Cognitive Development Society, Santa Fe, NM.
4. Metcalf, J. L., & Atance, C. M. (June, 2007). *How do competing causal factors interfere with children’s explanations for their own actions?* Poster presented at the annual meeting of the Canadian Psychological Association, Ottawa, ON.
5. Atance, C. M., & Jackson, L. K. (May, 2007). *The relation between different future-oriented behaviors.* Paper presented at the annual meeting of the Jean Piaget Society, Amsterdam, NED.

### Questions? Interested in participating in a study?

Call us at 613-562-5800 ext 4475 or e-mail us at [ccll@uottawa.ca](mailto:ccll@uottawa.ca)  
Please feel free to pass along our pamphlet to your family or friends!

Our research is funded by a Discovery Grant from the Natural Sciences and Engineering Research Council of Canada, and a Standard Research Grant from the Social Sciences and Humanities Research Council of Canada.

