Dear Parents and Families,

Welcome to the annual publication of the Child Learning and Development (CLAD) Lab’s newsletter! This summer, we are celebrating our third year of research in the lab, and are excited to share some of our recent work with you! This newsletter reports on several of the studies conducted during the past year. I hope you enjoy reading about this work, especially the studies in which you and your children participated.

Thank you for participating in the research being conducted in the lab. Without your support and participation, I would not be able to carry out my research or train the next generation of developmental scientists.

To keep up to date on all things CLAD Lab-related, you can visit our Facebook page at www.facebook.com/cladlab or visit our website at bitly.com/cladlab. I hope to see you all in the lab again soon!

Carolyn Palmquist
Director, Child Learning and Development Lab

Recent Publications

- Palmquist, C.M., Jaswal, V.K., & Rutherford, A.V. (under review). Success inhibits preschoolers’ ability to establish selective trust.

Research Updates

Are kids sensitive to different types of knowledge?

Knowledge can be separated into two broad categories: episodic knowledge and semantic knowledge. Episodic knowledge is currently relevant information that is specific to a particular situation, like where something is and who put it there. Semantic knowledge is consistently relevant information that can be generalized and applied to multiple contexts, like how something works or what it’s made out of. Last summer, our lab found that 4 year olds distinguish between episodic and semantic knowledge and tend to prefer nonverbal communication (like pointing) from people who have shared accurate semantic information previously, but not accurate episodic information. Therefore, not only do children prefer semantic information, but they also prefer to learn new information from those who have shared semantic information in the past.

This summer, we are investigating whether there are any individual differences between subjects that make them more likely to demonstrate this preference.

We used a similar process throughout this series of studies. Children were first introduced to two experimenters. One experimenter always pointed to objects inaccurately and the other always pointed accurately. For some children, experimenters shared episodic knowledge by pointing to the location of objects; for other children, the
experimenters shared semantic knowledge by pointing to identify the functions of objects. For example, when a third experimenter asked them to point to an object that cuts paper, the accurate experimenter pointed to scissors while the inaccurate experimenter pointed to a spoon. Next, children saw pictures of novel objects and were asked which of the two experimenters they would like to ask for help in identifying the names of the objects.

This summer we have added new metrics to test how individual differences affect children’s preferences. One metric is theory of mind, which is a child’s ability to understand the mental states of others. We predict that children with better theory of mind will be more sensitive to the benefits of interacting with someone who has semantic knowledge. The other metric is children’s understanding of trait consistency, which refers to the extent to which children consider certain traits to be enduring. We believe that children who consider traits to be more consistent will prefer people who demonstrate consistently applicable knowledge (i.e. semantic knowledge).

We hope this series of studies will help us understand how children use types of knowledge to identify reliable sources of information.

Understanding deceptive pointing

There are two different hypotheses for why children have difficulty ignoring deceptive pointing. The possibilities are that deceptive pointing contradicts their expectation that pointing should be 1) truthful (pointing is done with honest intention); or 2) affirmative (showing where something is, rather than where something is not). We have developed a series of studies to help us explore which of these possibilities is most likely. Here, we have compared children’s interpretations of deceptive pointing to their interpretations of what we call true negative pointing.

Specifically, we have 4-year-olds play a hiding game in which an experimenter hides stickers under one of two cups, points to one of two possible hiding locations, and then invites the children to search. Children could participate in one of two different versions: a deceptive version, where the experimenter always points to where a sticker is not hidden, or a true negative version, in which an experimenter explicitly tells children, “I’m going to point to where the sticker is not hidden, and it will be your job to find it.” Therefore, while deceptive pointing violates both the expectation that pointing is truthful and that it is affirmative, true negative pointing only violates the latter. If children have difficulty deciphering true negative points just as they do deceptive points, then their expectations about the affirmative nature of the gesture may be the reason they have trouble ignoring it. However, if children do not have difficulty interpreting true negative pointing, it would suggest that only when pointing violates their expectations of truthfulness do children have trouble interpreting it correctly (and ignoring it in the case of deceptive pointing).

We are also looking at individual differences, such as working memory (how many pieces of knowledge a child can hold in mind for later use) and executive functioning (the ability to incorporate various rules simultaneously), as potential predictors of children’s performance when dealing with these different kinds of pointing cues. We predicted that children with greater executive functioning and working memory ability would be more likely to search in the correct location, as these skills may help children to update and
make flexible use of their expectations about pointing.

Children were more likely to find hidden stickers in the true negative version than in the deceptive version of this task. Therefore, while children do not successfully ignore deceptive pointing, they are much better at interpreting true negative points. These results suggest that the reason children struggle with deceptive pointing is because they expect pointing to be truthful, not because they expect it to be affirmative. Only in the true negative version did children’s performance on the executive functioning task seem to predict how successful they were at finding the sticker, suggesting that different abilities may help children succeed when encountering deceptive pointing versus true negative pointing.

Does success affect children’s help-seeking behavior?

As adults, we are relatively good at identifying the reasons for why we have been successful on particular tasks. For example, if you answered many difficult math problems correctly, you would likely attribute that success to having the skills related to that type of math. However, if you were able to repeatedly choose the same card from a deck of face-down cards, you would likely not assume that you have a card-selecting skill, but rather that you had been extremely lucky. In other words, simply having experienced success on a task does not always lead us to believe that we have particular skills in that domain; we are able to distinguish between success that stems from skill and success that stems from luck.

Recently, our lab has been asking whether children can make similar types of distinctions and how this might affect their help-seeking behavior. In this study, 4- and 5-year-olds and college-aged adults played a computer game in which two experimenters took turns hiding several objects in one of two locations from behind a barrier. One experimenter was always helpful, which meant that after the object was hidden and the barrier removed, she always provided a clue about the location of the hidden object. One experimenter was never helpful, which meant that after the object was hidden, she never provided a clue about its location. After each hiding event, participants were asked to identify where the object was located and provide a rationale for why they thought it was there. They then received feedback about whether their choice was correct. Participants could have participated in two versions of this game. For one group of participants, success was tied to their ability to use the clues provided. Therefore, they found the hidden objects more often with the helpful experimenter than they did the unhelpful one, because they could follow the helpful experimenter’s clues to the correct location, but had to simply choose randomly when interacting with the unhelpful experimenter. For another group of participants, we rigged the game so that they found the hidden objects on every try, and therefore were equally successful with both the helpful and unhelpful experimenters (even though one was clearly more helpful).

Later, both groups were told that they were going to play another hiding game, and were given a chance to choose which of the two experimenters they would like to have help them in the new game. Adults in both groups preferred the previously helpful experimenter, suggesting that even those who had been extremely successful on the previous task (those in the rigged version of the game) viewed her previous helpfulness as an asset to
their future success. Four- and 5-year-olds, on the other hand, only preferred the previously helpful experimenter when they had actually been more successful with her in the past. Those who played the rigged version of the game showed no preference for the previously helpful experimenter.

We believe that adults and children sought help differently in the rigged version of the game because they interpreted their success differently. While adults identified that they had likely been successful due to a lucky streak, and would therefore still benefit from high-quality help in the future, children assumed that their success was indicative of a high level of skill. Therefore, children in the rigged version of the game did not pay attention to differences in the helpfulness of the two experimenters (and picked equally between them) because they did not think they would need help.

In on-going work, we are exploring how developmental changes in how children understand luck may affect these perceptions of success across the lifespan.

How much can children tell from someone’s face?

We are working on a new study, created in collaboration with the Infant Cognition Lab at the University of Massachusetts Amherst that investigates how children link faces to behaviors. We know that adults make face-to-trait inferences about trustworthiness, dominance, and competence. From the courtroom to the conference room, these judgments on others’ outward appearances have consequences in the real world. They can affect whether a jury considers someone innocent or guilty, or whom people consider most likely to be a CEO.

Preschoolers, too, make these face-to-trait inferences, albeit, at a more basic level. Young children often extend their understanding of what makes someone a nice or mean person, generalizing this evaluation to more nuanced characteristics, like competence.

In our study, we are extending the research on faces and traits to study how children use facial features to make predictions about how someone will behave in the future. Specifically, we are asking whether children will link a competent behavior to a competent-looking face. In order to create these typically competent- or incompetent-looking faces, the study uses two computer-generated puppets whose faces are created based on which facial features adults have previously identified as appearing either competent or incompetent. Four- and five-year-old children watch one masked puppet match objects with their functions correctly or incorrectly (e.g. “Which one covers hands?” Correct selection: glove; Incorrect selection: hairbrush). Then, children are presented with the two unmasked puppets and have to choose which of the two puppets they thought they had been watching before. If children do, in fact, use faces to make predictions about how someone will behave in the future, we would expect that they will identify the puppet who knew about object functions as the one with the typically competent face and vice versa.
Past and Future Events

The Child Learning and Development Lab has been busy reaching out to area communities in order to connect with families with children ages birth to 10 years old. This year we visited area libraries, made appearances at fun events like the Asparagus Festival and Amherst’s Crafts on the Common, and took our student research assistants to work with preschoolers at the Holyoke Children’s Museum where we have an ongoing, collaborative relationship.

Our research team casts a wide net by traveling far and wide to playgroups in Northampton, Erving, Leverett, and Shutesbury, to name a few. These connections allow us to bring interested families into the fold, and for those who participate in studies, a lasting relationship is formed as children continue to develop and grow.

Area preschools offer Amherst College students opportunities for observation and research. Some early learning centers, such as Nonotuck Community School in Northampton, allow us to visit on a regular basis to interact with their children as new studies become available. We share similar relationships with Smith College’s Center for Early Childhood Education, Sunnyside Childcare, Woodside Children’s Center, Spring Street School, and Cushman Scott Children’s Center.

Additionally, if you know of any fun community events that you and your family will be attending, be sure to let us know about them so we can attend them as well. You can email us at cladlab@amherst.edu with information. We are always looking for fun new events to go to!

Register with us

If you are interested in learning more about the lab, you can contact us by calling 413-542-5670 or emailing cladlab@amherst.edu. If you are interested in participating in future research, visit our website at www.bitly.com/cladlab to register your family with our lab. If you register your family, we will contact you when there is a study that your child is of the right age to participate in. During the summer, we are open Monday through Friday, from 9am to 5 pm, and participation in a study usually takes no more than a 30-minute visit to our lab.

Marissa Fierro (’16) and Ashleigh Rutherford (’16) present their research at the Cognitive Development Society Meeting in Columbus, OH in October 2015.

Some of the members of the Child Learning and Development Lab celebrate the end of the 2015-2016 school year. A special congratulations to our graduating seniors: Marissa Fierro, Donna Kim, and Ashleigh Rutherford!