Bauer Memory at Emory Lab

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Inside this issue

We at the Bauer Memory Lab are excited to share with you all of our accomplishments and discoveries from this past year! Within this newsletter, you will find descriptions of our new and ongoing projects, as well as updates on the projects detailed in previous newsletters. Additionally, this newsletter includes updates on our lab members' careers and achievements.

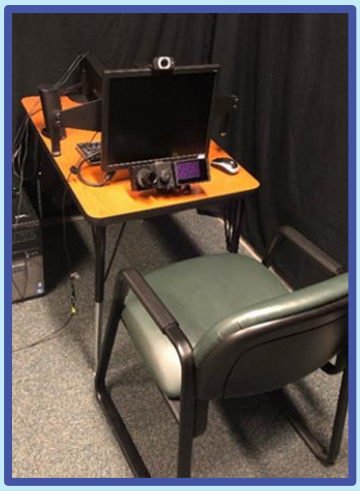
The past year, we have been thrilled to return to in-person research and invite families into Emory's Child Study Center! Our experimenters have loved the opportunity to connect with participants both remotely and in the psychology building.

The reintroduction of in-person research has allowed us to return to some cool research methods such as eye-tracking. We have also continued our online research endeavors, meeting with participants over Zoom and conducting online surveys to address our research questions about memory and development.

None of this research would be possible without you though! We are so thankful for your continued support of our studies. It is your participation and interest that allows us to make exciting discoveries such as those covered herein.

For more information about projects, findings, or ways to get involved, call us at (404) 712 – 8330, visit our website, or email memory2@emory.edu

What we do in the Bauer Lab



One of the eye-trackers used in our lab

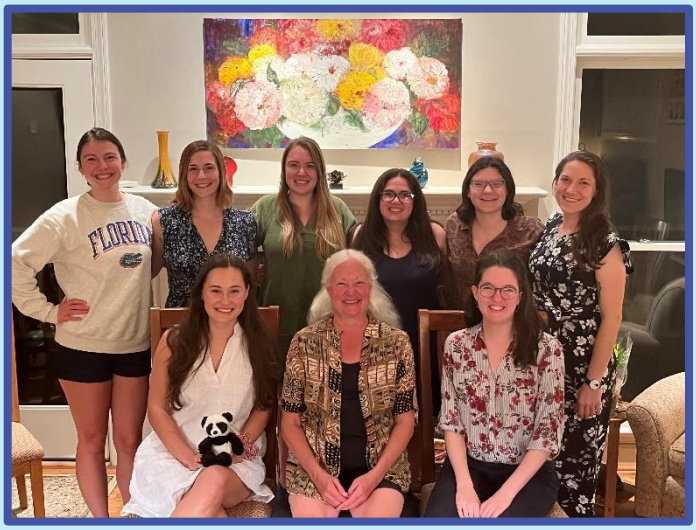
In the Bauer Lab, we are curious how people learn and remember the knowledge that they obtain throughout their lifetime. We are also interested in how people generate their own knowledge based on separate instances of learning. These types of questions are important for broadening our understanding of how individuals build a full knowledge base, from childhood into adulthood.

In order to study these types of questions, The Bauer Lab utilizes many different research methods and tools, from eye-tracking and behavioral tasks to book reading and museum walkthroughs.

In the past couple of years, we have diversified our methods to include in-person, hybrid, and online formats. In person, we are able to use eye-tracking technology to answer questions about children's memory and how it develops. Even virtually, we're able to administer many tasks we would do in person with participants, such as learning, language, and memory tasks.

We are excited for the next year of studies and have you to thank for your participation!

Much of the research performed in the Bauer Lab focuses on memory and learning, often through a developmental lens.



Building a Knowledge Base

Knowledge Integration Example:

Children come into the lab (or participate online) and meet with a researcher who presents the child with a series of facts (either learned from a PowerPoint or learned from reading a story).

For example, a child might learn that a corolla is the name for the bunch of flower petals on a flower. Then, after a short break, the child might learn that flower petals are used to make perfume. At the end of the session, we ask the child a series of questions (i.e., What is the corolla used for?). In order to answer these "integration" questions, one must put the two related facts together to generate (or self-derive) a third, "new" fact (i.e., the corolla is used to make perfume).

As was mentioned on our first page, we are interested in the development of memory, especially as it pertains to adding new information to our knowledge base. Much of the research in the lab investigates the different skills and processes that affect how children learn, remember, and use new information – skills that are especially important in a school setting!

In particular, we at the Bauer Lab are interested in how children combine information learned at different times or in different contexts to generate new understandings, a skill that is critical for building this knowledge base across one's lifespan. Our lab calls this process ***self-derivation through knowledge integration.*** One of the goals of this research is to better understand how this skill develops over the school-age years, as well as to investigate the ways in which we can promote and facilitate its development.

This line of work began in 2009, and since then, we have gained a great deal of information about how children combine new facts through pictures, stories, single sentence facts, and games.

TWO-YEAR MEMORY STUDY

Katie

Lucy

Jessica

Melanie

Alissa

Britney

In 2021, the Bauer Lab started recruiting for a longitudinal project about acquiring knowledge in childhood. This research is funded by the National Institutes of Health (NIH) and takes place over the course of two years, giving us an opportunity to see individual growth amongst participants! 8-12-year-old children met with researchers twice per year over Zoom to see what has changed over the course of a year. Children in this study learn engaging facts ranging across topics they may learn in school, and experimenters test to see how well these facts are remembered and used to self-derive new knowledge. Then, children answered questions about various academic topics such as math, reading, science, and social studies. Some activities include puzzles or number games and provide insight into what skills are acquired in different grade levels, and how these skills develop over time. Importantly, we are interested to see if any of this academic knowledge relates to the ability to self-derive new knowledge. So far, we have submitted one paper that is currently under review with the data from the first year, and we have many more in the works!

EYE TRACKING STUDY

How do children build a knowledge base over time? Young children rely on direct questions to self-derive information; older children and adults do so spontaneously. But why do we see these developmental differences? In this project, we are using eye-tracking technology to better understand the *memory sub-processes* underlying the ability to build knowledge through self-derivation. We asked 7-11 year old children to learn sets of related facts on our eye tracker. Eye gaze patterns from the eye tracker will tell us important information like when children realize the facts are related, when they combine related facts (before or after being asked to do so), and how they choose which facts are needed to answer self-derivation questions. The ultimate goal of this work is to gain novel insight into how learning develops over time.


Lucy


Katie


Greer


Maria


Britney

LEARNING THROUGH BOOKS

How does the everyday practice of book reading help to promote young children's memory integration? Much past work in our lab has studied the process of memory integration. That is, how does one combine facts learned across separate events to gain new knowledge? Our lab has shown that memory integration is developing between 4 and 8 years of age. For this project, we asked whether parent-child book reading could help support memory integration in 5-7-year-old children. We had parents and children read a storybook with opportunities to integrate facts across topics. For example, on one page the book taught the fact "otters communicate by squealing," and then on a different page the book taught "the animal that communicates by squealing lives in groups called rafts." We found that the extent to which parents and children worked together to integrate the related facts, the higher children performed on tests of memory integration. This work shows that young children's memory integration can be supported by everyday activities of parent-child book reading.


Hilary


Melanie

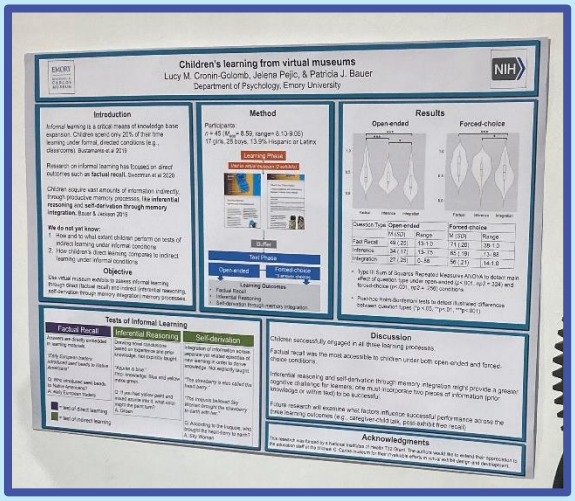

Cori


Emily

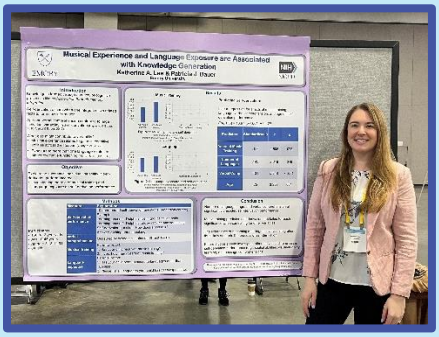

Bethany

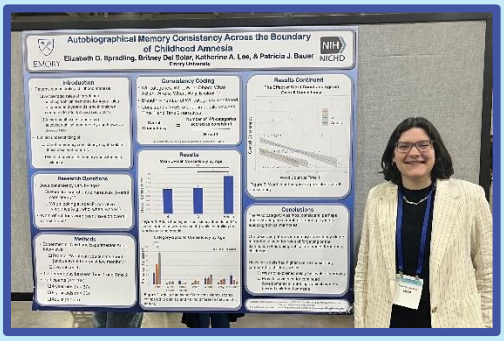
Presenting Our Findings

Emory hosted the Memory Meeting in February of this year, an event that brought together experts in the field of memory from seven different psychology labs across North America. The two-day event gave researchers the opportunity to present some of their findings, as well as receive advice and input from peers about how to make their projects even better. The conference also provided post-doctoral researchers, graduate students, and research staff from different universities with the opportunity to network with and learn from excellent scientists in their field of study.



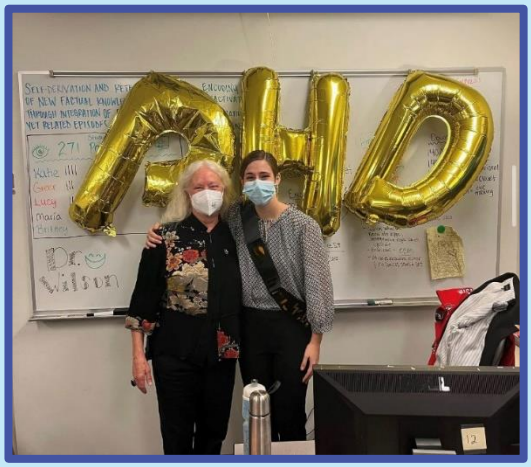
Lucy presented her work on children's learning from virtual museums at the Mechanisms of Learning forum in Edinburgh, Scotland. This is a smaller conference focused on learning across context, method, and species. While there, Lucy participated in idea generation workshops, led discussion sessions, and listened to talks from experts in dog cognition, non-human primate learning, and child development. She also tried a bite of haggis and played a few rounds of croquet!





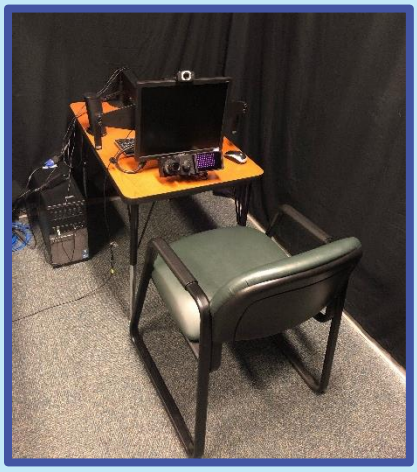
Lucy gave a flash talk at the Society for Research in Child Development conference (middle photo), where she discussed productive memory processes under naturalistic conditions. Hilary, Jessica, Katie (left photo), and Greer (right photo) presented posters on a range of topics including autobiographical memory consistency, language exposure and musical experience, knowledge generation and topic-area mastery, and learning through parent-child book reading.

Staff Updates



Julia successfully defended her dissertation in December of 2022 and graduated with her doctorate (PhD) in May of this year! She is now working as a User Experience Researcher at a tech startup, where she conducts research studies to understand how to make software development tools as effective as they can be for users.

One of the lab's post-doctoral researchers, Jessica, is headed to a new position! In the fall, she will start as an Assistant Professor in the Psychological Sciences Department of Western Oregon University, where she will start her own lab and be teaching courses such as Cognitive Psychology and Research Methods.



Lucy is currently in the process of collecting data for her dissertation project. Over the fall and summer, close to one hundred children have come to the lab to participate in the eye-tracking study. Lucy is excited to wrap up data collection soon and begin analysis on all the beautiful data that has been collected!

Thanking our Undergraduate Research Assistants

Many wonderful undergraduate students have worked in our lab the past year. They provided support to all aspects of our research, from entering data to running sessions with participants. We are very grateful for them, and we could not have done all this research without them.

Britney Del Solar	Maria Grosso Zelaya
Emily Wei	Bethany Williams
Luisa Taverna	Colleen Baskin
Lillie Lanphier	Lexi Bortnick
Joy Ren	Gloria Guan
Martha Stern	

Again, thank YOU for participating in our research! Our efforts would not be possible without such willing and enthusiastic participation. We would love to have you back for another study!

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Do you know any other families who might be interested in participating in child development studies at the Emory Child Study Center? Please call 404-727-7432, email childstudies@emory.edu, or visit http://psychology.emory.edu/child-study-center/index.html