

# 2021\_SSP Faculty Projects

Row 3

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<b>Research Group</b>	Perdue
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<b>Project Title</b>	<b>Eyetracking and Cognitive Neuroscience in Preschool Children</b>
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<b>Research Question, Hypothesis, or Conjecture</b>	Can eyetracking technology offer insight into cognitive development in preschool children? We predict that patterns of eye movement will yield novel findings regarding the development of cognitive processes in young children.
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<b>Project Description</b>	Eye tracking technology has greatly advanced the study of cognitive processing in humans. Research in this area has expanded the ability to assess cognition and behavioral decision making beyond traditional behavioral responses or self-reports, which can often be biased by social contexts, previous history, or experimental setting. Eye tracking allows for an unbiased measure of “online” processing. In humans, this is useful because it controls for the influence of “post-hoc” explanations of behavior that may be biased in participants and not actually reflect the underlying cognitive processes. In other words, humans may not accurately report the processes underlying a decision, either because they were not aware of their actual behavior, or they respond in an attempt to appease the researcher in some way (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In relation to the proposed work with children, eye tracking technology may be particularly revealing given the challenge that young children may have in articulating their cognitive processes. An in-depth analysis of how they look at and perceive stimuli prior to making a decision will yield much greater insight. This research will specifically focus on several areas of cognitive development in young children: metacognition, self-control and planning. We will implement well established computerized tasks to assess these abilities, but will include the eyetracking technology. This will provide additional insight into how participants are reaching their final decision on these types of cognitive tasks. Given the relation between performance on such tasks at a young age and later outcomes in life, this work may open up future opportunities to develop interventions for any observed deficits. The plan is that students involved in this work will have an opportunity to analyze incoming data from the eyetracking project, observe data collection procedures at a local daycare, and develop and test hypotheses based on this body of data.
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<b>Introductory References</b>	<a href="https://www.tobii.com/fields-of-use/infant-child-research/">https://www.tobii.com/fields-of-use/infant-child-research/</a> Not a research article, but provides a useful overview and links to several example studies.
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<b>Project Timeline (weekly), during June 1 - July 31</b>	Week One: Literature Review and Protocol Review. Week Two: Complete Literature Review and Articulate Research Question. Week Three: Completion of background check and other required paperwork to work at daycare. Complete CITI training. Week Four: Using the Eyetracker. Gain familiarity with the device and with the output. Week Five: Continue training on eyetracker. Visit daycare to observe data collection process. Begin data analysis. Week Six: Write program for eyetracker to address research question. Week Seven: Pilot program with children (or one another in the case of restricted access) Week Eight: Complete data analysis and effort to address a small research question from collected data.
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<b>Expected Learning</b>	Reviewing literature and developing hypothesis. Gaining familiarity with an ongoing research project protocol. Analyzing data from a
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<b>Outcomes</b>	cognitive task and from eyetracker. Address an introductory hypothesis test.
<b>Research Team &amp; Environment</b>	Ongoing work at the daycare involves a team of scientists from Georgia State University and Georgia Gwinnett College.
<b>Department</b>	Psychology and Neuroscience
<b>4 or 8 Week Project</b>	8 weeks
<b># of full-time student positions requested (1-3)</b>	2
<b>Minimum Requirements (for research novices)</b>	Transportation, Basic literature review and statistical analysis skills
<b>Requirements for Advanced students</b>	Comfort with various technological platforms and programs
<b>Recommended Preparation (but not required)</b>	Familiarity with child cognitive development or eye tracking applications would be great, but I will help to establish background if you aren't familiar.
<b>Modification for Remote Research (IF needed)</b>	If we are unable to conduct research at the local daycare, we will still be able to meet remotely and students can independently access my lab space which will contain the eyetracker. In the situation in which we cannot actively collect data, students will still be trained in how to design a task in the eyetracker, can pilot data collection and process data output.