

DEPARTMENT of Psychology



ST RS

STUDENT THESIS AND RESEARCH SHOWCASE

April 15th, 2021, 4:00 p.m.



2021 STARS ORDER OF PRESENTERS

**KIERIN BARNETT
MEREDITH BONE
OLIVIA MOENS
DIANE CAMARDA
ZACHARY DEMKO
MIKAYLA FOSTER
CLAIRE GIROD
YUZHE GU
NOAH PHILLIPS
JAZMINE RAMOS
LUKE RUTTEN
LAUREN SCHILLING
ARIEL YANG
DASHA YERMOL**

PRESENTERS



Kierin Barnett

Promoting Perceived Usefulness in Statistics: An Online Laboratory Study

Faculty Mentor: Dr. Judith Harackiewicz, Michael Asher

Abstract: Theories of academic motivation suggest that students' interest and performance should increase when they come to believe that what they are learning is useful. However, previous research has found that it is not always effective to simply present students with information about a topic's usefulness. When less confident students are told that a learning activity is important and useful, they may become anxious because they believe they might not succeed at something that is highly consequential. Their anxiety can lead them to lose interest in the task and undermine their performance on subsequent tests (Canning & Harackiewicz, 2015). In the current online laboratory study, we sought to help less confident students benefit from communications about the utility of statistics by emphasizing that in college-level statistics initial confusion is normal and temporary, hoping to reduce anxiety. Results indicate a strong, positive effect of utility information on perceptions of usefulness for statistics for all students, as well as a positive effect on interest. We observed no undermining effect of utility information on interest or performance for less confident students, failing to replicate previous results. Findings suggest that in a statistics paradigm, utility information may be beneficial for all students' perceptions of usefulness and interest, not just for confident students. These findings have implications for future interventions in Science, Technology, Engineering, and Math (STEM) classrooms and more broadly may help to address the shortage of qualified STEM professionals in the workforce.



Meredith Bone

Increasing Parents' Motivation to Reduce Children's Racial Biases

Faculty Mentor: Dr. Patricia G. Devine, Katharine Scott

Abstract: Children display racial biases starting in the preschool years. Many have suggested that their parents intervene to counteract the development of racial bias. In order to successfully address children's biases, parents first require education and training. We developed an intervention focused on parents' (1) awareness of, (2) concern about, (3) motivation to regulate, and (4) self-efficacy in addressing their children's racial biases. We pilot tested the intervention and outcome measures with White parents and their 5–7-year-old children. The data from the preliminary research indicate that parents who completed the intervention experienced increases in their awareness of children's racial biases ($\beta=2.28$, $p<.001$), concern about children's racial biases ($\beta=.52$, $p<.001$), and motivation to address children's racial biases ($\beta=.29$, $p=.05$) compared to parents in the control condition. In the final study, families were randomly assigned to either the intervention or control condition and we longitudinally evaluated children's racial bias. If successful, this intervention may lead to a better environment for racial minorities by addressing children's biases before they are deeply entrenched.



Olivia Moens

Teaching Parents Strategies for Addressing Children's Racial Biases

Faculty Mentor: Dr. Kristin Shutts, Katharine Scott

Abstract: Children begin displaying harmful racial biases early in development. Such biases are particularly robust amongst White children (Dunham et al., 2013; Raabe & Beelmann, 2011). These racial biases can and do lead to discriminatory behavior that is noticeable and damaging to minority children (Trent et al., 2019) therefore highlighting a pressing need for interventions designed to reduce White children's racial bias. This has led many to suggest strategies for preventing and decreasing such biases. One common suggestion advanced by researchers and the popular press is that White parents should be involved in addressing children's biases before they are deeply entrenched. My ongoing research aims to strengthen child-targeted interventions by training parents to implement specific bias-reduction strategies with their children over time. White parents and their White 5–7-year-old children ($N=240$ dyads) were randomly assigned to an intervention condition or control condition. Parents in the intervention condition learned about the development and consequences of children's racial biases via a training video. Parents in the intervention condition were also taught multiple evidence-based strategies for addressing issues of race with their children and were provided with storybooks to practice implementing the strategies. Parent-child dyads in the control condition were told to practice reading storybooks about animals before engaging with the race-related materials. Pre-test and post-test measures of children's tolerance for discrimination, social preferences, and predictions of parental attitudes were collected from all child participants. Analyses will focus on changes from pre- to post-test in the intervention condition compared to the carefully matched control condition. If successful, future research will evaluate the generalizability and scalability of the present intervention program.

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Diane Camarda

Machine Assisted Screening for Depression using Facebook Private Messages Faculty Mentor: Dr. John J. Curtin, Sarah Sant'Ana

Abstract: Our research aims to use machine learning analysis of social media to predict depression in young adults. Depression in young adults has the potential to negatively impact functioning for years to come, even in mild cases. However, most young adults do not seek help for their depression until symptoms are severe. Widespread depression screening for young adults may help increase insight into symptoms motivate earlier treatment seeking. Current screening procedures typically only occur in university and medical settings and therefore miss a large portion of young adults with depression who do not have access to these services or do not choose to seek treatment until their problems are severe. To address these issues, we use machine learning approaches to passively identify predictors of depression present in young adult's private social media messages. We chose private messages because they provide a widely used, passive data source that has been previously demonstrated to contain important signal related to emotional wellbeing, social behaviors, and coping mechanisms that may provide important information for diagnosis of depression. 836 undergraduate students provided full downloads of their Facebook private messages and completed an in-person screener for depression. To build our predictive model, we utilized machine learning techniques to select the optimum combination of natural language-based feature sets (e.g. LIWC, Word2Vec), tuning parameters, and classification algorithm (e.g. elastic net logistic regression, random forest). Model performance was evaluated via nested cross validation. Results demonstrated predictive utility within social media data for classifying young adults' depression.



Zachary Demko

No Evidence for Behavioral Dysregulation in Video Game Addiction Faculty Mentor: Dr. C Shawn Green & Graduate Mentor: Lauren Anthony

Abstract: There is an effort to determine whether to categorize video game addiction as a mental disorder. This study hypothesized that people who met criteria for video game addiction wouldn't decrease their gaming when they had exams, indicating an addictive lack of self-control. We identified two groups of gamers among college students, one who met criteria for video game addiction and one who did not. They completed weekly self-report surveys assessing their time spent studying and gaming. A MANOVA revealed no significant differences between the addicted and non-addicted groups in gaming time during weeks with and without exams. Participants underestimated the amount of time they spent gaming, which casts doubt on these results. The underreporting of gaming hours has relevance for research that relies on self-reports.



Mikayla Foster

Psychological and Physical Function in Hematopoietic Cell Transplant Survivors With Chronic Graft-Versus-Host Disease Faculty Mentor: Dr. Erin S. Costanzo

Abstract: Chronic graft-versus-host disease (cGVHD) is a frequent complication of allogeneic hematopoietic cell transplantation (HCT). While clinical manifestations are well characterized, little is known about the impact on psychological and physical function. A longitudinal dataset tracking cancer patients pre- and post-HCT was used to compare psychological and physical function for patients who did and did not develop cGVHD. Participants (N=251) completed measures of psychological function (anxiety, depression) and physical function (fatigue intensity and interference, pain intensity and interference, sleep disturbance and duration), at 6 months and 1 and 3 years post-HCT. 110 participants were diagnosed with cGVHD at a median of 191 days post-HCT. cGVHD patients reported more anxiety at 1-year post-HCT than those without cGVHD ($t=-2.28$, $p=.02$), but there were no other differences in psychological symptoms. There were more notable differences in physical symptoms. Those with cGVHD reported greater fatigue intensity at 6 months and 3 years ($t=-2.25$ and -2.03 , $ps<.05$), greater pain intensity and interference at 1 and 3 years ($t=-2.02$ and -2.41 , $ps<.05$), and shorter and more disturbed sleep at 6 months and 3 years post-HCT ($t=-2.12$ and -2.35 , $ps<.05$). Follow-up analyses focused on the subset with active cGVHD showed the same pattern of findings. Only one association was seen between cGVHD severity and symptom scores: those with moderate-to-severe cGVHD reported poorer sleep as compared to those with mild cGVHD at 6 months post-HCT ($F(1,50)=6.10$, $p=.02$). Our findings indicate that HCT survivors with cGVHD show impaired physical function but demonstrate relatively resilient psychological function.

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Claire Girod

Assessment of Fear of Negative Evaluation and Social Stress as Predictors of Cortisol Response and State Anxiety

Faculty Mentor: Dr. Yuri Miyamoto, Steph Choi

Abstract: Salivary cortisol is produced in response to acute stress, including social stress. The Trier Social Stress Test (TSST) is a well-documented inducer of social stress, and cortisol is thought of as a reliable biomarker for research examining the TSST (Allen, 2013). However, chronic stress levels may cause dysregulation in acute salivary cortisol production in the presence of social stressors. There have been mixed findings regarding such dysregulation: previous studies have found cases of higher social anxiety associated with both heightened and blunted cortisol reactivity. Despite variations in cultural trends associated with social stress levels, fear of negative evaluation, and self-construal patterns, these same mixed findings have been found when analyzing clinical populations in both individualist and collectivist cultures. Previous research has even documented varying health impacts related to social stress, including better biological health outcomes found in Japanese populations (Kitayama et al., 2018). This variation emphasizes the need to understand the biological component of social stress. In this open-ended study (N= 200) of both European American and East Asian participants, we hope to investigate the correlation between social anxiety and cortisol baseline, reactivity, and recovery within and across cultures in response to the TSST. Through saliva collection and self-report measures tracking the stress response, we hope to provide insight into the associations between social anxiety levels and acute salivary cortisol responses in a non-clinical collegiate population. Our conclusions will contribute to literature that aids in understanding how we can best mitigate the negative biological health aspects of social stress.

Yuzhe Gu

Language Prediction in Second Language Comprehension

Faculty Mentor: Maryellen MacDonald & Graduate Mentor: Arella Gussow

Abstract: Language prediction refers to the phenomenon that people use context cues to predict upcoming words during language comprehension, which facilitates language processing. In the current study, we investigated whether native (L1) and non-native (L2) speakers could use the phonological cue in English articles (a/an) to predict upcoming words. We conducted a mouse-tracking experiment in which participants heard a sentence that instructed them to click on one of two objects that appeared on the screen (e.g., "show me an apple"). The two objects were either paired with the same article in control trials (e.g., an apple/an olive) or different articles in test trials (e.g., an apple/a boat). Therefore, only in test trials the article was informative of the upcoming object. We hypothesized that L1 speakers could use the articles in test trials to predict the upcoming object and therefore will have shorter reaction times and more direct cursor paths to the target. For L2 speakers we hypothesized that they could not use the phonological information fast enough so that their performance would not differ between test and control trials. Results showed that L1 speakers (N=123) had more direct paths and shorter reaction times in test trials compared to control trials, suggesting they could use the phonological cue in English articles to predict the target object. In contrast, preliminary results from L2 speakers (N=25, Mandarin-English bilinguals) suggest no significant difference between test and control trials. Overall, L1 speakers were faster and had more direct paths than L2 speakers, as expected.

Noah Phillips

Cognitive Predictors of Extreme Expertise in Competitive eSports

Faculty Mentor: Dr. C. Shawn Green

Abstract: As video gaming and competitive eSports have garnered increased empirical attention, a knowledge gap persists concerning the cognitive underpinnings of performance in individual gaming genres. Indeed, just as is true of traditional sports, where different abilities underlie performance in, for instance, tennis versus wrestling, eSports players require distinguishable skills to perform well in any particular genre, and these genre-specific skillsets likely load upon unique cognitive constructs. The present study aims to measure how different forms of gaming expertise correlate with performance on traditional cognitive assessments, in an effort to isolate the cognitive processes that most directly support top-level competitive gaming performance. Participants with varying degrees of gaming skill completed a task battery measuring several facets of cognitive functioning.

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Jazmine Ramos

Examination of Age-Related Change in Cortical Folding Among Bonnet Macaques

Faculty Mentor: Allyson Bennett & Peter Pierre

Abstract: As individuals mature, their brains develop in many ways, including changes in aspects of brain morphology. A growing body of literature illustrates these maturational processes, focusing on overall or regional volumetric analyses. My study addresses a gap in knowledge by examining the development of brain morphology and composition via analysis of sulci and gyrification. A cross-sectional study of archival neuroimages (MRI scans) from bonnet macaques (*Macaca radiata*) is used to investigate how aging affects cortical folding across the infant (0-12 mos), juvenile (12-36 mos), and adolescent (3-5 years) periods. To evaluate how the brain is affected by age-related changes, global and specific sulcus measures are derived from analyses using ITK-SNAP, a software that allows for analysis of brain images. Dependent measures include: total brain volume, grey and white matter volume, cerebral spinal fluid, gyrification index, along with sulcus depth, surface area, and grey matter thickness specific to each of five sulci. Preliminary findings indicate that with age, the global white-to-grey matter ratio increases, grey matter thickness specific to each sulci decreases, and brain gyrification increases.



Luke Rutten

Measuring and Affecting Engagement in Online Learning Contexts

Faculty Mentor: Dr. Judith Harackiewicz and Michael Asher

Abstract: Engagement in the classroom is an essential part of learning, and as virtual learning environments become increasingly common, it becomes equally important to understand how to measure and facilitate engagement in these contexts. Prior literature suggests that one means of facilitating engagement is by drawing students' attention to the potential usefulness, or "utility value," of course content. In the fall of 2019, researchers conducted a utility value intervention in several middle schools, in which randomly selected students read and evaluated quotes about the usefulness of math as they worked with an online algebra tutor. In the present study, we examined the "log files" from the online algebra tutor, creating measures of student engagement and exploring whether we can detect effects of the utility value intervention on these measures. Three behaviors signaling disengagement (off-task time, rapid guessing, and abuse of the tutor's hint feature) were identified in the data set. Though they correlated with measures of performance and attitudes, none of the behaviors were significantly impacted by the utility value intervention. Students who went through the intervention exercises reported more interest in the tutor, more interest in math, and more utility value for math. Possible reasons for the results and suggestions for future research are discussed.



Lauren Schilling

More Than Meets the Eye: Sight Words in Early Reading Instruction

Faculty Mentor: Professor Mark Seidenberg and Matt Cooper-Borkenhagen

Abstract: To become skilled readers, children must fluently recognize the words they encounter in texts. In many reading curricula, teachers provide instruction about sight words, words that are high in frequency and contain irregular sound-spelling correspondences. Teachers often encourage students to memorize these words rather than sound them out. However, little is known about which words should be taught and how they should be delivered. As a result, the quantity and qualities of sight words vary greatly across popular curricula and supplemental instructional materials. The present study investigates the sight word lists and teaching methods of several early reading instructional programs. Seven measures of word qualities were computed: word frequency, length, imageability, age of acquisition, orthographic-phonological regularity, number of syllables, and number of morphemes. Our results indicate that there is little agreement about the relevant characteristics of sight words and how to teach them. These findings point to a need for developing clearer criteria for the selection and delivery of sight words.

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Ariel Yang

College Sexual Assault Prevention Programs: Effectiveness of Current Approaches and Suggestions for the Future

Faculty Mentor: Dr. Janet Hyde

Abstract: College sexual assault poses a serious threat to the health and safety of campus members, as it affects millions of North American college students. The experience of sexual victimization is associated with damaging consequences such as poorer mental and physical health outcomes and worse quality of life. To reduce the high prevalence of campus sexual assault, prevention programs have been introduced to college campuses. Are these programs effective? In this review, 40 recent evaluation studies on 47 intervention programs were analyzed with regards to their program characteristics (i.e., modality, duration, content, facilitator, audience) and program outcomes (i.e., attitudinal, behavioral). The design of the evaluation studies (e.g., no control, quasi experimental, randomized controlled trials) significantly affects the conclusions that can be drawn from each study. Studies with randomized controlled trials (RCTs) provide the most high-quality information on the efficacy of intervention programs. Program effectiveness is discussed in relation to program characteristics and program outcomes. In general, a decrease in rape myth acceptance is consistently found across studies regardless of program characteristics and study design. Interventions with more interactive components are effective in promoting bystander behaviors. Future studies and intervention programs should focus more on gender and/or sexual minority students, given the high prevalence of campus sexual victimization among this population. Studies that begin with first-year students may provide important insights into the long-term effectiveness and additional advantages of sexual assault prevention programs for college students.



Dasha Yermol

Face Masks Hinder Our Ability to Recognize Facial Expressions of Emotion

Faculty Mentor: Dr. Paula Niedenthal

Abstract: With government-mandated social distancing, virtual meetings, and overall limited face-to-face contact, our everyday social interactions have drastically changed. As people continue wearing face coverings to help reduce the spread of COVID-19, a newly masked world presents itself with potential social challenges. For instance, will we be able to communicate effectively with nonverbal facial cues when the lower half of our faces are covered? In other words, does the recognition of emotion from facial expressions depend on the entire face, or do the eyes alone carry enough information? We addressed this question empirically with the most common face masks worn during the COVID-19 pandemic: N95, surgical, and cloth. Amazon Mechanical Turk workers viewed videos of actors performing facial expressions of anger, disgust, happiness, and surprise that were fully visible or covered by a face mask, and rated the extent to which the expressions conveyed each of the four emotions. Participants perceived masked facial expressions as communicating lower levels of the expressed (target) emotion and this was especially true for disgust and happy expressions, which are predominantly comprised of muscle movements in the lower half of the face. Additionally, masked compared to visible facial expressions were rated as communicating higher levels of other (non-target) emotions. Results suggest the need for mask wearers to implement body gestures and verbal communication when expressing emotion in everyday social interactions.



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