2019 CORNELL UNDERGRADUATE PSYCHOLOGY CONFERENCE

MAY • 9 • 2019

Table of Contents

Schedule of Events

9:00 AM - 3:30 PM

9:00 AM - 9:30 AM — LIGHT BREAKFAST - ATRIUM

9:30 AM - 10:30 AM — TALK SESSION 1 - ROOM 120

SOCIAL PSYCHOLOGY

Faiza Ahmad '19* Changing first impressions: The effect of ambiguity on implicit biases (PSYCH)
Darby Tarlow '19 Social perceptions of artificial intelligence (College Scholar)
Tong Suo '19* Culture, language & future thinking (PSYCH)
Shelly Zhang '19* Where has the time gone? The impact of time tracking on busyness (PSYCH)

10:45 AM - 11:30 AM — TALK SESSION 2 - ROOM 120

DEVELOPMENTAL & CLINICAL PSYCHOLOGY

Kathryn Garrisi '19* Effects of temporal structure on social partner identification (PSYCH)
Gillian Fennell '19 The association of chronic pain with past and future self continuity (HD)
Eunice Yiu '20 A new task for assessing toddler mental rotation (HD)

11:30 PM - 12:30 PM — LUNCH - PORTICO

12:30 PM - 2:00 PM — POSTER SESSION - ATRIUM

2:00 PM - 3:00 PM — TALK SESSION 3 - ROOM 120

COGNITION & BEHAVIOR

Gavin Wong '20 Mating tactic as a predictor or result of spatial ability in male prairie voles (PSYCH)
Yeling (Olivia) Wang '19* Individual visual statistical learning differences as a predictor for language processing (PSYCH)
Xing Su '19* The effect of perspectives, action or goal changes to event segmentation (PSYCH)
Adam Schulman '19 The influence of gain versus loss framing on age differences in the Balloon Analogue Risk Task (HD)

3:00 PM - 3:30 PM — CLOSING REMARKS

*presenting both a talk and a poster

Posters

1. Faiza Ahmad '19* Changing first impressions: The effect of ambiguity on implicit biases (PSYCH)
2. Tong Suo '19* Culture, language & future thinking (PSYCH)
3. Shelly Zhang '19* Where has the time gone? The impact of time tracking on busyness (PSYCH)
4. Kathryn Garrisi '19* Effects of temporal structure on social partner identification (PSYCH)
5. Yeling (Olivia) Wang '19* Individual visual statistical learning differences as a predictor for language processing (PSYCH)
6. Xing Su '19* The effect of perspectives, action or goal changes to event segmentation (PSYCH)
7. Zoey Costanzo '19 The future of Ohio v. Clark: Legal and psychological factors defining juvenile witnesses' intent in out-of-court statements (PSYCH)
8. Leya Salis '21 The effect of a play manipulation on parent-child creativity (HD)
9. Kiara Thompson '19 The psychopath as the quintessential rational actor: A fuzzy-trace theory approach (HD)
10. Chelsea McGowen '19 Parental influences on infant expectations and reward (PSYCH)
11. Monisha Afrooz '19 Observing the characteristics of depressed mothers in comparison to non-depressed mothers regarding speech with their infants (PSYCH)
12. Renee Williamson '19 Understanding the autistic mind through fuzzy-trace theory: Cognition, empathy and theory of mind (PSYCH)
13. Margot Werner '19 Playing the long game: Developing a predictive model of successful retirement (ILR)
14. Sarah Dickerman '19 Understanding implicit bias towards substance abuse (PSYCH)
15. Sierra Forester '19 Childhood food insecurity and implications on adult self-control outcomes: Lower levels of anger-expression control (HD)
16. Josh Reilly '21 Growth mindset and perspectives on America (PSYCH)
17. Raishawn Pitt '19 Undoing the misperception of included individuals as excluders (PSYCH)
18. Julianna Zalinski '19 The effects of proximal behaviors on pair bond formation and maintenance in zebra finches (PSYCH)
19. Beverly Lo '20 Central distribution of vasopressin 1a receptor in the African giant pouched rat (PSYCH)
20. Samanta Arenas '20 Central distribution of oxytocin receptor in the African giant pouched rat (PSYCH)
21. Rachel Zheng '19 Social scent discrimination by African giant pouched rats (PSYCH)
22. Pooja Patel '20 Hippocampal lesions and mating tactics in prairie voles (PSYCH)
23. Vanessa Lazaro '19 The interplay between maternal and paternal care in prairie vole parents (PSYCH)
24. Deanna Earle '20 Target detection facilitates accuracy and confidence in recognition memory (PSYCH)
25. Sally Liu '21 Emotional tension and the visual structure of film (PSYCH)

Talk Abstracts

Changing first impressions: The effect of ambiguity on implicit biases
Faiza Ahmad, Thomas Mann, & Melissa Ferguson

Implicit attitudes were long thought to be rigid and unchangeable, but research has since shown that this is not the case. Implicit attitudes can not only be changed slowly through the addition of information, but they can also be completely and rapidly reversed when conditions require a complete reinterpretation of initial information. Based off these findings, we set out to explore the following questions: Can implicit attitudes still be undone if new information is more ambiguous? Further, if there is more ambiguity in new information, do people rely on racial biases to guide implicit attitudes? Often, when people do not have sufficient objective information to form an impression about a target they, either explicitly or implicitly, resort to using stereotypes or even prejudices to influence their evaluations. Thus, this study tested whether implicit updating occurs differentially in ambiguous conditions depending on the race of the target.

Social perceptions of artificial intelligence
Darby Tarlow, Rajen Anderson, & David Pizarro

With the ever growing presence of artificially intelligent (AI) social partners, it is critical to understand how people's perceptions of AI are constrained by prior beliefs. The perceived affordances of social interactions, such as whether to trust a robot or find a robot empathetic, are dictated by the dual processes of anthropomorphization and its complement, dehumanization. These work together to apply sets of social norms for humans to machines, while also constraining them according to beliefs about AI characteristics and competencies. The present research investigates the perceived essential mind characteristics of AI and how they translate into perceptual biases in rating the social qualities of human-like faces. In a series of studies, baseline ratings of AI along the social dimensions competence-warmth and the mind dimensions of agency-experience were used to predict ratings of human-like faces, which were framed as either belonging to an artificial intelligence or a human.

Culture, language & future thinking
Tong Suo & Qi Wang

The purpose of this study is to investigate if language can prime people's pattern for event prediction. Literatures show that compared to Americans, Chinese people anticipate more changes from an initial state, and tend to predict that events will develop in a nonlinear manner (Ji, Nisbett & Su, 2001). We expect that people whose background is an American and Chinese bicultural one, and therefore are fluent in both English and Chinese, can be primed by the language used in the study. Thus, people who take the study in English will demonstrate an event prediction pattern closer to American's (expect fewer changes and a linear development), while people who take the study in Chinese will demonstrate a pattern closer to that of the Chinese (expect more changes and a non-linear development). Caucasian participants answering English questionnaires will also be recruited to serve as a control group.

Where has the time gone? The impact of time tracking on busyness
Shelly Zhang, Steve Strycharz, Randy Lee, & Vivian Zayas

Although popular press articles voice the benefits of time tracking, no empirical studies have been done to validate intuitive claims. In this study, we test whether time tracking is an effective way for people to feel more productive, manage busyness and have greater subjective well-being. Our results show that tracking time spent does not have large impacts on time management, productivity, and subjective well-being.

Effects of temporal structure on social partner identification
Kathryn Garrisi, Jennifer Schwade, & Michael Goldstein

Over the first 18 months, infants become experts at identifying social partners, such as their parents or caretakers, who they can rely on and learn from. What cues of appearance and behavioral pattern organize infants' attention to an animate agent? To test the features that infants use to identify social partners, we tested whether 11-month-old infants would follow the gaze of a robot as they do when interacting with a human. Infants were exposed to a contingently responsive robot, and then saw the robot orient to and approach one of two novel objects. Infant gaze following in response to the robot's orienting behavior was observed. Data analysis is ongoing. The findings will illuminate whether contingent responses from a novel robot will cause the infant to identify it as a social partner.

The association of chronic pain with past and future self continuity
Gillian Fennell, Abby Pui Wang Yip, M. Cary Reid, & Corinna Loeckenhoff

Qualitative research on chronic pain patients' subjective experiences has revealed feelings of discontinuity between present and past selves due to changes in physical functioning and social roles. To expand on these findings, the present study gathered quantitative data on the association between pain and self-continuity across two samples, exploring potential differences for proximal versus distant selves and past versus future selves. Study 1 involved an adult community sample (n=230, aged 18-87). Study 2 involved a sample of older chronic pain patients (n=145, aged 45-94). Across both studies, self-reported pain was negatively associated with self-continuity and effects tended to be more pronounced for more distant selves. However, for the general population sample, effects were more pronounced for future self-continuity, but for the chronic pain sample, effects were more pronounced for past continuity. We discuss potential explanations and implications for maintaining selfhood in the face of chronic pain.

A new task for assessing toddler mental rotation
Eunice Yiu, Sabrina Kazi, & Marianella Casasola

Mental rotation, the ability to imagine an object's appearance from a distinct orientation, is an important spatial skill linked to STEM achievement. Studies have documented infant mental rotation, but none have done so with toddlers in part due to the lack of age-appropriate measures. We adapted the preschool Picture Rotation Task (Quaiser-Pohl, 2003) on PsychoPy for use with seventy-five 1.5- to 5-year-old children. Children were presented with a target, an upright cartoon crocodile, followed by an identical match or a mirror image in which they picked the option facing the same direction as the target. They were then tested with the target rotated 45, 90, 135, or 180 degrees from upright. Results showed that accuracy decreased as the angle of rotation increased, consistent with previous studies of mental rotation. The younger children scored above chance on the task, particularly with items with lower angles of rotations (i.e., 45, 90 degrees).

Mating tactic as a predictor or result of spatial ability in male prairie voles
Gavin Wong, Marissa Rice, & Alexander Ophir

Mammals display many different mating strategies ranging from lifelong pair bonding to polygyny. Even within species, mating tactics differ between individuals. Male prairie voles (*Microtus ochrogaster*) display two types of mating behaviors termed resident or wanderer. Residents are monogamous and share a territory with one female. Wanderers are promiscuous, with territories that overlap with multiple females. The goal of this research was to determine what drives males to adopt one tactic over the other by assessing whether mating tactic is predictive or resultant of spatial memory ability. Using the Morris Water Maze, males were tested on their spatial ability before and after an 18-day period in a semi-natural field enclosure. Test performance was then compared to the mating tactic they adopted in the field. Based on the tactic adopted and the change in spatial ability, we hope to determine whether mating tactic is innately encoded or dependent on ability.

Individual visual statistical learning differences as a predictor for language processing
Yeling (Olivia) Wang, Erin S. Isbilen, & Morten Christiansen

Statistical learning (SL), the process by which individuals implicitly track the distributional regularities in an input, is a widely studied phenomenon in cognitive science. Past studies have indicated that linguistic SL abilities are predictive of individual differences in sentence processing and language processing abilities in general. Most studies on SL, however, varied in their SL assessment method. Whereas the two-alternative forced-choice task (2AFC) has been the more typical task used to test SL, many have argued that it may not be accurately reflective of the underlying SL mechanisms. Recently, the Statistically-Induced Chunking Recall (SICR) task has been proposed to be a better implicit offline measure of SL. This present study aims to investigate the efficacy of both tasks in measuring SL, specifically in the visual domain. We hope to examine individuals' Visual Statistical Learning (VSL) ability and investigate if VSL is predictive of one's sentence processing skills as well.

The effect of perspectives, action or goal changes to event segmentation
Xing Su & Khena Swallow

The human mind has the gift of constructing orderly representations out of complex, continuous visual stimuli. To build these representations, people automatically segment ongoing activities into meaningful units of activities. Various studies suggest that people tend to agree on the boundary between two events, the moment that separates , what is happening now, from , what just happened. However, the type of information that gives rise to these event boundaries is not specified. Segmentation might be strictly bound to low-level, context-free stimuli such as agents' location changes or action changes. Or, it could be based on high-level, context-dependent information such as agents' goal changes or intention changes. To disentangle the effect of these two types of information on event segmentation, previous research asked trained-coders to mark visual features in movies and compare these marks with participants' performance. However, it is not clear if participants can identify goal or action changes in movies consistently and uniformly. This study addresses these two questions by quantifying people's understanding of both context-based and context-free information in event perception and comparing them with segmentation. In one experiment, observers first identify goal changes and action changes in ideas of actors performing everyday activities, such as cleaning bookshelves or doing laundry. Each activity was simultaneously recorded from a first-person perspective and a third-person perspective. If participants can identify goal and action changes consistently, their performance should be better than chance. If segmentation is tightly bound to context-free stimuli, observers' event boundaries should align better with action changes identification; If segmentation is bound to context-dependent information, the observer's event boundaries should align better with goal changes identification.

The influence of gain versus loss framing on age differences in the balloon analogue risk task

Adam Schulman, Amy Chong, & Corinna Loeckenhoff

Prior research has found age differences in risky decisions and indicates that framing effects may play a role. However, the results are mixed and do not appear to be consistent across decision tasks. The present study adds to this literature by examining the role of gain versus loss framing in the Balloon Analogue Risk Task (BART), a widely used measure of risky decision making that involves pumping up a virtual balloon and correlates with real-life behavior. Samples (n = 40) of younger adults (aged 18-30) and older adults (aged 60 and over) were randomly assigned to a gain version of the BART, where pumping the balloon added monetary gains, or a loss version, where pumping the balloon avoided monetary losses. In addition to documenting the replicability of previously observed age effects in the BART, results add to our understanding of the role of framing for age differences in risky decisions.

Poster Abstracts

The future of Ohio v. Clark: Legal and psychological factors defining juvenile witnesses' intent in out-of-court statements

Zoey Costanzo, Amelia Hritz, & Michael Goldstein

The Sixth Amendment of the United States Constitution provides individuals being prosecuted in a criminal trial with the right to confront their accusers (U.S. Const. amend. VI.). However, if an out-of-court statement is non-testimonial, it may be legally admitted to trial without the accused confronting their accuser. The Supreme Court of the United States (SCOTUS) has not defined what renders an out-of-court statement non-testimonial, resulting in lower courts using their own discretion (Amato, 2017). However, SCOTUS has not been entirely silent, ruling on conditions under which out-of-court statements may be admissible, most recently considering intentionality in child declarants in Ohio v. Clark (2015). The present thesis reviews cases related to Ohio v. Clark, analyzes which factors are frequently considered regarding out-of-court statements by children, and examines the factors through psychological research. Altogether, this thesis provides insight into how psychological research can inform legal decision-making when considering intentionality in child declarants.

The effect of a play manipulation on parent-child creativity

Leya Salis, Marianella Casasola, & Ashley Ransom

Forty-eight parent-child dyads completed a task that examined how manipulating study directions affects the way parents interact with children during play. The participants were given a board with an outline of five hexagons and were asked to create different hexagons (e.g., six triangles, two trapezoids) using a variety of wooden shapes. At the start of the study, the experimenter told the parent that the purpose of the study was either to enhance children's creativity (creativity condition) or mathematic skills (math condition) through play. In the math condition, parents used more spatial language (e.g., shape words), but in the creativity condition, parents and children created more hexagons. These results are relevant to how toys are marketed to parents and suggest that a simple manipulation can change how parents and children interact during play.

The psychopath as the quintessential rational actor: A fuzzy-trace theory approach

Kiara Thompson & Valerie Reyna

For centuries, the American justice system has dealt with psychopathic offenders and their willful recidivism. In today's society it is well known that psychopaths' behaviors and approaches to situations differ from the ones that are socially accepted. The purpose of this study was to delve deeper into this concept and use a Fuzzy-Trace Theory approach to explore the cognitive processing mechanism that individuals who exhibit psychopaths use when making decisions. Self-report psychopathy measures and framing scenarios used to diagnose reliance on verbatim or gist representations were given to 133 undergraduate students. Statistical testing revealed that psychopathic traits were not associated with reliance on verbatim or gist representations (neither reverse framing nor standard framing).

Parental influences on infant expectations and reward

Chelsea McGowen & Michael Goldstein

Are infants' social preferences influenced by familiar interaction patterns? We investigated whether infants prefer contexts in which they experience social interaction patterns similar to those of their mothers. As infants become familiar with their parents' patterns of responsiveness, they may develop generalized expectations about adults' behaviors, then seek out adults who fulfill their predictions. We assessed the reward value infants experienced when their social expectations were met. The present study employed a conditioned place preference (CPP) paradigm with infants to assess the reward value of social interactions with confederates who varied in responsiveness. Parental and confederate sensitivity were observed to determine whether infants prefer confederates who match their parents' responsiveness. This research will inform our understanding of how expectations and mechanisms of reward may drive infants' social behavior.

Observing the characteristics of depressed mothers in comparison to non-depressed mothers regarding speech with their infants

Monisha Afrooz, Michael Goldstein, & Jennifer Schwade

Depression is categorized as a mental health disorder where one experiences a loss of interest in activities. This often leads to an impairment in one's daily life. Postpartum depression is a type of depression that occurs to new mothers after childbirth. It causes mothers to have a lack of attentivity to their newborns, which is problematic because it can cause cognitive development delays for the infants. The purpose of this project is to observe the characteristics of depressed mothers in comparison to non-depressed mothers regarding speech with their infants. It is hypothesized that the depressed mothers would have fewer interactions with their infants than the non-depressed mothers. Ultimately, by examining how depressed mothers use these forms of speech, findings from the proposed study will aid in determining how the language environment of infants of depressed mothers varies and will help better understand why infants of depressed mothers show particular developmental delays.

Understanding the autistic mind through fuzzy-trace theory: Cognition, empathy and theory of mind

Renee Williamson, Krystia Reed, Alisha Meschkow, & Valerie Reyna

Those who exhibit a high amount of autistic traits tend to rely on deliberative reasoning more than intuition as defined by dual-process theory. In addition, people with autistic traits tend to systemize more and empathize less than the general population. This paper seeks to explore the role of empathy, systemizing, and autistic traits in decision making by using Fuzzy-trace Theory (FTT), a dual-process decision-making model that accounts for reward sensitivity, emotion, and inhibition in risky decision-making. It was hypothesized that those with more autistic traits, more systemizing, and less empathy would be more likely to make literal trade-offs in framing decision problems with equal expected value, and therefore exhibit no framing bias. Measures for autistic traits, systemizing, empathizing, and framing questions were used in a college sample. None of the proposed factors significantly influenced framing bias. Limitations and suggestions for use in a clinical population are discussed.

Playing the long game: Developing a predictive model of successful retirement

Margot Werner, Emily Zitek, & Michael Goldstein

What is the psychological impact of retirement for people whose occupations are closely intertwined with their identity? I studied two groups, military personnel and collegiate athletes, in which identity is closely related to their job, the nature of their work can be physical, colleagues resemble a close-knit group, retirement can be sudden or gradual, and happen at a relatively young age. The perceived gradualness of one's retirement (i.e. did it happen suddenly or were their duties slowly reduced over time) is the biggest predictor of present-day happiness, stress, and financial satisfaction for military personnel. Collegiate athletes that were able to swiftly switch their focus from sports to academics had the smoothest retirement adjustments. Follow-up studies examining professional athletes, whose public and private identities are strongly associated with their playing career, are ongoing.

Understanding implicit bias towards substance abuse

Sarah Dickerman, Xi Shen, & Melissa Ferguson

The purpose of this project is to investigate the underlying biases people hold towards individuals with substance use disorder compared with other mental and non-mental health related illnesses. The thesis objective is to better understand the root causes of this implicit bias and utilize existing research to design a subsequent study that seeks avenues to address and mitigate implicit bias. The final part of this study validates the bias predictive model through empirical testing to determine whether the implicit biases are predictive of subsequent behavior. Given that expressed beliefs do not reliably predict behavior, this project focuses on both implicit and explicit bias.

Examining racial ethnic identity as a psychological buffer against social anxiety for first-year college students

Carúmey Stevens, Kaylin Ratner, & Anthony Burrow

Given the normative challenges and social adjustments associated with making the transition to college, it is not surprising that 19-33% of first-year college students report social anxiety (Parade et al., 2010). The transition may be even more difficult for students of color, as many racial ethnic minority students report social injustices such as discrimination, stereotyping, and exploitation (Fischer, 2010; Hwang & Goto, 2008). These race-based stressors put racial ethnic minority students at greater risk for psychological distress relative to their racial ethnic majority peers (Neville et al., 2004). There is growing evidence that a strong sense of racial ethnic identity can serve as protection against psychological distress for underrepresented racial ethnic groups (Greig, 2003; Mossakowski, 2003; Yasui et al., 2004). Therefore, it is important to consider how one's racial ethnic identity could temper levels of social anxiety for marginalized students transitioning to college.

The present study addresses two gaps in the current literature. First, it investigates whether there are differences in social anxiety between first-year racial ethnic minority students (defined here as Black and Latino participants) and racial ethnic majority students (defined here as White and Asian participants). Second, this study expands upon previous research findings that a high level of racial ethnic identity is a psychological resource by testing how both racial ethnic identity exploration and commitment relate to social anxiety. We predict that strong senses of racial ethnic identity exploration and commitment will correlate with fewer symptoms of social anxiety. Finally, we will explore whether the influence of these two identity processes differs as a function of minority or majority racial group membership. These questions will be answered using multiple regression analysis.Data collection for this project is ongoing. Presently, a total of 179 first-year participants have been recruited (78% female, 47% majority, 53% minority). A power analysis was conducted to determine how many participants would be needed to find a modest effect ($f2 = .07$) with 80% power and the standard 5% alpha level; It appears 189 participants are necessary. Results from this study may help to inform efforts in higher education to improve multicultural engagement and retention at universities, specifically by informing culturally sensitive mental health counseling and culturally based programming for first-year emerging adults.

Childhood food insecurity and implications on adult self-control outcomes: Lower levels of anger-expression control

Sierra Forester, Sophia Yackel, Libby Brown, & Anthony Ong

Food insecurity affects 21% of American families with children. Extensive research has highlighted the relationship between food insecurity and poor self-control in children, but research following these effects into adulthood is lacking. The present study examined whether these developmental setbacks from inadequate access to food as a child have observable effects on self-control into adulthood. Using longitudinal data from the Midlife in the United States Biomarker Project, we found that adults who reported not having had enough to eat as a child showed significantly lower levels of anger-expression control than those who did not experience food insecurity. These findings suggest that experiencing food insecurity in childhood can have long-term consequences to health, highlighting the crucial nature of addressing household food insecurity in the United States.Using longitudinal data from the Midlife in the United States Biomarker Project, we found that adults who reported not having had enough to eat as a child showed significantly lower levels of anger-expression control than those who did not experience food insecurity. These findings suggest that experiencing food insecurity in childhood can have long-term consequences to health, highlighting the crucial nature of addressing household food insecurity in the United States.

Growth mindset and perspectives on America

Josh Reilly & Randy Lee

We explore the influence that growth mindset exposure can have on individuals' perceptions of American life in the future. Specifically, we examine the impact that a growth mindset has on participants' levels of optimism, confidence and anxiety. Participants were randomly primed with a fixed mindset prompt or a growth mindset prompt and then asked about their levels of optimism, confidence and anxiety concerning the future of American life. We find that being primed with a growth mindset prompt significantly reduces individuals' levels of anxiety. There was no significant relationship between the growth mindset prompt and individuals' levels of optimism or confidence. We also explore potential moderating factors such as big five personality traits that influence the effects of a growth mindset. Finally, we will present implications for the future, such as the real-world benefits of growth mindsets.

Undoing the misperception of included individuals as excluders

Raishawn Pitt, Randy Lee, & Vivian Zayas

Past research (Critcher & Zayas, 2014) has found that when a person is excluded while another is included, they see the included as an excluder as well. Specifically, the rejected believes that the included likes them less and will exclude them in the future. This phenomenon, previously coined the Involuntary Excluder Effect (IEE), is a misperception because included persons have no intention to engage in exclusion. The aim of the present work is to examine whether this misperception can be undone or mitigated. We had 3 groups of participants read different scenarios, one where they are included and one where they are excluded. One of the rejected groups is then asked to reconstrue the actions of the included person. The other groups were asked about filler questions. We found that the IEE was present in both rejected conditions, regardless if participants were asked to reconstrue the actions of the included.

The effects of proximal behaviors on pair bond formation and maintenance in zebra finches

Julianna Zalinski & Michael Goldstein

Mate selection is an important decision with serious consequences. In species with biparental care, raising young requires significant contributions from both parents. Because successfully rearing offspring demands a great amount of time and effort, selecting the wrong mate would lead to a substantial loss of resources. Although there is clear evidence of assortative mating in birds, they do not spend months getting to know potential partners. My study examined how courtship behaviors predicted pair selection, maintenance, and reproductive success within zebra finches. Specifically, I assessed whether avian personality traits-such as exploration, aggression, and social affiliation-predict the presence and frequency of proximal behaviors like clumping and allopreening. If so, I planned to assess whether differences in proximal behaviors led to variations in the success of pair bond formation, the maintenance of the pair bond, and reproductive viability.

Central distribution of vasopressin 1a receptor in the African giant pouched rat

Beverly Lo, Samanta Arenas, Angela Freeman, Alexander Ophir

Vasopressin is best known for its role in salt-water balance in the body but is also known to have central effects via its receptors, the vasopressin 1a receptor (V1aR) and the vasopressin 1b receptor (V1bR). In the brain, vasopressin has been shown to modulate social behaviors including social recognition and affiliation. Despite having a conserved role in modulating behavior, the conservation of the distribution and patterns of vasopressin receptors across mammals is generalized from only a few family groups. To resolve this, we localized V1aR in the brain of African giant pouched rats (*Cricetomys ansorgei*), a rodent species in Nesomyidae. We used receptor autoradiography to localize the V1aR in the brain of African giant pouched rats and compared the distribution and density of these receptors to other rodent species. African giant pouched rats contained binding in the olfactory bulbs, nucleus accumbens, motor cortex, prefrontal cortex, caudate putamen, lateral septum, bed nucleus of the stria terminalis, superior colliculus, subiculum, periacqueductal grey, medial geniculate, and the raphe. The binding in the motor cortex, nucleus accumbens, and hippocampus was variable among individuals, indicating potential plasticity in vasopressin receptor expression in these regions. We propose that the variability in receptor densities may support the natural variation in behavior observed in these rodents.

Central distribution of oxytocin receptor in the African giant pouched rat

Samanta Arenas, Beverly Lo, Angela Freeman, Alexander Ophir

Oxytocin and vasopressin are nonapeptides which can act in the brain to modulate a variety of behaviors in animals including parental care, affiliation, aggression, among others. However, where these peptides act depends on their associated receptors - oxytocin (OTR) and vasopressin receptors (V1aR and V1bR), which vary in location and in density throughout the brain. The location and density of these receptors are often species- and sex-dependent. Thus, we sought to determine the location of OTR in the brain of the African giant pouched rat (*Cricetomys ansorgei*); a large rodent with little known about its general biology. We used receptor autoradiography to determine where OTR was located in the brain and observed variable receptor binding in the olfactory bulbs, the ventral pallidum, the piriform cortex, the claustrum, several hypothalamic nuclei, the amygdala, and the hippocampus. Notably, binding in the forebrain was sparse in the majority of animals except for the anterior portion of the bed nucleus of the stria terminalis (BNST) where all animals exhibited dense binding. This work further emphasizes the conservation of OTR in the BNST in rodents and encompasses a first description of these receptors in the family Nesomyidae.

Social scent discrimination by African giant pouched rats

Rachel Zheng, Lauren Prisco, Angela Freeman, & Alexander Ophir

African giant pouched rats (*Cricetomys ansorgei*) have outstanding olfactory traits and are trained to be used in landmine and tuberculosis detection. African giant pouched rats are more easily transferred and handled than other working animals, therefore they could potentially be widely used in the near future. Even though the African giant pouched rats have a remarkable sense of smell, we know little about how they use olfaction in their social interactions. Specifically, we do not know if they show self-recognition, individual discrimination or differential interest in other individuals' odors. Therefore, in this study, we designed an experiment to study whether the African giant pouched rats could recognize their own urine scents (self-recognition) and whether they could possibly discriminate the urine scents of others. We conducted a series of habituation-discrimination experiments which examined whether pouched rats show self-recognition, and individual-recognition of both same-sex and opposite-sex conspecifics. Our preliminary data showed that females showed intact self-recognition while males did not. We hypothesized that males might not show self-recognition due to a low motivation towards investigating novel male odor. Thus, we included opposite-sex trials to determine whether males can recognize individual females based on their odor. We further hypothesized that females would show individual recognition of both unfamiliar males and females. Our preliminary analysis indicates that females can discriminate between familiar and novel females and males, but may not show individual recognition for either sex. Males however, showed mixed results on discrimination of both sexes and individual recognition. We posit that females may show improved discrimination of social odors due to the ecology of this species.

Hippocampal lesions and mating tactics in prairie voles

Pooja Patel, Caitlyn Finton, & Alexander Ophir

Monogamy is inherently a memory task: individuals must remember the identity and location of their mate. Prior work has implicated the hippocampus as an important memory structure for determining mating tactics in the monogamous prairie vole. Voles that display a higher level of monogamy (residents) have higher levels of oxytocin receptors in their hippocampus than voles that display lower levels of monogamy (wanderers). This study investigates the relationship between intact memory function and mating tactic. Memory was manipulated by hippocampal lesions via ibotenic acid. After surgery, 10 males and 10 females were released in an enclosed field and tracked twice daily for 18 days. Then, all voles were removed from the field and brains and embryos were collected. Preliminary data suggests that the percentage of wanderers increased as a result of hippocampal lesions. Future work will confirm lesion sites in all males and determine reproductive success via paternity analysis.

The interplay between maternal and paternal care in prairie vole parents

Vanessa Lazaro, Lisa Hiura, & Alexander Ophir

Here we utilize the prairie vole (*Microtus ochrogaster*) to build upon past research and examine the interactions of parental care. We manipulated maternal treatment and paternal presence by transferring families using a plastic cup (i.e. control) or a gloved hand (i.e. handled) as well as rearing pups in the presence or absence of their father. We recorded 159 hour-long home cage videos, taken once a week on postnatal days 2, 9, and 19, and scored for various behaviors (e.g. pup retrieval, grooming) that signified parental involvement or lack thereof. Regarding pup retrieval, we found that handled parents retrieved their pups more than control parents and PND16 and PND9 pups were retrieved more than PND2 pups. Additionally, we found that pups of bi-parental families received more grooming than pups from single families. These results suggest that parental behavior differs as a function of pup age, partner presence, and maternal treatment.

Target detection facilitates accuracy and confidence in recognition memory

Deanna Earle, Adam Broitman, & Khena Swallow

In the attentional boost effect (ABE), participants briefly encode a series of images while performing a target detection task. Despite increased demands on attention, attending to targets enhances memory for images presented simultaneously (temporal selection). However, it remains unclear how temporal selection modulates memory, and the influence of temporal selection on aspects of recognition memory other than retrieval accuracy have not been explored. A study of 37 Cornell students showed that images presented concurrently with a target were later recognized more frequently than those presented with a distractor, replicating ABE. Additionally, participants reported higher confidence in their old/new responses for target-paired images. However, recognition response latencies were identical between target- and distractor-paired images. The finding that target detection facilitates subsequent retrieval success and confidence for concurrently presented images suggests that memory benefits gained by temporal selection include contextual information about the event as a whole.

Emotional tension and the visual structure of film

Sally Liu, Kacie Armstrong, & James Cutting

Through manipulation of the visual tools of cinema, filmmakers have increasingly cultivated a style of filmmaking that controls viewer gaze, facilitates the reading of characters' facial expressions, and promotes narrative engagement. This study investigates how they use the same tools (including shot scale, shot duration, motion, and luminance) to influence emotional response among film viewers. We asked participants to move a joystick to indicate their levels of emotional tension as they viewed a series of short films. We also collected physiological data (heart rate and galvanic skin response) to determine whether objective markers of emotional arousal map onto subjective measures. Analyses of these data against the visual structure of each film suggest robust effects of cinematic motion and luminance, such that decreases in both variables predict increases in emotional tension as a film unfolds. These findings carry potential benefits for intercultural communication and media-based clinical interventions.

This event was made possible with the support of The Psychology Department

Program Organizers:

David Katz

Alex Ophir

Ashlyn Smith

Stephanie Tepper

Administrators:

Pam Cunningham

Cindy Durbin

Lisa Proper

Volunteers:

Mary Elson

Caitlyn Finton

Santiago Forero

Randy Lee

Lindsay Sailer

Mikaela Spruill