

In House

Department of Psychology
Brooklyn College of CUNY

OCT 31
2014



2014 Annual Department of Psychology In-House Conference

Welcome to the conference!

The in-house conference presents an excellent cross-section of current research conducted at the Department of Psychology. There are 4 talk sessions, 1 poster session, lunch and pizza!

Each talk will last 12 minutes with 3 minutes for questions.

We look forward to hearing about the exciting work that is going on in the department. We hope that you find time to take in as many talks and posters as you can. And, we hope that you stay around after the final talk for food and drinks.

Schedule of Events

Session 1	9:30 - 10:45am
Session 2	11:00 -12:15pm
Lunch/Posters	12:15 - 1:15pm
Session 3	1:30 - 2:30pm
Session 4	2:45 - 3:45pm
PIZZA	4:00pm



Brooklyn College
The City University of New York

In-House 2014 Schedule of Sessions and Talks

Session 1	1	9:30	Natalie A. Kacinik, Rita W. El-Haddad, & Tony Ro
	2	9:45	Denise Pergolizzi and Elizabeth F. Chua
	3	10:00	Alexandra M. Gaynor
	4	10:15	Steven G. Volz and Frank W. Grasso
	5	10:30	Israel Abramov, Alla Chavarga, Stavros Hadjisolomou, Kamil Kloskowski, and Jessie Lamprecht
Session 2	1	11:00	Lawrence P. Behmer Jr. and Matthew J. C. Crump
	2	11:15	Elaina Avit and Laura Rabin
	3	11:30	Jessica Lamprecht and Aaron Kozbelt
	4	11:45	Nicholaus Brosowsky and Matthew J. C. Crump
	5	12:00	Romana S. Akram and Hanah Chapman
	LUNCH	12:15	POSTER SESSION
Session 3	1	1:30	Cheryl Carmichael
	2	1:45	Carrie Pappas, Elizabeth Chua, and Curtis Hardin
	3	2:00	Hanah Chapman
	4	2:15	Xi Yang and Hanah Chapman
Session 4	1	2:45	Laraine McDonough and Colleagues
	2	3:00	Kerry Gilroy and Andy Delamater
	3	3:15	Eric Garr, Ebony M. Holland, and Andrew R. Delamater
	4	3:30	Briana Young and Frank W. Grasso

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1. 9:30 - 9:45

Preferential Involvement of the Right Hemisphere in Metaphor Comprehension: Evidence from TMS

Natalie A. Kacinik, Rita W. El-Haddad & Tony Ro

Early research on the neural basis of metaphor processing, particularly studies of brain-injured patients, suggested that the right hemisphere (RH) was preferentially involved in understanding metaphors. However, most recent divided visual field, fMRI, and ERP studies of normal individuals have generally not supported the RH metaphor hypothesis. We used rTMS to investigate whether disrupting RH vs. LH processes in normal individuals would show preferential involvement of the RH in metaphor comprehension. Participants were presented with literal and metaphoric sentences, of moderate familiarity on average, followed by a related or unrelated word. Participants made a relatedness judgment while undergoing counterbalanced blocks of TMS to their left or right posterior superior temporal cortex or vertex (control). Three TMS pulses were applied 100ms apart coinciding with offset of the sentence, during, and soon after onset of the target word to maximally disrupt the activation and integration of the sentence and word meaning. Reaction time data revealed a TMS by stimulus type interaction with TMS to the RH resulting in significantly longer RTs for metaphoric compared to literal items. Responses to literal stimuli were slower after TMS to the LH rather than the RH, although the difference was not significant. These findings concur with Pobric et al.'s (2008) study of word pair stimuli that appears to be the only metaphor TMS study done to date, and extends the importance of right posterior temporal cortex for metaphor comprehension to moderately familiar metaphoric sentences whose processing was significantly hindered by disrupting the functioning of that region.

2. 9:45 - 10:00

The role of the parietal cortex in false recognition

Denise Pergolizzi^{1,2} and Elizabeth F. Chua^{1,2}

We previously found that transcranial direct current stimulation (tDCS) over the parietal cortex led to increased false recognition when false recognition rates were relatively high. Here we used an item and source memory paradigm to determine whether parietal stimulation would alter false recognition when

rates were low, and also whether it would alter source memory. Fifty-four participants studied 100 nouns and judged whether they were “living” or “bigger than a shoebox”. In a between subjects design, participants received 20 minutes of parietal (2 mA; n=18), prefrontal (2 mA; n=18), or sham (n=18) tDCS during an item and source memory test. Tests of normality revealed a subset of conditions violated assumptions of normality, so non-parametric tests were used. Kruskal-Wallis tests showed that the mean ranks for false recognition differed between groups ($p < 0.05$; parietal = 21.17, prefrontal = 26.06, and sham = 35.28), but did not differ for true recognition. Follow up Mann-Whitney U tests revealed this to be driven by different mean ranks for false recognition for parietal (13.31) compared to sham (23.69) participants, $p < 0.05$. Thus, contrary to our previous results, there was lower false recognition in the parietal compared to sham group. Source memory performance did not significantly differ among groups. Combined with our previous findings that tDCS over the parietal cortex led to increased false recognition when false recognition was high, and decreased false recognition when false recognition is low, we believe that the parietal cortex plays a role in integrating mnemonic information with environmental cues to make a recognition decision.

3. 10:00 - 10:15

Prefrontal contributions to associative recognition

Alexandra M. Gaynor

Previous neuroimaging research has suggested that the dorsolateral prefrontal cortex may be particularly important for remembering associations among items (see Blumenfeld & Ranganath, 2007 for review). We hypothesized that transcranial direct current stimulation (tDCS) over the prefrontal cortex during encoding would result in a significant increase in associative recognition performance. We also investigated the role of this region in judgments of learning (JOLs). Forty-five healthy adults were randomly assigned to prefrontal (N=16), parietal (N=14), or sham (N=15) tDCS conditions, wherein the active conditions involved 20 min of stimulation at 2mA. During the study/tDCS phase, participants memorized 192 word pairs. For each pair subjects also made a judgment of learning (JOL), a type of metamemory monitoring in which subjects make an immediate judgment about their ability to accurately recall at a later time information that is currently retrievable. At test the next day, participants were presented with pairs of words, half of which were studied together (intact) and half rearranged from different pairs (rearranged) and asked to make an intact/rearranged decision. Preliminary analyses did not reveal any effects of tDCS on JOLs. Turning to associative memory performance, we examined memory for intact and rearranged pairs separately. A one-way ANOVA revealed a near-significant between-groups difference in memory performance for intact pairs ($p = 0.052$); post hoc t-test analyses showed that memory for intact pairs in the prefrontal tDCS condition was significantly lower than intact pairs in the sham condition ($p < 0.05$), and marginally lower than the parietal condition ($p < 0.07$), suggesting an encoding effect in which prefrontal tDCS may have actually hindered memory specifically for these pairs.

4. 10:15 - 10:30

Spatial Avoidance and Memory in Fiddler Crabs

Steven G. Volz and Frank W. Grasso

While the strategies and cues employed by vertebrates to solve spatial problems (namely mammals and birds) are well understood, much less is known about how invertebrates solve similar problems. Invertebrates are evolutionarily divergent from vertebrates, differing in both neural hardware and behavioral organization yet solve comparable spatial problems. These facts imply that the strategies invertebrates are applying to spatial tasks are likely to be quite different from those exhibited by mammals. By examining the similarities and differences between vertebrate and invertebrate spatial strategies, we can come to better understand convergent evolution processes, in addition to discovering novel methods of navigation that might not be obvious to our own mammalian viewpoint. Fiddler crabs, are an excellent subject for the study of spatial learning in invertebrates. They leave their home burrows for daily foraging and mating excursions, and need to be able to return quickly, both to defend their burrows from conspecifics, and to avoid predators, making navigation an adaptively important task. Additionally, fiddler crabs have been found to keep the long axis of their body oriented toward their burrow at all times during foraging trips, offering researchers a unique behavioral indication of crabs' cognitive sense of "home". A good deal of research on the fiddler crab's ability to home has been done, revealing that they rely on egocentric directional information, and suggesting that they largely ignore visual landmarks. We intend to explore experimental situations that will require fiddler crabs to rely on visual information and integrate that information into their egocentric sense of space. To further that goal, we developed a method of testing fiddler crabs spatial avoidance abilities. Using mild electric shock, and soon predator cues our approach diverges from most previous research by casting it an avoidance context. We are attempting to train fiddler crabs to avoid specific area of an arena, based on visual cues. Presently, we will present some early results relating to the efficacy of our method of shock delivery, and a basic description of fiddler crabs movement in our experimental arena.

5. 10:30 - 10:45

The color of height: integrating sensory and cognitive functions

Israel Abramov, Alla Chavarga, Stavros Hadjisolomou, Kamil Kloskowski, Jessie Lamprecht

Old "linear" model of sensory/cognitive interactions: light enters eye, → neural responses in primary visual areas of CNS → specific sensations → perceptions/cognitive interpretations. New model: different sensory and cognitive areas interact continuously and modify each other's responses. We investigated sensory/cognitive interactions in response to flashes of light of different wavelengths. Immediately after seeing a flash of monochromatic light: (i) Participants scaled their basic sensory (color vision) responses

using magnitude estimation of hue and saturation of each monochromatic light. (ii) The scaling functions were independent of participants' native language (comparing English and Russian). (iii) Participants scaled, very reliably, the sensations of height ("elevation") above ground level elicited by the same monochromatic lights. (iv) They also reliably estimated sensations of temperature evoked by monochromatic lights. (v) In a simulated art-museum setting, participants chose the illuminant that maximized aesthetic enjoyment of art works. This illuminant exactly matched an illuminant that did not evoke any sensation of warmth or coolness.

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	2	11:15	Elaina Avit and Laura Rabin
	3	11:30	Jessica Lamprecht and Aaron Kozbelt
	4	11:45	Nicholaus Brosowsky and Matthew J. C. Crump
	5	12:00	Romana S. Akram and Hanah Chapman

1. 11:00 - 11:15

Typists develop sensitivity to the statistical frequencies of likely n-grams: An investigation of the Serial Order problem using Big Data tools

Lawrence P Behmer Jr, Matthew Crump

Individuals can plan and execute complex, ordered actions with seemingly little effort, with high fluency. To date, little is understood about how learning and memory modulate the successful serial order of actions nested within a larger overall action plan. One possibility is that we become sensitive to the statistical likelihood of actions, and use that knowledge to select the correct action over the incorrect one. The Serial Recurrent Network argues for a scaffolding approach during skill acquisition, where individuals are initially sensitive to lower order frequencies, and as sensitivity to higher order structures develops, previous sensitivity to lower-order statistics decreases. Conversely, Instance Theory suggests that sensitivity to lower- and higher-order structures develops in parallel, and that sensitivity to lower-order statistics does not decrease as individuals become more sensitive to higher-order statistics. Here, we used two tools of big data (n-gram analysis and Amazon mTurk) to test these two models by collecting data from over 400 typists while they typed normal paragraphs, paragraphs constructed of high-frequency bigrams, and paragraphs constructed of random letter strings. We correlated each individual's typing speed with letter frequencies derived from corpuses of text from the Gutenberg Project for single letters, bigrams, and trigrams. We then plotted those correlations as a function of typing speed, with faster speeds representing expert typists and slower speeds representing novices. These data revealed that novice typists were more sensitive to individual letter frequencies for the normal and high-frequency bigram paragraphs compared to expert typists, whereas expert typists were more sensitive to bigram and trigram frequencies. However, when typing random paragraphs, both experts and novices were robustly and equally sensitive to individual letter frequency. The fact that expert typists revert to being sensitive to single letter frequency during difficult conditions demonstrates support for the Instance Theory over the Serial Recurrent Network.

2. 11:15 - 11:30

Sports-Related Concussions: A Review of Concussion Protocols Pre and Post Injury

Elaina Avit & Laura Rabin

Sports-related concussions are increasingly discussed in the media due to improved knowledge about their medical and cognitive ramifications. It is estimated that as many as 3.8 million sports related concussions occur per year, though a startling 50% of these concussions may go unreported.²⁹ Concussions can occur in athletes of any age, from youth to adults and from amateur to professional level. A concussion is unlike an injury to a limb or other body part because a concussion cannot be remediated with surgery and rehabilitation. Moreover, concussions can result in both short- and long-term cognitive and physical symptoms and impairments. Until more is known about the recovery process from concussions, prevention is key. In addition, modification of rules and enforcement of proper fair play in sports leagues may be necessary to prevent and monitor players' injuries. The current paper summarizes concussion protocols of professional sports leagues such as the NFL and pro soccer leagues. We review current concussion research and methods of neuropsychological testing both pre- and post-injury as well as how return-to-play decisions are made. After reviewing the scientific literature and information made available by the sports leagues regarding their formal concussion protocols and treatment of head injuries, we make recommendations for possible changes in concussion protocols to protect professional athletes, which may carry over to those involved in amateur and youth sports leagues.

3. 11:30 - 11:45

The effects of unilateral forced nostril breathing on cognitive performance and autonomic activity

Jessica Lamprecht, Aaron Kozbelt

This study examined the effects of unilateral forced nostril breathing on both cognitive performance and autonomic nervous system activity. Undergraduate students ($N \sim 20$) were asked to block off one of their nostrils with a cotton ball to promote one-nostril breathing. They then completed a series of tasks in both the visual/spatial and verbal domains. Concurrently autonomic measurements were recorded at baseline and at 3 other times throughout the hour-long experiment. We predicted that right nostril breathing would evoke better performance in verbal tasks and left nostril breathing would evoke better performance on visual/spatial tasks. Also we predicted that right nostril breathing would stimulate sympathetic patterned autonomic activity and left nostril breathing would depress autonomic activity.

4. 11:45 - 12:00

Improving the ruler: Creating reliable measures by increasing trial variability

Nicholaus Brosowsky, Matthew Crump

The two most important and fundamental characteristics of any experimental procedure are reliability and validity. Though reliability has generally not been a concern in group studies, it is directly related to the statistical power of the study; an issue that has a long history in psychology (Cohen, 1962; Cohen, 1992; Maxwell, 2004). A common remedy for an underpowered study is to increase the trial- or sample-size. Unfortunately, the sample sizes required become impractically large when the effect sizes are small, which is the case for many psychological phenomena (Richard, Bond, Charles, & Stokes-Zoota, 2003). Recent evidence suggests that increasing trial variability can increase reliability by capturing a wider range of individual performance (Richler, Floyd, & Gauthier, 2014; Ross, Richler, & Gauthier, 2014). The current study examines the utility and generalizability of this procedure using the Flanker task.

5. 12:00 - 12:15

Effects of Disgust and Fear on Breadth of Attention

Romana S. Akram and Hanah Chapman

Emotional stimuli have powerful effects on attention. According to one recent theory (Gable & Harmon-Jones, 2010), low-motivation negative affect leads to broadening of attention while high-motivation negative affect results in narrowing of attention. This theory suggests that negative affects with equivalent motivational intensity, such as disgust and fear, should both result in narrowing of attention. However, an alternative model by Susskind et al. (2006) suggests that fear leads to broadening of attention; whereas disgust leads to narrowing of attention, even when both these emotions have the same level of motivational intensity. Our goal, in this study, was to compare these alternative perspectives. For this purpose, we measured the effect of disgust, fear, and neutral video clips on breadth of attention. Attentional breadth was measured by examining how quickly participants responded to Navon figures (Navon, 1977), which require either focusing on global aspects of the stimulus (broad attention) or local aspects of the stimulus (narrow attention). Faster reaction time towards global targets indicates broadening of attention, while faster reaction time towards local figures indicates narrowing of attention. Preliminary results with 75 subjects failed to support either theory. Specifically, there was no significant effect of either disgust or fear on attentional breadth relative to neutral. Possible explanations for this null finding will be discussed.

Session 3	1	1:30	Cheryl Carmichael
	2	1:45	Carrie Pappas, Elizabeth Chua, and Curtis Hardin
	3	2:00	Hanah Chapman
	4	2:15	Xi Yang and Hanah Chapman

1. 1:30 - 1:45

Attachment related preferences for physical contact

Cheryl Carmichael

Physical contact has been linked to a variety of intra- and interpersonal benefits, including higher levels of intimacy and trust, increased emotional well-being, improved health, and the alleviation of existential concerns. However, attachment theory suggests that internal working models of self and other differentially guide preferences for closeness with others, and may thus shape preferences for physical contact. In the current research attachment theory was used as a framework to investigate whether desire for, and comfort with physical contact was associated with attachment orientation. Consistent with our hypotheses, individuals high in attachment avoidance reported lower levels of engagement in, and enjoyment of various forms of physical contact. Those high in attachment anxiety reported that they would like to engage in more physical contact than they do, and that they were more likely to initiate contact, but did not enjoy it. These results suggest that physical contact may not be uniformly beneficial for all people.

2. 1:45 - 2:00

Self-Focus: Does it Help or Hurt?

Carrie Pappas, Elizabeth Chua, and Curtis Hardin

This work investigates how self-focus influences memory. Self-focus can be elicited with an explicit question (i.e. Does this word describe you?), a picture of the self, or words that define who you are. In a series of memory experiments, these self-focus manipulations sometimes helped memory for trait words and sometimes hurt. In Exp. 1, by asking if words describe the self, memory was helped for those words, compared to other-focused and valence questions. However, if during the judgment task, participants looked at a picture of the self on the screen, memory was hurt compared to trials when participants did not self-check. In Exp. 2a, when words were presented after pictures of self or other (without a judgment task), there was no difference in memory for the words. In Exp. 2b, when words were presented paired to pictures of self or other, the self-paired words were remembered better than the other-paired words. In Exp. 3, words were studied with pictures of self or other and were tested in a source attribution task. Although source accuracy was not significantly better for self-paired words, responses were influenced by the words' self-descriptiveness. As self-descriptiveness increased, the likelihood of responding "self"

increased, and as self-descriptiveness decreased, the likelihood of responding “neither” increased. Together, these experiments support a bi-directionality of the self-reference effect. Self-focus can help memory if it is task-relevant and the self and item have been tightly paired, but it may hurt memory if it is task-irrelevant or biases source attribution depending on the self-descriptiveness of a word.

3. 2:00 - 2:15

Trait physical disgust is related to moral judgments outside of the purity domain

Hanah Chapman

Although there is an emerging consensus that disgust plays a role in human morality, it remains unclear whether this role is limited to transgressions that contain elements of physical disgust (e.g., gory murders, sexual taboos), or whether disgust is also involved in morality outside of the purity domain. To address this issue, we examined the relationship between individual differences in the tendency to experience disgust toward physical stimuli (i.e., trait physical disgust) and reactions to moral transgressions that did not contain reminders of physical disgust. We found that individuals higher in trait physical disgust judged non-purity transgressions to be more wrong than did their low-disgust counterparts. Controlling for gender, trait anxiety, trait anger, and social conservatism did not eliminate trait disgust effects. These results suggest that disgust’s role in morality is not limited to issues of purity or bodily norms, and that disgust may play a role in setting the boundaries of the moral domain.

4. 2:15 - 2:30

Self-regulation of disgust and fear through cognitive reappraisal

Xi Yang & Hanah Chapman

Disgust is an emotion with pronounced evolutionary characteristics. It is life saving in that disgust protects us from substances that may carry disease; it can be life detrimental because disgust can compromise our ability to make rational decisions like receiving colorectal cancer screening and treatment. Self-regulation of maladaptive disgust can therefore promote more adaptive functioning. However, there is currently no consensus about the most effective way to regulate disgust. In the current study, we examined the efficacy of cognitive reappraisal, a regulation technique that seeks to change emotional responses by reinterpreting events in a less emotional way. Regulation of disgust was compared to regulation of fear. We hypothesized that reappraisal would more effectively reduce fear relative to disgust, since the triggers for disgust may be more difficult to reinterpret. To test this hypothesis, participants first viewed disgusting and frightening photographs and reported on their feelings of disgust and fear. Participants then received

reappraisal training. After this, participants viewed the photographs again while reappraising each image, reporting on their feelings and recording the reappraisals they generated. Contrary to our hypothesis, reappraisal decreased the intensity of disgust and fear to a similar degree. The latency to reappraise disgust was non-significantly longer than fear. Ratings from a control group that received no reappraisal training remained stable, suggesting no strong habituation effects. Overall, the results suggest that reappraisal is equally effective for reducing feelings of disgust and fear.

Session 4	1	2:45	Laraine McDonough and Colleagues
	2	3:00	Kerry Gilroy and Andy Delamater
	3	3:15	Eric Garr, Ebony M. Holland, and Andrew R. Delamater
	4	3:30	Briana Young and Frank W. Grasso

1. 2:45 - 3:00

Maternal Psychological Stress During Pregnancy In Relation To Infant Learning At 4-Months

Laraine McDonough and Colleagues

Pregnancy can be a stressful time, particularly for teens with unstable living conditions. Outcomes of a stressful pregnancy on fetal development indicate both positive and negative effects; e.g., attention, learning and memory deficits in animals (e.g., Weinstock, 2001; Schneider et al., 2002); shortened gestation/restricted growth in humans (e.g., Kofman, 2002); an association between prenatal anxiety, stress and depression with advanced motor development in infants (DiPietro et al., 2006). In general, advanced motor development is associated with positive outcomes in human cognitive development, but in some disorders motor and cognitive development can appear unrelated. To test this developmental association in infants born of teen mothers, we used the conjugate kicking task (e.g., Rovee-Collier, 1996), requiring learning and retention of a motor response in order to make an overhead mobile jiggle and rattle in a reinforcing way. In previous research, infants are tested in their home environments; out of necessity we tested infants in the laboratory using our own crib. During their pregnancy, 24 teens (Mean age = 18.1 years; range 14-20) participated in a larger study on maternal prenatal factors influencing fetal outcome. At that time, they completed the Perceived Stress Scale (PSS), a 14-item instrument to measure how stressful they perceived their lives. Once their infants were 4-months-old they were tested on the conjugate kicking task on two sequential days. The dependent measure was the number of kicks per minute. During the first 3 minutes, kicks were not reinforced (baseline); for the next 9 minutes, kicks caused the overhead mobile to jiggle and bounce (reinforced learning); and during the last 3 minutes kicks again were not reinforced. The second day was conducted in exactly the same manner. The first 3 minutes on day 2 allowed us to measure long-term retention. Two ratios were calculated by dividing the number of kicks during learning and retention with baseline on day 1. Consistent with previous research, a critical value of 1.50 was used to assess learning and retention. Results indicated that infant learning, $M = 2.43$ (range: 0.33- 11.0) was significantly correlated with mothers' degree of stress, PSS $M = 28.02$, (range: 13-40; $p = .003$); however, infant long-term retention was not, $M = 1.46$ (range .09 - 5.67; $p = .223$). Learning was significantly correlated with long-term retention ($p = .001$). Mothers' age did not correlate with the other factors. Mean number of kicks for those showing long-term retention and those who did not were compared. Kicking during baseline and learning was significantly higher for infants showing no long-term retention than for those who did ($p = .001$). These findings indicate that maternal stress during

pregnancy may affect both motor skills and retention. More kicking during learning on day 1 does not correspond with 24-hour retention. Also, the use of the conjugate kicking paradigm is valuable in measuring learning in new contexts such as the lab indicating that early learning is not as sensitive to familiar contexts as previously assumed.

2. 3:00 - 3:15

Does Pavlovian-to-instrumental transfer reveal S-O or S-R associations?

Kerry Gilroy and Andy Delamater

Prior work has established that in addition to acquiring the ability to evoke its own responses Pavlovian stimuli acquire the capacity to modulate instrumental responses even when the two have been trained independently. This phenomenon is referred to as Pavlovian-to-Instrumental-Transfer (PIT). Traditionally, the PIT effect is considered to occur as a result of a chain of independently learned stimulus-outcome (S-O) and outcome-response (O-R) associations, and the phenomenon has been used extensively to assess the impact of various treatments upon Pavlovian S-O associations. Recently it has been suggested that PIT may occur not only because S-O associations are established during Pavlovian training, but, rather, because mediated stimulus-response (S-R) associations are formed during this phase of training. In the present set of experiments we contrasted predictions from these two accounts by using a procedure in which two distinct outcomes were paired with the stimulus during the Pavlovian training phase. One of these outcomes immediately preceded the stimulus while the other outcome immediately followed the stimulus on each conditioning trial (e.g., O2 - S1 - O1). The S-O account anticipates that PIT effects will be based most strongly on the forward S-O relationships established during Pavlovian training (e.g., S1-O1), whereas the S-R account anticipates PIT to be dominated by the backward S-O relationships (e.g., O2-S1). In two experiments we observed that PIT was based on the forward S-O relationships, and that this did not depend upon the amount of Pavlovian training given to the rats. Overall, these results are more consistent with the S-O, O-R associative chain account than the mediated S-R account of PIT.

3. 3:15 - 3:30

Do context-outcome associations interfere with response-outcome associations?

Eric Garr, Ebony M. Holland, and Andrew R. Delamater

Two experiments assessed the degree to which context-outcome associations compete with response-outcome associations in rats by using a Pavlovian-to-instrumental transfer paradigm (Experiment 1) and a motivational shift paradigm (Experiment 2). In Experiment 1, rats were divided into two groups such that one group (Group Differential) received two response-outcome pairings in distinct contexts while the other group (Group Non-Differential) received both pairings in both contexts equally. Both groups were then trained in a separate Pavlovian context where two neutral cues were each paired with distinct outcomes

from the instrumental phase. At the time of test, both levers were made available in the presence of one of the Pavlovian cues for no reinforcement. It was found that Group Non-Differential was more likely than Group Differential to respond to the lever that was previously paired with the same outcome as the cue being presented. Experiment 2 tested the hypothesis that the results from Experiment 1 were due to a context-outcome association competing with a response-outcome association in Group Differential. Rats were divided into the same groups and received the same instrumental training as in Experiment 1, but a motivational shift was induced after instrumental training in order to alter the value of the outcomes. When put into a third context where both levers were made available for no reinforcement, hungry rats responded more to the lever that had previously produced pellets while thirsty rats decreased responding for the pellet lever, regardless of group. Future directions are discussed.

4. 3:30 - 3:45

An “Evo-Devo” approach to the emergence of individual behavior

Briana Young and Frank W. Grasso

In recent years neuroscientists have increased their focus on epigenetic approaches (the “evo-devo” approach) to nervous system organization in part because they offer heritable mechanisms for the emergence of behaviors in individuals over the course of development. Of particular interest is the ability of environmental feedback loops to alter genetic expression, which produces structural changes in the brain, which in turn produce altered behavior or even novel behaviors. Locusts have been an exceptionally well studied species for brain re-modeling under epigenetic influence. This presentation will introduce a computational research approach that aims to model specific chemical pathways, using locusts’ ability to alternate between solitary and gregarious behavioral phenotypes. The emergence of these brain phenotypes are triggered by social crowding which in turn produces a rise in systemic serotonin. At the neuronal level and neural network levels the increased serotonin results in increased neural plasticity thought to be mediated by increased connectivity. Our models will use a self-organizing neural network in which the extent of connectivity between model neurons is regulated by the level of simulated serotonin. This modeling approach will provide a biologically plausible alternative to the commonly used genetic algorithms approach. Moreover, it will afford a representation of the behavioral phenotypes produced by bi-directional organism/environment interactions at the heritability and individual experience levels.

POSTERS

Comparing Study Time Before and After a Psychology Statistics Course

Nicole Belgrave, Kristie Tse, Lorin Berman, Beliz Hazan, & Laura Rabin

Allocating dedicated study time for college courses is important for enhancing students' learning and for achieving good grades (Luckie & Smethurst, 1998). This task, however, may pose a challenge to college students who juggle numerous academic and personal responsibilities. The current study investigates whether undergraduate students have a realistic idea of the amount of time they will devote to exam preparation in a challenging course. Undergraduate students ($n=162$) enrolled in two, semester-long psychology statistics classes completed a brief questionnaire at the beginning and the end of their courses. Specifically, they reported the average number of hours per week they expected to spend preparing for course exams (in week 1 of the semester) and the hours per week they actually spent preparing for the course exams (in week 16 of the semester). Separate analyses were carried out for strong (those who earned a B- or above in the course) versus weak-performing (those who earned lower than a B- in the course) students. Results of paired-samples t tests revealed a significant difference in the number of hours expected and actually spent preparing for in-class exams for the weak students only, $t(161)=3.16$; $p<0.01$. Overall, results suggest that strong students may be able to provide an accurate account of their study time, while weak students may overestimate the amount of time they plan to devote to exam preparation. We discuss the implications of our findings, including the potential benefit of having instructors directly address issues of time management, study skills, and exam preparation, at the beginning of the semester.

False memory for previously tested items: Investigating test-induced associative and repetition priming

Michael Blecher, Randall Jamieson, Matthew Crump

Studying thematically related words produces false memories for non-studied theme words (i.e., DRM effect). Test-induced priming (TIP) is known to increase false-recognition rates when source monitoring is impaired. Our experiments establish the reliability of associative and repetition TIP effects for non-studied lists, which have been inconsistently shown in the literature. In several online experiments, participants encoded words never presented at test. At test, thematically related new words were presented as lures before or after critical category lures. Participants showed reliable false memories for critical lures (E1). TIP effects remained when encoding time increased (E2), when warnings were given (E3 & E4), and when old words from the study phase were included in the test (E6). False-recognition rates were higher for lures primed by repetition rather than association during test (E5 & E6). The role of source-monitoring processes during retrieval in mediating false-recognition from TIP is discussed.

Seeing Red With Happiness Or Anger? Metaphorical Color Representations Of Emotional Concepts In English And Chinese Speakers

Kuen Chan, Miriam Feintuch, Junqing Chen, Natalie A. Kacinik, Yingjun Chen, and Nianyang Wu

This project was designed to examine whether the linguistic experience of individuals from English or Chinese language backgrounds can result in different metaphorical representations in those speakers. In study1, English and Chinese monolingual speakers rated the strength of 132 color-emotion pairs on a 7-point scale range. The current data shows that the patterns of rating are different between English and Chinese groups, corresponding to some hypothesized differences in their color-emotion metaphors. In study2, we used the Brief Implicit Association Test to measure how strongly primary colors are associated with anger, sadness and happiness. The data from native English and Chinese speakers collected to date support our hypothesis that red is associated with anger and blue with sadness in English speakers' representations; whereas red is associated with both anger and happiness in Chinese speakers. Our findings therefore collectively show that metaphorical color-emotion representations differ between English and Chinese speakers.

Frequently Endorsed Cognitive and Physical Activities Among Nondemented Community-Dwelling Older Adults

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Research has consistently demonstrated widespread and diverse benefits of cognitive and physical exercise on various aspects of health. Engagement in cognitive activities of moderate difficulty helps buffer against cognitive decline and dementia, including Alzheimer's disease. Physical exercise promotes neuroplasticity, buffers against cognitive decline, and alleviates anxiety and depression. Unfortunately, most older adults engage in less exercise than is deemed optimal, possibly because they lack knowledge about the specific cognitive and physical activities that may best suit them. Before health care practitioners can make useful activity recommendations and design interventions, older adults' exercise engagement patterns need to be elucidated. In the current study, 260 nondemented, community-dwelling older adults self-reported their engagement in cognitive (e.g. reading, internet use) and physical (e.g., walking, dancing) activities. Descriptive statistics were utilized to identify the top 5 cognitive and physical activities based on relevant demographic designations (sex, race/ethnicity, age, and education). Endorsed activities were further subdivided into "group" and "solitary" categories. Results revealed that while females and males, blacks and whites, those aged 80 years and older and 79 years and younger, engaged in similar amounts of solitary activities, females, blacks and those aged 80 years and older engaged in twice as many group activities in comparison to their counterparts. We discuss these (and other) findings in relation to the need to tailor interventions to specific individuals based on age, lifestyle, and other relevant factors

and the need to educate older adults about possible additive benefits of dual cognitive and physical-based interventions.

The role of the amygdala in timing and sensory-specific learning following reward devaluation in the peak procedure

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When learning to anticipate biologically important environmental events, such as the delivery of food reward, an organism comes to learn about and, presumably, encode both its specific sensory features, i.e., “what” it is, as well as its time of occurrence, i.e., “when” it occurs. Characterizing the nature of the reward representations and how we learn about them is important to properly investigate the neural mechanisms underlying learning. We used a peak timing procedure in order to dissociate sensory-specific, and temporal features by exploring reward devaluation effects, in both Pavlovian and instrumental paradigms. The data suggests that timing and sensory-specific learning processes can both be revealed with a US devaluation treatment in a peak timing task. The effects appear additive in the Pavlovian experiments but interactive in the instrumental task. Using excitotoxic lesions we investigated the role of the amygdala in encoding sensory-specific features during a Pavlovian peak timing procedure. Preliminary results suggest that amygdala lesions, prior to training, attenuated devaluation effects with no influences on peak timing. This suggests that the amygdala is necessary for encoding sensory-specific, but not temporal features of reward.

Sharers display emotional sensitivity when disclosing relationship-threatening good news

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Disclosing good news to close others has important implications for relationship quality and personal well-being. However, sometimes one individual’s good news may have negative implications for their relationship with a close other. This research examines the disclosure process for ambiguous positive events – ones that may pose a threat to relationship stability. Participants (n=216) were asked to recall a time when they disclosed either a relationship-threatening or non-threatening positive event to either a romantic partner or close friend. Consistent with our hypotheses, relationship-threatening positive events produced higher levels of negative, and lower levels of positive felt emotions. Moreover, participants were less likely to express positive emotions when disclosing threatening versus non-threatening positive events to romantic partners and friends. These findings suggest that when disclosing relationship-threatening good news, sharers may consider the negative relationship implications and display sensitivity when revealing this type of news to a close other.

Changes in self-efficacy in low performing undergraduate psychology statistics students: Implications for improved student outcomes

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Undergraduate statistics is a required class for most psychology degree programs (Messer, Griggs, Jackson, 1999), though many students struggle with the subject matter. Self-efficacy is one of the best predictors of success (Bandura, 1982; Burton and Dowling 2005). The present study examined changes in academic self-efficacy over the course of a semester in 169 undergraduate students enrolled in two, semester-long statistics courses. All students completed pre- and post-course self efficacy questions along with three in-class exams. Results demonstrated a significant decrease in self-efficacy ($p < 0.001$) over the course of the semester for students who received a grade below 70 on the third in-class exam. This finding has possible implications for remediation and improving student outcomes by targeting self-efficacy in low performing students.

Is there a stereotype that women are more emotional than men?

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Measuring attitudes towards women and emotion using the Implicit Association Test An Implicit Association Test (IAT) uses reaction times to measure associations between two concepts and two attributes. In this version of the IAT, we measured participants' implicit attitude that women are more emotional than men. About half of the participants ($n=33$) were first asked to press one key on a keyboard for male faces + neutral words and a different key for female faces + emotional words. They were then asked to press one key for male faces + emotional words and a different key for female faces + neutral words. Paired-samples t-test revealed significantly faster reaction times for female faces + emotional words ($M=.81$) than male faces and emotional words ($M=.86$; $t(32)=2.37$, $p<.03$). The other half of participants ($n=35$) reversed this order and first pressed one key for male faces + emotional words and a different key for female faces + neutral words. They then pressed one key for male faces + neutral words and a different key for female faces + emotional words. Again, results of a paired-samples t-test revealed that participants were significantly faster at responding to female faces + emotional words ($M=.87$) than they were to male faces + emotional words ($M=.93$; $t(34)=2.61$, $p<.02$). These results suggest that, regardless of presentation order, participants are quicker to pair female faces with emotional words. Results of this IAT reveal that there is an implicit attitude that females are more emotional than males.