7th Mainely Data, Some Theory Conference

October 1, 2016

A Conference Highlighting Experimental Psychology in Maine

Colby College
Waterville, Maine
Mainely Data (...and some theory)
October 1, 2016

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Steering Committee

Jen Coane (Colby College), Melissa J. Glenn (Colby College), Todd Kahan (Bates College), & Shawn Ell (University of Maine)
Schedule of Events

9:00 am: Breakfast

9:30am: Registration

10:00am: Talks

10:00: Martha Arterberry - Encouraging 24-Month-Olds to Think Before They Act

10:15: Benjamin Katz - Pathway from Child Maltreatment to Adult Psychopathology: The Role of Experiential Avoidance

10:30: Sarah Steimel - Neuroprotection by Postnatal Choline Supplementation in a Rat Model of Fetal Alcohol Syndrome

10:45: Shannon McCoy – The Rising Tide Program

BREAK (11-11:15)

11:15 – 12:15: Talks

11:15: Olivia Bogucki - Chronic Depressive Symptoms Predicting Cardiovascular Disease among Older Adults: Findings from the Maine-Syracuse Longitudinal Study

11:30: Erika Nyhus - Effect of Mindfulness Meditation on Long-term Memory

11:45: Jen Coane - Retrieval Practice Benefits Students with Attention Deficit Disorder – but they Still Perform Worse than Matched Controls

12:00: Anastasia McFadden-Foy - Perceptions of Childhood Discipline from Lesbian Parents versus Heterosexual Parents

12:05: Angela Bell - A Motivational Explanation for the "Less-Racist-Than-Myself" Effect

12:15 – 1:15 pm: Lunch (for registered participants)

1:15 – 2:30pm: Talks

1:30: Lauren Hawthorne - The Consequences and Benefits of Feminist Identification

1:45: David Smith - Cognition under Stress: The Impact of Social-Evaluative Stress during Cognitive Task Performance

2:00: Sarah Boland – Item and Source Memory for Social Media in Younger and Older Adults

2:15: Julie Peterson - Rejection Reduces Connection-Related Thoughts and Behavior among People with Low Self-Esteem Partners

BREAK
3:00 – 3:50pm: Talks

3:00: Aeleah Granger - Deaf Stigma and Prejudice

3:05: Andrew Tomer - Do Native American Stereotypes Promote Discounting Native American Social Issues?

3:10: Leah Dickens - Too Proud to Budge: Does Pride Protect Against Conformity?

3:25: Christopher Warren - The Effect of Atomoxetine on Random and Directed Exploration in Humans

3:40: Rayanna Howard - Socials Perceptions of Individuals With a Missing Tooth

3:45: Angelina Iannazzi - Longitudinal Imagined Interactions Between Christians and Atheists

BREAK (3:50-4)

4:00 – 5:30 pm: Poster Presentations & Reception
Encouraging 24-Month-Olds to Think Before They Act

Martha E. Arterberry
Colby College

An interesting discrepancy has emerged in cognitive development: In tasks that tap similar knowledge, infants appear to have knowledge that older children fail to use. Toddlers (aged 24 months) were tested on three tasks that have been shown to be difficult for this age group. The two tasks involved searching for an object in an invisible displacement task and finding a ball stopped by a barrier. During testing, half of the children wore weighted wrist bands and half did not. Children tested while wearing weights on their arms showed improved performance on the search tasks. Children not wearing weights showed chance performance. The findings suggest that toddlers encounter difficulty integrating information from various sources into their action plans and that the weights facilitated the integration process.

Pathway from Child Maltreatment to Adult Psychopathology: The Role of Experiential Avoidance

Benjamin W. Katz & Patricia J. Long
University of Maine

Child maltreatment (including physical, sexual, and emotional abuse/neglect) is a common problem in our society. Prevalence rates range from 4% to 16% for child physical abuse (CPA; Gilbert et al., 2009), 15% to 33% for child sexual abuse (CSA; Kendall-Tackett, Williams, & Finkelhor, 1993), and 1.4% to 18.4% for child emotional neglect (CEN; Finkelhor, Ormrod, Turner, & Hamby, 2005; Stoltenborgh, Bakersman-Kranenburg, & van IJzendoorn, 2013), with estimates for emotional abuse (CEA) at approximately 10% (Gilbert et al., 2009). It has long been suggested that child maltreatment is related to adjustment problems in adulthood (MacMillan et al., 2001). One construct empirically related to both child maltreatment and adjustment problems is that of experiential avoidance (EA). EA is characterized by an unwillingness to remain in contact with undesirable private experiences such as emotions, bodily sensations, memories and thoughts (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). While initial research suggests that experiential avoidance mediates the relationship between CSA severity and adult psychological adjustment (Marx & Sloan, 2002; Rosenthal, Hall, Palm, Batten, & Follette, 2008), research has yet to examine this meditational model among other forms of child maltreatment, namely child physical/emotional abuse and child emotional neglect. Participants were 343 female college students, between the ages of 18 and 30, recruited from a Psychology Department research participant pool. Participants completed a series of anonymous web-based questionnaires. Participants completed a brief demographic questionnaire, the Life Experiences Questionnaire (Long, 2000), the Childhood Trauma Questionnaire (Bernstein et al., 1994), the Multidimensional Experiential Avoidance Questionnaire (Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011) and the Brief Symptom Inventory (Derogatis & Melisaratos, 1983). A series of regression analyses (Baron & Kenny, 1986) were conducted to investigate the hypothesis that EA mediates the effect of CSA on adult psychopathology. CSA was a significant predictor of adult psychopathology, and CSA was a significant predictor of EA. CSA remained a significant predictor of adult psychopathology after including EA in the regression model, suggesting that EA did not significantly mediate the relationship between CSA and adult psychopathology. Another series of regression analyses were conducted to investigate the hypothesis that EA mediates the effect of CEN on adult psychopathology. CEN was a significant predictor of adult psychopathology, and CEN was a significant predictor of EA. CEN remained a significant predictor of adult psychopathology after including EA in the regression model, suggesting that EA did not significantly mediate the relationship between CEN and adult psychopathology. An additional series of regression analyses were conducted to investigate the hypothesis that EA mediates the effect of CPA on adult psychopathology. CPA was not a significant predictor of adult psychopathology. Given that the predictor variable was unrelated to the criterion, no further analyses were run investigating the hypothesized meditational model. A final series of regression analyses were conducted investigating the hypothesis that EA mediates the effect of CEA on adult psychopathology. Results indicated that CEA was a significant predictor of adult psychopathology, and that CEA was a significant predictor of EA. CEA remained a significant predictor of adult psychopathology, including EA in the regression model, suggesting that EA did not significantly mediate the relationship between CPA and adult psychopathology.
Chronic Depressive Symptoms Predicting Cardiovascular Disease among Older Adults: Findings from the Maine-Syracuse Longitudinal Study

Bogucki, O. E., Dearborn, P. J., Haigh, E. A. P., Robbins, M. A., & Elias, M. F.
University of Maine

Research suggests that depression is an independent risk factor for cardiovascular disease (CVD) (Van der Kooy et al., 2007). The majority of this research focuses on whether depressive symptoms measured at one-time point (i.e., baseline) predict CVD outcome (Marwijk et al., 2015; Marzari et al., 2005; Seldenrijk et al., 2015; Whooley & Browner, 1998; Xiang & An, 2015). Less is known about the impact of depressive symptoms measured over time on CVD outcomes. The current study sought to contribute to the literature by examining the relationship between chronic depressive symptoms over time and CVD outcomes.

Data from the Maine-Syracuse Longitudinal Study (MSLS; N = 865) was used to assess whether mean depressive symptoms measured by the Zung Depression Inventory (ZDI; Zung, 1965) at wave 4 (W4; 1990-1995), wave 5 (W5; 1996-2000), and wave 6 (W6; 2001-2005) predicted CVD at wave 7 (W7; 2006-2010). Information regarding the presence or absence of CVD, defined as; angina, congestive heart failure, coronary artery disease, myocardial infarction, and/or transient ischemic attack, was obtained from a researcher-administered medical interview. It was hypothesized that average ZDI scores from W4 to W6 would predict CVD at W7.

Logistic regression models were used to examine the relationship between average depressive symptoms and CVD. Model 1 adjusted for baseline demographics (i.e., age, sex, education), current depressive symptoms (ZDI), and current positive emotion (General Well-Being Adjustment Scale (GWB); Dupuy, 1978). Results revealed that W4-6 depressive symptoms predicted W7 CVD (OR = 1.140, CI: 1.039 – 1.251). Model 2 additionally adjusted for W7 pulse-wave velocity (PWV). Results showed that W4-6 depressive symptoms predicted W7 CVD (OR = 1.258, CI: 1.098 – 1.441). Model 3 additionally adjusted for W4-6 average mean arterial pressure (MAP). Results indicated that W4-6 depressive symptoms predicted W7 CVD (OR = 1.140, CI: 1.039 – 1.251). Results suggest that depressive symptoms assessed over a period of 10 years predicted cardiovascular outcomes 5 years later. These results remained significant after controlling for current and past cardiovascular
functioning (PWV at W7 and average MAP at W4-6). These findings highlight the need for prevention, identification, and treatment of depression among older adults.

Effect of Mindfulness Meditation on Long-term Memory

Erika Nyhus, Andrew Engel, & Tomas Donatelli Pitfield
Bowdoin College

Meditation is the practice of cognitive control; rather than a period of relaxation, it is a mental exercise involving letting go of thoughts and feelings in order to clear the mind and focus on the present moment. While meditation has been shown to improve attention and working memory and potentially increase the likelihood of forming false memories (Wilson et al., 2015), there have been no studies investigating the potential of meditation to improve long-term memory. The purpose of this study is to explore the effects of mindfulness meditation on long-term memory, specifically episodic memory, using a longitudinal study in which the only manipulated variable is the practice of mindfulness. We hypothesized that the subjects who underwent a four-week mindfulness meditation course would show improved source memory task scores and increased theta oscillation power. Subjects took an initial source memory test while their brainwaves were recorded with an EEG, and then the experimental group underwent four weeks of mindfulness meditation training and practice while the control group was waitlisted. Then, all subjects were brought back for a follow-up memory test and EEG recordings. Ultimately, the meditation intervention did not have an effect on the subjects’ source memory task scores or theta oscillation power. This null result may be due to the fact that subjects only meditated for 52.5% of the time that we had asked that they practice for and that it is impossible for an experimenter to monitor the quality of a meditative practice. Although there were no group by time interactions for source memory task scores and changes in brainwaves, there was a correlation between time spent meditating and increases in theta oscillations during successful source memory retrieval, suggesting that future studies conduct further research on the effects of meditative practices on changes in neural oscillations.

Retrieval Practice Benefits Students with Attention Deficit Disorder – but they Still Perform Worse than Matched Controls

Jen Coane,1 Sarah Boland,1 Meredith Minear,2 & Leah Cooney1

1Colby College
2University of Wyoming

Retrieval practice is an effective, accessible, and affordable tool for improving student outcomes. Although the phenomenon is robust across materials and age groups, there is limited knowledge about its effectiveness with clinical populations. A significant proportion of currently enrolled college students receive support for attention deficit/hyperactivity disorder (ADHD) and these students are often at risk of academic failures. Two recent studies (Dudukovic et al., 2015; Knouse et al., 2016) found conflicting results with regards to the effectiveness of retrieval practice in this population. The present study compared 36 individuals with ADHD to 36 controls matched on a number of factors (gender, age, GPA, cognitive performance). Participants studied Swahili-English word pairs that varied in difficulty. Half of the pairs were repeatedly studied and the other half repeatedly tested. On a final test administered 2 days later, all participants showed a benefit of retrieval practice relative to restudy and participant status did not moderate the effect. However, individuals with ADHD performed worse overall, both at the end of the encoding phase and on the final test, suggesting deficits in learning effectiveness. Additional analyses indicated that forgetting rates were similar and that equivalent performance at the end of the learning phase resulted in equivalent performance on the final test across participant groups. Furthermore, although individuals with ADHD do benefit from retrieval practice, they report using this technique less often. Although retrieval practice is effective in this group, additional encoding might be necessary to ensure performance that is fully equivalent to that of controls.

Perceptions of Childhood Discipline from Lesbian Parents versus Heterosexual Parents

Anastasia McFadden-Foy
University of Maine at Farmington

This between-subjects design study examined the perceptions of childhood discipline by 1) lesbian parents or 2) heterosexual parents. Undergraduate
participants (n=55) read a brief scenario depicting verbal discipline of a seven-year-old son. As hypothesized, the discipline from the lesbian parents was judged more negatively than the identical discipline of the heterosexual couple. The heterosexual couple was judged as more ‘justified’ in their discipline and ‘successful’ than the lesbian couple. Finally, the dependent variable ‘condition’ (i.e. ‘heterosexual’ or ‘lesbian’) approached significance (p=.06), further supporting the hypothesis that lesbian parents are judged more negatively than heterosexual parents.

A Motivational Explanation for the "Less-Racist-Than-Myself" Effect

Angela Bell
Colby College

The “less-racist-than-myself” effect occurs when people evaluate themselves as less prejudiced than comparison others, even when the comparisons are made from an individual’s own self-report (Bell & Burkley, under review). The present study sought to determine if the “less-racist-than-myself” phenomena is due, in part, to a motivation to appear non-prejudiced. It was hypothesized that people will be more likely to demonstrate the effect and evaluate themselves as less prejudiced than others when there is strong social pressure to appear non-prejudiced. Forty-eight White students from a Midwestern college participated in the study. In the first phase of the study, participants completed an online prescreener where they reported engaging in potentially racist behaviors. In the second phase of the study, participants evaluated a “randomly selected” peer that engaged in the exact same behaviors that the participants previously reported. To manipulate social pressure, participants were exposed to false information that indicated such racist behaviors were either common or uncommon on their university campus. As predicted, when social pressure was high, participants rated themselves as less racist in comparison to the “other” student. When social pressure was low, the effect disappeared. These results reveal a novel framework for understanding people’s motivation to deny their own prejudices.

The Consequences and Benefits of Feminist Identification

Lauren M. Hawthorne & Shannon K. McCoy
University of Maine

Young women may be less willing to self-identify as a feminist even if they endorse feminist ideological beliefs (Twenge & Zucker, 1999). What does this embrace of feminism mean for young women today? Are there consequences for physical and emotional wellbeing? Are effects we typically see between gender identification and wellbeing (Redersdorff et al., 2004) dependent on the extent of women’s degree of feminism? We asked 225 women to complete measures of gender and feminist identification and wellbeing. Further, we measured perceived sexism, collective action, and group social support: all factors that have implications for wellbeing. Using moderated mediation (Hayes, 2013) we found that highly feminist women perceived more sexism which negatively affected health (b=-.18, p<.001). However, they also were committed to more collective action which positively impacts wellbeing (b=.25, p=.004). In contrast, for women who rejected the feminist label, we found no relationship between gender identification and wellbeing.

Cognition under Stress: The Impact of Social-Evaluative Stress during Cognitive Task Performance

Smith, D. B.1, Huff, R.1, Peralta, G.1, Herron, K.1, & Ell, S. W.1,2, & McCoy, S. K.1,2

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The impact of stress on cognition has typically been studied by investigating reactivity to an stressful situation (as indexed by changes in physiological markers from baseline levels) and how this reactivity is related to performance on a cognitive task. Although considerable research has been dedicated to crafting the ideal characteristics of a stressful situation, very little research has focused on characterizing the best measure of baseline. The first goal of the experiment was to investigate the efficacy of three common approaches used to establish a physiological baseline. Participants: viewed a nature video while listening to calming music, completed a simple counting task, or sat alone in a quiet room. The second goal was to investigate the extent to which the type of baseline interacts with stress reactivity to influence cognition. More specifically, participants were either evaluated by others (i.e.,
Item and Source Memory for Social Media in Younger and Older Adults

Sarah Boland, Grace Carroll, Shanna Grant, Kimberly Bourne, & Jen Coane

Colby College

Social media is commonly used in American society; as of 2014, 74% of online adults used social networking sites. More specifically, 89% of adults ages 18-29 and 49% of adults ages 65+ used social networking. Furthermore, social media and traditional news media are becoming more integrating. Though the use of social media, such as Twitter, may seem like a momentary task that does not leave a lasting impression, this information appears to be especially memorable, at least by young participants. Because of the frequency with which people learn about news items via social media, it is important to know to what extent the source of the information can be accurately remembered. Younger and older adults studied tweets and news headlines that were digitally altered to appear in the format of either a Twitter post or CNN news item, and were then administered item and source recognition tests. For both age groups, memory for content was found to be markedly stronger for tweets than headlines regardless of format, suggesting that the memory for these items is driven by content. For source memory, both age groups were better at identifying the format in which items had been originally studied when format and content were congruent (e.g., a headline presented as a CNN image), as opposed to incongruent (e.g., a headline presented as a Twitter post). Older adults relied more heavily on content when attempting to identify the source, suggesting that this group may be especially vulnerable to source errors for news items presented on social media. Overall, whereas item memory was enhanced for social media, source accuracy depends on the extent to which content and format match.

Rejection Reduces Connection-Related Thoughts and Behavior among People with Low Self-Esteem Partners

Julie Longua Peterson¹, Janelle Sherman¹, & Tracy DeHart²

¹University of New England
²Loyola University Chicago

Previous research suggests both that people with insecure (vs. secure) partners are more distressed by rejection within their relationships (e.g., Campbell et al., 2005; Powers et al., 2006) and that people may protect the self from the threat of rejection by suppressing connectedness goals (Murray et al., 2008). We extend this research by exploring whether partner self-esteem influences the effect of a rejection manipulation (study 1) and dyadic conflict interaction (study 2) on connection-related thoughts and behavior, respectively. Additionally, we used a daily diary methodology to explore whether day-to-day perceptions of rejection cause people with low self-esteem roommates to feel more mentally exhausted (study 3). In study 1, participants who perceived their partners as low self-esteem showed less accessibility to connection-related thoughts on a word-fragment completion task in the relationship rejection condition (vs. general rejection and control conditions). Study 2 results indicated that people whose partners were low (vs. high) in self-esteem were rated by independent coders as being more closed off during the conflict interaction. Six months later, the partners of people with low (vs. high) self-esteem reported less commitment and satisfaction. Finally, study 3 revealed that participants were more cognitively depleted on days they felt more (vs. less) rejected by their roommate, but only if they also perceived their roommate as having low self-esteem. Importantly, perceived (study 1 and study 3) and actual (study 2) partner self-esteem were better predictors of the outcome variables than actor self-esteem, and actor self-esteem did not moderate these effects.

Deaf Stigma and Prejudice

Aeleah Granger & Jordan LaBouff

University of Maine
Very little research exists on the stigma, stereotyping, and prejudice of deaf individuals, making it difficult to determine the social and mental consequences. This exploratory study aimed to investigate whether people tend to hold a pathological (i.e., deaf as a disability) or cultural (i.e., Deaf as an identity) view of deafness, the general direction of attitudes toward deaf individuals, and how people respond emotionally to deaf people. Data showed that people tend to hold a cultural view of deafness. Further, negative attitudes toward deaf people were positively correlated with the pathological view and negatively correlated with the cultural view. Intergroup contact was negatively correlated with negative attitudes. A mediation analysis showed that the cultural view explained some of the variance in this relationship. A socio-functional approach to prejudice was also employed (i.e., different groups elicit different emotional reactions). Pity was the most common reaction to and was highly correlated with negative attitudes toward deaf people. This study has implications for the influence of the perception of deaf people on their treatment, both in the world, and in more specific settings (i.e., a medical setting versus a restaurant).

Do Native American Stereotypes Promote Discounting Native American Social Issues?

Andrew Tomer & Jordan LaBouff
University of Maine

Native American stereotypes range from commonly endorsed positive stereotypes (i.e., inferred complimentary characteristics based on group membership; noble, warrior, spiritual) to less publicly endorsed negative stereotypes (e.g., alcoholic, savage, bloodthirsty). We investigated the relationship between stereotypical representations of Native American mascots and prejudice toward Native Americans. Specifically, we hypothesized that participants would discount Native American targets claiming mascots promote discrimination; this effect being stronger when positive stereotypes were activated (relative to negative or no stereotypes). Data indicate that negative attitudes towards Native Americans were associated with mascot support and discounting to Native American targets. Although positive and negative stereotype-consistent conditions did not differ from each other, when combined, the mascot conditions promoted more negative evaluations of the target relative to the no-

Too Proud to Budge: Does Pride Protect Against Conformity?

Leah Dickens, Valentina Botero, Megan Irgens, & Rebecca Levkowicz

1Bowdoin College
2Mt. Holyoke College

We examined differences in conformity among participants in various emotional states (pride, sadness, neutral). Eighty-six participants completed a pre-study survey about opinions on various subjects before the lab session. In lab, we randomly induced emotional states with an autobiographical recall task, had participants engage in a brief face-to-face conversation with a confederate—who expressed opposing opinions—and finally had participants redo their opinions survey, ostensibly due to a loss of data. Proud individuals showed less conformity to the confederate’s beliefs on the post-study survey than neutral or sad participants; however, no group showed significant conformity during the in-lab conversation. Findings suggest that individuals in a proud emotional state are more likely to hold their own opinions and perspectives, even after being faced with opposition.

The Effect of Atomoxetine on Random and Directed Exploration in Humans

Christopher Warren, Robert Wilson, & Sander Nieuwenhuis

1Bowdoin College
2University of Arizona
3Leiden University

The adaptive regulation of the trade-off between pursuing a known reward (exploitation) and sampling lesser-known options in search of something better (exploration) is critical for optimal performance. Theory and recent empirical work suggest that humans use at least two strategies for solving this dilemma: a directed strategy in which choices are explicitly biased toward information seeking, and a random strategy in which decision noise leads to
exploration by chance. Here we examined the hypothesis that random exploration is governed by the neuromodulatory locus coeruleus-norepinephrine system. We administered atomoxetine, a norepinephrine transporter blocker that increases extracellular levels of norepinephrine throughout the cortex, to 22 healthy human participants in a double-blind crossover design. We examined the effect of treatment on performance in a gambling task designed to produce distinct measures of directed exploration and random exploration. In line with our hypothesis we found an effect of atomoxetine on random, but not directed exploration. However, contrary to expectation, atomoxetine reduced rather than increased random exploration. We speculate that our results may be due to interactions with other neuromodulators that are also affected by atomoxetine, or that the reduction in random exploration was driven by a drug-related increase in phasic norepinephrine activity rather than in baseline norepinephrine levels.

Social Perceptions of Individuals With a Missing Tooth

Rayanna Howard
University of Maine at Farmington

This study examined social perceptions of an individual with a missing tooth. It was hypothesized that individuals with a missing tooth would be judged more harshly than an individual that was not missing any teeth. Using a between-subjects design, participants were asked to read a scenario and rate a series of questions about a female job applicant who is described as having a 'missing tooth' or a 'bright smile'. As predicted, the individual with a missing tooth was rated significantly less likely to be successful, less likely to be hired, more likely to engage in drug and alcohol abuse, as well as receiving harsher judgments in other character categories.

Longitudinal Imagined Interactions Between Christians and Atheists

Angelina Iannazzi, Jordan LaBouff, & Andrew Tomer
University of Maine

Imagined Interactions are a social intervention that has an individual imagine a positive situation with a marginalized outgroup member. Imagined interactions create positive feelings and reduce stereotypes towards outgroup members (Crisp & Turner, 2009). However, these powerfully positive results have been found only in one-time interactions followed directly by a post-test which raises concerns about social desirability and demand. This study aims to investigate the effect of multiple interactions over five-weeks among both majority and minority group members. Christians and Atheists imagined having interactions with an unidentified stranger or an outgroup member. Contrary to one-time imagined interaction studies, preliminary results show that participants who imagined an interaction with an outgroup member weekly actually had more bias towards the outgroup at a five-week post-test than participants who imagined scenarios with an outgroup member once or not at all. Results will be discussed in the context of differences in feelings towards outgroups between Christians and Atheists and the effect of experimental demand.
Abstracts for Poster Presentations: Listed Alphabetically

**Toddlers’ Integration of Perceptual, Cognitive, Social, and Motor Information: The Role of Feedback**

Martha E. Arterberry, Allison D. Russell, & Nicholas S. Catania
Colby College

Toddlers’ have difficulty integrating information from various sources into their plans for action. Even a task as simple as a child retrieving a toy hidden from under a cloth (after seeing it hidden in one of three locations) is not easy for children 24 months and older. However, when 24-month-olds were tested in this invisible displacement search task while wearing weighted wrist bands, they showed above chance performance. The advantage of weighted wrist bands does not apply equally to all tasks. For example, Arterberry and Hespos (under review) found no difference in categorization by children tested with and without weights. To further understand the task parameters and how they intersect with the advantage conferred by wearing weighted wrist bands, we developed a new categorization task that allows children to (a) be more directly engaged with the experimenter and (b) to receive feedback on their performance. Performance on this task will be compared to a more open ended categorization task and to a new search task.

**Mood Reactivity Predicts Relapse and Depressive Symptom Change Following Mindfulness-Based Cognitive Therapy**

Colin Bosman, Ian Raugh, Victoria Quiñones, & Emily A.P. Haigh
University of Maine

Major Depressive Disorder (MDD) is a chronic and relapsing disease associated with significant economic burden and disability (Bockting et al., 2015; Kessler et al., 2005; Ustun et al., 2004). The risk of relapse increases with each new episode of depression. Individuals diagnosed with a first depressive episode have a 40% to 60% likelihood of experiencing a subsequent episode; individuals with 2 episodes have an approximate 60% chance; and individuals with three episodes the risk is as high as 90% (Eaton et al., 2008; Moffitt et al., 2010; Solomon et al., 2000). Mindfulness-Based Cognitive Therapy (MBCT) is one of the few interventions designed specifically to reduce relapse to depression. While evidence suggests that MBCT is an effective treatment for reducing relapse (Teasdale et al., 2000) little is known about how this treatment impacts risk factors for relapse in MDD. Teasdale (1999) postulated that risk of recurrence and relapse to depression is related to the ease in which depressogenic, ruminative processing becomes reinstated. Negative mood inductions (e.g. listening to a piece of sad music and thinking about a sad time in one’s life) have been used to examine how individuals react to negative mood. Cognitive reactivity, (i.e. change in underlying dysfunctional beliefs following a negative mood induction) is a proposed risk factor for relapse in participants with remitted MDD; however, results regarding its predictive utility have been mixed. Research has found that mood reactivity (i.e. magnitude of change on self-reported sad mood following a negative mood induction) predicts time to depressive relapse (van Rijssbergen et al., 2013). What remains unclear is whether treatment with MBCT and level of mood reactivity reduces depressive symptoms and the risk of relapse. One hundred seventy-eight participants in full remission from MDD were randomized to either an 8-week MBCT, a Relaxation Therapy, or a waitlist control group. Cognitive reactivity and mood reactivity were assessed pre and post treatment. Cognitive reactivity was assessed using the Dysfunctional Attitudes Scale (DAS; Weissman, 1979) while mood reactivity was assessed using a visual analogue scale before and after a sad-mood induction. Results indicate that cognitive reactivity did not predict MDD relapse nor change in depressive symptoms; however, higher levels of cognitive vulnerability predicted an increase in depressive symptoms. Results further revealed that mood reactivity, and the type of treatment, were significantly associated with change in depressive symptoms; however, higher levels of cognitive vulnerability predicted an increase in depressive symptoms. Results further revealed that mood reactivity, and the type of treatment, were significantly associated with change in depressive symptoms and risk of acute relapse. Participants who received MBCT and had reductions in mood reactivity had significantly lower risk of acute relapse compared to those who received the Relaxation Therapy as well as the waitlist controls. Participants who received either treatment were significantly less likely to show an increase in self-reported depressive symptoms as a function of mood reactivity compared to the waitlist control). The implications of the current findings for predicting relapse to depression will be discussed.
The effects of JZL184 on anxiety-like and obsessive-compulsive-like behaviors in mice

Katherine Case & Felice Chan
Bowdoin College

Background: JZL184 is used as a model for medical cannabis in mice, and has been shown to have anxiolytic properties by acting on the endocannabinoid system. Methods: C57BL6J mice were injected with JZL184, chlordiazepoxide (CDP), or saline and were given three tests. The Emergence Test and Elevated Zero-Maze (EZM) paradigms were utilized to study anxiety-like behaviors, and the marble-burying test was employed as a model of obsessive-compulsive-like tendencies. Results: CDP and JZL mice buried significantly fewer marbles (JZL184: M= 3.4; CDP: M=6.3) than mice given saline solution (M=11.9), suggesting a decrease in obsessive-compulsiveness. Both CDP and JZL showed an increase in certain anxiety-like behaviors. Conclusions: These findings emphasize the role of the endocannabinoid system in symptoms of OCD.

The Impact of Social Contagion on Shifting Attitudes Toward Greek Life

Danielle Chase, Lionel Booth, & Dana Wohl
Thomas College

Few institutions within the American higher educational system elicit such dividing opinions as does the impact of Greek organizations on college campuses. Concerns related to campus safety, social stigma, and hazing procedures are both pervasive and well documented by the mass media. This study sought to examine the effect of social contagion when misinformation is disseminated during a collaborative recall task on the relative merits and problems associated with Greek institutions on college campuses. Undergraduate students first read an article containing neutral information about the history of Greek organizations and then completed a baseline survey that assessed feelings and opinions on Greek institutions. Following the survey, participants then engaged in a guided discussion that corresponded to each survey question. The presence of an experimental confederate exposed some participants to misleading and biased information that was not part of the original materials during the guided conversation. After a brief delay, participants were given a follow-up survey to reassess their feelings and opinions on Greek organizations. Changes were assessed by comparing pre and post-survey responses to measure any shift in attitudes that may have been due to the presence of the experimental confederate. The results yielded important differences in areas pertaining to academic performance, thoughts on campus safety, and risks associated with drug and alcohol consumption. Collectively, these results support the fluid nature of public opinion and highlight the importance of well-balanced talking points when making campus policy decisions.

Memory and learning as a function of adolescent choline supplementation

Stephanie S. Desrochers, Nora McCall, & Melissa J. Glenn
Colby College

Choline is an essential nutrient as well as the precursor to the neurotransmitter acetylcholine and an epigenetic factor during development. Research in animal models have shown that choline supplementation has profound and long lasting effects on cognitive function, both improving normal cognition and rectifying abnormal cognition, as with age-related memory decline, depression, or schizophrenia. Choline’s neuroprotective abilities are associated with neural plasticity, or the ability of the brain to change and adapt. The impacts of modifying neural plasticity in animal models are commonly assessed through behavioral and cognitive tasks as well as assays of brain neurotrophic factors and neurogenesis assessed postmortem. Most of the current work in this area examined choline supplementation during sensitive periods of development, primarily prenatally, when the brain is changing the most. The current study examined the effects of choline supplementation when given outside of the sensitive prenatal period. Spatial and working memory tests were conducted using the Morris Water Maze task along with acute restraint stress on 20 male Sprague-Dawley rats, half of which were fed a choline supplemented diet during adolescence. Findings suggest that choline supplementation during adolescence extends the stress response and improves memory, but has little effect on learning and neurogenesis. Further analyses were conducted to explore the differences in stress response and neurogenesis between subjects with
Beyond the Triggers of Binge Eating: Investigating the Role of Perceived Control

Kim Herron, Rachel E. Goetze, Amber Stacy, Christopher Carey, Katelyn Willis, & Emily A. P. Haigh

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A central feature of binge eating disorder (BED) is a sense of diminished control during an eating episode (American Psychiatric Association, 2013). Perceived control is the perception of one’s ability to impact their behavior and environment to reach desired goals (Wallston, Wallston, Smith & Dobbins, 1987). Despite the putative role of control in BED diagnosis and treatment, this construct has received little research attention to date. Rather investigations of binge eating have focused largely on identifying triggers for eating episodes, such as increased negative mood (e.g., Svaldi, Tuschen-Caffier, Trentowska, Caffier, & Naumann, 2014). This project fills an important gap by examining the relationship not only between negative mood and binge eating, but the possible protective role of perceived control. It was hypothesized that perceived control would predict binge eating severity. Furthermore, it was expected that negative mood would mediate the relationship between perceived control and binge eating severity when controlling for variations in body mass index (BMI). A community sample (M_age = 21.91; 66.1% female, 75.9% European American) completed self-report measures of binge eating (Binge Eating Scale; Gormally, Black, Daston, & Rardin, 1982), perceived control (Pearlin’s Perceived Mastery Scale; Pearlin & Schooler, 1978), and negative mood (Positive and Negative Affect Schedule – Expanded Form, Watson & Clark, 1994). Height and weight were assessed for BMI calculations. In line with expectations, individuals with higher perceived control reported less binge eating behavior. Also consistent with hypotheses, when controlling for BMI, negative mood significantly mediated this relationship such that higher perceived control was associated with lower negative mood, which then predicted reduced binge eating severity. The current results provide preliminary evidence that perceived control serves as a protective factor against BED symptoms in part due to the mediating impact of negative mood. Findings are especially notable as perceived control may represent a malleable target for treatment of binge eating. Indeed, recent research suggests that perceived control may be predictive of positive outcomes and behavioral change during therapeutic intervention for anxiety-based disorders (Gallagher, Naragon-Gainey, & Brown, 2014). Results from the current research provide preliminary evidence that perceived control is an important treatment target that impacts BED symptoms by significantly buffering against negative mood.

Friendship and Personality Similarity: How Personality Changes Between Friends

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The Personality and Role Identity Structural Model (PRISM; Wood & Roberts, 2006) suggests that, within their general identity, people have specific role identities that influence personality – for example, one’s role within a romantic relationship. The current study investigates whether friendship might also act as a role-identity that influences personality, as well as whether people select friends with personality traits similar to their own. Specifically, the current study investigates whether pairs of friends have similar personalities and whether, in the context of their friendship, people’s personality shifts to be closer to their friend’s personality. Each participant in a pair of friends completed two versions of the Big Five Inventory-2: one on his or her general personality and one on his or her personality when with the friend. We found that, in general, pairs of friends do not have similar personalities but that, in the context of their friendship, they have a friendship-specific personality that is more similar to their friend’s general and friendship-specific personalities, particularly in the agreeableness, open-mindedness, and negative emotionality domains. There were also significant results at the facet level. This research suggests that friendship can create another role-specific
personality, similar to those suggested by Wood and Roberts.

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**False Memories for Associatively and Categorically Related Items: The Role of Critical Lure Identifiability and Warnings**

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Empirically induced false memories are reliably elicited by giving participants lists of words related to a single non-presented word (i.e., the critical lure, CL). False memories are higher for lists that are associatively and categorically related (A+C; e.g., boxer, coyote) than lists that are non-categorically but associatively related (NC-A; e.g., bark, beware), reflecting a feature boost. An alternative is that lower false memory in NC-A lists is due to more effective monitoring - in other words, participants are better able to identify and reject the CL at test. We examined whether the effectiveness of warnings and CL identifiability varied across list type. Participants were more likely to correctly identify the CL in A lists; however, warnings were equally effective for both list types. Consistent with previous findings, C+A lists resulted in higher errors, suggesting that the feature boost is not solely due to differences in monitoring across list types.

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**Who’s Online?: Self Esteem, Narcissism, and Gender as Predictors for Social Network Use**

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Social networking sites (such as Facebook) have provided people with a new venue for both interpersonal communication and self-expression (Wiesser, 2001). Several studies have revealed personality traits and feelings of self-worth to be good predictors of the way in which people express themselves online (Correa et al., 2010; Forest & Wood, 2010). Therefore, the current study explored gender, self-esteem, and narcissism as predictors of the ways in which people use Facebook and their perceptions of the site as a venue for social connection. Participants included 167 undergraduate students who came to the lab and completed measures of self-esteem, narcissism and Facebook usage. Participants then logged on to their Facebook profile and provided their 5 most recent status updates. The most recent update provided by each participant was coded by independent raters for number of personal pronouns and levels of negativity and aggression (ICCs > .70). Correlational results suggest that people low in self-esteem use Facebook in less social ways and perceive Facebook as less safe and less beneficial. Results from the coding of status updates further suggest that people low in self-esteem were rated by independent coders as having statuses that were more negative and more aggressive. Further correlational results suggest that people high in narcissism amass a large number of Facebook friends, but spend little time visiting these friend’s pages. A series of t-tests revealed that females use Facebook more frequently and in more social ways than males, with the exception that males spend more time looking at groups. Lastly, multiple regression analyses revealed that self-esteem and narcissism moderated the effects of gender on Facebook usage, suggesting that females with more positive self-views (i.e., high self-esteem, high narcissism) post more frequent content on Facebook.

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**Medical Cannabis and Reduced Use of Other Psychoactive Substances: Results from New England Dispensary Patients**

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Background: A prior epidemiological study identified a reduction in opioid overdose deaths in states that legalized medical cannabis (MC). One theory to explain this phenomenon is a potential substitution-effect of MC for opioids. The primary objective of this study was to evaluate whether this substitution-effect of MC for opioids also applies to other psychoactive medications. A secondary objective was to explore patient perspective of the attitudes of their health care providers towards MC. Methods & Findings: In this retrospective, cross-sectional investigation, New England dispensary
members (N = 1,513) completed an online survey about their medical history and MC experiences. Substitution of MC for pharmaceutical or over the counter drugs was quantified. Among respondents that regularly used opioids, over three-quarters (76.7%) indicated that they reduced their use since they started MC. This was significantly greater than the minority of patients that reduced their use of antidepressants (37.6%) or alcohol (42.0%). Approximately two-thirds of patients decreased their use of anti-anxiety (71.8%), migraine (66.7%), and sleep (65.2%) medications following MC which significantly exceeded the reduction in antidepressants or alcohol use. Over one-seventh (15.7%) of patient’s PCPs were not informed of their MC use. Patient’s spouse, family, and other friends were more likely to know about their MC use than was their PCP. Conclusions: A majority of patients reported using less opioids as well as fewer medications to treat anxiety, migraines, and sleep after initiating MC. A smaller portion used less antidepressants or alcohol. There are barriers preventing many MC patients from communicating with their health care providers about their MC use. Additional research is needed to corroborate these self-reported findings using other data-sources (e.g. medical and pharmacy records).

Experiment IA evaluated the two week test-retest reliability in young-adults (N=79). Experiment IB determined test-retest reliability at a longer interval (6-8 weeks) in young-adults (N=68). Experiment II examined whether the input modality (computer mouse versus touch-screen) would influence reliability in older-adults (N=55). Experiment III assessed criterion validity with participants completing both the PTMT and HRTMT (N=109). Experiment IV assessed the similarity between the PTMT and other executive function measures (N=180). Experiment V determined the normative behavior (N=384, age 5-76). Results: The two-week reliability was higher for Part A (r=.74) than Part B (r=.61). Older-adults showed greater test-retest reliability when using a mouse(r=.95) than with a touch-screen (r=.80). Moderate associations across test modalities were identified for adults (Part A r=.44; Part B r=.55) and children (Part A: r=.28; Part B: r=.26). Low, but significant, correlations were identified between the B:A ratio on the PTMT with the PEBL Tower of London (r=.27) and Perseverative Errors on the PEBL Wisconsin (Berg) Card Sorting Test (r=.30). Overall, these findings are broadly supportive of the reliability and validity of the PTMT and indicate that this open-source measure of set shifting offers some improvements over the HRTMT.

Reliability & Validity of the Psychology Experiment Building Language Trail-Making Test

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The paper version of the Trail-Making Test (HRTMT) was in the Halstead-Reitan Neuropsychological Battery but is now in the public domain. A computerized version (PTMT) of this executive function test is in the Psychology Experiment Building Language (PEBL: http://pebl.sourceforge.net/) battery. The objective of these experiments was to determine the psychometric properties of the PTMT in lifespan samples.

Trait Rumination, Social Problem-Solving and Gender

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Depressive rumination, or the tendency to repeatedly dwell on the causes and consequences of one’s negative mood (Nolen-Hoeksema, 1991) has been identified as an important process involved in the onset, maintenance and duration of depressed mood (Nolen-Hoeksema, Wisco, Lyubomirsky, 2008). The RST (1999), which was originally proposed to account for the higher rates of depression in women, posits that the relationship between rumination and depression may be related to the negative impact rumination has on problem-solving (Nolen-Hoeksema et al., 2008). Two subtypes of depressive rumination have been identified: brooding, a more maladaptive form and reflection, conceptualized as less maladaptive than brooding (Treynor et al, 2003). Preliminary research completed...
in Japan found that brooding was associated with maladaptive problem-solving, whereas reflection was associated with more adaptive problem-solving (Hasegawa et al., 2015; 2016). The present study examined the relationship between rumination and social problem-solving and whether gender impacts these associations. Participants (n = 184) recruited from Amazon Mechanical Turk, completed measures of depressive symptoms (BDI-II; Beck et al., 1996), rumination (RRS; Nolen-Hoeksema & Morrow, 1991), and problem-solving (SPSI-R; D’Zurilla et al., 2002). Results revealed that brooding was associated with maladaptive problem-solving (impulsive/careless problem-solving, avoidant problem-solving, and negative problem orientation) for both men and women. Among men, a relationship between brooding and maladaptive problem-solving exists above and beyond the effects of depression. Similarly, among women, the relationship between brooding and negative problem orientation exists above and beyond the effects of depression. With respect to reflection, among men, the relationship between reflection and adaptive (rational problem-solving) and maladaptive aspects of problem-solving (negative problem orientation) remained above and beyond the effects of depression. Among men, reflection was associated with maladaptive problem problem-solving; however, this relationship did not remain above and beyond the effect of depression.

**Quantification of Undisclosed Conflicts of Interest in Biomedical Education**

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Objective: Textbooks are a formative resource for health care providers during their education and are also an enduring source for medical decision making. Unlike the primary literature and clinical guidelines, it is currently not a common practice to disclose potential financial conflicts of interest (CoI) by biomedical textbook authors. The objective of this study was to evaluate whether the authors and editors of textbooks used in the training of physicians, including psychiatrists and neurologists, pharmacists, and dentists had appreciable undisclosed CoI in the form of patents or compensation received from pharmaceutical or biotechnology companies.

Methods: The most recent editions of six medical textbooks: Harrison’s Principles of Internal Medicine (HarPIM), Katzung’s Basic and Clinical Pharmacology (KatBCP), the American Osteopathic Association’s Fundamentals of Osteopathic Medicine (AOAFOM), Remington’s The Science and Practice of Pharmacy (RemSPP), Koda-Kimble and Young’s Applied Therapeutics (KKYAT), and Yagiela’s Pharmacology and Therapeutics for Dentistry (YagPTD) were selected. Author names (N = 1,152, 29.2% female) were submitted to databases to examine patents (Google Scholar) and compensation (ProPublica’s Dollars for Docs (PDD) as reported by the Open Payments system. Results: Authors were listed as inventors on 677 patents (Maximum/author = 23), three-quarters (74.8%) to HarPIM. Females were significantly under-represented among patent holders. The PDD 2009-2013 database revealed receipt of 13.2 million, the majority to (83.9%) to HarPIM. The maximum per author was $869,353. The PDD 2014 database, based on the Sunshine Act, identified receipt of 6.8 million with 50.4% of eligible authors receiving compensation. The maximum received by a single author was $560,021.

Conclusions: An appreciable subset of biomedical authors have patents and received remuneration from medical product companies. These findings indicate that full transparency of financial CoI should become a standard practice among the authors of biomedical educational materials.

**The Potential For a New Romantic Relationship Increases Implicit Self-Esteem Among Rejection Sensitive Participants**

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Previous research suggests that implicit self-esteem may be best conceptualized as a relatively unconscious, automatic gauge of social acceptance (i.e., a sociometer), fluctuating in response to positive social information (Peterson, 2014) and motivating connection-related thoughts and behavior (e.g. Peterson & DeHart, 2013; Peterson, Bellows, & Peterson, 2015). Given that people high in rejection sensitivity may have implicit sociometers that are chronically searching for evidence of interpersonal acceptance, the current study explored whether the potential for romantic connection increases levels of implicit self-esteem among participants who are high (vs. low) in rejection sensitivity. Participants (N = 135) completed a measure of rejection sensitivity and were randomly assigned to the romantic potential or...
control condition. Multiple regression analyses revealed that rejection sensitivity moderated the effect of condition on implicit self-esteem. Among participants low in rejection sensitivity, condition had no effect on implicit self-esteem. However, participants high in rejection sensitivity showed a significant increase in implicit self-esteem in the romantic potential (vs. control) condition. While past research has shown that implicit self-esteem is attuned to fluctuations in partner availability, the current results suggest that this may be particularly true for people high in rejection sensitivity.

Behavioral Responses to Amphetamine as a Function of Prenatal Choline Availability and Biological Sex

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Choline is an essential dietary nutrient that when supplemented during development enhances neural plasticity in adulthood and has many neuroprotective effects. Our lab has found that rats treated with choline supplementation in utero or over adolescence exhibit resistance to stressful events and may be protected against the development of depressive-like symptoms. One way that choline could be neuroprotective in depression is by enhancing the sensitivity of the reward pathway that uses dopamine as its neurotransmitter. In the present experiment, we tested this hypothesis by examining the effects of amphetamine, a dopamine agonist, on activity, exploration, and anxiety-like behaviors in prenatally choline-supplemented or standard-fed male and female Sprague-Dawley rats. Previous work with these rats showed a resistance to amphetamine in choline-supplemented rats but not in controls. Thus, we hypothesized that choline-supplemented rats would react differently to amphetamine and this may be additionally affected by their prenatal diet condition. To test this hypothesis, we injected prenatal choline-supplemented or standard-fed male and female Sprague-Dawley rats with either an amphetamine (1 mg/kg) or saline solution 10 minutes before testing their behavior on an open field and elevated plus maze. The open field is used to assess general locomotor activity and anxiety-like behaviors. Rats were placed in an open field one at a time. For five minutes, and then were placed immediately on the elevated plus maze for five minutes. The elevated plus maze is a more explicit test of anxiety levels in rats and is particularly used to assess reductions in anxiety. We are presently analyzing the results of these tests but have preliminary findings that females are more sensitive than males to amphetamine, an effect that is modified by prenatal diet. These results suggest that choline may modify the effects of amphetamine differently according to sex.