

The Ohio State University at  
Lima  
2012

# **Undergraduate Research Forum**

**Poster Session**  
**May 3**  
**12:30pm, Library**

## **Purpose**

The Lima Campus Undergraduate Research Forum is designed to encourage students to actively engage in research. Beyond the Lima Campus Forum, participation in the Denman Undergraduate Research Forum, the University Libraries Undergraduate Research Prize, or publication in JUIROS are all strongly encouraged, although faculty and students are welcome to pursue any appropriate forum for their discipline that will showcase undergraduate research.

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### **Thank You**

We would like to thank Dean John Snyder for his support of this Forum. Thanks also to the support given by the Lima Campus maintenance department, and Lima Campus Student Senate.

### **Faculty Judges**

**David Adams**

**Allison Gilmore**

**Susan Heaphy**

**Young Ah Lee**

The student body will also be able to judge the posters from May 3–May 10. Presenters will be in the library at 12:30pm on May 3 to discuss their research. Ballots are available in the library during this time. The first, second, and third prizes will be awarded at the Ohio State University at Lima Awards Ceremony on June 1, 2012.

**Natasha E. Brown and Andrew R. Fox**

**Faculty Mentor: Dr. Joseph Green (Psychology)**

### **Exploring Context and Order Effects among Measures of Dissociation, Fantasy Proneness, and Absorption**

Correlations between some self-report measures of personality have been shown to vary as a function of the testing context (see Council, Kirsch, and Hafner, 1986). For example, Council, Kirsch and Grant (1996) reviewed several studies reporting a significant correlation between hypnotizability and absorption when the measures were completed in the same session. When the scales were completed in two separate sessions, as part of two different studies, the correlations often vanished to zero. The present investigation examined context effects across three common measures of dissociation (The Dissociative Experiences Scale; Questionnaire of Dissociation; and, the Cambridge Depersonalization Scale), and measures of absorption (Tellegen Absorption Scale) and fantasy-proneness (Inventory of Childhood Memories and Imaginings).

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We administered the scales to N=340 undergraduate students at OSU Lima. We altered the order of scales and whether they were completed in one or two sessions. Furthermore, we informed one group of subjects that the two test sessions were part of two separate studies. We then examined the correlations between our scales. We did not find any evidence that the testing context, scale order, or participants' gender affected the correlation between the scales. We will discuss the implications of our findings.

**Chandler Martin**

**Faculty Mentor: Dr. Patrick Carroll (Psychology)**

### **Factors Contributing to Depression Levels and Severity in Symptoms of Posttraumatic Stress Disorder among Combat-Veterans**

Our investigation examines social and psychological factors that amplify (vs. alleviate) depression levels and severity in symptoms of Posttraumatic Stress Disorder (PTSD) among combat-veterans. We employed a survey methodology to measure key variables among combat-veterans (having served in World War II, Korea, Vietnam, the Persian Gulf, Afghanistan, and Iraq, as well as smaller-scale conflicts such as Mogadishu) belonging to Veterans of Foreign Wars Post 5713 and those utilizing the Mercer County (Ohio) Veterans Service Office. The surveys have been administered and the predicted percentage of return will likely represent 0-5% WWII and Korea, 75-80% Vietnam, 10-15% Iraq/Afghanistan, and 0-5% consisting of the smaller conflicts based on membership and population statistics. The predicted results will demonstrate the potential role of meta-cognitive certainty (or uncertainty) in sustaining the link between (1) negative relational cognitions (i.e., I am alone) as well as negative self-image disturbances (i.e., I am damaged goods) and (2) depression levels and severity in symptoms of PTSD. Consistent with Wichman (2010), these results will likely suggest that the extent to which a combat-veteran perceives

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support from friends and loved ones and to what extent they believe they are psychologically damaged depend on the level of certainty in those personal beliefs.

**Susanna Nicol**

**Faculty Mentor: Dr. Virginia Tompkins (Psychology)**

### **Mothers' Use of Inferential Language and Preschoolers' Subsequent Emergent Literacy**

The ability to make inferences, or to go beyond the text, is an important component of reading comprehension. For pre-readers, inference making has been studied by categorizing mothers' and children's extra-textual utterances during book reading along a continuum of four levels of abstraction, with a lower level representing literal information such as labeling and a higher level representing inferential information such as hypothesizing. Several researchers have shown that mothers' levels of abstraction tend to correlate with those same levels of abstraction in children's input, and that mothers' inferences predict children's later vocabulary. However, researchers have not typically examined how mothers' use of inferential language is related to other young children's narrative comprehension. Thus, the purpose of this study is to examine the relationship between mothers' use of inferential language during mother-child book reading and children's narrative comprehension 6 months later, which was assessed with a story comprehension and a picture-sequencing task. Consistent with prior research, I hypothesize that mothers' and children's levels of abstraction will be significantly correlated. Considering the relationship between inference making and comprehension in readers, I also hypothesize that mothers' use of inferential language will predict how well children perform on narrative comprehension tasks 6 months later.

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**Jacob Phillips and Morgan Sexton**

**Faculty Mentor: Dr. Fabio Leite (Psychology)**

## **Examining Human Cognitive Biases**

In our main manipulation, we examined whether people use wait time (e.g., how many coin tosses are expected to occur before one can observe a sequence of seven consecutive heads) in their assessments of randomness. We created scenarios involving coin tosses and basketball shot attempts and hypothesized that people would take wait time into consideration when assessing the former (perceived as random) but would not take it into account when assessing the latter (perceived as non-random). The participants read information about coins **or** basketball players with success rates of 50% or lower. We found that participants were more likely to prefer a player with a success rate of 50% (over a player with a lower success rate), but did not have the same preference in the coin scenario. In the second task, we used a derivative of the “Linda Question” introduced by Tversky and Kahneman to demonstrate the conjunction fallacy (viz., people should not – but do – judge a conjunction of two characteristics to be more likely than the single characteristics separately. Even though we wrote the questions such that the conjunction’s logic was explicit, we still found that people were likely to commit the conjunction fallacy. In the third task, we informed the participants of the national unemployment rate for college graduates and asked them to estimate that rate for specific subgroups of that population. We found that estimates ignored the factual information given and were biased based on major (but not on gender).

**Kathryn Williams**

**Faculty Mentor: Dr. Joseph Green (Psychology)**

## **The Importance of Needs and Mood on Earliest Autobiographical Recall**

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Previous research has linked the expression of needs with the recall of recent events (e.g., within the past week or past month), however, the present study invited participants to recall an event from a much longer history. We invited participants to recall either a satisfying or distressing event within the last five years. We administered Sheldon's Need Inventory and the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) as a measure of need salience and current mood stemming from the recalled event. Unique to our design, we then asked participants to recall their very earliest memory. We administered a psychological needs inventory and positive and negative mood scale. We sampled and analyzed data from  $N=164$  students enrolled at *The Ohio State University at Lima*. Consistent with previous findings, we hypothesized that self-enhancing needs would be most salient in the satisfying condition and security needs will be prominent in the distressing condition. We also hypothesized that the recalling a satisfying event would be more strongly associated with positive feelings. We confirmed these hypotheses. We did not find any priming from the first recall trial to the second one. When we categorized the earliest memories by how satisfying or distressing they were according to how students reported them to be, we found that satisfying first memories were associated with self-enhancement needs, less concern about security, and more positive mood.

**Katherine Kleffner**

**Faculty Mentor: Dr. Tryntje Helfferich (History)**

**Court Room Howls and Curses: The Differences in Werewolf and Witch Trials in France from the 1500s to the 1700s**

From the 1500s to the 1700s, France experienced numerous court trials concerning witchcraft or werewolfism. Research into such trials from the regions of Franche-Comté and

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Alsace-Lorraine suggests that while both types of trials dealt with the supernatural and its effects on society, men were more often charged with werewolfism, while women were more often charged with witchcraft. Furthermore, men thought to be werewolves were often found at the scene of actual wolf attacks; female witches, however, were often nowhere near an actual crime, but were suspected of causing otherwise unexplainable events. In both cases, the accused were usually social outcasts or from the margins of society, while accusers lived more traditional lifestyles and held higher social positions. Interestingly, men charged with werewolfism were often not sentenced for this crime, but for crimes such as cannibalism and sorcery; for women charged with witchcraft, however, initial charges and final sentences invariably matched. These differences between the types of trials indicate that werewolf trials, though related to witchcraft trials, fall into their own separate category within French supernatural court trials.

**Katherine Kleffner**

**Faculty Mentor: Dr. Beth Sutton-Ramspeck (English)**

## Heroism: A Sirius Subject

While Harry Potter is the primary hero of the Harry Potter series, other heroes do appear. By using the Aristotelian model of a tragic hero to examine the characters within the series, another hero emerges: Harry's godfather, Sirius Black. A tragic hero is traditionally male, holds a position of authority, is of good moral standing, makes a decision that inevitably causes his downfall, possesses a flaw or *hamartia* of the personality that causes his downfall, and finally dies. Both the position of power and fundamental goodness of the character are answered through Black's involvement in The Order of the Phoenix. The decision that Sirius makes which

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causes his downfall is giving the position of Secret Keeper to Peter Pettigrew in an attempt to thwart Lord Voldemort. This decision is motivated by not only Sirius' pride, which makes him think that he is smarter than Voldemort, but also his loyalty to the Potters. He sacrifices himself by acting as a decoy. Sirius like, any true tragic hero, must inevitably die, but his sacrifice benefits those he loves. His death causes Harry to feel grief, which helps him survive an attack by Lord Voldemort much as his mother's love saved him.

**Natalie Allen**

**Faculty Mentor: Dr. Beth Sutton-Ramspeck (English)**

## **Sleeping in a Living Sea of Waking Dreams: John Clare's "I Am"**

Critics studying the poetry of John Clare tend to focus on love as an influence. However, being that Clare was a clinically insane man, my essay argues that love is not the only major influence. The muse of his poem "I Am" is his irregular sleeping patterns and how they have played an integral role in his mental deterioration. When studying personal letters written by Clare to his family and friends, it becomes clear he struggled with sleeping. Psychological disorders have been linked to sleeping irregularities; a sleep study done by Boston University doctors analyzes the connection between REM sleep and dreams to its effect on anxious/depressed participants; REM sleep functions as our body's natural way of releasing anxieties by re-experiencing them. Results show depressed participants slept more frequently during REM phase, exacerbating anxious/depressed psychological symptoms. "I Am"



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centralizes around the speaker being thrown into “waking dreams” that contain only disappointments from his life. By the end, the speaker declares that all he desires is to “sleep as [he] in childhood sweetly slept.” By synthesizing the letters, the sleep study, and textual evidence from “I Am,” one can see that Clare’s sleeping problems influenced the composition and meaning of “I Am.”

**Leslie Newport**

**Faculty Mentor: Dr. Beth Sutton-Ramspeck (English)**

## **Portrayal of a Major Character’s Masculinity in Harry Potter**

Criticism about gender roles in Harry Potter often deals with the presumption that women and girls in the series are presented as weak and stereotypical, with no power that is not involved with male approval. Using the character of Severus Snape, Rowling actually subverts hegemonic masculinity. Snape does have traditionally masculine traits, primarily his control over himself and his emotions, although even when he does not control himself, it is acceptable because of his motivations to gain and keep power. Lily Potter has power over Snape as she controls him through her approval when they are young and he controls himself around her so that she will not reject him. When Snape attempts to assert his power he is rejected. Despite the rejection, Snape has power of his own. Using Snape, Rowling has Lily as a woman with power over him, yet he keeps his own power. Criticism that argues for negative stereotypes and gender roles may have relevant points, but risks oversimplifying Rowling’s portrayal of gender and power.

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**Tia Ruark**

**Faculty Mentor: Dr. Beth Sutton-Ramspeck (English)**

### **Snape. Snape. Severus Snape . . . and Heathcliff? The Byronic Hero and *Wuthering Heights* in *Harry Potter***

In his book, *Harry Potter's Bookshelf*, John Granger states that Severus Snape, from J.K. Rowling's *Harry Potter* series, finds his "gothic twin" in Heathcliff, Emily Brontë's infamous *Wuthering Heights* anti-hero. Granger defines each character as "the lover whose passion is unrequited, who is separated from his beloved by death." While accurate, the brevity of Granger's assertion fails to explore the depth of the characters' similarities, never moving beyond traits found in the classic Byronic archetype. Comparative analysis of the novels yielded parallels between Snape and Heathcliff which not only connect them in terms of physical, mental, and emotional characteristics, but also plainly reflect each character's effect and purpose in the respective novels. Both characters share similar physical description and are products of equally abusive and neglectful childhoods. It is during their outcast and abused youths that Snape and Heathcliff find the women they will devote the remainder of their lives to. The loss of these women to more "heroic" men signals their departure from the conventional Byronic mold. Rowling pays tribute to Brontë's theme of eternal, all-consuming love by revamping Heathcliff and integrating elements from *Wuthering Heights*, renewing the appreciation for anti-heroes among another generation of readers.

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**Neil Hefner**

**Faculty Mentor: Dr. Jacqueline Augustine (EEOB)**

### **Influence of soil moisture on the abundance and diversity of mushrooms (Fungi: Ascomycota and Basidiomycota)**

Mushrooms play an important ecological role as decomposers in wooded habitats, and serve as indicators of forest health. In addition, there has been a growing interest in the commercial and recreational harvesting of mushrooms. For these reasons, it would be beneficial to better understand the effects of weather upon the growth of mushrooms. The effects of soil moisture on fungus species richness, diversity and abundance will be observed using both laboratory experiments and field observations. For the field portion, I will record mushrooms in a mature forest weekly using the right-angle line transect method while monitoring moisture levels, cloud cover, and wind speeds. I will also be monitoring the growth rate of mushrooms in a lab while controlling for various levels of moisture (5-40% water by weight of the substrate). My hypothesis is that mushroom growth will be positively correlated with moisture, even after controlling for cloud cover and wind. Research on the effects of weather on mushrooms in northwestern Ohio has not been conducted. This research will be important to the numerous recreational mushroom hunters in Ohio.

**Jacob Sawmiller**

**Faculty Mentor: Dr. Jacqueline Augustine (EEOB)**

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### **Effect of Habitat Type on Parental Care in House Wrens (*Troglodytes aedon*)**

Anthropogenic degradation of habitat may limit reproduction and survival of wild organisms. However, some species thrive in urbanized areas. House Wrens (*Troglodytes aedon*) are migratory passerines that live in a variety of habitats. We hypothesized that the wrens would be more successful in undisturbed habitats when compared to habitats that have been significantly altered by human actions. We used parental visitation rates to the nest box as a measure of reproductive effort because the quality of parental care may determine offspring survival to adulthood. We monitored 123 nest boxes distributed among a forested habitat, a golf course, and a residential area. We checked all of the boxes twice weekly for signs of nesting and daily when egg laying and hatching was expected. On days 4 and 10 after hatching, we observed how frequently the adults visited the box for 30 minutes. We found no difference in visitation rate or reproductive success among habitats. However, despite having similar numbers of nest boxes in each habitat, wrens occupied more boxes at the golf course than the other two areas. Our data suggest that House Wrens may benefit from moderate levels of habitat disturbance.

**Kristin Schafer**

**Faculty Mentor: Dr. Jacqueline Augustine (EEOB)**

### **Seasonal Variation in the Song of Male House Wrens (*Troglodytes aedon*)**

In songbirds, male song is a major component of courtship display and mate attraction. Previous studies suggest that male song may serve to attract females for extra-pair copulations, during which a mated male seeks additional females for mating purposes outside of the pair bond. If song

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is used to attract additional mates, the song output of the male bird should fluctuate very little throughout the breeding cycle. The purpose of this study was to determine how the song of male house wrens (*Troglodytes aedon*) fluctuates throughout the breeding season. House wrens are socially monogamous, but have high levels of extra-pair paternity. Fifteen minute recordings of male song were obtained throughout the breeding season and were analyzed for changes in rate, duration, and frequency. While song characteristics do not vary with date, both song length and song rate declined during the nestling feeding stage compared to egg-laying and incubation stages. These results may indicate that gaining a monogamous partner is of greater importance in male house wren reproductive success than is gaining extra-pair partners.

## **2012 Undergraduate Research and Mentoring Committee**

**Tina Schneider, Chair**

**Associate Professor, University Libraries**

**Director, Lima Campus Library**

**William Ackerman**

**Associate Professor, Geography**

**Joseph Green**

**Professor, Psychology**

**Tryntje Helfferich**

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**Nicoleta Roman**

**Visiting Assistant Professor, Computer**

**Science/Engineering**

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**Assistant Professor, Chemistry**

**Lima Campus Student Senate Advisor**

Katherine Kleffner

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