

# Individual Abstracts

## **CONSTRUCTION OF TRIANGLES IN THE SQUARE LATTICE**

Presenter: Akman, Devin  
Student Department, Class: Military Science, Undergraduate  
Mentor(s): Prof. Sunil Chebolu  
Author(s):

When a triangle in the Cartesian coordinate system is constructed such that all of its vertices have integer coordinates (i.e., lie on lattice points), certain relationships arise between the number of lattice points lying in the interior (I) and the number lying on the boundary (B). Specifically, fixing B generates a set of potential necessary (and possibly sufficient) modular congruences to determine constructability, whereas fixing I results in a relationship involving divisibility.

## **BREAKING FROM TRADITION: CONTENT ANALYSIS OF MALE GENDER ROLE AND GENDER IDENTITY IN FASHION MAGAZINE ADVERTISEMENTS FROM 1992-2012**

Presenter: Alvarez, Caitlin  
Student Department, Class: English, Graduate  
Mentor(s): Prof. Ui-Jeen Yu  
Author(s): Cyndy Alvarez, Khandyce Pitner, Gary Creasey

This study investigated changes of men's gender roles and gender identity depicted in men's fashion advertisements over the past three decades. Kaiser's (1997) agonistic/hedonic gender role dichotomy posits men are typically associated with possessing agonistic traits of gender roles—achievement, action, independence, strength, and expertise—and masculine identity, while women possess hedonic traits of gender roles—physical attractiveness, dependence, heterosexual attraction, and presence in terms of decorative or display purposes—and feminine identity. Men are pressured to convey desirable agonistic traits and masculine ideals similar to how women are expected to achieve hedonic and feminine beauty. However, shifting negotiations of male gender construction have emerged, resulting from the gay liberation movement, the increasing objectification with men appearing more sexualized, and postmodernism in fashion breaking traditional male appearance. It was hypothesized that male gender roles and identity had evolved to be more hedonic and less masculine in fashion advertisements over the decades. A content analysis was conducted with 1,177 full-paged fashion ads published in *Gentlemen's Quarterly* in 1992, 2002, and 2012. Findings show an increase in typified-masculine gender identity, yet relatively high hedonic gender role traits, which indicate a break of traditional assumption of correlating agonistic traits of gender role with masculine identity. This study provides an understanding of the evolving trend of male gender construction, establishing new hegemonic concepts of masculinity and hedonic traits of postmodern male consumers.

## **PERCEPTION OF HEAVINESS AND LIGHTNESS**

Presenter: Anderson, Kevin  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Jeffrey Wagman  
Author(s): Jeffrey Wagman, Kevin Anderson

Understanding perception of heaviness has long been a challenge for perceptual psychology. In part, this is because perception of heaviness is not merely the perception of mass— two objects of the same mass can feel unequally heavy, and two objects of different masses can feel equally heavy. Recently, research has shown that perception of heaviness is more properly described as perception of “moveability” and that perception of this property is influenced by both object mass and the distribution of that mass. This study was conducted to determine whether perception of “heaviness” and perception “lightness” are influenced in opposite ways by these variables. Participants were seated and blindfolded. Participants wielded objects consisting of a held wooden rod with an attached plastic mass. Masses were one of three different magnitudes and were in one of three different locations on the object. On each trial, the participant wielded one of the 9 test objects and compared how heavy or light that object felt compared to a “standard” object. The results showed that ratings of heaviness and lightness were inversely proportional to one another and were constrained in completely opposite ways by mass and mass distribution.

## **RASPBERRY PI, SMART TVS, AND NET NEUTRALITY, AN EXPLORATORY STUDY**

Presenter: Anyansi, Pierre  
Student Department, Class: Information Technology, Undergraduate  
Mentor(s): Prof. Elahe Javadi  
Author(s):

In this research project, I created a smart TV using Raspberry Pi. Furthermore I did a cost-benefit analysis on how this new technology can potentially decrease the cost of entertainment options provided to students in the residence halls at ISU. Raspberry Pi is a microcomputer that was originally created to promote and improve computer science education among younger audience. In my research, I used Raspberry Pi to create a smart TV in a quest to help students access better and more affordable entertainment options. To that end I created a video tutorial on the hardware details of this research which is available on YouTube ([http://www.youtube.com/watch?v=J\\_mt4QLigsk](http://www.youtube.com/watch?v=J_mt4QLigsk)). I did a cost benefit analysis for the use of this technology in residence halls.

## **LEADERSHIP IN CRISIS SITUATIONS**

Presenter: Archos, Hannah  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Kimberly Schneider  
Author(s): Hannah Archos

The first article review addresses the successful Navy SEAL and Army Ranger leadership used to thwart terrorism during Takur Ghar. This military crisis reflects the shift from the command and

control model to the response and recovery approach. The second article explores the 10 unsuccessful decisions made by chief fire fighter, Donald Mackey made during the fatal South Canyon incident. This highlights the importance of the knowledge domain, experiential learning, and decision-making in crisis leadership. The third article explores the importance of embracing change, delegating work to many as opposed to one, and coping with constant stress characteristic of the modern workplace using case studies of Best Buy and the Beth Isreal Deaconess Medical Center. The fourth article explores the gap between six public assumptions and their realities. They include: leaders should put public safety first, prepare for the worst, be aware of warning signs, engage in centralized leadership, should exercise compassion during crises, and learn lessons after crises. The fifth article details four frameworks of effective leadership: strategic design, organizational politics, human resources, and organizational cultural lenses. Lastly, the Occupational Information Network (O\*NET) is used to examine the top specifications of managers and compares them to previous literature review findings.

### **THE EFFECTS OF PHRAGMITES AUSTRALIS AND TYPHA ANGUSTIFOLIA ON NITRATE REMOVAL AND WETLAND SEDIMENT ATTRIBUTES IN HIGH NITRATE, LOW CARBON SYSTEMS**

Presenter: Beal, Lauren  
Student Department, Class: Biological Sciences, Graduate  
Mentor(s): Prof. William Perry  
Author(s):

Constructed wetlands are commonly dominated by invasive species like *Phragmites australis* and *Typha angustifolia*, which can modify ecosystem function and community composition. We wanted to assess how plants affect dissolved oxygen (DO) and dissolved organic carbon concentrations (DOC), and in turn modify nitrate (NO<sub>3</sub>-N) removal rates relative to barren sediments. Using a NO<sub>3</sub>-N/Br push-pull tracer test, we tested NO<sub>3</sub>-N removal rates and concentrations of DO and DOC. After the tracer test, we also assessed above- and below-ground plant biomass and sediment characteristics. NO<sub>3</sub>-N removal did not differ across the treatments, nor did concentrations of DO or DOC. *Phragmites australis* microcosms had significantly higher sediment bulk density and OM concentrations compared to *T. angustifolia* ( $P=0.0049$ ,  $df=5,23$ ), and barren sediment ( $P=0.0033$ ,  $df=5,23$ ) microcosms, however *T. angustifolia* and barren sediment treatments were not significantly different ( $P=0.1021$ ,  $df=5,23$ ) based on MANOVA contrasts.

Microcosm conditions remained anoxic throughout the study, however NO<sub>3</sub>-N removal rates were lower compared to similar studies. Root DOC outputs may have insufficiently met microbial demands for denitrification, suggesting carbon from detrital decay may drive NO<sub>3</sub>-N removal.

### **ONE-DIMENSIONAL STUDY OF THE VACUUM POLARIZATION**

Presenter: Betke, Jarrett  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Profs. Q. Charles Su, Rainer Grobe  
Author(s):

The vacuum, is easily perceived as the state of nothingness. But this is strictly not true in physics if we choose to look down to the microscopic scales of space and time. In Quantum Electro-

Dynamics (QED) the vacuum is considered to be like a pot of bubbling soup filled with (virtual) particles coming quickly in and out of existence. One way to measure the vacuum is to introduce an electric field into the space of interest. Even though overall the vacuum is charged neutrally, charged pairs of particles may be separated and stay separated due to the external field. By measuring the amount of displaced charge and the distance of the charge displacement one can investigate how the vacuum is polarized under the external force field. In this project we investigate a one-dimensional model system in which the vacuum is described by the Dirac equation and the action of the external field as well as the electromagnetic influence of the displaced charges in charge pairs is described by interacting Maxwell equations.

### **DEVELOPING READING FLUENCY AND COMPREHENSION IN DUAL LANGUAGE STUDENTS THROUGH READER'S THEATER & SPECIAL LITERACY CURRICULUM**

Presenter: Bollinger, Sarah  
Student Department, Class: Teaching and Learning, Undergraduate  
Mentor(s): Prof. May Jadallah  
Author(s):

I designed a summer bilingual Reader's Theater and literacy program to help bilingual students in dual language programs pre-K through 6th grade learn to read with better accuracy and fluency in Spanish to deepen comprehension. Self-expression, reading strategies, and creative writing were all incorporated into a specifically designed literacy curriculum to encourage students to read with purpose and understanding, use context clues to practice self-correction, and read at an appropriate rate with expression. Seven Caucasian, native English-speaking students learning Spanish and enrolled in the local school's dual language program participated in the program. The students were divided into two groups- the beginners group consisted of students pre-K through third grade and the advanced group consisted of students third through sixth grade. There were six boys and one girl. The program lasted six weeks.

### **VARYING FORMS OF MUSIC LISTENING AND THEIR EFFECTS ON ELDERLY PERSONS**

Presenter: Bolton, Rory  
Student Department, Class: Music, Graduate  
Mentor(s): Profs. Andrea Crimmins, John Hogue  
Author(s):

Music appears to elicit different responses for many people. For the elderly population, it seems to be part of their daily routine, whether that is in an assisted living facility, nursing home, or even a private residence. Elderly individuals having listened to music indicate an elevation in positive emotional responses. This has led to a promotion of well-being and quality of life. This study proposed that a live, projected musical presentation would elicit the greatest positive mood change in the participants versus no musical presentation. Thirty-five elderly participants from four different long-term care facilities were asked to listen to different musical treatments and rank their emotions using the Positive and Negative Affect Schedule (PANAS) pre and posttest. Two, 2 (pre and posttest PANAS) x 4 (Treatment Groups: projected performance, deadpan performance, CD recording, and control group) repeated measures ANOVA with a between subjects factor concluded that the group listening to the CD recording had higher negative affect scores than the deadpan performance. Positive affect scores did not show any

significant difference between the treatment groups. These results did not agree with the initial proposal of the study, which led to a discussion of several limiting factors.

### **MOTOR DYNAMICS AND RULE LEARNING IN CHILDREN WITH ASD**

Presenter: Bueno, Daisy  
Student Department, Class: Psychology, Graduate  
Mentor(s): Prof. Steve Croker  
Author(s): Daisy Bueno, Steve Croker

Autism Spectrum Disorder (ASD) is characterized by social difficulties and communication impairments, along with restricted repetitive behaviors/interests (APA, 2000). According to weak central coherence theory (Happé & Frith, 2006), children with ASD are more likely to perceive details than typically developing (TD) children. The current study investigates whether children with ASD exhibit superior performance on a computerized inductive reasoning task in which accurate responses require attention to detail. We predict that children with ASD will demonstrate an advantage in learning specific rule.

### **CONTEMPORARY TERRORISM AND THE THREAT TO NON-TRADITIONAL TARGETS**

Presenter: Burgos, Erico  
Student Department, Class: Criminal Justice Sciences, Graduate  
Mentor(s): Prof. Cara Rabe-Hemp  
Author(s):

September 11, 2001 will forever be ingrained in the world's collective conscious. To date, the events that unfolded that day mark the largest terrorist attack that the US has ever witnessed. Now, more than a decade after the incident, combating and preventing domestic terrorism is still at the forefront of America's agenda. Although this nation has made great strides collecting intelligence in the attempt to stay one step ahead of terrorist attacks, America is still not immune to attack. The vulnerability of the state of this nation and its people was made evident last year on April 15, 2013, when Dzhokhar and Tamerlan Tsarnaev placed a bomb at the finish line of the Boston Marathon. Terrorism today is completely different than it was just a few decades ago. With the advancement of technology, these hostile individuals and organizations have evolved to become an even greater threat. It is the goal of this project to bring to light contemporary terrorist ideologies, practices, and targets. Specifically, this project will focus on the nontraditional targets of terrorism, highlighting the importance of protecting high threat areas. If a terrorist organization were really looking to cripple America, they have numerous "nontraditional" targets to choose from such as nuclear power plants, dams, agriculture, and more. To protect this nation from future threats, it is essential to understand the importance of protecting both traditional and non-traditional threats.

## **CHARACTERIZATION OF C-FOS PROTEIN IN THE RAT BRAIN**

Presenter: Butler, Jae  
Student Department, Class: Health Sciences, Undergraduate  
Mentor(s): Profs. Beverly Barham, Byron Heidenreich  
Author(s):

C-Fos is a protein product of a gene expressed within neurons in the brain that serves as an anatomical marker of cellular activation. Immunocytochemical staining for c-Fos allows for a widespread characterization of the effects of many different types of experimental manipulations, including determining the effects of drugs throughout the brain, making it a powerful technique for increasing knowledge about brain, drug and behavior relationships. This project compares two different immunocytochemical staining protocols for identifying and localizing c-Fos in the brains of urethane-anesthetized rats.

## **THE RELATIONSHIP BETWEEN BMI AND BODY COMPOSITION IN COLLEGIATE ATHLETES FROM NON-CONTACT SPORTS**

Presenter: Carlson, Kelli  
Student Department, Class: Kinesiology and Recreation, Graduate  
Mentor(s): Prof. David Thomas  
Author(s): Kelli Carlson, David Thomas, Anna Stinson, Kelly Laurson, Dale Brown

Body Mass Index (BMI), mass (kg)/height (m<sup>2</sup>), is used to determine overweight and obesity. However, BMI does not directly measure body composition, so BMI may misclassify individuals. The relationship between BMI and body composition has previously been studied in football and soccer players, but there is little research that has been done on non-contact sport athletes. PURPOSE: To determine the relationship between BMI and body composition as measured by air-displacement plethysmyography (ADP) in collegiate athletes from non-contact sports.

### **METHODS:**

One hundred and eighteen collegiate athletes participated in the study. Participants included male (n=55) and female (n=63) non-contact sport athletes. Body composition measures included height, weight and whole body adiposity via ADP. The Kappa statistic was used to demonstrate agreement. RESULTS: Descriptive data (means and standard deviations) were calculated for each group (Males - Height: 181.9 cm ± 6.6, Mass: 81.7 kg ± 11.9, BMI: 24.6 kg/m<sup>2</sup> ± 2.9, BF: 11.0% ± 5.5; Females - Height: 165.8 cm ± 6.5, Mass: 63.4 kg ± 7.8, BMI: 23.0 kg/m<sup>2</sup> ± 2.3, BF: 20.9% ± 5.5). According to BMI status, 0.8% were underweight, 66.1% were normal weight, 31.4% were overweight and 1.7% were obese. According to body fat percentage 3.4% were underweight, 91.5% were normal, 3.4% were overweight and 1.7% were obese.

Categorical classification accuracy between BMI and body fat percentage was 66.1%. Kappa was statistically significant (p=0.013) with a value of 0.117, indicating slight agreement.

CONCLUSION: BMI measures and body fat percentage agree 2/3 of the time. The majority of the misclassification errors occur when BMI classifies non-contact sport athletes as overweight, while body fat percentage classifies them as having normal body fat.

## **A TALE OF TWO TOOTHBRUSHES: VIOLENCE IN DIAZ'S EL CEPILLO DE DIENTES AND PINOCHET'S CHILE**

Presenter: Carnahan, Heather  
Student Department, Class: Theatre, Graduate  
Mentor(s): Prof. Ann Haugo  
Author(s):

In 1961, Jorge Diaz published his absurdist play *El cepillo de dientes* to expose the excessive violence of marital life. In 1973, Augusto Pinochet overthrew Chilean president Salvador Allende in a military coup; which resulted in the first of many suspicious deaths. In the wake of this coup, Diaz's play emerges as a cautionary tale that interrogates the cycle of violence that gripped Pinochet's Chile.

## **HOW DO YOLK CORTICOSTERONE AND FLUCTUATING INCUBATION TEMPERATURES AFFECT HATCHLING BEHAVIOR AND PHYSIOLOGY?**

Presenter: Carter, Amanda  
Student Department, Class: Biological Sciences, Graduate  
Mentor(s): Prof. Rachel Bowden  
Author(s): Laura Zimmerman, Ryan Paitz, Rachel Bowden

In reptiles, the thermal and endocrine environments are influential in determining offspring phenotype. We conducted two studies examining the effects of thermal fluctuations during incubation and exogenous corticosterone on red-eared slider (*Trachemys scripta*) hatchling phenotype including physiology, morphology, and behavior. In the first study, we incubated eggs under three thermal flux regimes, that only differed in their fluctuation frequency with a normal frequency (24 hr cycle), a hypo-flux (48 hr cycle), and a hyper-flux (12 hr cycle) to disentangle the effects of temperature and fluctuations on hatchling phenotype. Fluctuation frequency did not affect any of the measured aspects of phenotype including morphology, behavior, and sex ratios. In the second study we dosed freshly laid eggs with corticosterone (0, 0.05, 0.15, 0.5 ng/5µl) and incubated eggs under a constant temperature. Corticosterone dose increased malformation frequency and decreased size at hatch, but did not affect behavior. Both studies demonstrated consistent individual behavior in a juvenile reptile, and we are currently working to determine if individual behavior influences dispersal ability and survival in the field.

## **AN EXPLORATORY STUDY ON THE RHINO POACHING EPIDEMIC IN SOUTH AFRICA**

Presenter: Charlton, Richard  
Student Department, Class: Criminal Justice Sciences, Graduate  
Mentor(s): Prof. Jacqueline Schneider  
Author(s):

African rhinos have always been of interest to various Asian markets for medical purposes and trophy hunters around the world. In fact in the early 1900s the Southern white rhino saw its numbers as low as 20 to 50 left in the wild, since then this species has been increased to over 18 000 animals in 2010, through conservation efforts. Likewise the black rhino saw a large-scale decline from 100 000 animals in 1960 to just 2 410 in 1995; however, since then through conservation efforts numbers have risen to around 4480 in 2010. African rhinos are suffering a new poaching onslaught from Asia, and rhino-poaching numbers has increased from 333 animals poached in 2010 to 1004 rhinos poached in 2013. Statistics as of 30 January 2014 have

the current number of rhinos poached in South Africa as 86 rhinos for the month of January. The current rate of rhino poaching suggests that the total number of deaths is outnumbering the total number of births and research suggests that by 2026 rhinos will be extinct, if the international community does not put a stop to this slaughter. The purpose of this paper is to identify what are the common ways that rhinos are poached, how the horns are removed and how the horns are trafficked to the markets in Vietnam and China. Additionally this research will aim to identify what steps anti-poaching units are undertaking to prevent the poaching of rhinos.

### **A QUALITATIVE STUDY OF THE NUTRITION LABEL KNOWLEDGE AND ATTITUDES OF HEALTH AND PHYSICAL EDUCATION MAJORS**

Presenter: Cichowicz, Craig  
Student Department, Class: Health Sciences, Undergraduate  
Mentor(s): Prof. Mark Temple  
Author(s):

Obesity has been a major health problem in the United States for more than thirty years. Poor eating is a significant cause of obesity. In recent years, the profession of health education has taken measures to ensure students understand nutrition labels as teaching nutrition is a professional responsibility of the health and physical education field. Fortunately, there is quantitative data about the knowledge of nutrition labels from college students. However, there is limited qualitative data evidence of undergraduate students knowledge and attitudes regarding nutrition labels. This study will investigate the knowledge and attitudes of health and physical education undergraduate students regarding nutrition labels. It will qualitatively research the knowledge and attitudes of nutrition labels to health and physical education undergraduate students by creating structured and semi-structured questions to the participants. The process used will help determine their knowledge and attitudes on nutrition labels. The results will be used to examine differences and similarities between the participants' knowledge and attitudes of nutrition labels. Potentiality, the results of this study could be submitted for publication to professional journals and will be presented at the undergraduate symposium.

### **USE OF VISUAL SCHEDULES IN HEALTHCARE SETTING PROCEDURES**

Presenter: Clutteur, Darrin  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Karla Doepke  
Author(s):

Autism is a neurodevelopmental disorder that is often manifested by communicative deficits and repetitive and/or stereotyped behaviors. Children with autism tend to benefit from structured activities with clear guidelines that are outlined by visual schedules. Conversely, they often show aversion towards and behavioral difficulties in spontaneous, over-stimulatory, and/or unstructured events. Autism is often accompanied by medical issues that require the child to frequent healthcare settings. These settings can be disconcerting and anxiety-producing to the child and lead to interference in acquiring proper healthcare. This can also lead to increased stress on the parents or caregivers of these children. The use of visual schedules is a technique that has been demonstrated to be effective in ameliorating autistic children in various



settings. Until recently, the efficacy of visual schedules has not been tested in the healthcare setting. Our study seeks to replicate the finding from one study that the use of picture schedules in medical situations increases cooperation in children and decreases stress in both parents and children. The key of validity of a technique often rests in its generalizability; and thus we submit that picture schedules are effective tools in the healthcare setting in aiding the ease of providing healthcare.

### **CULTURE OF BABY BOOMERS AND AGING**

Presenter: Cruz, Kate  
Student Department, Class: Communication Sciences and Disorders, Undergraduate  
Mentor(s): Prof. Jennine Harvey-Northrop  
Author(s):

The purpose of this research project was to take a further look in the culture of the Baby Boomer generation as they age. The Baby Boomer generation is aging at a rapid rate and is the highest aging population thus far. The first part of the literary review looks into the history of the study of gerontology, which is the process of aging. The history of the Baby Boomer generation is also researched. The study of gerontology and the Baby Boomer generation ties in as research on drug use has affected the aging population with long term effects. The final part of this literary review involves the scope of practice of speech-language pathologists and their role in aiding the Baby Boomer generation as they age. Through understanding the culture of the Baby Boomer generation, speech-language pathologists will better understand their role in therapy for the older population.

### **METAMODULATION: DOPAMINE CAUSES LONG-LASTING MODIFICATIONS OF NEUROMODULATOR-INDUCED MOTOR PATTERNS.**

Presenter: Cruz, Marissa  
Student Department, Class: Biological Sciences, Undergraduate  
Mentor(s): Prof. Wolfgang Stein  
Author(s):

Neuromodulators are chemical messengers such as biogenic amines, amino acids and neuropeptides in the nervous system that are either released from modulatory neurons or are present in the blood stream (as hormones). They modify neuronal properties and interactions and can alter the activity of whole networks of neurons<sup>1</sup>. All areas of the nervous system are affected by neuromodulators, and many neuromodulators are present at all times. While the actions of individual neuromodulators are well characterized on the cellular level, their actions on whole networks, as well as their interactions and long-term effects are not as well understood.

### **A PRELIMINARY INVESTIGATION INTO BULLYING AMONG COLLEGE STUDENTS**

Presenter: Czesak, Anthony  
Student Department, Class: Psychology, Graduate  
Mentor(s): Profs. Eric Wesselmann, Leandra Parris

Author(s): Anthony Czesak, Eric Wesselmann, Leandra Parris

Bullying involves one or more people saying or doing something to harm another person, often repeatedly. Many studies focus on bullying in primary/secondary schools because of its negative effects (e.g., decreased academic performance, suicide, and homicidal behavior). Workplace bullying has also been studied. However, few researchers study bullying in colleges.

## **PERCEPTION OF MAXIMUM STEPPING AND LEAPING ABILITY**

Presenter: Day, Brian  
Student Department, Class: Psychology, Graduate  
Mentor(s): Profs. Jeffrey Wagman, Peter Smith  
Author(s): Brian Day, Peter Smith, Jeffrey Wagman

To successfully perform everyday behaviors, people must be able to perceive possibilities for behaviors. Such possibilities are known as affordances and depend on the fit between action capabilities and behavior-relevant environmental properties. Body-scaled affordances depend on geometric properties (e.g., arm length) and action-scaled affordances depend on dynamic properties (e.g., maximum running speed). Using a transfer of recalibration paradigm, we investigated whether perception of maximum stepping distance (a body-scaled affordance) and perception of maximum leaping distance (an action-scaled affordance) are qualitatively different. In such a paradigm, improvement of a given perceptual-motor skill will transfer to other perceptual-motor skills to the extent that the two skills share resources or overlap in some way. We expected that improvements in perception of maximum stepping distance or perception of maximum leaping distance would be behavior-specific and would not transfer. Participants reported maximum stepping and leaping distances in three different phases of trials (pre-test, practice, and post-test).

Half of the participants performed one of these behaviors in the practice session, while the other half continued to give perceptual judgments in the practice session. Statistical analyses will be conducted on the ratios of perceived to actual maximum stepping and leaping distances. If the expected results are found, it would suggest that the perception of body-scaled affordances is qualitatively different from perception of action-scaled affordances. This, in turn, suggests that the information that specifies body-scaled and action-scaled affordances, respectively, is also qualitatively different.

## **TRAUMATIC BRAIN INJURY AND PRAGMATICS**

Presenter: Dobrzynski, Jessica  
Student Department, Class: Communication Sciences and Disorders, Undergraduate  
Mentor(s): Prof. Jennine Harvey-Northrop, Jacqueline McClure  
Author(s):

Traumatic brain injury (TBI) can impact many aspects in a client's daily life. Primary and secondary injuries result from TBI that can cause cognitive, emotional, and physical disturbances. Depending on the location, type and severity of the TBI, the disturbances are wide-ranging. A specific deficit that could occur is a pragmatic deficit, which alters

communication and interaction with others. With therapy, the client can lessen the effects of the TBI. The observer attended therapy sessions with a client that experienced a TBI 20 years ago, and he focused on pragmatic skills in therapy. With possible group therapy, the client might make more gains in his pragmatic skills.

### **SPERMATOPHYLAX COMPOSITION IN MALE DECORATED CRICKETS (*GRYLLODES SIGILLATUS*) FOLLOWING SIMULATED MORTALITY CUE**

Presenter: Duffield, Kristin  
Student Department, Class: Biological Sciences, Graduate  
Mentor(s): Prof. Scott Sakaluk  
Author(s): Kristin Duffield, Scott Sakaluk

The trade-off between key life history traits (survival, age-specific growth, and reproduction) is central to life-history theory; the expression of these costly traits is physiologically constrained by the amount of resources available to an organism whereby increased allotment of resources to one trait is necessarily traded off against a reduced allotment to other traits. A prominent trade-off includes one between current and future reproduction, which is likely dependent on life expectancy. The terminal investment hypothesis posits that as residual reproductive value (or, the age-specific expectation of future offspring) for an individual decreases, investment in current reproduction should increase. In this study, I tested the hypothesis that male decorated crickets (*Grylloides sigillatus*), when cued to their impending mortality, would alter investment in current reproduction by shifting the composition of their nuptial gifts, or spermatophylaxes, in a way that increases their gustatory appeal to females (i.e. increasing the ratio of free amino acids to water). Using a repeated measures design, I analyzed the contents of spermatophylaxes derived from males before and after a treatment of either a saline control or a solution of heat-killed gram-negative bacteria, which elicits an immune response without causing infection. This test of the terminal investment hypothesis is important because our understanding of evolutionary and ecological processes relies on our knowledge of the mechanisms that drive variation in reproductive tactics.

### **CONJURING UP KING: MIGRATION IN KATORI HALL'S THE MOUNTAINTOP**

Presenter: Eiland, Le'Mil  
Student Department, Class: Theatre, Graduate  
Mentor(s): Prof. Ann Haugo  
Author(s):

The Mountaintop by Katori Hall exists in a continuum of cultural events and spectacles that pay homage to MLK, such as annual national holidays, street dedications, Black history presentations, and multiple monuments. Hall's drama presents an additional site in which to build cultural memories of MLK for Black folks: a fictionalized version of the Lorraine Motel. This theatrical production becomes a historicized site of revelation, contradiction, and homage. Even though spectators and witnesses view the performance together, spectators don't engage with the production beyond acknowledging the theatrical performance and recognizing the productions aesthetical values. Hall is speaking directly to the witnesses demanding that we remember MLK's flaws and accomplishments, by acknowledging the witnesses' embodied knowledge on migration. Hall incorporates the violence enacted on Black folks by migrating as a

form of protest during this historic time. On one hand, the play, as text, reflects archival information. This play in print becomes an archival source of historical knowledge. Yet, on the other hand, the actors' physical presence, in performance, reflects how repertoire knowledge is enacted through embodied behaviors. This paper presents textual analysis and ethnographic observation of *The Mountaintop*, in order to reconcile the archive with the repertoire, which develops a new memory on MLK.

## **EVALUATION OF A SCHOOL-BASED SOCIAL AND EMOTIONAL LEARNING INTERVENTION**

Presenter: Engelland, Jennifer  
Student Department, Class: Psychology, Graduate  
Mentor(s): Profs. Renée M. Tobin, Adena Meyers  
Author(s): Jennifer Engelland, Emily Morrow, Aundrea Lane, Alex Corbin

A growing body of evidence supports the effectiveness of school-based Social and Emotional Learning (SEL) interventions aimed at promoting interpersonal functioning and self-regulation skills among children in grades K-12 (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Greenberg, Weissberg, O'Brien, Zins, Fredericks, Resnik, & Elias, 2003; Zins & Elias, 2006). One evidence-based universal SEL curriculum for children in grades PreK-12 aimed at improving school climate, social skills, and mental health is Positive Action (Flay, Allred, & Ordway, 2001). The present study will examine initial results of an ongoing evaluation of Positive Action implemented in elementary schools as part of a county-wide initiative addressing children's mental health services. Positive Action was implemented in randomly selected classrooms in five elementary schools. The Positive Action sample included 225 children from 22 PreK-4 grade classrooms in five schools, and the control group consisted of 197 children from 25 PreK-4 grade classrooms in four schools. Outcome variables included internalizing and externalizing symptoms reported by parents and teachers as well as school attendance and discipline referrals. Student demographics and teacher implementation data were used as covariates. Preliminary analyses of the data indicate a pattern consistent with our expectations: At Time 1 (before the intervention), children in Positive Action classrooms had higher scores on the Behavioral Symptoms Index (i.e., a composite of externalizing and internalizing symptoms) than did children in control classrooms; however, at the end of the school year, there was no evidence of a difference between these groups.

The results suggest that the Positive Action program promotes positive development in school-aged children. Results will be discussed in terms of their implications for the larger initiative, and the effectiveness of the Positive Action curriculum in early and middle elementary grades.

## **THE IMPACT OF SPORTS BACKGROUND ON MOTIVATION IN CAMPUS RECREATION**

Presenter: Fallon, Kirk  
Student Department, Class: Kinesiology and Recreation, Graduate  
Mentor(s): Prof. Brent Beggs  
Author(s):

Campus recreation departments are constantly attempting to decipher what motivates their students to participate in their departmental activities around campus. An individual's sport background can play a vital role in their choice of leisure activities later in life. The purpose of

this study is to examine the student's motivation to participate in Campus Recreation activities in relation with their youth and high school sport background. This study will further examine the student's motivation in relation to their gender, year in school, and participation in campus recreation activities. A web-based survey that featured the Measurement of Physical Activity Motivation-Revised scale (Fredrick 1993) and a sport background questionnaire was developed. ANOVA and T-test analyses indicated differences in motivation based on experience in youth and high school sports.

### **EFFICIENT COMPUTATION OF ENERGY SPECTRA OF LARGE HAMILTONIANS**

Presenter: Fuener, William  
Student Department, Class: Information Technology, Undergraduate  
Mentor(s): Prof. Rainer Grobe  
Author(s):

Many physical descriptions rely on the ability to diagonalize large dimensional matrices. For example the quantum description of the vacuum and vacuum breakdown require the full description Quantum Electro-Dynamics (QED). In QED electrons and positrons as well as bosons that serve as "messengers" to "glue" the electron-positron together will all need to be included in the description. If the resolution of each particle on 1000 grid points then the matrix for the system can easily grow to the size of 1,000,000,000 rows by 1,000,000,000 columns. This is a very computational demanding task and cannot be accomplished on a regular computer. In this project, I attempt to make use of the multi processor supercomputer resources (such as the Stampede Cluster at the Texas Advanced Computing Center funded through the NSF XSEDE program). Special (parallel) considerations need to be made as well as memory allocation to accomplish our goal of manipulating large matrices.

### **THE EFFECTS OF COGNITIVE STIMULATION ON DEMENTIA SECONDARY TO PARKINSON'S DISEASE**

Presenter: Gordon, Elyse  
Student Department, Class: Communication Sciences and Disorders, Undergraduate  
Mentor(s): Prof. Jennine Harvey-Northrop, Jacqueline McClure  
Author(s): Elyse Gordon, Jennine Harvey-Northrop, Jacqueline McClure

The peak onset of Parkinson's disease [PD] is between the ages of 70 to 79 years (Denyer & Douglas, 2012) and 1-3% of individuals over 65 have PD (Casey, 2013; Dastgheib, Lithgow & Moussavi, 2012). PD is caused by the loss of dopaminergic neurons in the basal ganglia (Dastgheib, Lithgow & Moussavi, 2012; Breen, Michell & Baker, 2011) which leads to motor symptoms exhibited by patients. These motor symptoms include "pill rolling", resting tremor and festinating gait (Casey, 2013). Nonmotor symptoms are also arguably the greatest factor of the disease; these include depression, changes in cognition and dementia (Seung-Hwan, Sam Soo, Woo-Suk, Seo-Young, Kang Uk & Jinheyoun, 2013; Sprenger & Poewe, 2013; Latoo, Mistry & Dunne, 2013). Dementia is a nonmotor symptom of Parkinson's disease affecting 20-40% of patients (Rana, Yousuf, Naz & Qa'aty, 2012). Cognitive stimulation therapy is recommended for patients with PD-D; this therapy targets both social and cognitive functioning. Patients and caregivers agree this is a viable treatment for individuals with PD-D and have found gains in memory, social functioning and concentration (Spector, Gardner & Orrell, 2011). This therapy is the only non-drug intervention recommended by government guidelines for the

treatment of cognitive symptoms of dementia (Spector, Orrell & Woods, 2010). As an increasingly greater proportion of our population begins falling into the ages more likely to be diagnosed with PD, it is imperative that future research focuses on gains in diagnosis, Understanding the pathogenesis and therapy for individuals with PD.

## **PERCEPTIONS AND STEREOTYPES OF HOMOSEXUAL PARENTS AND THEIR CHILDREN**

Presenter: Hampton, Adam  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Marla Reese-Weber  
Author(s):

Homosexuality has become more accepted throughout American society. However, homosexuals are often deemed as unfit parents because of the perceived effects on children. The present study will examine the negative perceptions and stereotypes found regarding homosexual parents and their children. Approximately 180 undergraduate student participants will be presented with a fictional story of a couple who recently adopted a child, but are going through some difficulties in their transition to becoming a family. To consider all possible situations, participants are presented with one of six different scenarios, varied by parents' sexual orientation (straight, lesbian, gay) and gender of the child (male, female). After reading the fictional story, participants will respond to questions about parent and child outcomes such as anxiety, self-esteem, and depression. The proposed study hypothesizes that participants will perceive a family unit consisting of two gay men and a son as having higher levels of anxiety, higher levels of depression, and lower levels of self-esteem, in comparison to all other scenarios. In addition, it is also hypothesized that participants will perceive custody reassignment to biological relatives to be more advantageous to a family unit consisting of two gay men and a son than all other scenarios.

## **ILLINOIS PICK 3 LOTTO ANALYSIS**

Presenter: Harris, Rebecca  
Student Department, Class: Nursing, Undergraduate  
Mentor(s): Prof. Mary Rotsch  
Author(s):

I walked into the gas station on a peaceful Tuesday afternoon and go to the cashier and pay for my gas I just pumped, and I sign is blinking to my right. It says, "Pick 3 Lotto" in bright neon lights. I splurged and bought a ticket. I ended up losing and that sparked some curiosity. What's the probability of picking the right numbers for the Pick 3. Is there a number that is picked more often than normal. This curiosity and sparked my investigation into Illinois Pick 3 selection of numbers.

## **ROMANTIC RELATIONSHIP BEHAVIORS**

Presenter: Haynes, Madeline  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Marla Reese-Weber  
Author(s):

The purpose of this study is to examine the association between romantic relationship expectations versus actual romantic relationship behaviors, in particular how this association varies by gender. The sample used in this study was 240 undergraduate students between the ages of 18-25 from a large Midwestern university. Students were given a demographic survey to complete. Following this, students were given supplementary forms to assess their romantic relationship history. The participants completed measures of romantic relationship Expectations (RDS-expected) and romantic relationship behaviors (RDS-actual) on separate days. The proposed study hypothesizes that men will expect physical milestones earlier in a relationship as compared to women. In addition, this study hypothesizes that women will expect more emotional milestones earlier in a relationship than men. Finally, this study hypothesizes that actual romantic relationship behaviors will not vary by gender regarding physical or emotional milestones.

## **A GENDER HISTORY OF THE HUDDLED MASSES: VARYING IDEALS OF GENDER AMONG IMMIGRANT GROUPS IN TURN OF THE CENTURY CHICAGO**

Presenter: Hlavaty, Joseph  
Student Department, Class: History, Undergraduate  
Mentor(s): Prof. Kyle Ciani  
Author(s):

This project focuses on working class immigrants from Germany, Italy, and Greece in Chicago from 1880-1920. The objective of this work is to uncover the ideals pertaining to gender, specifically masculinity, among these populations. Through the examination of both secondary and primary sources, including diaries, ethnic newspapers, autobiographies, and other mediums, common beliefs of male and female roles emerge. This work is significant because most of the historical study on "turn of the century" immigrants lack the component of gender, and any work on gender relating to that time period only focuses on the beliefs of rich, white, educated men. This project includes an introduction discussing the study of gender at the turn of the century, a chapter on the gendered ideals of German-Americans, a chapter discussing Mediterranean ideals (focusing on Italian-Americans, Greek-Americans, and their interactions together), and a final conclusion. By better understanding the domestic and gendered mindsets of these immigrant groups, much can be learned through intersectionality about their economic and social conditions as well. Through this work, a large gap will be filled regarding our understanding of gender during the late 19th and early 20th centuries.

## CAREGIVERS OF INDIVIDUALS WITH PRIMARY PROGRESSIVE DEMENTIA

Presenter: Hunckler, Alyssa  
Student Department, Class: Communication Sciences and Disorders, Graduate  
Mentor(s): Prof. Jennine Harvey-Northrop, Jacqueline McClure  
Author(s):

Dementia is defined as “a clinical syndrome caused by neurodegeneration... characterized by inexorably progressive deterioration in cognitive ability and capacity for independent living” (Prince et al., 2013, p. 64). Irreversible, or primary progressive dementias include Alzheimer’s dementia, vascular dementia, Parkinson’s disease associated dementias, and frontotemporal dementias (Grossman, Bergmann, & Parker, 2006). As primary progressive dementia causes a patient’s health to decline, their caregiver is the individual who helps them function at the highest level possible. Caregivers of individuals with dementia have demanding responsibilities that can cause high levels of stress. As a result of the difficulties they encounter, the personal life, home environment, work performance, and overall health of caregivers can be affected negatively. There is a relationship between caregiver wellbeing and patient health (Santulli, 2011). When assisting patients diagnosed with dementia, healthcare professionals should consider advocacy and resources helpful for both the patient and the caregiver.

Speech-language pathologists (SLPs) are one type of healthcare professional trained to work with individuals diagnosed with dementia. An important responsibility of an SLP is to educate patients and caregivers about dementia (American Speech-Language-Hearing Association, 2005). While doing so, the SLP should consider the cognitive and communicative changes patients and caregivers will experience as a result of symptom progression. Currently, the field of speech-language pathology lacks a clinical manual that compiles information addressing how SLPs can help caregivers manage decline in patients' cognition, communication, and swallowing. In the creation of this project, information from guides, literature, and peer reviewed publications for various types of healthcare professionals helping caregivers was gathered. This information was then integrated, modified, and applied directly to the field of speech-language pathology. The resulting project is a clinical guide for SLPs to assist caregivers of individuals with primary progressive dementia.

### References

- American Speech-Language-Hearing Association. (2005). The roles of speech-language pathologists working with individuals with dementia-based communication disorders: position statement [Position Statement]. Retrieved from <http://www.asha.org/policy/PS2005-00118.htm>
- Grossman, H., Bergmann, C., & Parker, S. (2006). Dementia: A brief review. *Mount Sinai Journal of Medicine*, 73(7), 985-992.
- Prince, M., Bryce, R., Albanese, E., Wimo, A., Ribeiro, W., & Ferri, C.P. (2013). The global prevalence of dementia: A systematic review and meta-analysis. *Alzheimer’s & Dementia*, 9(1), 63-75. doi:10.1016/j.jalz.2012.11.007
- Santulli, R. (2011). *The alzheimer's family: Helping caregivers cope*. New York: W.W. Norton.



## **EFFECTS OF AGING ON B2 CELL FUNCTION**

Presenter: Interrial, Kaitlyn  
Student Department, Class: Biological Sciences, Undergraduate  
Mentor(s): Prof. Laura Vogel  
Author(s): Hazel Ozuna-Vazquez, Kaitlyn Interrial, Laura Vogel

As individuals age, their immune system weakens and they become more susceptible to diseases. Particularly, antibody responses or humoral immunity produced by white blood cells called B cells, aren't as effective in the elderly.

Scientists are not clear if this is due to defects in the B cells themselves or other helper factors like T cells, dendritic cells, or certain cytokines that are required for B cell activation. The objective of this project is to study how B cell function is affected with age, particularly in mucosal surfaces. The hypothesis for this project is that B2 cells, a major B cell subgroup, may demonstrate intrinsic defects due to aging. In other words, aged B2 cells will show immune dysfunction, even when provided with an ideal environment. In order to test this hypothesis, a B cell transplant was performed with genetically engineered mice as B cell donors, (old and young), and young mice as recipients (providing an ideal helper environment for responses to occur). Recipient mice were immunized to stimulate the transferred B cells. In order to analyze number of cells and distribution, flow cytometry, was used. An ELISA was used to determine the levels and affinity of antibodies. It is expected that B cells from old mice will have a decreased immune response when compared to young mice. The results from the project will provide information about mucosal immunity and aging and possible vaccine strategies.

## **THE DETECTION OF IMPRESSION MANAGEMENT IN PERSONALITY ASSESSMENT**

Presenter: Ivy, Jennifer  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. John Binning  
Author(s): David Wolfe, Erin White

The use of impression management on personality inventory items is a growing concern and topic of interest in the industrial and organizational psychology community. Job applicants may intentionally or unintentionally distort their self-image on these assessments in order to improve their chances of being hired for the desired position. Researchers have attempted to develop methods of identifying applicants engaging in impression management by comparing experimental conditions where participants are either asked to respond honestly or to present themselves in a positive light. Despite their efforts, no accurate faking detection technique has been discovered. However, an article by Kuncel and Borneman (2007) suggests a new method of faking detection involving the inspection of discrepancies between response distributions of honest and direct-faking conditions. We will conceptually replicate this study by creating an index of response style using applicant and incumbent field data. Because incumbents are aware that their scores are being used for research purposes and not hiring decisions, we believe that the motivation to respond to inventory items in a socially acceptable manner is stronger in applicant than incumbent samples. By comparing the 120 item distributions, we hope to develop a scoring scheme similar to Kuncel and Borneman's and determine how these scores may moderate the predictive validity of the personality inventory.

## REVISITING 8 YEAR OLD QUESTIONS: A PRO EATING DISORDER WEBSITE CONTENT ANALYSIS

Presenter: Jarvis-Creasey, Zachary  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Eric Wesselmann  
Author(s): Zachary Jarvis-Creasey, Diana Steakley-Freeman,  
Eric Wesselmann

This study examined the content and accessibility of pro-eating disorder websites. We chose to target these sites because limited research has examined these sites, which some argue contribute to the development and perpetuation of eating disorders (EDs). The previous analysis completed in 2006 only looked at 20 sites (Norris et al, 2006). A second analysis (Borzekowski, 2010) examined a portion of available sites, prior to Internet uproar (e.g. calls for censorship legislation). One of our goals for this analysis was to see if the uproar affected the accessibility of content. We analyzed a sample of sites looking for themes, trends, and relations between content and inter-rater perceptions of danger. We collected our data using methods outlined by Borzekowski et al (2010) which entailed searching a series of eating disorder related keywords, (e.g. pro-ana, pro-ed), collecting the first 10 pages of results, and analyzing the content. The initial search yielded  $N=708$  results, but a majority ( $N=618$ ) were excluded due to irrelevant content such as news stories ( $N=129$ ), websites of professional organizations ( $N=77$ ), shopping sites ( $N=12$ ), sites that were in favor of the censorship of Pro-ED content ( $N=23$ ), databases ( $N=45$ ), inactive sites ( $N=7$ ), sites that hosted informational materials or research ( $N=52$ ), restricted access ( $N=16$ ), individuals' blogs ( $N=18$ ), duplicate sites ( $N=60$ ), multimedia sites ( $N=39$ ), medical information sites ( $N=8$ ), microblogging posts (e.g. Twitter, Instagram, etc;  $N=12$ ), and sites in a language other than English ( $N=56$ ). The retained sites yielded fewer results than Borzekowski (2010) ( $N=92$ ), suggesting that the prevalence of pro-eating disorder content has decreased, possibly due to legislative action.

We had 4 raters code each site and examine relations between content markers on different types of sites. Analyses suggest there is a significant positive correlation between the number of disordered suggestions (aka. tips for harmful weight-loss methods) and the perceived harm of the site ( $r=.516, p<.01$ ). In examining patterns of "thinspiration" material (images and prose intended to inspire weight loss; Borzekowski et al, 2010) and the endorsement of eating disorders as a lifestyle, we found that sites that host thin models as inspiration are significantly more likely to declare eating disorders as a lifestyle,  $\chi^2(1, N=92)=2.313, p=.03$ . Analyses also suggest that the sites carrying a theme of success and achievement ( $N=42$ ) are significantly more likely to post Eating Disorder Commandments,  $\chi^2(1, N=92)=20.013, p<.01$ . The results of this study could inform further clinical research on content promoting eating disorders.

## TITLE: RECYCLING OF WASTE TIRES AND FLY ASH IN CONCRETE

Presenter: Jinadu, Olamilekan  
Student Department, Class: Technology, Graduate  
Mentor(s): Prof. Pranshoo Solanki  
Author(s):

The growing amount of waste rubber produced from scrap tires and fly ash from thermal power

plants has resulted in an environmental problem. Over the years, recycling waste tires and fly ash into construction applications, especially into asphalt paving mixtures and Portland cement concrete (PCC), has been gaining more and more interests. The review of literature indicated that several studies investigated individual effect of waste rubber or fly ash on properties of asphalt paving mixtures and PCC. However, to the author's knowledge only limited studies reported combined effect of waste tires and fly ash on properties of PCC. Therefore, the aim of the proposed study is to evaluate the feasibility of utilizing rubber tire as aggregate replacement and fly ash as Portland cement replacement in concrete. In this study, concrete mixtures containing different replacement level of shredded scrap tire and fly ash were prepared in addition to one control mixture. Using the mix designs, both cylindrical and beam specimens of concrete were prepared and cured in water tank for 28 days. Then, specimens were tested for strength in accordance with ASTM test procedures. The preliminary results showed improvement in strength properties.

### **COMPENSATORY STRATEGIES FOR INDIVIDUALS WITH TRAUMATIC BRAIN INJURY**

Presenter: Kakkar, Neha  
Student Department, Class: Communication Sciences and Disorders, Graduate  
Mentor(s): Prof. Jennine Harvey-Northrop, Jacqueline McClure  
Author(s):

Traumatic brain injury (TBI) is one of the major causes of death and disability in the United States (Centre for Disease Control and Prevention, 2013). Langlois, Brown and Wald (2006) report that approximately 2% of the US population currently lives with a long-term disability associated with their traumatic brain injury. Individuals who sustain a traumatic brain injury have a diverse range of cognitive, communicative, psychological, social, and physical deficits. American Speech Language Hearing Association (2011) states that communication between two or more individuals requires a complex interplay between cognition, language, and speech. Thus, a communication breakdown is possible if there are any deficiencies in cognition, language, or speech. The American Speech Language Hearing Association (ASHA) also mentions that individuals with cognitive-communication disorders have difficulty in one or many aspects of communication (including decreased comprehension, expression, and use of language including non verbal cues such as facial expression, gestures etc.) due to deficits in one or all aspects of their cognitive functions such as attention, memory, problem solving, reasoning, organizing, and planning. Individuals with traumatic brain injuries also have a wide range of deficits in their cognitive function. These deficits in cognition may result in cognitive-communicative impairments, which may or may not impact the quality of life for many traumatic brain injury survivors. Thus, it is important for speech language pathologists to develop effective assessment and treatment strategies to address the cognitive and communicative deficits present in many brain injury survivors.

## **INTERVENTION PUBLICATION PATTERNS IN SCHOOL PSYCHOLOGY JOURNALS**

Presenter: Kerstein, Julie  
Student Department, Class: Psychology, Graduate  
Mentor(s): Prof. Gary Cates  
Author(s): Alyse Lucas, Gary Cates

This review expands previous research from Burns, Klingbeil, Ysseldyke, & Petersen-Brown, (2012) which examined trends in school psychology intervention research over five decades. The present study examines the publication patterns of the six major school psychology journals: Journal of Applied School Psychology, Journal of School Psychology, Psychology in the Schools, School Psychology International, School Psychology Quarterly, and School Psychology Review. The function of this review is to provide school psychologists with a synthesis of intervention-based research from 6 school psychology journals. Researchers reviewed 5 years of articles published from 2009-2013 for two purposes: first, to report whether interventions were academic or behavioral in nature and second, to examine instructional time of the various interventions. Instructional time guides effectiveness and efficiency of interventions and thus, has important implications in the school setting. Results of the review suggest an increased focus in the field should be placed on intervention research, especially behavioral-oriented interventions. Recommendations for practice and future research are presented.

## **SECOND STEP AND TEACHER RATINGS OF CHILDREN'S SOCIAL-EMOTIONAL FUNCTIONING**

Presenter: Kestian, Jade  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Renée M. Tobin  
Author(s): Alyssa Sondale, Katelyn Probst, Jade Kestian

The present study investigates the effectiveness of two different editions of Second Step: A Violence Prevention Curriculum (Committee for Children, 2002; 2011). Specifically, we examined whether exposure to the Second Step curriculum is related to better social-emotional functioning, as rated by teachers before and after intervention exposure. We also investigate whether exposure to the newer fourth edition of Second Step is related to better outcomes, especially ratings of kindergartners' self-regulatory skills, relative to those exposed to the third edition. Participants included approximately 300 children between five and six years old in 26 kindergarten classrooms. Classrooms were randomly assigned to receive either the third or the fourth edition of the prior to its implementation. All children received 25 weekly lessons from either the 3rd (13 classrooms) or the 4th edition (13 classrooms) of the Second Step curriculum over the course of one academic year. One teacher per child completed the Devereux Student Strengths Assessment—Second Step Edition (DESSA-SSE; LeBuffe, Naglieri, & Shapiro, 2011) as a measure of children's social-emotional functioning pre-intervention and post-intervention. Preliminary results indicate that children's social-emotional functioning, as rated by teachers, was better after the intervention than it was before receiving Second Step, regardless of condition. There was little evidence of differences in social-emotional functioning based on exposure to the third or fourth edition, suggesting that these editions are comparable in promoting children's social-emotional functioning.

## **THE SYNTHESIS AND APPLICATION OF NAPHRINE: APPLICATIONS IN THE ASYMMETRIC ADDITION OF DIETHYLZINC TO ALDEHYDES**

Presenter: Knight, Rachel  
Student Department, Class: Biological Sciences, Undergraduate  
Mentor(s): Prof. Shawn Hitchcock  
Author(s):

Pseudoephedrine is a decongestant drug that helps to shrink blood vessels in the nasal passages. It is also the active ingredient in the common sinus drug Sudafed which is now sold behind the pharmacy counter. Ephedrine and Pseudoephedrine are diastereomers because they are not related by mirror images. Ephedrine has (1R, 1S) stereocenters, whereas Pseudoephedrine's stereocenters are (1S, 2S). In order to get to the targeted carboxylic acid, a chiral auxiliary had to first be synthesized. Chiral auxiliaries are chemical compounds that are used in reactions to help control the stereochemical outcome of the product. The name of the chiral auxiliary used for this reaction was oxazolidine-2-thione. After it was successfully synthesized which was determined by HNMR analysis, further reactions were carried out such as an acylation, an aldol reaction with 2-naphthaldehyde, then a hydrolysis reaction followed by a Curtius rearrangement to get to the targeted carboxylic acid.

## **NFL PLAYERS AND TRAUMATIC BRAIN INJURY**

Presenter: Koebernick, Bailey  
Student Department, Class: Communication Sciences and Disorders, Undergraduate  
Mentor(s): Prof. Jennine Harvey-Northrop, Jacqueline McClure  
Author(s):

A traumatic brain injury (TBI) is a serious injury that can occur when there is a collision to the head. TBI can cause many different types of effects on thinking, sensation, language, and emotion. Lately, there have been publications regarding TBI and NFL players. The media has triggered many new research studies examining TBI on the football field in hopes of decreasing the prevalence. This literature review will define what a TBI is, how a TBI can affect an individual, how TBI are specifically affecting NFL players, and ways to prevent and treat TBI injuries. This review is to heighten people's awareness of TBI and how it can affect NFL football.

## **EFFORTFUL CONTROL AND CHILDREN'S SOCIAL-EMOTIONAL OUTCOMES**

Presenter: Koppel, Rachael  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Renée M. Tobin  
Author(s): Rachael Koppel, Alyssa Sondalle

This study examined whether individual differences in inhibitory control predict children's social-emotional outcomes of children following completion of Second Step: A Violence Prevention Program, a social-emotional learning curriculum (Committee for Children, 2002; 2011). Rothbart and Bates (1998) define effortful control as the ability to suppress a dominant response in favor of a subdominant response. Research indicates that individuals with effortful control deficiencies have difficulties regulating their emotions and performing well academically

(Carlson & Wang, 2007; Müller et al., 2008); however, less is known about the relation between effortful control and children's social-emotional functioning. This study investigates the relation between effortful control and children's social-emotional functioning as measured by report cards and teacher ratings. We hypothesize that children higher in effortful control will demonstrate greater social-emotional and academic functioning than their peers. Results will be discussed in terms of social and personality development.

### **CHAOTIC SYSTEMS AND PHASE SYNCHRONY: AN EXPERIMENTAL STUDY**

Primary Group Member: Legner, Christopher  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Prof. Epaminondas Rosa  
Author(s): Christopher Legner, Epaminondas Rosa

Chaotic systems are interesting because they drive many processes including those based in physics, chemistry, economics, and biology. A better understanding of these systems provides insight into the mechanisms underlying the dynamics of these processes. This study employs a relatively well known complex chaotic circuit, the Chua circuit. We experimentally want to determine the effects of weak unidirectional coupling between two Chua circuits initially in different dynamical states. An interpretation of this weak coupling is performed by determining the overall effect on the phase of the driven circuit in terms of phase synchrony between the two circuits. Phase synchrony is a term used simply to describe how the phase of two signals align or synchronize over a given time period. The detection of phase synchrony is done with the help of a computer program written specifically for analyzing the collected data.

### **RESULTS OF SPEECH PERCEPTION TESTING AND LOUDNESS COMFORT LEVELS USING TELEAUDIOMETRY COMPARED TO STANDARD AUDIOMETRY**

Presenter: Liddell, Megan  
Student Department, Class: Communication Sciences and Disorders, Graduate  
Mentor(s): Prof. Lindsay Bondurant  
Author(s):

Rationale: Hearing loss affects over 300 million people worldwide, but many individuals with hearing loss do not have access to hearing healthcare professionals. Being able to provide appropriate intervention for people with hearing loss has become a focus of hearing health outreach initiatives. Telehealth is a medical model in which information and service delivery are shared between locations. Prior research has found that the telehealth approach for audiology, known as teleaudiometry, can yield accurate hearing thresholds, which is important for accurate intervention. However, less is known about the accuracy of other aspects of a comprehensive audiometric evaluation, such as speech recognition testing and loudness comfort measures. The purpose of this study was to determine if teleaudiometry is comparable to standard audiometry in terms of speech testing and loudness comfort measures.

Methods: Data from ten adult participants were included in this study. Each participant received two audiological evaluations: one conducted using a standard face-to-face testing approach in an on-site university hearing clinic and one completed at an off-site location using

teleaudiometry equipment, with interaction between participant and provider occurring via video conferencing. Testing at both sites included otoscopy, tympanometry, speech recognition thresholds for each ear, pure tone air and bone conduction thresholds at octave intervals between 250-8000 Hz for each ear, word recognition testing for each ear, and uncomfortable loudness level testing at 750, 1500, and 3000 Hz for each ear.

Results: Across participants, for all tests (with the exception of left ear speech recognition threshold), results obtained with standard audiometry and teleaudiometry were within 5 dB of each other. However, analysis of individual variability revealed that out of 18 discrete tests performed, 14 had at least one participant whose results were more than 5 dB different between conventional audiometry and teleaudiometry.

Conclusion: These results suggest that pure tone thresholds, speech perception measures, and comfort measures obtained with teleaudiometry are generally comparable to those obtained with standard audiometry. As more data are collected to confirm these results, teleaudiometry protocols can begin to include more comprehensive test procedures to better assist people living with hearing loss.

#### **COMPARISON OF ROASTED SOYBEANS AND COMMERCIALY PROCESSED SOYBEAN MEAL FED TO PASTURED BROILERS.**

Presenter: Loyd, Taylor  
Student Department, Class: Agriculture, Undergraduate  
Mentor(s): Prof. Pete Lammers  
Author(s): Taylor Loyd, Libby Schertz, Peter Lammers

Soybean meal (SBM) is an excellent and common source of amino acids for poultry, but many producers raising birds for niche markets use roasted soybeans rather than SBM. Several studies have shown that chicken performance is supported by diets where roasted soybeans replaced soybean meal, but no studies examining the efficacy of the two feedstuffs in a pastured poultry setting have been published. The purpose of this study would quantify the effect of feedstuff choice on growth and performance of pasture raised broilers. Two feeding trials were conducted at the ISU Farm, Lexington IL during the summer and fall of 2013. Prior to the start of the trial, day-old broiler chicks were sourced from a commercial hatchery and were brooded at the farm for 2–3 weeks. Young birds were moved to pasture pens when the average weight of the group was approximately 450 g. In each trial, 48 broilers were housed in 12 pasture pens (4 birds/pen). Pens consisted of a wood-frame, rectangular prism (1.2 × 1.2 × 0.8 m). Two sides and the top the prism were covered with sheet metal. The sheet metal roof was secured in such a way to allow opening and closing to access the feeders, waterers, and birds. The remaining two sides were enclosed using chicken wire. The base of the prism was left open, allowing access to the ground below. Pens were placed on pasture and moved daily. Dietary treatment (SBM vs roasted soybeans) was randomly assigned to pens of birds. Birds were fed complete diets containing either soybean meal or roasted soybeans twice daily using tray feeders and had ad libitum access to water via a bell waterer. Bird weight and feed disappearance were recorded weekly. At approximately 10 weeks of age, birds were harvested and carcass weight was recorded. Growth and performance were compared using analysis of variance (JMP® 10.0.0, 2012 SAS Institute Inc.). Statistical analysis was performed using pens as the experimental unit, but results are presented on a per bird basis. Birds fed SBM diets grew faster (76.56 vs 71.03 g/d  $P < 0.01$ ) but average daily feed intake and dressing percentage were not different ( $P \geq 0.39$ ).

Birds fed SBM were approximately 9% more efficient ( $P \leq 0.0001$ ). Based on animal performance alone, replacing SBM with roasted soybeans is not recommended. However additional analysis of the relative economics of the two feeding strategies remains to be completed.

## **PUBLICATION PATTERNS OF SCHOOL PSYCHOLOGY JOURNALS**

Presenter: Lucas, Alyse  
Student Department, Class: Psychology, Graduate  
Mentor(s): Prof. Gary Cates  
Author(s): Julie Kerstein, Gary Cates

This review expands previous research from Burns, Klingbeil, Ysseldyke, & Petersen-Brown, (2012) which examined trends in school psychology intervention research over five decades. The present study examines the publication patterns of the six major school psychology journals: Journal of Applied School Psychology, Journal of School Psychology, Psychology in the Schools, School Psychology International, School Psychology Quarterly, and School Psychology Review. The function of this review is to provide school psychologists with an overview of publication patterns in six school psychology journals. Researchers reviewed five years of articles published from 2009-2013 and report the extent to which the published articles are empirical. To advance the intervention knowledge base, increased focus in the field should be placed in this area of research. Recommendations for practice and future research are presented.

## **2-D IS NOT 1-D PLUS ONE 1-D**

Presenter: Maggio, Miles  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Profs. Q. Charles Su, Rainer Grobe  
Author(s):

The creation of electron-positron pairs is a process where the vacuum state of nature breaks down due to a supercritical external field that transfers its energy to the particles. The physics of such a high-energy pair creation turns out to be very complicated. However, a numerical algorithm has been devised to calculate the number of created pairs. But due to computational limitations the studies has been mostly focused on only one-spatial dimension. Another approximation used in these investigations has been to neglect the mutual forces between the created charged particles. In order to take this interaction between created particles into account the intermediating electromagnetic field needs to be introduced. However in one-spatial dimension the force field between the created particles do not fall off with the inter-particle separation. This is far from reality where inter-particle forces usually decrease as the separation between the particles increases. To study this inter-charge interaction it is essential to extend these studies to at least two spatial dimensions. We discuss how to extend our pair creation formulation from 1D to 2D. We will show that it is not obvious that the physics of 2D pair creation is simply the "sum" of two independent one-dimensional creations, as the underlying motions in the two dimensions are coupled due to relativity.



## **IMPACT OF LIGHT LIMITATION ON A HEMIPARASITE**

Presenter: Mardoian, Brandon  
Student Department, Class: Biological Sciences, Undergraduate  
Mentor(s): Prof. Victoria Borowicz  
Author(s):

Root hemiparasites are autotrophic plants that parasitize the vascular systems of neighboring plants' roots for water and nutrients. Obligate hemiparasites require connections to hosts. It is hypothesized that a hemiparasite's ability to establish these connections depends on early growth, which may be limited by shade from taller neighbors. We tested this hypothesis with young *Pedicularis canadensis* plants (low-lying perennial obligate root hemiparasites) transplanted from a prairie to pots containing hosts in a greenhouse. We predicted that hemiparasites shaded early in development would experience higher mortality than plants either shaded later in their lives or never light-limited. We found mortality of these early light-limited plants was significantly higher than in plants that were not light-limited, but not significantly different from plants that were shaded later in life. Furthermore, we are analyzing biomass differences between the two light-limited treatments and control to determine if shading the hemiparasite indirectly affected the rest of the plant community. A current model describing the role of the hemiparasite in a plant community is based on annual hemiparasites whereas *P. canadensis* is a perennial hemiparasite. Therefore data gathered here make an important contribution to understanding hemiparasite interactions.

## **A RHETORICAL CRITIQUE OF THAILAND'S HITLER CHIC**

Presenter: Mehochko, Molly  
Student Department, Class: Communication, Undergraduate  
Mentor(s): Prof. Megan Koch  
Author(s):

While exploring the street shops in Bangkok, Thailand tourists would expect the typical souvenir shops items. What can be found, however, might come as a bit of a surprise. T-shirts with Teletubbies, Ronald McDonald, and cartoon pandas all hang together with one thing in common: their faces are Adolf Hitler. The Christian Science Monitor of July 13, 2013 explains that this craze, better known as "Hitler chic," is sweeping the Thai nation. And this craze isn't limited to t-shirts; students have conducted Nazi-parades, a Nazi themed school fashion show and there was even a fried chicken restaurant called H-Ler." But the most fascinating thing about this craze comes instead from the responses to outside reactions. Jewish human right groups, along with many other outsiders have expressed extreme outrage and disgust and yet, Hitler chic continues, leaving outsiders dumbfounded. This craze begs the research question: how can a dialogue be established between two cultures, in order to enact change within a vilified culture? To answer this we will use Eric Krabbe and Jan Albert van Laar's model, The Ways of Criticism. In the model, Krabbe and Van Laar explain the ways in which a successful critical reaction can enact change. Because the authors specifically do so through using negative reactions make it ideal for this analysis. This project will explore Krabbe and Van Laar's model, apply it to the reactions produced by Hitler chic, and discuss some critical implications.

## **GENES IMPORTANT FOR DEPOSITION OF CELL SURFACE MATERIAL IN ARABIDOPSIS THALIANA**

Presenter: Moore, Christy  
Student Department, Class: Biological Sciences, Graduate  
Mentor(s): Prof. Viktor Kirik  
Author(s): Christy Moore, Bangxia Suo, Stephanie Seifert, Mais Zahde, Viktor Kirik

Plant cell walls are versatile structures, playing important roles in communication, defense, organization and support. The importance of each of these functions varies by cell type, with specialized cells often utilizing one or two functions more than others. Trichomes, or leaf hairs, for instance, have developed very thick cell walls with several raised, rounded structures, known as papillae, on their surfaces. It is believed that these cells function in defense against predators, making it difficult to crawl on the leaf surface, and in protection against ultra violet radiation, through refraction of light via the papillae. Mutant forms of trichomes can have underdeveloped or a lower density of papillae, making the trichomes appear “glassy” instead of “frosted.”

### **SOCIAL/EMOTIONAL ASSESSMENT: CONSTRUCT VALIDITY OF THE BENCHMARK ASSESSMENT TOOL**

Presenter: Morrow, Emily  
Student Department, Class: Psychology, Graduate  
Mentor(s): Profs. Mark Swerdlik, Adena Meyers  
Author(s):

This presentation will provide an overview of BESSTWEB, a multi-tiered system of support for identifying students who are at-risk for social/emotional difficulties, and the Benchmark Assessment Tool (BAT), a brief Tier 1 universal screening instrument that is aligned with social/emotional learning standards. Previous reliability and validity research will be presented, as well as an additional study of construct validity. Participants will learn about an efficient web-based assessment of social/emotional development of students in grades K-12.

### **WHEN ACTIVISM DOES MORE HARM THAN GOOD: A RHETORICAL ANALYSIS OF THE #DUMPSTOLI CAMPAIGN**

Presenter: Murphy, Jeremy  
Student Department, Class: Communication, Undergraduate  
Mentor(s): Prof. Megan Koch  
Author(s):

With the 2014 Sochi Olympics approaching, and the anti-gay laws in Russia becoming more stringent, gay activist and author Dan Savage developed the Dump Russian Vodka campaign in order to send a message to the Russian government – discriminate against the LGBT community and we'll dump all vodka that Russia manufactures. In his June 24th 2013 blog post, Savage urges bars and drinkers to dump the brand Stolichnaya, otherwise known as The Russian's Vodka. Through #dumpstoli, gay and straight bars from coast to coast are ceremoniously emptying bottles of Stoli down the drain. Yet, as the August 2nd 2013 Los Angeles Times points out, the American boycott on Stoli isn't hurting Russia at all. Incidentally, Stoli vodka isn't made in Russia. It's made in Latvia. The Stoli Company has even released a statement, reminding the LGBT community of its involvement in multiple American pride parades and pro-LGBT

organizations. And the previously cited Los AngelesTimes concludes, Latvia's lead gay rights group Mozaika claims this boycott will only harm the already fragile Latvian LGBT community. Mozaika is also concerned that the #dumpstoli boycott would hurt its plans to create the largest LGBT event in Central and Eastern Europe in 2015. The #dumpstoli campaign highlights the exploitation of boycott rhetoric and more shockingly, demonstrates how a misguided boycott can harm an innocent bystander, without ever affecting the intended target. Because understanding how to construct a successful boycott could provide insight on how to reverse the effects of a misguided boycott we must ask the research question: How was the #dumpstoli boycott framed in order to garner audience participation?

### **RESOLUTION 377 AND THE RWANDAN GENOCIDE**

Presenter: Nash, Ethan  
Student Department, Class: Politics and Government, Undergraduate  
Mentor(s): Prof. Michaelene Cox  
Author(s):

The research conducted was done on Resolution 377, also known as the Uniting for Peace Resolution, and the Rwandan Genocide. The research first examined the legal process of the United Nation's General Assembly enacting the resolution. Then, the actions of the United Nation's Security Council were thoroughly examined during events leading up to, and during the Rwandan Genocide. The goal of the research was to see if Resolution 377 could have been implemented during Rwandan Genocide, and if so, why was it not implemented.

### **LOCATION, LOCATION, LOCATION, THE IMPACT OF REGISTERD SEX OFFENDERS ON HOME SALE PRICES: A CASE STUDY OF MCLEAN COUNTY, ILLINOIS**

Presenter: Navarro, John  
Student Department, Class: Criminal Justice Sciences, Graduate  
Mentor(s): Prof. Cara Rabe-Hemp  
Author(s):

Borrowing from broken windows theory, the paper will address the impact of sex offenders' residences on a neighborhood's property values. By extending further research (Larsen, Lowery, & Coleman, 2003; Linden & Rockoff, 2006; Pope, 2007; Wentland, Waller, & Brastow, forthcoming), this financial impact measured McLean County, Illinois, and involved three data sets: the addresses of registered sex offenders (RSOs) in McLean County, Illinois, the location and property characteristics of homes sold in Mclean County between December 2012 to December 2013, and variables from the 2010 U.S. Census. ArcGIS was utilized to calculate the distance (in miles) from the nearest RSO to a sold home to determine whether there was an influence upon the sale price of the home, as well as whether there was an impact produced by the concentration of RSOs. The results inform the debate surrounding the requirements placed on sexual offender registration, community notification, and residency restrictions.

### **IMPAIRED WORD RETRIEVAL COMPONENTS OF APHASIA**

Presenter: Normoyle, Lauren

Student Department, Class: Communication Sciences and Disorders, Undergraduate  
Mentor(s): Jacqueline McClure  
Author(s):

This research explores the characteristics of aphasia and how it is diagnosed. The purpose of this study is to highlight that anomia is a major factor for someone who has aphasia. According to Benson and Ardila (1996), "aphasia is the loss or impairment of language function caused by brain damage" (p. 3). Anything that damages the areas of the brain that control language production and comprehension can lead to aphasia. The areas of the brain that play a key role in language production and comprehension are known as Broca's area and Wernicke's area (Ashwell, 2012). Aphasia can be subdivided into eight classifications based on the characteristics of the patient. The eight types of aphasia include, Broca's, Wernicke's, conduction, global, transcortical motor, transcortical sensory, transcortical mixed, and anomic aphasia. The four characteristics that differentiate each type of aphasia include fluency, repetition, auditory comprehension, and word finding. Impaired word finding is known as anomia. "Anomia is the inability to retrieve the names for concepts that previously were readily available to the speaker" (Goodglass & Wingfield, 1997, p. 5). Anomia is an important feature of aphasia because it affects each classification of aphasia. When an individual cannot retrieve a target word their speech will contain different anomic errors including paraphasias, circumlocution, and perseveration (Goodglass & Wingfield, 1997). This research provides an understanding that the distinct classifications of aphasia and the different characteristics of anomia are important to improve an individual's word retrieval skills.

### **APPLICATION OF A NEW PARKING ALGORITHM FOR QUANTUM SIMULATIONS**

Presenter: Norris, Samantha  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Profs. Rainer Grobe, Q. Charles Su  
Author(s):

We introduce a computational method [1] that permits us to increase the interaction time for quantum and quantum field theoretical simulations of multi-particle states on a finite space-time grid. In contrast to the usual approach where the unwanted wave function close to the grid boundaries is absorbed by a potential with a negative imaginary part, this method is unitary and therefore conserves the norm of the state. This technique is based on assigning particles close to the boundary a larger effective mass (or slower speed of light), such that these particles slow down and cannot re-enter the interaction zone. The method can therefore be applied to multi-particle states. This theoretical tool has been recently applied to the investigation of subcritical system that turns supercritical when it is set in motion. Long time numerical simulations have been ensured without unwanted reflection from boundaries.

### **MCLEAN COUNTY COMMUNITY GARDENS**

Presenter: Novotny, Victoria  
Student Department, Class: Health Sciences, Undergraduate  
Mentor(s): Prof. Jackie Lanier  
Author(s):

The McLean County Wellness Coalition has a mission to reduce chronic disease by improving the overall well-being of the community through the promotion and adoption of healthy lifestyle policy, systems, and environmental (PSE) changes. Evidence based strategies can create long-term sustainable change and support healthy behaviors for all citizens. It takes commitment, innovation, and action from all sectors of the community to champion policy, system, and environmental changes that ultimately build communities conducive to healthy living. With this mission in mind, in April 2013, The McLean County Wellness Coalition awarded 17 organizations funding to support their community garden efforts. The aim of the funding award was to create a sustainable change in the community to support the consumption of fruits and vegetables and promote physical activity through gardening. In addition, it sought to connect these organizations to resources in the community that included other organizations and people to build a culture for community health. Through these connections it was also encouraged to donate surplus produce to local food pantries and organizations serving low-income populations. To assess the project aims, a mixed method approach was utilized that included site visits, a web-based survey, and key informant interviews. A major focus of the research was determining the impact of youth engagement on the gardens and vice versa: the impact of the gardens on the youth involved. By impacting youth today, sustainable change will only continue to be passed to future generations. Overall, ten of the seventeen (66.7%) sites reported youth engagement in their garden. Youth involvement was reported in various ways including planting seeds, tending to the garden and consuming produce from the garden. This poster will outline the Coalition's role in supporting the organizations funded for community garden work, and the major outcomes from this project including impact, reach, and benefits to the organizations, people served by the gardens, and community overall, along with the major focus of youth engagement.

## **SOCIO-COGNITIVE INFLUENCES ON MEMORY FOR CONTROVERSIAL INFORMATION**

|                            |  |
|----------------------------|--|
| Presenter:                 | Nuccio, Daniel                               |
| Student Department, Class: | Psychology, Graduate                         |
| Mentor(s):                 | Profs. Steve Croker, Eric Wesselmann         |
| Author(s):                 | Daniel Nuccio, Eric Wesselmann, Steve Croker |

People often encounter conflicting information on a wide array of topics. How they evaluate this information in relation to their current beliefs, and the effects of other influences, such as the weight given to superficial aspects of the information (e.g. pictures, anecdotes, or jargon that are at most minimally related to an author's argument), has been of interest to researchers for many years. One component of how new information is processed and evaluated is memory for the information. Through an ongoing study, the following questions are being examined: (1) Is belief-congruent information remembered better or worse than belief-incongruent information? (2) Does the addition of superficial scientific information to belief-congruent or belief-incongruent information influence how well the newly presented information is remembered? (3) Does repeated testing have an effect on memory for the information? (4) Will any of these factors elicit a greater number of memory intrusions in a free recall task?

## **PERCEPTIONS AND PRACTICES OF HYDRATION IN TRIATHLON**

|            |                 |
|------------|-----------------|
| Presenter: | O'Connor, Corey |
|------------|-----------------|

Student Department, Class: Kinesiology and Recreation, Graduate  
Mentor(s): Prof. David Thomas  
Author(s): Corey O'Connor, David Thomas, Kelly Laurson, Dale Brown

**Purpose:** To examine where triathletes obtain information regarding hydration, if their performances have been affected by dehydration, and how they monitor their hydration status.  
**Methods:** Two hundred and two participants (age=38.70 ± 9.73 years) from various triathlon groups in Illinois participated in the study. Each participant was asked to complete an electronic survey. The survey was composed of twenty seven items and was developed by O'Neal (2011). The survey was modified for triathletes and seven questions were added in order to categorize different triathlon groupings. The survey targeted training background, sources of information on hydration, beverage perceptions and if dehydration negatively impacted performance.  
**Results:** Seventy-eight percent of the triathletes reported that peer-reviewed research played a minor role or no role as a source of information on hydration. Eighty-one percent of the triathletes experienced at least one instance where they felt their performance was decreased as a result of dehydration. Sixty percent of the triathletes reported suffering at least one instance of heat-related illness symptoms caused by dehydration. Seventy-six percent of participants reported monitoring their hydration status with fifty-seven percent of people monitoring their hydration by thirst and listening to their body.  
**Conclusion:** Triathletes may experience fewer decreases in performance if they use a variety of techniques rather than just one to monitor hydration status because a majority of participants felt they experienced decreases in performance as a result of dehydration. Triathletes also should utilize scientific resources on hydration in order to properly understand the correct hydration guidelines.

#### **PHYSICAL ASPECTS OF STORMWATER SEWER SHEDS AND THE EFFECT ON THE WATER QUALITY OF SUGAR CREEK IN BLOOMINGTON, IL**

Presenter: O'Hare, Alicia  
Student Department, Class: Geography-Geology, Graduate  
Mentor(s): Prof. Catherine O'Reilly  
Author(s): Alicia O'Hare, Catherine O'Reilly, Kevine Kothe, John Kostelnick

There is a strong correlation between urban settings and degraded water quality. Stormwater is a large component of urban water degradation that is poorly understood. Precipitation is quickly transported via underground pipes, from the land to the stream without following water's natural flow path. A question that has not been considered yet is "what characteristics of stormwater sewer sheds impact water quality?" I hypothesize that physical characteristics including area of the storm sewershed, pipe density, pipe miles, and residential or commercial zoning affect the stormwater quality and therefore the water quality of urban streams.

#### **AGED VS YOUNG B1 CELL IMMUNE RESPONSE IN A SCID MOUSE MODEL**

Presenter: Ozuna-Vazquez, Hazel  
Student Department, Class: Biological Sciences, Graduate  
Mentor(s): Prof. Laura Vogel  
Author(s): Hazel Ozuna-Vazquez, Kaitlyn Interrial, Laura A Vogel

Different factors contribute to age-related immune dysfunction such as changes in white blood cell numbers and function. In particular, humoral responses are negatively impacted by age,

due to both direct and indirect effects on antibody-producing B cells. However, controversy exists as to whether mucosal B cell responses may be preserved during aging. The objective of this project was to study if B1 cells, which mainly participate in T cell-independent responses but retain numbers and function in aged individuals, are capable of producing T cell-dependent (TD) responses characteristic of B2 cells. Our hypothesis was that under optimal conditions, B1 cells from aged individuals can produce antibodies to TD antigens. We predicted that aged B1 cells transferred to SCID recipients, where competition with B2 is removed, could produce antigen-specific IgA in the intestine. To test the prediction, antigen-specific B1 cells from young or aged donors were adoptively transferred along with antigen-specific T cells to recipient SCID mice. After homeostatic expansion, recipients were immunized by oral gavage with cognate antigen (NP-OVA).

Flow cytometry was used to examine cell numbers and distribution and ELISA was used to examine levels of antibody secretion (quantity and quality) between young and old donors. These results will provide important insight to the effectiveness of mucosal B cell responses in the elderly.

### **HORROR FILMS AND MORTALITY SALIENCE**

Presenter: Patterson, Collin  
Student Department, Class: Economics, Undergraduate  
Mentor(s): Prof. Eric Wesselmann  
Author(s): Collin Patterson, Eric Wesselmann

Both social scientist and film theorists have been fascinated with the function that films have on individual viewers and society as a whole. One particular film genre that has been studied and debated is the horror film genre. Why would people purposefully want to watch films that evoke negative emotions such as fear, anxiety, and disgust? Some film theorists argue that one primary function horror films serve is they offer the ability to confront thoughts of human mortality safely (Crane, 1994; Maddrey, 2004; Phillips, 2005; Tudor, 1997). Media psychologists and communication scholars have provided empirical evidence that support this idea (Goldstein, 1999; Johnston, 1995; Tamborini & Weaver, 1996). Our overall goal is to extend these findings by using theory and methods from extant social psychological theory. Specifically, Terror Management Theory (Greenberg, Pyszczynski, & Solomon, 1986; 1997) posits when people are made aware of their own mortality (either by directly thinking of their own death or indirectly by seeing death-related images), they become anxious and are motivated to reduce this anxiety.

### **THE ASSOCIATIONS BETWEEN RELIGIOUS OR GREEK ORGANIZATION MEMBERSHIP AND COLLEGE STUDENTS' SELF-PERCEPTIONS OF LONELINESS, CONNECTEDNESS, AND PURPOSE**

Presenter: Paxson, Gina  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Margaret Nauta  
Author(s):

The transition to college sometimes can lead to emotional distress in students. However, it has been noted that peer led support groups or common interests groups can reduce feelings of loneliness and help ease the college transition. This study was created to examine relationships between predictors variables of membership and level of involvement in Greek and religious organizations with outcome variables of loneliness, social connectedness, and purpose. Two

hundred and seventy nine college students completed an online survey containing measures that pertained to the variables. High levels of involvement in Greek organizations were positively correlated with connectedness and purpose, while negatively correlated with loneliness. Participation in religious organizations, despite involvement level, was correlated positively with purpose and connectedness. Correlational analyses were conducted to determine if moderators of self disclosure and self worth from God's love and acceptance from others were related to the outcome variables, but were not significant. Small sample size for those involved in both religious and Greek organizations were a limitation to data analyses. Results can be helpful for counselors and residence hall coordinators, who can determine if such organizations can be helpful to students in such distress.

### **THE EFFECTS OF FOCALITY OF PROCESSING AND DELAY ON EVENT-BASED PROSPECTIVE MEMORY**

|                            |                      |
|----------------------------|----------------------|
| Presenter:                 | Petrella, Samantha   |
| Student Department, Class: | Psychology, Graduate |
| Mentor(s):                 | Prof. Dawn McBride   |
| Author(s):                 | Samantha Petrella    |

The current experiment proposes an examination of the effects of focality of processing and delays on event-based prospective memory tasks. Several perspectives regarding the process of remembering to perform an intended action in the future have been proposed by researchers in this area. Smith (2007) proposed the Preparatory Attentional and Memory (PAM) process theory regarding PM. According to the PAM theory, the retrieval of a prospective memory continuously requires resource-demanding preparatory attentional processes, or effortful and deliberate focus. Further, it suggests that successful PM retrieval is never automatic and that attention to the PM task interferes with and compromises ongoing task performance (Smith, 2003). A comparative perspective to the PAM theory on prospective memory is the multi-process view (MP) first proposed by Einstein and McDaniel (2000). This view states that prospective memory retrieval can occur spontaneously in some cases in the absence of monitoring when a PM cue is presented. A third perspective on prospective memory processing is transfer-appropriate processing (TAP), originally proposed by Morris, Bransford and Franks (1977) for explicit memory retrieval. TAP is traditionally applied when addressing memory performance in typical memory experiments involving study and test episodes, but it has been applied to PM task performance in recent years. According to TAP, memory is enhanced when similar processing occurs during the study and test phases. When the TAP view is applied to PM, the view suggests that the degree of overlap in processing between the ongoing task and the PM task influences PM performance (Maylor, 1996). To examine these three perspectives, we plan to use three distinct ongoing tasks, which will consist of a focal-match condition (i.e., identify types of fish among true/false sentence verification tasks), a non-focal match condition (i.e., identify types of fish among living/non-living judgments), and finally a non-focal mismatch condition (i.e., identify types of fish among identifying if a word has more than one vowel). Additionally, we plan to manipulate these conditions across various timing delays to evaluate conditions in which monitoring should not occur due to the length of time between PM instruction and PM cue presentation. A pilot study consisting of only the focal-match task, yielded results supportive of the findings of McBride and Abney (2012).

### **PARENTAL INVOLVEMENT IN AN EDUCATIONAL SETTING**



Presenter: Pluchrat, Lori  
Student Department, Class: Teaching and Learning, Undergraduate  
Mentor(s): Prof. Miranda Lin  
Author(s):

Service learning, focusing on a specific project while volunteering at a facility allows one to develop new perspectives as well as help shape their surroundings. Parental involvement is a service-learning project where going to the Young Women's Christian Association creates a building block for new ideas to be shared.

Parental involvement combines an assortment of hands-on activities and communication with parents to inform them on getting involved with their child's education. This service-learning opportunity focuses on a 2-3 year old classroom, but this topic can be incorporated towards any age. Sharing with the audience the newsletters that the Young Women's Christian Association sets out for the parents to read along with providing other newsletters from another childcare place, Bright Horizons, to compare/contrast the different ways to get the parents involved. To know that the service-learning project could be done, a letter of approval was sent home to note what was going to occur within the classroom along with if pictures were acceptable. The Parental involvement project encompassed hands-on activities that fit in with the specific theme of that week. Having the children participate in activities that could engage their learning such as during snack time, a sing along, and sending home activities for parents to do at home with their children. Since every family has their own native language that is spoken in their household such as Spanish, Indian, or English, making the take home activity flyer in those specific languages can help improve the relationship between the teacher and family members along with their child too. Taking pictures of the children doing activities helps the idea of parental involvement get across to audience members, which can help them understand the main points of the service-learning project.

Contacting the director of the Young Women's Christian Association before, during, and after helped with allowing our service-learning project to happen. After the conclusion of the project, contacting the director with multiple questions along with the parent's reactions from the service-learning project will be shared to emphasize the total outcome and the affects this topic can have.

Sharing the experiences with audience members can really conclude how parental involvement can be very important and should be exemplified in all educational settings. Answering and discussing the overall outcomes along with the ideas gained or changed can help this important topic get more awareness through audience members, which is what parental involvement is all about.

### **COGNITIVE STIMULATION AND DEMENTIA: A SUMMARY OF CURRENT RESEARCH**

Presenter: Prostko, Elizabeth  
Student Department, Class: Communication Sciences and Disorders, Graduate  
Mentor(s): Prof. Jennine Harvey-Northrop  
Author(s):

The population of people over 85 years of age is continually increasing. Of this population, dementia affects more than 27 million people worldwide, causing longer hospital stays and higher medical costs for those affected (Steel, 2010). Dementia is a progressive, neurologically-based disorder that causes deterioration in the brain and results in loss of cognitive ability. Currently, dementia is commonly treated with physician-prescribed medications to manage

symptoms of the disorder. Efficacy of these medications is being questioned, as adverse effects of the medications seem to outweigh the positive effects of managing the disease. Cognitive stimulation refers to non-domain-specific activities, such as playing a musical instrument or reading, that focus on global cognitive improvement. The application of cognitive stimulation programs to treatment of dementia is presently being explored. This summary of research provides evidence that cognitive stimulation programs may help improve the symptoms of dementia, reducing hospitalization and medical costs. A total of seven research studies were reviewed to determine the efficacy of enrolling patients with dementia in cognitive stimulation programs. The research reviewed indicates that the use of cognitive stimulation may be effective in order to treat dementia. Improvements were seen in both patient performance on activities of daily living and perceived quality of life.

### **CULTURAL IDENTITY AND HERITAGE LANGUAGE LEARNERS**

Presenter: Reitz, Lydia  
Student Department, Class: Languages Literatures and Cultures, Graduate  
Mentor(s): Prof. Susan Hildebrandt  
Author(s): Lydia Reitz

Heritage language learners (HLLs) in college are studied more than other groups of students with differences, and they are becoming more prevalent in the foreign language (FL) classroom. For the purpose of this study, HLL is defined as, an individual who has parents from a Spanish-speaking country, but was born in the United States and has an almost complete speaking proficiency and any range of grammatical dominance of Spanish (Valdés 2001). This definition eliminates those students who were born in Spanish-speaking countries and those who have little to no dominance of either speaking proficiency and grammatical dominance of the language. While this group has been studied within the context of a FL classroom, especially with cultural identity in mind, there are still more areas that need to be addressed. HLLs' cultural identity and how it influences motivation in the classroom, as well as its influence on perceived challenges and successes of HLLs, are in need of investigation. With the rising number of immigrants from Spanish-speaking countries, the time is now to research this group of students and how they fit in the FL classroom. The cultural identity of HLLs enrolled in an FL course will be examined using a survey and interview to better address their motivation and perceived challenges and successes that come with being part of this subgroup.

### **MODELING RESIDENCE TIME AND ANALYZING NITROGEN REMOVAL FOR TWO CONSTRUCTED WETLANDS AT THE FRANKLIN DEMONSTRATION FARM IN LEXINGTON,**

Presenter: Rude, Emma  
Student Department, Class: Geography-Geology, Graduate  
Mentor(s): Profs. Bill Perry, Eric Peterson  
Author(s):

Pollution from nonpoint agricultural runoff has become a major problem facing our streams and rivers today. Not only are fish and aquatic life affected, but so is the quality of our drinking and recreational water resources. Studies have shown that wetlands have proven to be the most cost-effective and low maintenance method of removing nonpoint or diffused contaminate inputs. The biological processes and removal of nutrients in wetlands depend on the total

surface area available for microbial activity in the soil and a certain period of water retention time. Since chemical processes take time, the measure of residence time is an important factor of the degree to which wetlands can change water chemistry. Knowing that nitrogen concentrations decrease as water residence time increases, a model of residence time will help interpret the mechanisms determining groundwater flow paths within and around the constructed wetlands. The main objectives of this research are to model water's residence time, compare the size and gradient of two experimental wetlands, and determine the water flow paths within the site. The two constructed wetlands chosen are the West and Gully located in Lexington, Illinois. Of the two, Gully is about half as small and has a higher gradient. Modeling within the wetlands will determine how to construct a wetland that removes nutrients effectively and locate the removal pathways. The results of this research will be beneficial when considering effective wetland design, monitoring procedures, and wetland management.

### **COMPLIMENT BEHAVIOR IN CROSS-CULTURAL COMMUNICATION: TO TEACH OR NOT TO TEACH PRAGMALINGUISTIC AND SOCIOPRAGMATIC NORMS.**

Presenter: Sanchez-Martin, Cristina  
Student Department, Class: English, Graduate  
Mentor(s): Prof. Susan Burt  
Author(s):

This empirical study stems from two main assumptions, firstly, that there are cross-cultural differences when paying and receiving compliments, in other words, that the pragmatic purposes of complimenting and the linguistic means employed vary from culture to culture (Ariki 1985, Nelson 1996, Yu 2005, Matsuura 2004, among others); secondly, that American English compliments are highly patterned, structured (Wolfson 1984) and followed by an acceptance (Golato 2003). Having these assumption is mind, the purpose of this study is to analyze the responses to compliments in the data compiled in order to attest whether or not second language learners responded in similar ways to compliments when first language users are involved in the communicative process, and if these responses show that complimenting can be considered a Face Threatening Act (Brown and Levinson 1987). The corpus in which this study is based was compiled by twenty-six collectors (twenty-five students of ENG343 and their professor). Each of them collected 8 scenarios in which a compliment was given and followed by a response (acceptance "thanks", rejection "What? No!" or deflection "It was not a big deal at all!"). By looking at all the responses, I aim at provoking a discussion about whether or not to implement a type of pedagogy in the ESL classroom that takes into account pragmalinguistic and sociopragmatic norms. Finally, the analysis would enable us to contribute to the discussion about the dichotomy of native and non-native speakers and the consequences that this distinction has in cross-cultural communication.

### **PHENOMENOGRAPHIC PEDAGOGY AND A REVISED APPROACH TO TEACHING ANALYTICAL SKILLS IN CONSTRUCTION GRAPHICS CLASS**

Presenter: Sarathchandra, Ranathunga  
Student Department, Class: Technology, Graduate  
Mentor(s): Prof. Sally Xie  
Author(s):

Video clips have been used as artifacts, devices, and pedagogical tools in classrooms and online

teaching environments. In construction graphics classes, videos are used to help students understand contents. Studies showed that video clips had potential to enhance comprehension and enrich instruction. The authors propose to add comment and dialog functions to video clips in educational process. The proposed approach will solve the problem that critical thinking ideas may get lost when students are focused on video clips. The approach will also help to create student involvement in the learning process. If a student gets a question regarding a video, he or she cannot ask it right away. Instead the student will need to contact the lecturer through emails or making phone calls to get an answer to a question regarding a particular point of time in the video. In a face to face class, students might have to wait till the end of the video to raise the questions they have. In this study, the authors will develop a software application which will allow the users to make comments on videos on a timeline when they have questions. The author plan to perform a survey about the proposed software application and collect data of user experiences.

### **NETOWRK ANALYSIS OF ONLINE DISCUSSIONS ON STUDENTS' INTERACTIONS AND PERFORMANCE: AN EXPLORATORY STUDY**

Presenter: Sasan, Jasmeet  
Student Department, Class: Information Technology, Graduate  
Mentor(s): Prof. Elahe Javadi  
Author(s):

In this study we examine two questions: first whether or not patterns of students' interactions on learning content management systems' online discussion forums resembles their interaction in real life; and second whether or not a student's contribution pattern contains traces of students' performance in the course or not. The study analyses student's interaction and individual student's pattern of contribution during four online discussions and compares them with students' interactions in real life and their performance in the classroom. The online interactions' data is collected from two sections of a two-hundred level information systems course in a Midwestern university. Familiarity is used as a proxy for interactions among students in their real life. The familiarity data is acquired through administrating two familiarity surveys at two different points during the semester, before the first discussion and after the third discussion. Finally, we measure performance by grades in three different exams. Our data analysis results are partially consistent with findings of prior literature in this area which suggests that the interaction of students in the discussions has been increased gradually and there is a consistency in the findings which suggests that the online discussion forum has helped students to interact more than they do in the class discussions. The familiarity graphs depict a clear picture of the difference in the association of the students before and after the third discussion. To investigate this, we have analyzed several statistical and structural properties of graphs which include centrality, degree distribution, betweenness, clustering of the nodes and network density. Our mixed results, however, calls for a closer examination of the measures that have been developed and used in the literature and their effectiveness in inferring students' performance based on students' online activities. The analyses presented here and similar models can help instructors plan course-related discussions and implement mechanisms which would bridge familiarity fault-lines that are bound to exist in any classroom.

### **DIFFERENTIAL DIAGNOSIS OF APHASIA**

Presenter: Schaack, Alyssa  
Student Department, Class: Communication Sciences and Disorders, Undergraduate  
Mentor(s): Prof. Jennine Harvey, Jacqueline McClure  
Author(s):

There are many different types of aphasia. There are some factors that can make someone more prone to getting it, but it can happen to anyone. There are many different causes of aphasia and the two most common are a stroke or traumatic brain injury. Other causes include: a brain tumor, an infection, an external injury, or dementia. Aphasia includes many different classifications which are: fluent and nonfluent and anterior and posterior locations of the lesion. There are several assessments for aphasia which help determine the diagnosis of the client's specific type of aphasia. Determining the specific diagnosis of aphasia is necessary in order for the client to receive appropriate treatment for them. While giving treatment to the client the professional will establish manageable goals they believe the client can accomplish. The primary goal for treatment is to improve a person's functional communication in their daily life.

### **THE EFFECTS OF COMMON CORE STANDARDS ON INTERDISCIPLINARY TEACHING**

Presenter: Schwartze, Michelle  
Student Department, Class: Teaching and Learning, Graduate  
Mentor(s): Prof. Douglas Hatch  
Author(s):

Interdisciplinary teaching has been a topic of interest over the past century. It has been argued that this type of teaching can help students make real world connections with their learning and spark interest in subject matter (Chaille & Chaskey, 2012; Jagla, 2005). Middle level education has incorporated interdisciplinary teaching among its best practices (NMSA, 2010). In 2009 Common Core Standards were developed for English Language Arts and Mathematics. These Common Core Standards were introduced as a set of common goals for educators that would help students gain the knowledge needed to succeed in college and future careers (Rust, 2012). This study seeks to determine how the implementation of Common Core Standards in middle level education has affected the use of interdisciplinary teaching. Throughout this study, the researcher investigated whether or not this implementation has had a positive or negative impact on interdisciplinary teaching in the middle school.

### **THE QUICK SELF SCREEN FOR POSSIBLE TRAUMATIC BRAIN INJURY**

Presenter: Siemers, Lauren  
Student Department, Class: Communication Sciences and Disorders, Graduate  
Mentor(s): Prof. Jennine Harvey-Northrop, Jaqueline McClure  
Author(s):

Traumatic brain injury (TBI) and mild traumatic brain injury (mTBI) are disorders that affect millions of Americans each year (Dempsey et al., 2009; Hoge et al., 2008; Kay et al., 1993; Nolin, Villemure, & Heroux, 2006; Malec et al., 2007; National Center for Injury Prevention and Control, 2003; Schiehser et al., 2011). In the United States TBI is one of the largest public health problems for children and young adults (Lux, 2007). More than 1.5 million people experience a

brain injury each year, and of them as many as 75 percent sustain an mTBI (National Center for Injury Prevention and Control, 2003). These brain injuries, referred to as TBI or mTBI depending on severity, affect civilian and military populations, young children as well as adults (National Center for Injury Prevention and Control, 2003). In the United States military, more specifically combat veterans, prevalence is significant as well, but prevalence has not been established due to inaccurate identification (Iverson et al., 2009). While the exact prevalence of TBI and mTBI in the military population is still being determined, TBI is widely recognized as a predominant injury resulting in the current conflicts in Afghanistan and Iraq (Marshall et al., 2012; Hoge et al., 2008; Donnelly et al., 2011). However, the increased risk of sustaining TBI or mTBI is not isolated to combat veterans returning from duty during OIF/OEF. Even in peacetime, active duty service members continue to be at higher risk for TBI (Drake et al., 2010).

### **MULTICOMPARTMENT NEURON MODEL FOR THE STOMATOGASTRIC GANGLION OF THE CRAB CANCER BOREALIS**

Primary Group Member: Skilling, Quinton  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Profs. Epaminondas Rosa, Wolfgang Stein  
Author(s):

The stomatogastric ganglion (STG) of the crab *Cancer borealis* is comprised of about thirty neurons, all of which have been identified and their interconnections documented. The gastric mill central pattern generator (CPG) is a subnetwork of the STG responsible for driving the muscles which control mastication and therefore must be stable throughout the lifetime of the animal. Though well formulated, physiological experiments on the gastric mill CPG, and systems of neurons in general, are often limited by instrument resolution and technological difficulties. The use of numerical neuron models can help elucidate the intricacies of the dynamical processes taking place during neuronal activity. Here we examine the Huber-Braun (HB) neuron model, chosen for its intrinsic dynamic properties and response to continuous stimuli. The model was adapted to incorporate multiple spatial compartments in order to be physiologically

more representative of the biological system. Results indicate that the HB model can be tuned to mimic the behavior of the gastric mill CPG as a whole as well as of the individual distinct neurons composing it.

### **UNCERTAINTY-BASED LINE-OF-BALANCE (LOB) SCHEDULING METHOD**

Presenter: Soderlund, Chase  
Student Department, Class: Technology, Graduate  
Mentor(s): Prof. Borinara Park  
Author(s):

#### **Need:**

The Line-of-Balance (LOB) is a popular scheduling technique for projects that involve repetitive tasks throughout the project duration. Examples include projects such as road construction and high-rise building construction. The LOB method, however, produces deterministic schedule,

meaning it does not show the range of different potential project outcomes. This results from the fact that the basic scheduling inputs, crew production rates, are estimated using single-point average values. The current LOB technique, therefore, lacks the capability to reflect the critical fact that the crew productions change constantly due to various factors.

**Overview:**

In this paper, how the variability of crew production rates affects schedule outcomes is demonstrated. This will show a more realistic picture of what might be a true project execution. To present a more effective and comprehensive way of incorporating this production variability in LOB, a Monte Carlo simulation technique is applied. The manual and computer simulation results are compared and discussed in terms of their pros and cons.

**Major Points:**

- Variability and uncertainties in the crew production rates
- Deficiency of the current LOB scheduling technique
- Ways to incorporate the production variability and uncertainties in LOB
  - o Manual simulation
  - o Monte Carlo simulation

**Summary:**

The presentation will demonstrate why the current LOB does not produce a realistic project picture for planning and how this deficiency can be overcome using a stochastic simulation methodology.

**SUPPLY CHAIN RISK MANAGEMENT: ASSESSING AND MEASURING EVENT AND OPERATIONAL RISKS**

|                            |   |
|----------------------------|---|
| Presenter:                 | Spenard II, Jeffrey                           |
| Student Department, Class: | Management and Quantitative Methods, Graduate |
| Mentor(s):                 | Profs. Borinara Park, Woojung Chang           |
| Author(s):                 | Jeffrey Spenard, Woojung Chang, Borinara Park |

Supply chains require highly coordinated flows of goods, services, information, and cash within and across national boundaries (Mentzer, 2001). In today's globalized and highly competitive environment, research on supply chain risk management is needed to provide companies and their managers with a quantitative and qualitative tool to identify, assess, manage, and mitigate risks associated in the supply chain process. This study will utilize statistical simulation software that provides a critical risk assessment tool to specifically measure the event and operational risks associated with the global supply chain process. This study will attempt to assign probabilities to event and operational supply chain management activities and assess how these specific processes affect the organization's supply chain process. This paper will determine a risk management model for the event and operational risks in the supply chain process. This study will identify core inputs in the global supply chain process in order to model potential operational and event risks in the supply chain process. The paper will assess the quantitative risks within the supply chain process and develop a probabilistic model through utilizing the Monte Carlo simulation.

**SYNTHESIS OF AZULIPORPHYRIN ANALOGS**

Presenter: Stateman, Leah  
Student Department, Class: Chemistry, Undergraduate  
Mentor(s): Prof. Timothy Lash  
Author(s):

Azuliporphyrins are a type of carbaporphyrin in which one or more of the nitrogen subunits are replaced by an azulene ring. Through studies of these systems, it has been found that azuliporphyrins readily undergo oxidation reactions, display intermediate diatropic character, and are capable of forming organometallic derivatives. Due to these interesting properties, this study has focused on the synthesis of expanded and contracted analogues of azuliporphyrins. Azulitripyrrane structures have been prepared and the formation of new azuliporphyrinoid systems from these intermediates is under investigation. In addition, a pyrrolylmethylazulene with two acrylaldehyde substituents has been prepared and the formation of a vinylogous azuliporphyrin system is being attempted.

### **AM I MY STATUS? TESTING THE VALIDITY OF THE IPS (INCLUSION OF PROBLEM IN SELF) SCALE**

Presenter: Steakley-Freeman, Diana  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. Eric Wesselmann  
Author(s): Diana Steakley-Freeman, Eric Wesselmann

The idea of “person-first” language (i.e. disabled person vs. person with a disability) has been suggested to represent the internalization of emotionally-charged labels (Zola, 1993). In social psychology, the Inclusion of Other and Self Scale (IOS; Aron, Aron, & Smollan, 1992) was originally designed to measure perceived closeness in relationships and is an indicator of how much individuals perceive their partner as an extension of their self-concept. This study examined the predictive value of an adaptation of the IOS and its relation to the internalization of a stigmatized status/label. The IOS is a single item, pictorial scale consisting of a series of Venn diagrams that overlap in increasing amounts with the total area of all the figures remaining the same (as the overlap increases, the diameter of the circles maintains a consistent area). Researchers have created IOS adaptations that measure inter-group relations (ingroup vs. outgroup; Schubert & Otten, 2002), and relationships between personal identity and cultural norms (Li, 2002). This study modified the measure to assess self-stigma among individuals who hold a stigmatizing status or secret. The intervals of the scale increase in overlap to allow an individual to endorse the image that best describes the degree to which his/her problem consumes his/her identity. We hypothesized individuals’ perception of higher overlap between their identity and their stigmatized status should predict the internalization of negative stereotypes and associated stigma, with the ultimate goal of establishing the measure as a 1-item indicator of self-stigma that is accurate in predicting responses on other longer and well validated measures of self stigma.

### **IMPACT OF INTERFERMIONIC FORCES ON THE PAIR CREATION PROCESS**

Presenter: Steinacher, Andrew  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Profs. Q. Charles Su, Rainer Grobe



Author(s):

Using a simplistic model in one-spatial dimension, we estimate the impact of the electron-electron, positron-positron and electron-positron forces on the yield of the pair creation process triggered by an external superstrong force. We separate the potentials in the Dirac equation into external and internal parts, where the dynamics of the internal potential is governed by the Maxwell equations with the Dirac charge and current density as sources terms. We show that once the particle pair is created, the mutual attraction keeps the particles from being accelerated out of the interaction zone. As the result a charge cloud can accumulate that can seriously suppress the pair creation process due to the resulting Pauli-suppression in the interaction zone. [1]

### **ENHANCEMENT OF BOSON PAIRS CREATED BY ELECTROMAGNETIC FIELDS**

Presenter: Su, Alexander  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Prof. Rainer Grobe  
Author(s):

By solving the quantum field theoretical version of the Klein-Gordon equation numerically, we study the creation process for charged boson/antiboson pairs in static electric and magnetic fields. The fields are perpendicular to each other and spatially localized along the same direction, which permits us to study the crucial impact of the magnetic field's spatial extension on dynamics. If its width is comparable to that of the electric field, we find a magnetically-induced Lorentz suppression of the pair creation process. When the width is increased such that the created bosons can revisit the interaction region, we find a region of exponential self-amplification that can be attributed to a spontaneous emission-like enhancement. If the width is increased further, this trend is reversed and the magnetic field can even shut off the particle production completely [Phys. Rev. A 87, 023416 (2013)].

### **PERCEPTIONS OF TELE-AUDIOLOGY COMPARED TO STANDARD AUDIOLOGY**

Presenter: Theis, Jacklyn  
Student Department, Class: Communication Sciences and Disorders, Graduate  
Mentor(s): Prof. Lindsay Bondurant  
Author(s):

Rationale: Hearing loss is a prevalent health condition and many individuals with hearing loss do not have access to hearing healthcare professionals. Telehealth is a medical approach where information and service delivery are shared between locations, which can allow patients and providers to be connected even though they may be miles apart. Prior research has found the telehealth approach for audiology, known as tele-audiology, can be used to assist individuals in obtaining access to hearing evaluations completed by hearing healthcare professionals. However, little is known about patient perceptions of evaluation factors (such as accuracy and reliability) for tele-audiology compared to standard audiology. The purpose of this study was to compare preferences of adults who completed both types of evaluations.

## **NEUROMODULATOR-INDUCED STABILITY OF NEURONAL ACTIVITY PATTERNS**

Presenter: Tubia, Abigail  
Student Department, Class: Biological Sciences, Undergraduate  
Mentor(s): Prof. Wolfgang Stein  
Author(s):

Central Pattern Generators (CPG) are networks of nerve cells that govern essential rhythmic behaviors such as breathing, walking, swallowing, and chewing. As a consequence CPGs face a challenging task throughout development and much of adult life. Due to their vital functions in the body, they must operate reliably over long periods of time and be stable against perturbations. The open question remains, as to how the nervous system can be stable while maintaining its flexibility to execute an appropriate response to changing environmental conditions. The CPG that drives the pyloric rhythm in the stomatogastric nervous system (STNS) of the crab, *Cancer Borealis*, is a well-characterized model system for rhythmic motor pattern generation and studying the effects of neuromodulatory substances on neural flexibility and stability. Neuromodulatory substances such as amines and neuropeptides for example, are released from modulatory neurons suggesting a critical role in the reconfiguration of the rhythmic motor patterns produced in the STNS. In particular, the neuromodulator Proctolin, initially modifies the pyloric rhythm by speeding up the cycle frequency. However, even high concentrations fail to modify the pyloric cycle frequency beyond the maximum threshold of approximately 1 Hz<sup>1</sup>. We hypothesize that, while the rhythm appears unaltered by high concentrations of Proctolin, the robustness of the motor pattern will increase.

## **RICHARD WAGNER'S JEWISH QUESTION: THE CAUSE AND EFFECT OF ONE COMPOSERS' ANTI-SEMITISM**

Presenter: Unnerstall, Grant  
Student Department, Class: Music, Undergraduate  
Mentor(s): Prof. Marie Labonville  
Author(s):

In "Richard Wagner's Jewish Question: The Cause and Effect of One Composer's Anti-Semitism," I discuss the evolution and implications of world-renowned composer Richard Wagner's notorious anti-Semitic opinions. Wagner's influence infected nearly every corner of Nazi culture from music to politics, even combining the two seemingly opposite topics into a whirlwind of consternation. This essay explores how and why Wagner became an extreme anti-Semite and describes the consequences of how one man's hatred and strong opinions fueled the fires of both anti-Semitism and anti-Wagnerism all over the world. From highly documented interactions with Jewish affiliates such as composer Giacomo Meyerbeer and music critic Eduard Hanslick, this essay reveals the causes behind Wagner's notorious essay *Judaism in Music* (1850) and his mockery of Jewish character in his "most German of all German operas," *Die Meistersinger von Nürnberg*. The extent to which Wagner's anti-Semitism influenced the core ideals of the Third Reich and their notorious leader explains the cemented association of Wagner's compositions with Adolf Hitler and the Nazi Party. This association has produced the current banishment of Wagner's works in modern-day Israel as well as multiple attempts to bring Wagner's now-tabooed music back to the country. With specific examples from Jewish conductor Daniel Barenboim, we will reveal the final result of Wagner's strong opinions and their effect on music in Israel today. Ultimately this essay explains the cause and effect that

Wagner's anti-Semitism has had on the reception of his music, even over a century after his death.

## **SOCIAL NETWORK ANALYSIS FOR BUSINESS EXCELLENCE**

Presenter: Upadhyay, Tapish  
Student Department, Class: Technology, Graduate  
Mentor(s): Prof. Borinara Park  
Author(s):

To understand the relations or lack of relations between competitors, partners, suppliers, distributors, employees, organizations, and customers is an intense area of research. It is the goal of this paper to help businesses grow by performing social network analysis and use those network intelligence insights to gain strategic positioning in the corporate world.

## **ESTIMATING RECRATIONAL MARIJUANA TAX REVENUE IN WASHINGTON**

Presenter: Venturini, Nathan  
Student Department, Class: Technology, Graduate  
Mentor(s): Prof. Borinara Park  
Author(s): Nathan Venturini, Borinara Park

### **Need:**

Washington State expected between \$0 and \$2 billion in tax revenue over 5 years directly marijuana sales tax. The state is unable to gauge the amount of expected revenue from sales. The current estimate is too vague. A more definite estimate can attract investors to the state. Variables and their expected values also need to be displayed and properly adjusted annually. Estimating the tax revenue more accurately will help set future tax rates and license fees. A current model needs to be built using, but not limited to, the number of suppliers, processors, retailers, population of Washington, and expected consumption rates of legal aged adults.

### **Overview:**

The current tax revenue estimate for the state of Washington is too vague and has assumptions built in that reduce all revenue to \$0. These estimates likely do not incorporate the residual effects of the legalization of a black market good in a limited geographic area. Residual effects include, but are not limited to, increase in tourism, overall state population, and the success and failure rates of businesses that will pay tax revenue even if they sell no product. The current estimate is likely based on black market consumption only and not actual expected consumption.

### **Major Points:**

- Expected tax revenue based on expected use rates
- Expected consumer use rates
  - Survey data can show expected use rates from current users
  - Actual use may differ due to increased use after legalization
- Estimate the population growth of the state

Summary:

The project will give an estimate on the tax revenue over 5 years due to recreational marijuana sales in the state of Washington.

**THE PHYSICAL VACUUM AND THE INSTANTANEOUS REST FRAME TRANSFORMATION**

**METHOD**

Presenter: Vikartofsky, Andrew  
Student Department, Class: Physics, Undergraduate  
Mentor(s): Profs. Q. Charles Su, Rainer Grobe  
Author(s):

We discuss the role of virtual particles in the description of the physical vacuum. Through simple one-dimensional model systems we have demonstrated how the physical vacuum can be decomposed into the bare vacuum and virtual particles [1]. We analyze the momentum distribution of the vacuum virtual pairs as well as the spatial and temporal correlations between virtual particles for both systems.

**DARK TRIAD TRAITS, RESPONSE DISTORTION, AND NEGATIVE WORKPLACE BEHAVIORS**

Presenter: White, Erin  
Student Department, Class: Psychology, Undergraduate  
Mentor(s): Prof. John Binning  
Author(s): Jennifer Ivy, David Wolf

This study attempts to expand upon previous research in the specific areas of response distortion, negative workplace behaviors, and withdrawal intentions. It attempts to find a link between the three in the workplace in the form of Dark Triad personality traits (Narcissism, Machiavellianism, and Psychopathy). We hypothesize that individuals with these Dark Triad traits are considered more likely to commit response distortion and in turn actively engage in behaviors that negatively impact the workplace. We propose that individuals with specific levels of these Dark Triad traits will be more likely to engage in negative workplace behaviors due to a grandiose sense of self worth, a greater propensity for taking risks, and a heightened sense of self confidence. A Dark Triad personality trait “score” will be created that encompasses the appropriate levels of personality traits unique to each of the three personality disorders of the Dark Triad. Using a pool of 135 childcare workers' personality data from a personality inventory, each individual will be given a “Dark Triad score”. This “Dark Triad score” will then be correlated with self reports and supervisor reports of negative workplace behaviors such as absenteeism, withdrawal ideation, and negative job attitude.

# Group Abstracts

## **COLLEGE ADJUSTMENT AMONG MINORITY STUDENTS**

Primary Group Member: Alvarez, Cyndy  
Student Department, Class: Psychology, Graduate  
Group Members: Khandyce Pitner, Undergraduate, Psychology  
Mentor(s): Prof. Gary Creasey  
Author(s): Caitlin Alvarez, Kevin Murray, Christina Pikor, Lauren Pikor, Jessy Yamamoto

Adjustment to college has been a topic of interest due to the effects on retention and attrition rates especially among minority students. It is known that students have to deal with adjusting to college and are faced with demands in the following areas: academic, social, personal-emotional, and attachment to institution. College adjustment has been identified as a “multifaceted psychosocial process that imposes stressors on students and requires an array of coping skills” (Hurtz, Martin Jr., & Beitel, 2007). Studies have identified coping techniques and resources that facilitate college adjustment. Research has supported that minority college students have to deal with unique challenges or stressors when adjusting to a predominantly White university. One of those stressors that affect college adjustment is the sense of not belonging. Minority college students are more prone to feel that they do not belong and/or experience a weak person-environment fit. The purpose of this proposal is to identify the coping skills that predict college adjustment among minority college students in a predominantly White university when there is a weak person-environment fit. This proposal will consist of administering an online survey to college students at Illinois State University.

## **THE IMPACT OF OVERHEARING AND SCAFFOLDING ON YOUNG CHILDREN'S USE OF THE SPATIAL TERMS 'BETWEEN' AND 'MIDDLE'**

Primary Group Member: Bianchi, Lindsay  
Student Department, Class: Psychology, Undergraduate  
Group Members: Jayne Winner, Undergraduate, Psychology  
Mentor(s): Prof. Alycia Hund  
Author(s):

Before reaching school age, the most prominent way children are exposed to speech and language is from their parents. For example, children hear their parents use spatial terms and participate in conversations describing where things are, potentially facilitating the development of their spatial concepts. Daily tasks that are not easy for children may require parents to help their children learn how to complete them. Scaffolding is a term used to describe the help and instruction (including language prompts) children receive from their parents based on their ability level. Overhearing others speak gives children opportunities to hear language regarding multiple topics and in a variety of contexts. Most people would assume that learning new words occurs at a faster rate when the words are directed specifically toward a child. However, recent evidence demonstrates that young children are equally good at

learning novel words when they overhear them as a third party as when the words are directed toward them (Akhtar, Callanan, & Jipson, 2003). The present study investigated the influence overheard and scaffolding may have on young children's use of the spatial terms 'between' and 'middle.' Children 3 to 5 years of age completed language production and comprehension tasks to evaluate their knowledge of a variety of spatial terms. They also completed a direction-giving task in which they hid a toy mouse inside a dollhouse. Children either overheard two experimenters describing the dollhouse using one of the terms 'between' or 'middle' several times, were given direct prompts using one of these terms, or were given non-directive prompts. The spatial language they used based on the different prompting types was assessed. Importantly, children who were prompted with 'between' or 'middle' used that term more frequently than did children in the overheard and non-directive prompting conditions. Moreover, older children (4 to 5 years) used the terms 'between' and 'middle' more frequently in the direction-giving task and produced and understood more spatial language overall than did younger children (3 years), demonstrating important developmental gains in spatial language. Overall, these findings highlight the importance of direct support in furthering the development of spatial language during early childhood.

#### **PROBLEM DIFFICULTY AND COGNITIVE DYNAMICS IN THE BALANCE-SCALE TASK**

Primary Group Member: Boaz, Ashley  
Student Department, Class: Psychology, Undergraduate  
Group Members: Klaudia Pajor, Graduate, Psychology  
Austin Zamora, Undergraduate, Psychology  
Ryan Pomper, Undergraduate, Sociology  
Piper Rogers, Undergraduate, Psychology  
Mentor(s): Prof. Steve Croker  
Author(s): Corinne Zimmerman

The balance-scale task has been used extensively to investigate cognitive processes and inductive reasoning (e.g., Inhelder & Piaget, 1958; McClelland, 1989; Siegler, 1976; Zimmerman & Pretz, 2012). Many tasks used to study reasoning show that performance varies depending on context. Recent theoretical and methodological advances provide new ways of looking at these context effects. Rather than conceptualizing behavior in terms of an underlying competence that is affected by task characteristics, we can reconceptualize behavior as reflecting a complex dynamic cognitive system that exhibits relatively stable or variable patterns as a function of contextual features. The aim of the current research was to examine patterns of behavior over microgenetic timescales by analyzing temporal motor and cognitive dynamics using a computerized balance-scale task.

Participants (N=51) were given a computerized balance-scale task, in which they were asked to make predictions about whether the scale would tip left or right. Feedback was given when participants made incorrect predictions. Participants completed four blocks of 44 randomized trials of easy, medium, and hard problems. Easy problems are defined as those for which the torque difference between the two arms of the balance scale is between 5 and 15. Medium and hard problems both have a torque difference of less than 5, but medium problems can be solved

by either adding or multiplying weights and distances, whereas hard problems require multiplication of weight and distance.

In addition to recording accuracy and reaction times (RT), we recorded the coordinates of mouse movements from the start position (bottom of screen) to the predictions of left or right (top corners of screen) on each trial. This method allows us to visualize participants' ongoing cognitive dynamics as they select a response, and examine whether participants are differentially attracted to the distracter response as a function of the problem difficulty. We analyzed accuracy, RTs, and mouse trajectory curvature using 3 (problem difficulty) x 4 (block) repeated measures ANOVAs.

There were main effects of problem difficulty on accuracy, trajectory curvature, and RT ( $p < .05$ ); with greater accuracy, faster RTs, and less curvature away from the correct response on easier trials. Participants made more correct judgments on easier problems, but even when they made correct responses they were more likely to demonstrate attraction toward the distracter on harder problems.

#### **EFFECTS OF AGING ON AUDITORY AND COGNITIVE SYSTEMS & AUDITORY TRAINING PROGRAMS TO IMPROVE SPEECH UNDERSTANDING**

Primary Group Member: Boczar, Caroline  
Student Department, Class: Communication Sciences and Disorders, Undergraduate  
Group Members: Samantha Ramos, Undergraduate, Communication Sciences and Disorders  
Mentor(s): Prof. Jennine Harvey-Northrop  
Author(s):

It is no secret that aging adults have an increased incidence of hearing loss than any other population. This is significant because hearing loss can hinder an individual from communicating effectively due to the difficulties in speech comprehension. One explanation for this challenge is the anatomic and physiologic changes of the peripheral and central auditory system that accompanies aging. However, just as important are the cognitive declines that relate to aging, specifically in the areas of memory, attention, and processing speed. It is imperative to study the effects of aging on both auditory and cognitive systems because they influence speech understanding. In order to improve these auditory and cognitive declines, researchers have created several Auditory Training programs. These programs focus on neuroplasticity, which are changes in the brain's neurons and synapses due to sensory input. Musical training has shown remarkable differences in the brains of musicians and nonmusicians in regards to auditory processing. Additionally, other programs such as LACE, SPATS, and Auditory Brain Fitness, have shown improvements in sound identification and memory, which suggests that short-term training programs are capable of enhancing speech understanding in older adults.

## **ASSESSMENT OF ATRAZINE AND CHLOROTHALONIL FROM CHILDREN IN CENTRAL ILLINOIS**

Primary Group Member: Cheatham, Drew  
Student Department, Class: Biological Sciences, Undergraduate  
Group Members: Drew Gumbiner, Undergraduate, Biological Sciences  
Mentor(s): Prof. David Rubin  
Author(s): Drew Cheatham, Drew Gumbiner, Dana Mueller, Nick Seitz, Clare Howard, Dr. David A. Rubin

Atrazine and chlorothalonil are broadly used pesticides for agricultural purposes. Atrazine is the second most widely used herbicide in the United States. It is primarily used on corn crops to decrease the growth of weeds. Central Illinois counties, specifically McLean, Tazewell, and Peoria counties, are among the highest levels of atrazine use in the country. When ingested by humans, atrazine acts as an endocrine disrupting chemical (EDC) and displays many negative effects at concentrations lower than USEPA water safety guidelines. Human exposure to atrazine can occur via town drinking water or through dust. Substantial amounts of atrazine have been found in public streams and waterways. The effects associated with atrazine include negative reproductive effects, delayed development, diabetes, and links to certain cancers.

## **EFFECTS OF BOGUS SIMILARITY INFORMATION ON ATTRACTION TO A STRANGER**

Primary Group Member: Clesen, Andrew  
Student Department, Class: Communication, Undergraduate  
Group Members: Caitlin Hannigan, Undergraduate, Sociology & Anthropology  
Madeline Luniewicz, Undergraduate, Psychology  
Michelle Malik, Undergraduate, Psychology  
Jennifer Sandoval, Undergraduate, Psychology  
Chaunte Wilder, Undergraduate, Psychology  
Mentor(s): Prof. Susan Sprecher  
Author(s):

Similarity between people, including in attitudes, personality traits, and appearance, has been found to be a strong predictor of attraction. Similarity has been found to be a particularly strong predictor of attraction in bogus stranger paradigm studies (Byrne, 1971; Montoya et al., 2008). In such studies, limited information about a “bogus other” is presented to participants. Participants express more liking to the bogus other when he or she is presented as similar rather than dissimilar to them. In most such studies, however, information on similarity is the only information presented about the other and no interaction occurs; indeed, the “other” does not exist. Will information on similarity still influence initial attraction if the similarity information is fabricated, but the other participant is real and an interaction occurs? This is the issue examined in our study. The 2014 spring social interaction research lab team (supervised by Dr. Sprecher) is conducting a study that involves pairs of unacquainted individuals interacting to become acquainted. As part of the study, which began with the 2013 fall research team, members of the dyads receive bogus information about the degree to which they are similar or dissimilar on a number of traits and preferences (e.g., coffee vs. tea; dreamer vs. doer). Yet, unlike prior studies that have manipulated similarity (e.g., Byrne, 1971), our participants were introduced to each



other over Skype before receiving the similarity/dissimilarity information. We hypothesize that those in the similarity condition will report being more eager to interact with the other person, believe that they will like the other person more, and believe that they will enjoy the interaction more, relative to those in the dissimilarity condition. Thus far, 92 college students (forming 46 dyads) have participated in our experiment. Preliminary results indicate partial support for our hypothesis. Although no differences were found between the dyads in the similarity and dissimilarity conditions on eagerness to engage in the interaction, those receiving bogus similarity information expected to like the other and enjoy the interaction to a greater degree than those who received the dissimilarity information. These effects occurred even though participants had the opportunity to briefly meet the person over Skype before being presented with the bogus information. Data will continue to be collected by our spring research team, and more detailed results will be presented in our poster.

### **A RHETORICAL CRITIQUE OF THE ABUSED GODDESSES CAMPAIGN**

Primary Group Member: Cruz, Tyler  
Student Department, Class: Communication, Undergraduate  
Group Members: Tom Forrest, Undergraduate, Communication  
Brian Goldfarb, Undergraduate, Communication  
Raegan Larberg, Undergraduate, Communication  
Mentor(s): Prof. Megan Koch  
Author(s): Tyler Cruz, Tom Forrest, Brian Goldfarb, Raegan Larberg

On August 23rd, 2013 Jyoti Singh Pandey, a young female photojournalist, was gang raped and murdered in an isolated, overgrown corner of India's business hub of Mumbai. The five men who did so escaped, and faced no consequences. According to the Save Our Sisters organization, over 68% of women in India experience domestic violence each day. To fight this issue, a Mumbai-based advertising agency, Taproot India, decided to release a series of advertisements as posters titled Abused Goddesses. The intent is to raise money for the Save Our Sisters organization, which helps prevent young Indian women from entering into sex-trafficking. By using the intensity of religious imagery to replicate the impact of domestic violence, these eye catching and controversial ads are garnering attention both for their message and their method which prompt the research question: does the Abused Goddesses campaign successfully utilize religious iconography to achieve its social justice goals? To answer this question we will turn to Karen L. Mallia's 2009 article found in the Journal of Media and Religion, "From the Sacred to the Profane: A Critical Analysis of the Changing Nature of Religious Imagery in Advertising." Her model describes how religious imagery is able to rhetorically force an audience to pay attention to it and as a result is appropriate for our analysis. In this project we will analyze our model, apply its tenets to the campaign before finally drawing upon some rhetorical implications.

## **AGREEABLENESS AND KINDERGARTENERS' SOCIAL-EMOTIONAL OUTCOMES**

Primary Group Member: Curnock, Allison  
Student Department, Class: Psychology, Undergraduate  
Group Members: Hailley Ripple, Undergraduate, Psychology  
Mentor(s): Prof. Renée M. Tobin  
Author(s): Allison Curnock, Haily Ripple, Alyssa Sondalle

This study examined whether agreeableness predicts children's social-emotional outcomes of children completing Second Step: A Violence Prevention Program, a social-emotional learning curriculum (Committee for Children, 2002; 2011). Agreeableness, the motive to maintain smooth interpersonal relations, has been linked to cooperation and competition (Graziano, Hair, & Finch, 1997), conflict resolution (Graziano, Jensen-Campbell, & Hair, 1996; Jensen-Campbell & Graziano, 2001), and emotion regulation (Tobin, Graziano, Vanman, & Tassinari, 2000). This study investigates the relations between individual differences in personality and children's social-emotional functioning as measured by report cards and teacher ratings. We hypothesize that teachers will rate children high in Agreeableness as demonstrating greater social-emotional functioning than their peers. These and other hypotheses will be discussed in terms of social and personality development.

## **MOTOR DYNAMICS IN A JOINT ACTION TASK**

Primary Group Member: Dhillon, Rubina  
Student Department, Class: Psychology, Undergraduate  
Group Members: Kaitlyn Kavogel, Undergraduate, Psychology  
Mentor(s): Prof. Steve Croker  
Author(s):

Sebanz, Knoblich, and Prinz (2005) found joint action effects on a Simon task in which participants pressed a button if a picture of a hand pointing left or right wore a green ring, and refrained from responding if the ring was red. When two people responded to different stimulus dimensions (one person responded to color, the other responded to direction), reaction times were slower, indicating that participants were representing both their own task and that of their partner.

## **CONTENT ANALYSIS OF THE PORTRAYAL OF SEXUAL APPEARANCE IN TEEN FILMS**

Primary Group Member: DuBois, Allyson  
Student Department, Class: Family and Consumer Sciences, Undergraduate  
Group Members: Mackenzie Blecha, Undergraduate, Family and Consumer Sciences  
Jazmyne Smith, Undergraduate, Family and Consumer Sciences  
Mykael Smith, Undergraduate, Family and Consumer Sciences  
Mentor(s): Prof. Ui-Jeen Yu  
Author(s):

Scantily clad girls, inappropriate sexual talk, and strong sexual images are all portrayed heavily in

teen films not only today, but also from the past. Explicit sexual messages have become prevalent in the dialogue, lyrics, and behaviors featured in teen films, and these sexual messages often contain unrealistic, inaccurate, and misleading information that young adolescents may accept as fact. However, the presence of sexual appearance in teen films has not been examined well throughout the years. The purpose of this study was to examine the presence of sexual appearance in teen films. A content analysis of the top ten grossing box office teen films over the past ten years was conducted. The contents of each film were rated by three different categories featuring subcategories to further explain the type of sexual content. These three categories included sexual dialogue, sexual activity, and sexual appearance. The results showed 70% of the teen films featured sexual activity, such as passionate kissing, touching, implied intercourse, sexual disrobing, and screen intercourse. Overall, 90% of the teen films featured sexual dialogue including sexual body comments, talk of intercourse, sexual innuendos, and talk of promoting sex. The most prominent sexual appearance in the teen films includes revealing cleavage, upper thigh, midriff, incomplete nudity, and complete nudity. Sexual appearance dressing immodestly in teen films may influence adolescent viewers to dress in a similar manner, promoting sexual dialogue and activity. Potential influences of sexual appearance in teen film on adolescent s' appearance management and their appearance-related behaviors need further investigation in future research.

#### **COMPARISONS OF DIMENSIONAL CHANGE AND SEAM SMOOTHNESS BETWEEN COTTON AND COTTON BLENDED FABRICS**

Primary Group Member: Ferguson, Kelly  
Student Department, Class: Family and Consumer Sciences, Undergraduate  
Group Members: Danielle Levi, Undergraduate, Family and Consumer Science  
Teiara Hayslett, Undergraduate, Family and Consumer Science  
Matt Goldsmith, Undergraduate, Family and Consumer Science  
Mentor(s): Prof. Ui-Jeen Yu  
Author(s): Kelly Ferguson, Danielle Levi, Teiara Hayslett, Matt Goldsmith

Home laundering can cause dimensional changes in length or width and smoothness of seams within garment, which do not meet customers' expectations to dimensional stability and appearance retention of apparel product. Consumers especially laundering cotton fabrics or cotton blended fabrics with spandex or polyurethane may experience more frequent shrinkage and distortion after repeated home laundering. Minimal research has been conducted on this issue. To help consumers make a smart decision about fabric selection and care, the purpose of this study was to examine dimensional changes and smoothness of seams in cotton and cotton blended fabrics having stretch. Three different fabrics of 100% cotton, cotton/spandex, and cotton/polyester/spandex were compared through two standard test methods: AATCC 135 Dimensional Change of Fabrics after Repeated Home Laundering and AATCC 88B Smoothness of Seams in Fabrics after Repeated Home Laundering. Results indicate that 100% cotton showed the most change in the filling direction with shrinkage of -4.7%, followed by cotton/spandex (-4.4%) and cotton/spandex/polyester (-4%). The greatest shrinkage shown in the warp direction occurred in cotton/spandex with shrinkage of -4%, followed by 100% cotton (-3.7%) and cotton/polyester/spandex (-3%). Concerning smoothness of seam, cotton/polyester/spandex showed the greatest smoothness of seam, followed by 100% cotton and cotton/spandex. Overall, the multi-blended cotton fabric with polyester and spandex showed greater dimensional stability and higher seam smoothness with less shrinkage and seam

puckering issues than 100% cotton and cotton/spandex. This study suggests polyester blending to cotton fabric or cotton/spandex fabric could be a way to reduce shrinkage and improve seam smoothness.

### **SELF-EXPANSION, SIMILARITY, AND AFFILIATIVE OUTCOMES: DOES TOPIC OF DISCUSSION MATTER?**

Primary Group Member: Fisher, Amanda  
Student Department, Class: Psychology, Graduate  
Group Members: Michelle Grzybowski, Graduate, Psychology  
Mentor(s): Prof. Susan Sprecher  
Author(s): Susan Sprecher, Stanislav Treger, Amanda Fisher, Nicole Hilaire, Michelle Grzybowski

The self-expansion model (e.g., Aron & Aron, 1996) suggests that people are attracted to those who offer opportunities to expand the self. The complex associations of self-expansion opportunities, similarity to the other, and attraction, however, remain an enigma in the study of self-expansion and initial attraction. Extensive research has shown the important role of both actual similarity (i.e., the degree to which one is actually similar to another) and perceived similarity (i.e., the degree to which one believes they are similar to another) in initial attraction (Montoya, Horton, & Kirchner, 2008). Although these associations are well established, self-expansion theorists purport that greater self-expansion opportunities are likely to be perceived when the other is dissimilar. Using a live interaction paradigm, the present study examined the associations of actual similarity, perceived similarity, self-expansion opportunities, and affiliative outcomes (e.g., liking). Seventy-five pairs of previously unacquainted individuals interacted for 15 minutes. The dyads were randomly assigned to discuss either their leisure interests, their political beliefs, or to simply “get acquainted”. The topic of discussion had no effect on affiliative outcomes or perceived self-expansion opportunities from the other. In addition, actual similarity (the degree to which the partners were actually similar in leisure interests or political views) was generally not associated with perceived self-expansion opportunities and affiliative outcomes. Perceived similarity, however, was positively associated with greater self-expansion opportunities. Finally, perceived self-expansion opportunities mediated the link between perceived similarity and liking.

### **VOLUNTEERS' RESPONSES TO OPEN-ENDED SURVEY QUESTIONS: EVIDENCE OF NEGATIVITY BIAS?**

Primary Group Member: Gabka, Kamila  
Student Department, Class: Psychology, Graduate  
Group Members: Ashley McCarthy, Graduate, Psychology  
Aaron Whitely, Graduate, Psychology  
Cassi Heider, Undergraduate, Psychology  
Jacqueline Masso, Undergraduate, Psychology  
Erin White, Undergraduate, Psychology  
Taylor Weissman, Undergradudate, Psychology  
Mentor(s): Prof. Kimberly Schneider  
Author(s): Kamila Gabka, Ashley McCarthy, Kimberly Schneider,

Aaron Whitely, Cassi Heider, Jacqueline Masso, Erin White,  
Taylor Weissman

**Purpose:**

Organizations have long incorporated the use of both close-ended and open-ended responses to surveys to better assess employees' satisfaction. In samples of paid employees, less satisfied employees are more likely to respond to optional open-ended items and comments tend to be relatively negative in tone (Ingwer et al., 2010; Poncheri et al., 2008). Previous research focused on paid employees' responses; the aim of our study was to focus on samples of volunteers and distinguish between questions aimed at program strengths and weaknesses. It is important to understand volunteers' experiences and feedback given differences in motivations for volunteering versus engaging in paid work. We hypothesized that responders to optional open-ended survey items focused on strengths of the program were more likely to be satisfied whereas those commenting on weaknesses were more likely to report feelings of burnout than those who had no comments to offer.

**Procedure:**

The study included two samples of volunteers who completed online surveys. Sample 1 included 248 volunteers from three animal shelters in the Pacific Northwest. Sample 2 included 139 volunteers at a large hospital in the Midwest. Closed-ended scales assessed various dimensions of satisfaction (with tasks, with communication, voice), role ambiguity, commitment, and burnout. Optional open-ended questions allowed volunteers to list three strengths and three weaknesses of the volunteer program. Independent raters coded whether volunteers commented on open-ended questions and assessed the tone of the comments on a 5-point scale. Inter-rater reliability was .8-.9 for these measures.

**Results:**

For both samples, we found that those who wrote comments focused on the strengths of the volunteer program (76% in Sample 1 and 63% in Sample 2) were significantly more satisfied with volunteering and felt they had more voice (see Table 1). Those who wrote comments focused on the weaknesses of the program (63% in Sample 1 and 47% in Sample 2) were less committed, felt they had less voice, and reported more burnout and role ambiguity.

**Conclusions:**

We found significant differences in responders and non-responders for important organizational correlates. Results varied based on comments related to strengths or weaknesses of the program. We will examine whether engagement moderates the relationship between tone of comments and correlates. This study extends previous research to samples of volunteers. It is important to understand volunteers' experiences and motivations to better support those who donate their time to hospitals, animal shelters, and other organizations.

**DOES OSTRACISM PRIME A SURVIVAL MINDSET?**

|                            |  |
|----------------------------|--|
| Primary Group Member:      | Grzybowski, Michelle   |
| Student Department, Class: | Psychology, Graduate   |
| Group Members:             | Savannah Stucki, Undergraduate, Psychology                                       |
| Mentor(s):                 | Prof. Eric Wesselmann  |
| Author(s):                 | Michelle Grzybowski, Savannah Stucki, Diana Steakley-Freeman,<br>Eric Wesselmann |

Ostracism (i.e., being excluded and ignored) is a common experience that occurs across many social contexts (Williams, 2009). Being ostracized leads to both adverse physical and psychological consequences (Cacioppo, Hawkley & Berntson, 2003; Lynch, 1979; Williams, 2007). Humans have evolved to detect both physical and social threats to their survival so that they can immediately respond to these threats (MacDonald & Leary, 2005). As ostracism could potentially lead to death through isolation (i.e., a social threat), evolutionary psychological theory suggests that individuals who could quickly detect cues of ostracism (and respond appropriately) were more likely to survive (Wesselmann, Nairne & Williams, 2012). We present research examining the potential evolutionary underpinnings of ostracized individuals' reactions.

### **POLICIAS COMMUNITARIAS AND THE RHETORIC OF MILITIAS**

Primary Group Member: Guzman, Ayanna  
Student Department, Class: Communication, Undergraduate  
Group Members: Maggie Butzen, Undergraduate, Communication  
Tom McCarty, Undergraduate, Communication  
Sarah Seward-Genung, Undergraduate, Communication  
Mentor(s): Prof. Megan Koch  
Author(s):

Just 152 miles away from the paradise of Acapulco, Mexico, the community of Olinala, Guerrero is a haven for organized crime. According to the Los Angeles Times of September 25 2013, Los Rojos or the Reds, a thuggish branch of one of central Mexico's largest drug cartels have terrorized Olinala with small numbers of outlaws who many in the town believe have the protection of corrupt police and politicians. Fed up with this injustice, Nestora Salgado, a mother of three, decided to take matters in her own hands. Salgado armed hundreds of other women across the state of Guerrero with guns and rifles, forming "Policias Comunitarias." According to the New York Times of August 27th, 2013, this unsanctioned vigilante group of women has made it their priority to defend their town against the drug cartels in the absence of police protection. And the movement isn't showing signs of slowing down. According to the previously cited Los Angeles Times article, similar self-defense squads are appearing across central Mexico and are beginning to threaten the authority of the nation's President Enrique Peña Nieto. Given the proliferation of militia groups like Olinalas' female-led "Policias Comunitarias," the rhetoric behind its formation warrants our analysis and prompts the research question: How did the women of Guerrero, use the rhetoric of militia formation to justify vigilante tactics?

### **TECHNOLOGY'S DISTANCING EFFECTS, DO CELLPHONES AND FACEBOOK LIMIT INTERPERSONAL CONNECTIONS IN GET-ACQUAINTED INTERACTIONS?**

Primary Group Member: Hampton, Adam  
Student Department, Class: Psychology, Undergraduate  
Group Members: Ashley Campbell, Undergraduate, Sociology  
Jillien Ewoldt, Undergraduate, Sociology  
Ryan Jacobsen, Undergraduate, Psychology  
Lauren Maass, Undergraduate, Sociology

Jalisa Nailson, Undergraduate, Psychology  
Kyla Peal, Undergraduate, Sociology  
Brittany Weber, Undergraduate, Psychology  
Prof. Susan Sprecher

Mentor(s):

Author(s):

Social interaction has undergone rapid changes, from almost exclusively face-to-face conversations to many opportunities for interaction via distant forms of communication (e.g., video calls, social networking sites, mobile phone voice and text). The current study examined how current modes of technological communication, namely text messaging and Facebook, affect the interaction between pairs of unacquainted individuals who were directed to engage in a structured self-disclosure task over Skype video. Extending prior research done by Przybylski and Weinstein (2012), our major hypothesis predicted that the use of text messaging and Facebook during a social interaction by one or both participants would have negative effects on the participants' ratings of the interaction (e.g., enjoyment, closeness, mood). Approximately one-half of the participants were randomly assigned to (secretly) read text messages on their phone and check their Facebook page for new posts during their get-acquainted Skype interaction. After the interaction, participants provided their reactions to the interaction and their partner. Contrary to our hypothesis, no difference was found in our dependent variables (e.g., enjoyment of interaction, liking for the other, positive or negative mood) as a function of whether the participant was allowed to read messages from their network while communicating with a stranger. We also explored other issues, and found that women, in comparison to men, experienced greater liking of the other, perceived similarity to the other, and enjoyment of the interaction. Additionally, both genders had an increase in positive mood and a decrease in negative mood, from before the interaction to after. Thus, a get-acquainted interaction elevates one's mood, and this effect is not increased or decreased by having access to communication with other network members at the same time.

### **SEARCHING FOR SPORE KILLER: A MEIOTIC DRIVE ELEMENT IN NEUROSPORA FUNGI**

Primary Group Member: Harvey, Austin  
Student Department, Class: Biological Sciences, Undergraduate  
Group Members: Dilini Ralalage, Graduate, Biological Sciences  
Mentor(s): Prof. Thomas Hammond  
Author(s): Austin Harvey, Dilini Ralalage, Kevin Sharp, David Rehard, Patrick Shiu, Thomas Hammond

Mendel's laws of Inheritance ubiquitously describe the mechanisms of chromosomal inheritance of genes. One such Mendelian law states that during meiosis, two homologous alleles have an equal chance of being passed to the progeny. However, meiotic drive has the ability to suspend Mendelian inheritance. Meiotic drive describes the phenomenon in which an allele is able to increase its transmission to offspring well beyond the standard Mendelian 50/50 chance of inheritance. In this study we are investigating a meiotic drive element called Spore killer discovered in *Neurospora* fungi. Spore killer in *Neurospora* works via a 'killer and resistance' model. In this system there are two tightly linked loci, one for killing and one for resistance. Recently, the resistance locus was identified. In this work, we are using molecular genetic

techniques to identify the location of the killer gene. Identification of the Spore killer could potentially lead to a novel control technology for agriculturally detrimental fungi.

### **NOISE INDUCED HEARING LOSS OF MILITARY AND POLICE PERSONNEL**

Primary Group Member: Jeralds, Brandon  
Student Department, Class: Health Sciences, Undergraduate  
Group Members: Travis Fellers, Undergraduate, Health Sciences  
Maisie Swanson, Undergraduate, Health Sciences  
Heather Harrison, Undergraduate, Health Sciences  
Mentor(s): Prof. George Byrns  
Author(s): Brandon Jeralds, Travis Fellers, Maisie Swanson, Heather Harrison

**Objectives:** 1) To characterize noise levels of various firearms, 2) to compare these results to OSHA's standards, 3) to investigate possible noise control measures for military and police personnel.

**Methods:** Eight different guns were evaluated for noise levels. Surveys were conducted on one gun at a time, ten shots per gun. These guns included: a .22 rifle, 9mm pistol, .45 caliber pistol, .38/357 pistol, 12 gauge shot gun, 12 gauge slug shotgun, and a .556 caliber rifle. Personal measurements were made with a calibrated 3M Edge Dosimeter. These measurements were compared to the PEL and Hearing Conservation Amendment.

**Results:** The highest noise levels (>115 dB based on a 90 dB threshold) were measured from several weapons. Noise measurements for the 9mm, .45 caliber, and the .556 caliber all approached or exceeded 115 dB. While the other measurements are lower, all guns exceeded 100 dB. However, controls are difficult to implement in the line of duty.

**Conclusion:** It is recommended that military and police forces should implement controls to mitigate hearing loss in those serving. These controls would include redesigning the firearm to reduce noise at the source, exploring the use of hearing protection devices that would not interfere with the job task or communication, and shielding the individual using a silencer.

### **SPONTANEOUS IMITATION AND EXPRESSIVE LANGUAGE DEVELOPMENT IN AUTISM SPECTRUM DISORDERS**

Primary Group Member: Karlen, Claire  
Student Department, Class: Psychology, Graduate  
Group Members: Alexandra Bluell, Graduate, Psychology  
Daisy Bueno, Graduate, Psychology  
Kristin Gallaway, Graduate, Psychology  
Mentor(s): Prof. Karla Doepke  
Author(s): Claire Karlen, Alexandra Bluell, Daisy Bueno, Kristin Gallaway, Karla Doepeke



This research examines the effectiveness of child-directed and teacher-directed imitation training on spontaneous imitation and expressive language skills of children with autism spectrum disorders (ASD). Specifically, utilizing a multiple-baseline design, the two imitation training procedures are compared to determine the relative efficacy of each in improving spontaneous imitation and language. As imitation has been shown to be a precursor to social interaction, expressive language, and pretend play, interventions that increase a child's imitation abilities may also improve these skills that are shown to be deficits in individuals with ASD. Poster attendees will gain information on effective imitation training for improving imitation and expressive language skills in children with ASD.

### **HOW NEED FOR COGNITION AND COGNITIVE LOAD INFLUENCE THE ROLE OF MAGICAL THINKING UPON REACTIONS TO STIGMAS**

Primary Group Member: Lord, Alinda  
Student Department, Class: Psychology, Undergraduate  
Group Members: Kyla Cary, Undergraduate, Psychology  
Lloyd Scharneck, Undergraduate, Psychology  
Mentor(s): Prof. John Pryor  
Author(s):

Stigmas are often perceived to have magical properties. Surveys have found that most American adults readily profess at least some magical beliefs. The current research explored the idea that priming people to think about their magical beliefs might enhance negative reactions to stigmas. In a previous study conducted in our labs, priming magical beliefs was found to enhance the degree to which participants who were low in the Need for Cognition (NFC) felt that objects connected to stigmatized persons were contaminated. In a second study, participants low in NFC had more negative affective, cognitive and behavioral reactions to a person with mental illness following magical belief priming. A third study found that the impact of magical belief priming upon reactions to a person with mental illness was enhanced and the moderating influence of NFC was eliminated when deliberative thinking was disrupted with high cognitive load. The current study (data collection is underway), seeks to expand this research by conceptually replicating the third study using a variety of stigmatizing conditions. Participants in this research will be asked to examine photos of stigmatized persons and yoked control persons. They will be asked to indicate how each photo makes them feel. The following stigmatizing conditions are represented in the photos: people with facial birthmarks, overweight people, young Black men, young Arabic men, people who inject illegal drugs, and people who smoke. Our hypotheses are that priming participants to think magically will result in participants who are low in NFC reacting more negatively to photos of stigmatized persons in conditions where they do not experience cognitive load. However, when participants are in high cognitive load conditions, the moderating influence of NFC will be diminished. In high cognitive load conditions, priming magical thinking will generally result in enhanced negative reactions to stigmatized persons for those high or low in NFC. Collectively, this research will further our understanding of the role that magical thinking may have in reactions to stigmatized persons.

## **THE BEST CAMPAIGN STRATEGIES TO WIN A CONGRESSIONAL ELECTION IN ILLINOIS**

Primary Group Member: Madden, Brian  
Student Department, Class: Politics and Government, Undergraduate  
Group Members: Brian Comella, Undergraduate, Politics and Government  
Alison Clegg, Undergraduate, Politics and Government  
Mentor(s): Prof. Erik Rankin  
Author(s):

Over the past decade there has been a big increase in technology in how citizens use the internet to gather information of current events. United States Congressman and Senators have been using the internet and developing websites to help enhance their campaign during election time from 1996 to 2008. Roughly, 97% percent of U.S. Congressman and Senators now have web pages to help influence their campaign during re-elections. We would like to see if this trend has influenced Illinois state legislatures to develop web pages during re-election periods. Along with that, we are going to analyze what factors (e.g. media, finances, capturing votes) and what specific strategies work best when running for a seat in office. After we have gathered all that information, we would like to predict the most effective strategies that will be used to win a state congressional election.

## **INCREASING THE EFFECTIVENESS OF EARLY INTERVENTION PROVIDERS WORKING WITH CHILDREN WHO ARE DEAF OR HARD OF HEARING: EMBEDDING EVIDENCE-BASED PRACTICES**

Primary Group Member: Miller, Jessica  
Student Department, Class: Special Education, Undergraduate  
Group Members: Megan Liddell, Graduate, Communication Sciences and Disorders  
Taylor Pooley, Undergraduate, Special Education  
Alicia Atkins, Undergraduate, Special Education  
Mentor(s): Prof. Maribeth Lartz  
Author(s): Megan Liddell, Jessica Miller, Taylor Pooley, Alicia Atkins

The current study sought to evaluate the competencies of graduate students employing evidence-based strategies designed to increase the listening and spoken language development of infants and toddlers with hearing loss during therapy sessions with the children and their parents. It was hypothesized that the training program would lead to an increase in the use of evidence-based early intervention strategies specific to infants and toddlers with hearing loss and an increase in the frequency of use of such strategies.

## **MANIPULATING ENVIRONMENTAL COMMITMENT IN COLLEGE STUDENTS**

Primary Group Member: Montoya, Richard  
Student Department, Class: Psychology, Undergraduate  
Group Members: Alex Driskell, Undergraduate, Psychology  
Mentor(s): Prof. Eric Wesselmann  
Author(s): Richard Montoya, Alex Driskell, Eric Wesselmann

Environmental commitment is the subjective experience of dependence on the natural environment to uniquely satisfy one's needs. It is also marked by a long-term orientation and psychological attachment towards the natural environment (Davis, Green, & Reed, 2009). The construct of environmental commitment is based on research and theory used in studying commitment to interpersonal relationships. Commitment can predict various relationships outcomes, such as longevity, willingness to sacrifice, and behaviors that can help (or hinder) relationship development. Further, relationship commitment can be temporarily manipulated by asking individuals to focus on how various relationship-relevant factors (e.g., investments in relationship; interdependence with relationship partner). Recent research has demonstrated that these findings are replicated when studying one's relationship to the natural environment as well (Davis et al. 2009; 2011).

### **HIGH CALORIE PANCAKES WITH ENSURE PLUS, ALMOND FLOUR, AND RICOTTA CHEESE**

Primary Group Member: Niewinski, Taylor  
Student Department, Class: Family and Consumer Sciences, Undergraduate  
Group Members: Beth Fitzsimmons, Undergraduate, Family and Consumer Sciences  
Abbey Schieler, Undergraduate, Family and Consumer Sciences  
Mentor(s): Prof. Julie Schumacher  
Author(s):

Meeting the nutritional needs for athletes, cancer patients, and the elderly is important to limit the occurrence of malnutrition in these groups. This research experiment focused on creating a high calorie pancake with the addition of almond flour, Ensure Plus, and whole ricotta cheese. With the addition of these ingredients, the researchers not only added calories, but also added additional vitamins and minerals to a classic breakfast food. The researchers were able to create a high calorie pancake that was preferred for its taste over the control. The researchers reached these results by using a sample size of 45 untrained students as taste testers. The students received a sample of each pancake variation and recorded their feedback on a ballot using a 4 point Liker scale. The results found that the control was preferred in mouthfeel and overall acceptability, but variation 1 (almond flour and Ensure) created a better tasting pancake.

### **PROBING THE LIMITS OF UNPAIRED DNA DETECTION DURING MEIOSIS**

Primary Group Member: Pyle, Jay  
Student Department, Class: Biological Sciences, Graduate  
Group Members: Morgan McCall, Undergraduate, Biological Sciences  
Mentor(s): Prof. Thomas Hammond  
Author(s): Jay Pyle, Morgan McCall, Thomas Hammond

Homologous chromosome pairing is an essential process during meiosis in the life cycle of the filamentous fungus *Neurospora crassa*. During this phase the fungus, through a process known as Meiotic Silencing of Unpaired DNA (MSUD), is able to scan its genome and utilizes an RNAi pathway to effectively silence genes which appear to be unpaired between the homologous chromosomes. MSUD directs transcripts from unpaired genes along with all homologous copies of that gene, including paired copies, through an RNAi pathway mediated by MSUD-associated

small interfering RNAs (masiRNAs). While the mechanism behind RNA processing is well defined in the cytosol the system for identification of unpaired DNA within the nucleus has remained obscure. This study aims to characterize the basic capabilities for MSUD to detect and silence unpaired DNA. Specifically, analysis of phenotypic outcomes will be analyzed after sexual reproduction with crosses containing ectopic transformations of gene fragments known to cause distinct phenotypic modifications in the progeny. Our analysis will attempt to better define *Neurospora crassa*'s ability to recognize repetitive DNA sequences and inverted transgenes as either paired or unpaired DNA segments.

### **WHO'S WHERE WHEN: VISUALIZING CAMPUS TRAFFIC**

Primary Group Member: Ringwood, Adam  
Student Department, Class: Information Technology, Undergraduate  
Group Members: Bob LeGrand, Undergraduate, Information Technology  
Mentor(s): Prof. Glen Sagers  
Author(s): Adam Ringwood, Bob LeGrand

Our project is an attempt to utilize wireless device traffic to track wireless devices when on campus. It does this by detecting the device's MAC, (media access control), address when the wireless device searches for nearby wireless networks or utilizes wireless networks. This information is then stored in a central database and a front end web page allows monitoring of traffic around any one sniffing device or all of them. This project can support a large number of sniffers and sync traffic between them to give a unified view of the nearby wireless devices. It also works with correlating trends and movement patterns between individual sniffing devices.

### **EXECUTIVE FUNCTIONING AND READING COMPREHENSION IN MIDDLE CHILDHOOD**

Primary Group Member: Schmidt, Caryn  
Student Department, Class: Psychology, Undergraduate  
Group Members: Emily Gnaedinger, Graduate, Psychology  
Katarina Miller, Undergraduate, Psychology  
Rachel Sheley, Undergraduate, Psychology  
Mentor(s): Prof. Alycia Hund  
Author(s): Caryn Schmidt, Emily Gnaedinger, Katarina Miller, Rachel Sheley

Reading skills are important for academic success, as much of the information presented through textbooks must be read and understood to facilitate learning. Executive functioning is a broad term encompassing activities related to goal directed behavior. One aspect of executive functioning is cognitive flexibility, which is the ability to switch between several tasks (Miyake et al., 2000). Cartwright, Marshall, Dandy, and Isaac (2010) linked cognitive flexibility to reading comprehension, such that students who scored highest on reading-specific flexibility tasks scored highest on measures of reading comprehension. Nonetheless, details about links between executive functioning and academic performance are not well understood, and there is a need to explore this research area, especially in elementary students. The purpose of this study was to specify developmental changes in cognitive flexibility and reading comprehension

during the elementary years, specifically in second through fifth grades, and to observe any correlations between flexibility and reading comprehension.

### **ENGAGEMENT DURING SECOND STEP AND KINDERGARTENERS' SOCIAL-EMOTIONAL AND ACADEMIC OUTCOMES**

Primary Group Member: Sondalle, Alyssa  
Student Department, Class: Psychology, Graduate  
Group Members: Katelyn Probst, Graduate, Psychology  
Christina Carreno, Graduate, Psychology  
Nicole Moore, Graduate, Psychology  
Thomas Mulderink, Graduate, Psychology  
Mentor(s): Prof. Renée M. Tobin  
Author(s): Alyssa Sondalle, Katelyn Probst, Christina Carreno,  
Nicole Moore, Thomas Mulderink

This study examined whether behavioral engagement during a social-emotional learning curriculum, Second Step: A Violence Prevention Program (Committee for Children, 2002; 2011), influenced kindergartners' development of social-emotional and academic skills, as measured by report cards. Specific research questions for this project included: Will students who are more engaged in the Second Step lessons have higher ratings of social-emotional behaviors and skills on final report cards than their peers who were not as engaged during the lessons? Will students who are more engaged in the Second Step lessons have higher academic achievement, as rated on reportcards, than their peers who were not as engaged during the lessons?

### **THE DEVELOPMENT OF METHODS FOR THE DETECTION OF ESTROGENS IN WASTE WATER SAMPLES**

Primary Group Member: Stewart, Jennifer  
Student Department, Class: Health Sciences, Undergraduate  
Group Members: Megan Petraitis, Undergraduate, Health Sciences  
Mentor(s): Prof. Michael Byrns  
Author(s): Jennifer Stewart, Megan Petraitis, Michael Byrns

Pharmaceutical and natural estrogens, including 17 $\beta$ -estradiol, estrone, estriol, and ethinyl estradiol, are found in urban waterways nationwide. These compounds cause a variety of negative outcomes in aquatic wildlife, such as in the feminization and reduced fertility rate. A constructed wetland located at a local water reclamation department has been used to aid in the treatment of sewage before it is discharged. Wetlands contain organisms, such as plants, algae, and bacteria that absorb and metabolize chemicals remaining in the water after sewage treatment, including estrogens. We want to determine a) whether estrogen removal is occurring at the wetland, b) where the removal is occurring within the wetland, and c) whether there is potential for groundwater contamination with estrogens. Several different approaches can be used to detect estrogens, including: enzyme-linked immunosorbent assays (ELISAs), radioimmunoassays (RIAs), gas chromatography-mass spectrometry (GC/MS), and liquid chromatography-mass spectrometry (LC/MS). Ultimately the LC/MS method was selected as the method for separation and identification. GC/MS and LC/MS methods both allow sensitive

detection of hormones. However, GC/MS requires additional derivitization steps, increasing the amount of work up required to analyze samples. Samples will be collected and tested with LC/MS to determine the distribution of estrogens within the wetland.

### **AN EVALUATION OF DIAGNOSTIC TESTS ON CHILDREN WITH AUTISM IN AN EARLY INTERVENTION PROGRAM: DETERMINING BOTH LONG TERM AND SHORT TERM OUTCOMES**

Primary Group Member: Strissel, Dan  
Student Department, Class: Psychology, Undergraduate  
Group Members: Rachel Arena, Undergraduate, Psychology  
Mentor(s): Prof. Karla Doepke  
Author(s):

Although autism typically results in lifelong impairments in functioning, researchers have demonstrated that applied behavior analysis delivered early in life may improve intellectual and communicative functioning in many children with ASD (Anderson et al., 1987; Harris et al., 1991; Lovaas, 1987; Sheinkopf & Siegel, 1998). Whereas lawmakers have recommended that educators use evidence-based practices, there is a lack of consensus regarding appropriate service models for educating young children with autism (e.g., Simpson, 2003). The purpose of this investigation is to evaluate the short- and long-term effectiveness of a developmentally focused and behaviorally-based early childhood intervention program for 8 children ages 3-5 years. In the current study, changes in children's communicative, cognitive, adaptive, social and autism-related functioning over a 9-month period of enrollment and six month follow-up were assessed using standardized autism and cognitive measures, rating scales and direct observations of behavior every three months. Data were analyzed to assess whether the children made measurable gains in the areas of communication, social skills and adaptive functioning that exceed what would be expected given their developmental trajectories at the start of the intervention. Additionally, measures of the program's treatment fidelity and treatment acceptability are reported. Results indicated high levels of treatment fidelity and significant gains in the majority, but not all of the children during intervention. This project is the follow up data to this experiment.

### **ERP IN CLOUD**

Primary Group Member: Tare, Kushal  
Student Department, Class: Information Technology, Graduate  
Group Members: Amitesh Jain, Graduate, Information Technology  
Abhishek Varghese, Graduate, Information Technology  
Mentor(s): Profs. Lance Rogers, Elahe Javadi  
Author(s):

Enterprise resource planning being the artery of allocating the resources within a company is constantly evolving each and every day towards betterment. Instead of limiting itself only to a particular enterprise it is now shifting its domain to a much broader level. With the advent of cloud, every entrepreneur and CEO is focusing on shifting his ERP applications and services on the cloud. Cloud is a plethora of resources which reduces capital investments: on-site technological (servers and databases), ERP deployment expenses that may incur. Data security

and data recovery are also the factors that has proved the viability of cloud. Cloud helps eliminate support, maintenance and labor expenses. It has offered reliable scalability and has made available latest trends of technologies near at hand. "Pay as much as one require" is the saying in cloud, a company pays only for the amount of space and features it requires. With advent of features such as independent EDI on cloud, multiple ERP can be synchronized together. It relaxes the firms by handling basic operations such as changes in customer processes availing the company a larger platform to handling more number of customers. Recent developments involve- developing an ERP platform that could integrate the already existing system, developing hybrid ERP cloud services in which modules are being developed which could be used further with the corporate ERP systems. One of the main reasons is that cloud has finally made ERP affordable for medium and small sized firms. It provides them with enterprise level functionality and best practices in business process which was not affordable at first due to high capital costs.

**CONTENT ANALYSIS OF FASHION MODELS' BODY AND BREAST SIZES BY ETHNICITY IN FASHION ADVERTISEMENTS: COMPARISON OF CAUCASIAN VS. AFRICAN FASHION MODELS**

Primary Group Member: Watson, Talisa  
Student Department, Class: Family and Consumer Sciences, Undergraduate  
Group Members: Taylor Bingham, Undergraduate, Family and Consumer Sciences  
Shanita Hall, Undergraduate, Family and Consumer Sciences  
Sara Marshall, Undergraduate, Family and Consumer Sciences  
Emily Rhodes, Undergraduate, Family and Consumer Sciences  
Mentor(s): Prof. Ui-Jeen Yu  
Author(s):

Many women struggle with the question of what is beauty. Is beauty being a size zero? Media has influenced what people perceive as attractive and socially acceptable, and this is even more apparent when it comes to ideals for different races. Caucasian and African women may have different beauty ideals of what is considered beautiful or attractive. Research indicates that African American adolescent females tend to be more satisfied with their bodies and less likely to be affected by media images than Caucasian American adolescent females. Despite American females have a wide variety of body sizes and physical characteristics, due to different racial, ethnic, and cultural backgrounds, media tend to promote upward social comparison with thin models to stimulate consumers' desire to be thin or attain social and cultural beauty ideals through conception of products advertised. On the basis of social comparison theory, the purpose of this study was to examine how differences of ideal body and breast sizes by African and Caucasian American women are portrayed in fashion advertisements. A content analysis was conducted using female model images published from Vogue and Ebony for September, October, and November of 2013. A total of 316 model images of full-paged ads were analyzed using the Contour Drawing Rating Scale and the Breast/Chest Rating Scale. Findings indicate Caucasian female models in Vogue had smaller body and breast sizes than African female models in Ebony. However, the body and breast sizes of African female models in Vogue were similar to those of Caucasian models in Vogue, while much smaller than those of African models in Ebony. This indicates the media has affected the African beauty ideal, which dominantly present and promote Caucasian models as the ideal beauty in U.S. society. As ethnic diversity increases in the U.S. population, media should present a greater variety of body sizes and

physical features reflecting ethnic diversity to help women develop a more culturally diversified ideal beauty.

### **PLANTATION RETREATS: AN EXPLORATION OF RECLAMATION RHETORIC**

Primary Group Member: Wiggins, Hananiah  
Student Department, Class: Communication, Undergraduate  
Group Members: Joseph Hlavaty, Undergraduate, Communication  
Robi Mahan, Undergraduate, Communication  
Kambria Vance, Undergraduate, Communication  
Mentor(s): Prof. Megan Koch  
Author(s): Hananiah Wiggins, Joseph Hlavaty, Robi Mahan, Kambria Vance

Dylan McKenna may appear to be a typical, well-adjusted 24 year old internet browser; but a peek into his love life reveals involvement in a group not so typical: a special group of racial masochists that engage in plantation retreats. Like most BDSM functions, there is a Dominant and a Submissive. At Plantation Retreats, however, the submissive is the slave who willingly attends a retreat with the hope of reminiscing about a past they never actually experienced. While some may view plantation retreats as a mockery of a historical tragedy that has produced lasting effects for our society today, others view this as an act of reclaiming the power over one's body. To better understand the purpose of these retreats and what they communicate to us today it is imperative that we ask today's research question: Is the plantation retreat an effective forum for one to rhetorically reclaim their bodies, and experience liberation from the past? To answer this question we will turn to Amira Jarmakani's 2006 essay, "Belly Dancing for Liberation: A critical Interpretation of Reclamation Rhetoric in the American Belly Dance Community" published in the 2007 issue of *Arabs in the Americas*. Jarmakani's model is ideal for our analysis as it goes through the steps of authentically reclaiming oneself with the ideal of liberation as the end goal. This project will analyze Jarmakani's essay, apply it to the plantation retreats, and discuss the rhetorical implications of plantation retreats.

### **ACQUISITION OF DTT SKILL: EFFICACY OF IN-VIVO TRAINING VS. VIDEO TRAINING WITH FEEDBACK**

Primary Group Member: Wing, Ellen  
Student Department, Class: Psychology, Undergraduate  
Group Members: Shacoby Henderson, Undergraduate, Psychology  
Jakyra Jones, Undergraduate, Psychology  
Porscha Stevens, Undergraduate, Psychology  
Melinda Vega-Perez, Undergraduate, Psychology  
Mentor(s): Prof. Karla Doepke  
Author(s): Ellen Wing, Shacoby Henderson, Jakyra Jones, Porscha Stevens, Melina Vega-Perez

As the prevalence of autism spectrum disorders continues to increase within schools, paraprofessionals are more frequently being required to employ techniques of Applied Behavior Analysis (ABA) in their work with this population. One example of such a behavioral intervention



is Discrete Trial Training (DTT). DTT has been proven an effective means of working with individuals on the autism spectrum and is used to teach a variety of skills. However, even as paraprofessionals comply with requirements to use such behavioral techniques, they receive limited training in how to effectively implement them. In an attempt to address the practical limitations of the school setting, and the challenge of providing quality training to paraprofessionals without additional compensation, this present study examines the relative efficacy of two brief delivery models of training: live and video. Specifically, this study will examine the two methods of training in terms of efficiency of training, generalization of skills learned, maintenance of skills learned, and acceptability of the training modules. Given past research, experimenters hypothesize that video training will lead to the quickest acquisition of DTT skills, video training and feedback will lead to a higher accuracy of skill generalization compared to live training and feedback, live training will lead to higher maintenance of DTT implementation, and that the video training will be rated as more acceptable than the live format.