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## Abstracts from the 2010 Mary Lou Fulton Mentored Research Conference

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# Abstracts from the 2010 Mary Lou Fulton Mentored Research Conference

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*The Annual Mary Lou Fulton Mentored Research Conference is a full day event designed to showcase mentored student learning. It is an opportunity for students to present and explain their research to the public and their peers. The sixth annual conference took place on April 8th, 2010, and students from all departments in the College of Family, Home, and Social Sciences were invited to participate. Abstracts of the presenting undergraduate psychology students are featured here in Intuition.*

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## ***A Correlation Study with College GPA, Sleep and Exercise***

Andrew Curzon, Lilian Cancado, Sydney Memmott  
Mentor: Scott C. Steffensen, PhD

*Abstract:* The purpose of this study was to find relationships between college GPA and frequency of exercise and sleep. We hypothesized that participants who exercise more during the week and get more hours of sleep each night would have a higher college GPA. A survey was conducted online through Qualtrics with 251 participants. We found that the frequency of exercise each week had no effect on college GPA while amount of sleep each night did effect college GPA somewhat; however, after running a regression on our data there was no significant findings to be found between GPA and sleep and exercise.

## ***Abuse History and Therapy Participation Among Men and Women in Methadone Maintenance Treatment***

Alexandria Kunzler, Sasha Mondragon, Amy Welsh  
Mentor: Scott Baldwin, PhD

*Abstract:* The differences between men (N = 26) and women's (N = 27) self-reports of abuse and recorded therapy participation were examined among clients in a methadone maintenance treatment program. Results indicate

that women report significantly more abuse. We found no significant difference in therapy participation between men and women.

## ***Are You A Major Dater?: A Correlational Study of Single BYU Students' Dating Preferences Based on Major***

Allison Peet, Giles Christman, Ashley Getz, Shirley Grover, Charles Mills, Sara Skousen  
Mentor: Witold Simon, PhD

*Abstract:* Our study examines the relationship between men and women's preferences for dating people within certain undergraduate majors. Additionally, we asked our participants to rate, on a Likert scale, the level of importance on twelve qualities for a potential dating partner. These two were both measured on a survey that was administered through BYU Sona Systems. We hypothesized that women would prefer to date men whose majors are more paternal and have high financial earning potential, whereas men would prefer to date women whose majors focus on maternal based areas such as family and home economics. No other study has focused on a correlation between dating preference and the undergraduate major of their potential dating partners. We conducted our research through a convenience sampling of young, single adults from Brigham Young University (N=246). We analyzed our results using Chi-square to examine the major choices of our participants, and an independent t-test to examine the significance between male and female ratings on the Likert scale questions. Our results yielded significant results and supported our hypothesis that women gravitate towards men with high earning potential while men gravitate towards women with home and family emphasis. We also found that whereas some qualities such as earning potential are important to women, this does not hold true for both sexes. Though religion was a potential focus of our study, we were unable to find a significant diversity, so this could be a topic for future study. Given the

results of our study, future BYU students may consider pursuing one of the more preferred majors in order to increase their chances of being a potential dating partner.

### ***Benefits and Applications of Journaling: Exploring the Lower Boundary for Effective Dosage in Non-clinical Populations***

Ryan Hunsaker

Mentor: Patrick Steffen, PhD

*Abstract:* Written expressions of emotion have been shown to produce favorable outcomes in both spheres of physical health and mental health. Although scientists have identified to some degree what the effects of journaling are, much less is known regarding exactly when this impact is most likely to occur. Several studies have shown clinically significant benefits for brief journaling interventions but the long-term benefits and the lowest dosages necessary for these benefits are debatable. The current study provides an opportunity to assay the therapeutic effects of a brief journaling intervention. The author proposes that a 15-minute journaling intervention will lead to significant health benefits, which will still be apparent after two weeks.

### ***Brigham Young University Student Perception of Medical Practitioners Based on Gender***

Curtis Pearson, Ryan Jury, Charity Kemp, Benjamin De Jesus, Alex Hamner

Mentor: Patrick Steffen, PhD

*Abstract:* Gender bias is a problem within the medical field, even to the extent of affecting patients' care. At the U of U Medical School in 2001 BYU graduates were involved in gender bias. The female medical students complained of sexist remarks towards their role as a Doctor. Studies have shown repeatedly that patients prefer a certain type of gender when choosing a physician. Physician gender attributes also contribute to the type of care that patients perceive they will get. Also, the patients perceptions of the physician's ability determine whether they follow the physicians counsel or not. Other research has shown that there is a general bias in the medical field based on the gender of a chosen physician. We hypothesize that BYU

students have gender bias in the way they choose a physician and follow their counsel.

### ***Classical Music and Its Effects on Verbal and Nonverbal Memory Performance***

Clarence Holbrook, Emily Hadlock, Jentri Rasmussen

Mentor: Erin D. Bigler, PhD

*Abstract:* This study examined the Mozart effect by testing the impact of classical music on verbal and nonverbal memory. The Rey-Auditory Verbal Learning Test (RAVLT) first assessed verbal memory. The subjects were then asked to complete the Rey-Osterrieth Complex Figure Test (ROCFT) to study non-verbal memory. A composite cognitive score was created by equally weighting the 30-minute recall scores of the RAVLT and the ROCFT; this score was then turned into a percentage. The results from the one-way and two-way ANOVAs showed no statistically significant difference between the group with classical music and the group without. Therefore, the presence of classical music did not have a significant effect on composite cognitive performance, so the null hypothesis was not rejected. One of the limitations to this study was that the sample size was not large enough to be representative of the population and was also biased in that the participants were highly educated and 92.9% white. A larger, unbiased sample size could provide further insight into the Mozart effect and future research should be conducted.

### ***Consistency of temperament of in group-housed infant rhesus monkeys (Macacamulatta) during the first months of life***

Joshua William Kirton, Daniel Blocker, Kfir Orgad

Mentor: James Dee Higley, PhD

*Abstract:* While a wide number of studies have assessed temperament as a predictor of future personality or behavior, few studies have assessed its interindividual stability over the first few months of life in nonhuman primates. This laboratory study examined temperament in group-housed infant rhesus macaque (*Macaca mulatta*) assessing interindividual consistency from the second through fifth months of life using objective behavioral

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measures. Stability of temperament was measured by correlating (Pearson Product-Moment tests) individual differences in the frequency of 25 behaviors over months 2-5 of life in 88 mother-reared subjects. Two 5-minute sessions were recorded for subjects each week and the mean for each month was the dependent variable. Results: Eleven behaviors exhibited a statistically significant consistency across at least three of the four months measured, with a significant positive  $r$ -value between .204 and .601. Statistically significant consistency was found for maternally-oriented behaviors of contact cling, mutual ventral, approach by infant, and leave by infant. This maternally-oriented trait may reflect maternal treatment, as well as temperament because receive groom by mother, and restrain by mother were also consistent across months. Consistency was found for the behaviors characteristic of activity including locomotion, environmental exploration, and inactivity. Consistency was also found in socialize with others, and anxiety-like self-directed behavior. This study suggests that objective measurements of temperament in infant rhesus monkeys are consistent across time and possibly situation.

### *Differential Effects of the Discrete Options Multiple Choice Test Format on Test Takers Assessment and Scores*

Ryan Funk, Tamarin Hooper, Emily Hadlock, JeLyn Whicker, Derek Estes  
Mentor: Harold Miller, PhD

*Abstract:* The discreet options multiple choice test format has potential to bring a new level of fairness to testing. The purpose of this study was to investigate the effect of this new test format on participants study time. On two separate experiments, participants scored significantly lower than the comparison group and showed now significant difference on total study time.

### *Does Gender and Marital Status Affect Stu-*

### *dent Anxiety in School?*

Christian Briggs, Zachary Elison, Monica Gonzalez  
Mentor: Scott C. Steffensen, PhD

*Abstract:* School related anxiety and stress is a common psychiatric issue for college students. In recent years, heart rate variability (HRV) has been utilized as a noninvasive and informative way to evaluate autonomic activity by recording electrocardiogram or pulse waves. In past studies, decreased autonomic responsiveness in correlation with task performance has served as a sign of psychological dysfunction (Shinba, 2008). Gender studies have indicated that women are substantially more likely to develop stress disorders and exhibit higher levels of anxiety in clinical testing (McLean, 2009; MacSwain, 2009). Despite these various studies in gender, little research has been done to indicate differences in gender and marital status and school anxiety. We hypothesize that single women will experience the most dramatic decrease in HRV potentially indicative of higher levels of school anxiety

### *Drama, Drama, Drama*

Trace W Lund, McKenzie Gibson, Megan Pixton, Brandon Chandler  
Mentor: Robert Ridge, PhD

*Abstract:* The purpose of this study was to explore the perception of aggression for males and females related to physical and relational aggression. Physical aggression is more common in males and relational aggression is more common in females. These differences have promoted stereotypes of appropriate actions for men and women. Identifying the inequalities that individuals have when judging between the sexes is important in trying to create equality and fairness within society. One hundred ninety-three individuals were given one of four scenarios. The scenarios involved either physical or relational aggression between two men or two women. Results generally indicated that women were rated more harshly than men regardless of aggression type and that relational aggression was rated more harshly than physical aggression. We conclude that the societal expectation that women are more passive and the emphasis on reputation within society were influencing factors in these results.

***Effects of Mood on Error Processing***

Alexander Gray

Mentor: Michael J. Larson, PhD

**Abstract:** Significant amounts of data demonstrate that affective traits play a role in error-related negativity (ERN, a negative potential recorded from frontal medial scalp sites) generation. However, conflicting data exists describing the role of affective states in ERN generation. One-hundred one (44 male, 57 female, ages 18-49 years) students participated in a mood-induction task followed by a Flanker task while electroencephalogram data was collected. Analyzed event-related potentials revealed that mood-induced affective states do not modulate ERN amplitudes  $F(1.33, 0.27)$ . These findings contradict the hypothesis that anxiety and sad mood states correspond to pronounced and attenuated ERN amplitudes, respectively. Yet, these findings suggest that mood states must be related to the task to make error commission significant and to motivate greater vigilance.

***Effects of Relationship Status on GPA***

Emily Albright, Chanel Carlile, Janae Kirkendall, Allyson Webber

Mentor: Scott C. Steffensen, PhD

**Abstract:** Research on the effect of Relationship Status on GPA is very limited. Some studies find that individuals who date more frequently tend to have lower grades than those who don't. Other studies have found that relationships can have a positive or a negative effect on GPA depending on other factors. However, most studies find that Relationship status doesn't have an effect on GPA. We hypothesize that Single and Married individuals will have higher GPA's than their dating counterparts. We further hypothesize that Single and Married people will also be more consistent in their academic achievement and that those who are happy will have higher GPA's.

***Evidence Based Recreational Therapy at a Psychiatric State Hospital***

Trisha Markle, Preston Johnson, Peter Clayson, Ashley Maag, Ruth Ng, ChaNa Sok

Mentor: Gary Burlingame, PhD

**Abstract:** The use of evidence-based practice (EBP) has been a growing trend in the psychological-services field. Most disciplines have accepted this shift to EBP, however, there are a handful of programs and disciplines that have not. The recreational therapy program at the Utah State Hospital is one such program that had not yet embraced an evidenced-based practice. This 12-week study attempts to mend this gap by measuring the improvement of 19 adult patients at the Utah State Hospital along 6 constructs while they participated in off-campus recreational activities. These constructs include therapeutic progress, psychiatric symptoms, motivation, proactivity, coping behaviors, and emotional support. No statistical significance was found between the pre and post-test scores for any of these constructs over the 12-week period. Several reasons exist to account for these findings: the measures may not have been sensitive to change, the measures may not have been valid, or recreational therapy is not an effective tool in improving the aforementioned constructs in a hospital setting. There is a need for more research in this area to determine if the lack of significance is due to the aforementioned factors or if they are due to a lack of effectiveness of recreational therapy.

***Facebook and Self-worth***

Dallin Bywater, Chelsey Tautkus, Paul Moss, Dana Kernes, Ashley Bell, Chris Wei

Mentor: Patrick Steffen, PhD

**Abstract:** "Facebook," the relatively recent Internet boom, has become increasingly popular in the past few years, particularly among college students who spend an average of 30 minutes per day on its pages. The online networking site features a database where people can store pictures of themselves, friends, and others in their own "profile" after which their online "friends" can browse them and make comments. Facebook also allows its users to post their thoughts, feelings, and even favorite videos

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to their profile for others to see. With 85% of all college students being active users of Facebook, one can be sure that their friends will see the posted information. Facebook is an easy way to find approval through social gratification. Whether it is an issue of self-worth or of narcissism, some people need social gratification, and these people seek activities that can either be physically or mentally harmful to their welfare. Social networks on the Internet, such as Facebook, are usually a less harmful way to gain social gratification. In fact, in a survey, Twenge found that 57% of the young people reported believed that their generation uses social networking sites for self-promotion, narcissism and attention-seeking purposes. Therefore, through the Internet, a person with low self-worth can broaden their social circle, and begin to believe that their online friends care for them. It is already known that self-worth can be easily manipulated and diminished by disparagement. In response to this disparagement, one will then seek social gratification from their peers, which will work to bolster their damaged self-worth. One of the easiest ways for these disparaged people to seek social gratification is through Facebook use. However, it is not yet known if a decrease of self-worth leads to an increase in Facebook usage; if this relationship indeed exists, then we may be able to understand more about the link between self-worth and social networking. For example, it is possible that poor mental health causes people to more intensely use Facebook. Testing our theory adds to our understanding of how external validation of self-worth relates to Facebook usage. We have hypothesized that decreasing self-worth will cause intensity of Facebook usage to increase.

### *LDS Doctrine and Perfectionism*

Brittany Mealey, Jeffrey Bernhardt, Michael Davison, Andrea Riggs, Camilla Phillips  
Mentor: Patrick Steffen, PhD

*Abstract:* Perfectionism has become a topic of widespread interest within the social sciences. Many of the studies testing and measuring perfectionism have been associated with constructs such as need achievement and level of aspiration. Though it has been found that there may be links between religiosity and perfectionism (Edgington et. al, 2008; Zohar et. al, 2005), only a small amount of

studies have actually researched if and how perfectionism is affected by religiosity.

### *Marcia's Identity Statuses in Comparison with Time Management Habits*

Anu O'Neill, David Rackham, Mary Finley  
Mentor: Scott C. Steffensen, PhD

*Abstract:* This study found that time management correlates with Marcia's Identity Status theory. Marcia's Identity Status reflects on the four different levels of identity: achievement, foreclosure, moratorium, diffusion. Identity can consist of things such as reasons for going to school, what career they want and knowing what accomplishments they are working towards. Identity and time usage are related because as a person know what is important to them they know how they want to use their time. We are hoping to see the strength of identity in how time is allocated.

### *Marital Quality and Risk Factors for CHD*

Rebecca Wallace, Nicole Barber, Bryan J Jensen, Paige Vella  
Mentors: Julianne Holt-Lunstad, PhD, Patrick R. Steffen, PhD, Jonathan Sandberg, PhD

*Abstract:* Epidemiological research indicates that marriage may significantly protect individuals from various causes of morbidity and mortality including cardiovascular disease. There is also growing evidence that marital quality may be equally if not more important than marital status. While married individuals have greater health benefits relative to unmarried individuals, unhappily married individuals may be worse off than unmarried. For instance, marital distress has been associated with a 2 to 3 fold increase in the risk of heart disease<sup>11</sup> and for recurrent coronary events.

### *Measuring Recovery: Initial and Validity Mea-*

***asures for the NAMI Recovery Indicators***

Ben Gardner, Julie Garcia, Jason Katzenbach  
Mentor: Robert Gleave, PhD

*Abstract:* Recently, the direction of consumer mental health care in the United States has shifted in terms of its approach to recovery. In this sense, recovery is not thought to be a complete amelioration of symptoms, but rather the acquisition of meaningful relationships, independent living, and fulfilling work. In response to these changes the Utah division of the National Alliance for the Mentally Ill (NAMI-Utah) conducted consumer focus groups for the purpose of developing a tool to track consumer outcomes according to this new conceptualization of recovery. The focus groups generated 10 recovery indicators based on recovery as it has been defined by the Substance Abuse and Mental Health Services Administration. Initial validity statistics comparing this measure to the Outcome Questionnaire – 45, a gold standard measure of outcome, will be presented.

***Media Increases Narcissistic Tendencies in College Students***

Megan Sheldon, Melanie Johnson, Brady Morris, Brittany Stevenson, Lauren Checketts, Lena Mavromatis  
Mentor: Patrick Steffen, PhD

*Abstract:* In the recent decade, society has seen more and more cases of narcissistic entitlement (NE). An increased emphasis on celebrity worship, material wealth, physical appearance, media styles, and attention seeking in recent years may account for this shift in NE. NE occurs when people believe themselves to be entitled to certain privileges and have an obsessive self-love rooted in an insecure self-esteem. Individuals with NE may also be more prone to go into debt than those without it because they feel entitled to certain things even though they may not be able to afford them.

***Moral Conceptions and Parent-Adolescent******Congruence: What does it mean to be a moral person?***

Ryan James Funk  
Mentor: Sam Hardy, PhD

*Abstract:* Conceptions of what it means to be a moral person differ from parent to child. This study concerns the areas of congruence between parents and children over moral trait clusters and investigates the extent to which they overlap. Results showed all clusters for within subject correlations to be significantly correlated, 58.5% of adolescent-mother correlations, 29.2% of adolescent-father correlations, and 75.6% of father-mother correlations were significantly correlated.

***Non-target Incidental Memory and Associated Factors***

Sean Peterson  
Mentor: Erin Bigler, PhD

*Abstract:* Students want to learn what is on the test, but professors want students to learn all the curriculum, tested or not. One compromise is through non-target incidental memory, which acts like peripheral vision, so that even though some material is emphasized, surrounding material is also processed and learned. Using a novel verbal memorization test, the current study found a significant amount of incidental memory that did not vary with year in school or sex. Therefore, “teaching to the test” does not necessarily block all learning of other material: some of it is automatically learned as well.

***Note-Taking Method Affects Immediate and Delayed Recall***

Keith Lowell, Meagen Jensen  
Mentor: Erin Bigler, PhD

*Abstract:* Note-taking and its effect on memory is the topic of much research. Past research has generally found that note-taking improves performance. The current study examined the effect of note-taking method on immediate and delayed recall. We hypothesized that hand-written

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**note-taking** would yield better tests results than **mental note-taking**. The study consisted of 18 undergraduate psychology students enrolled in the same psychology class at a major, private university (Brigham Young University). Participants watched a short video clip and then completed an immediate 30-question test and a similar 48-hour delay test to assess recall of both audio and visual information. No significant statistical effects were found, but overall, hand-written note-takers performed slightly better than those who were not assigned to take notes. A larger sample size, yielding greater statistical power, and different test evaluation methods would improve the current study. Better understanding of how note-taking improves memory could better assist the student in retaining information.

***Pornography Addiction: Shedding Light on Internet Help Resources***

Joshua Ruchty

Mentor: Sam Hardy, PhD

*Abstract:* This is a preliminary outcome study of the Candeo online recovery program for pornography addiction. An online survey was completed by 211 (M age = 37.30, SD = 12.14; 98% male; 86% European American) individuals enrolled in the Candeo program. The survey included questions regarding the helpfulness of other treatment options compared to Candeo, self-reports of psychological (e.g., obsessive sexual thoughts) and behavioral (e.g., pornography use) aspects of recovery prior to Candeo and currently, and overall self-perceptions of the extent to which they had recovered prior to Candeo and currently. On average other treatments were rated as less helpful than Candeo. Participants showed significant improvements in all aspects of recovery but one (exhibitionism) – when comparing retrospective and current ratings. Further, there were some links between changes in psychological aspects of recovery and changes in pornography and masturbation frequency. In short, some evidence was found for the potential utility of the Candeo program for aiding recovery from pornography addiction.

***Preference vs. Convenience: A survey of moti-***

***vation behind food selection at the BYU Cougareat***

Authors Chad Halverstadt, Michelle Brown, Mindy Pettita

Mentor: Scott C. Steffensen, PhD

*Abstract:* The purpose of this study was to evaluate whether or not convenience (shorter lines, efficiency, etc.) was the most significant factor in determining where students choose to eat within the BYU Cougareat. With a demographic ranging from freshmen to graduate students, we found that when convenience is compared to other factors such as preference, price, customer service, and health there was no overwhelming evidence showing that convenience was a significant factor in where students chose where to eat.

***Schizophrenia and Error Processing: A Meta Analysis***

David Rackham

Mentors: Scott Baldwin, PhD, Michael Larson, PhD

*Abstract:* The Error-Related Negativity (ERN) is a response-locked Event-Related Potential component, which peaks approximately 50 ms after the commission of an error. Several theories have emerged to explain the changes that occur in ERN amplitude across pathology groups. None of these theories conclusively explain all of the results that have been found, however it appears that the ERN is implicated in a performance monitoring system of the anterior cingulate cortex. Using meta-analytic techniques, this study determined the overall effect size of ERN amplitude for individuals with schizophrenia. A thorough search found eight studies that met the inclusion criteria. Using a random effects analysis a large overall effect ( $d = .64$ ) was found. Existing literature suggests that schizophrenic symptoms may be related to a reduced ability to self-monitor. The results found in this study lend support to this assertion, and establishes the changes in ERN amplitude found in schizophrenia groups as both reliable and large in effect, suggesting the ERN as a possible marker of schizophrenia. This suggests a significant impairment of self-monitoring for individuals with schizophrenia. Future research should be conducted to



determine ERN amplitude differences between disorganized and paranoid subtypes of schizophrenia.

### ***Self-esteem and Gender Confirmation Bias***

Trisha Lynn Cornelsen, Natalya Skabelund, Micaela Metcalf, Kelsey Howell, Alexander Aggen  
Mentor: Patrick Steffen, PhD

*Abstract:* None available.

### ***Social Versus Memory Demands On Cognitive Set Shifting***

Oliver H Johnston, S. White, A. Clawson, E. Krauskopf, M. South  
Mentor: Mickle South, PhD

*Abstract:* Ozonoff (1995) reported that children and adolescents diagnosed with high-functioning autism performed better on the Wisconsin Card Sort Test (WCST), a test of set shifting and perseveration, when it was administered by computer than by a human. Ozonoff suggested that social demands may interfere with cognitive tasks although executive functions may be largely intact in autism; and that variables related to task administration play an important role in understanding cognitive dysfunction in autism. Despite inconsistency in the results across executive function studies in autism, task administration variables are rarely discussed. Objectives: We aimed to replicate and extend the Ozonoff study by comparing person-administered (Person Only, PO), and computer-administered (Computer Only, CO) versions of the WCST and by adding a third condition: we videotaped a person administering the task and showed the administration on computer (Person-Computer, PC). In accordance with Ozonoff's hypothesis, we expected that performance on the PC version would fall between the CO condition (best) and the PO condition (worst) for autism relative to controls. Methods: We tested 45 children and adolescents diagnosed with autism spectrum disorders (ASD), 15 in each test condition. ASD was diagnosed by an expert rater based on information from the standardized ADOS-G clinician observation and SCQ parent checklist; Verbal and Full Scale IQ were above 80 for all participants. An age-, sex-, and IQ-matched comparison

group (n = 45) also completed the task. The PO version was administered using standard instructions (Heaton, 1993). The CO and PC conditions were presented using our own E-Prime-based software program. The card stimuli on the CO version were identical to those used in the actual card set, and the young adult male shown in the PC version used the actual cards. We made one modification to the CO task compared to standard commercially-available versions: in order to simulate the lag time that accompanies the human administrator reaching for the card deck and raising it to show the participant, we added a short (2 second) video of a point-light display of a rotating circle or square in-between each trial. Total time from the end of one trial to the possibility of making the next choice was about 4 seconds in all three conditions. Results: There was no significant main effect of diagnostic group for the person-only condition. However, both computer-based versions were significantly more difficult for the ASD group: repeated measures ANOVA demonstrated significant group x condition interactions showing increased perseverative errors and fewer completed categories for the autism group. Conclusions: We suggest that perhaps the improved performance on the computer version in the Ozonoff (1995) study arose because there was less lag time between choices, so that the ASD participants had less chance to lose the context of their previous choices in informing their next choice. In the present study, participants may have been distracted by the short videos that played in-between choices, thereby losing that context, possibly due to working memory difficulties. We discuss the results in terms of information complexity, social interactions, and neural connectivity.

### ***Spirituality and Error Processing***

Angelica Marcine Mamani  
Mentors: Patrick Steffen, PhD, Michael Larson, PhD

*Abstract:* Hundreds of articles have been published in psychology journals investigating spirituality and its uses in therapy and as a coping mechanism. However little research has been done on the effect of spirituality and neurological processes. Inzlicht et. al. (2009) asserted that both belief in God and high religious zeal were correlated with smaller ERN amplitudes. However in Inzlicht's study only those who were highly zealous spiritually

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and if the participants believed in God. Nothing about the components of spirituality were examined. In order to fully assess the components of spirituality the Spirituality Assessment Inventory (SAI) was administered and the various subscales analyzed. We suggest that individual components of spirituality will significantly correlate with the ERN more than the holistic belief in God.

### ***Stability of Aggression Across Maturation in Rhesus Macaques (Macaca Mulatta)***

Katherine Taylor, J. L. Cameron  
Mentor: James Dee Higley, PhD

*Abstract:* Current studies on the continuity of aggression and its relationship to testosterone in non-human primates include small subject groups in uncontrolled environments. The present study evaluated aggression levels across the pubertal period (ages two and three) in 101 male rhesus macaques during the two-minute stare epoch of the Human Intruder Paradigm, as well as explored the relationship between plasma testosterone levels and aggression at age three in 49 subjects. Analyses revealed that while there was a strong positive correlation between aggression at age two and aggression at age three, there was no significant relationship between testosterone levels and aggression. Implications, limitations, and further directions are also discussed.

### ***Stress of Male Spouses Left Behind***

MacKenzie Foster Jones, Jeannie Kirk, Preston Johnson, Joshua Brading, Amelia Hunter, Evan Collett  
Mentor: Witold Simon, PhD

*Abstract:* With an increasing number of women serving as active-duty soldiers in the military today, the result has been an increase in numbers of male spouses being left behind. It is surprising that current literature does not address the concerns surrounding husbands of deployed soldiers more often. A Likert-scale survey was used to compare male and female spouses' feelings in a hypothetical situation where they were to be left behind while their spouse was deployed to a combat area. Using a Bivariate correlation and T-test, the collected data from 89 women and 43 men was analyzed. The results concluded that

males demonstrated higher levels of emotional stress concerning marital issues. These findings suggest that there is a potential need for more social support for males in this situation.

### ***The Effect of Media on People's Perceptions of Anabolic Steroids***

Kevin Paulsen, Benjamin Stocking, Shane Sobrio, Scott Fischbuch  
Mentor: Scott C. Steffensen, PhD

*Abstract:* The main purpose of this study is to see how much of an effect positive and negative media has on the use of anabolic steroids. Different forms of media have been known to sway public opinion on several controversial topics of the day. By introducing both positive and negative articles regarding the use of anabolic steroid and surveying the effect it has on people's opinions, we hope to be able to gauge the effect media has on people's opinions

### ***The Effect of Positive Affect on Memory***

Jenna Gardner, Jeremy Ashworth, Brittney Rasmussen  
Mentor: Erin D. Bigler, PhD

*Abstract:* The study of adolescents' attachment to parents and its relation to adolescents' well-being has received increasing attention in recent years. But the mechanic in this relation and even in the whole working pattern is still not very clear---not only in western background, but also in eastern culture. This study examined how parenting dimensions (authoritative, psychological control, and over-protecting) relate to adolescent outcomes (self-esteem, autonomy, and peer relationships) by way of parent-teen attachment, among Chinese families.

### ***The Effects of Music on Memory Retention***

Taylor N Scott, Meghan Dixon, Katie Wiscombe  
Mentor: Erin D. Bigler, PhD

*Abstract:* Popular belief indicates that music aids in memory retention. Given this background, it was hypothesized music would not influence retention on a standard clinical measure of short-term memory retention. There were 37 participants in the experiment. Of those participants, 13 were in the experimental group and 24 were in the control group. The participants performed the RAVLT to test memory retention and the ROCFT was used as an interference. There was no significant difference found between memory retention scores of the RAVLT during the music or silence condition. The nonsignificance could have been attributed to the small sample size. Results of this study demonstrate that if scores from the RAVLT with music are to be used in future research, then factors such as type of music and volume level should be taken into account.

### ***The Influence of Individual Perception of Student Loans on Financial Knowledge***

Kristen Butler, Jared Dickerson, Joshua Drean, Jaclyn Pingel  
Mentor: Scott C. Steffensen, PhD

*Abstract:* Students very rarely have the opportunity to learn about finances in high school and rarely take the opportunity in college. Many students learn through trial and error as the beginning of college often follows the beginning of debt in the form of student loans. Using data from 97 BYU students this study tests student's perceived knowledge, and financial understandings of student loans, against their actual knowledge. This study found that having a loan influenced student perceptions of loans and those students with loans more commonly answered correctly on factual knowledge questions. Gender also played a role in that males were more likely to know about interest rates whereas females better understood the process of taking out a loan.