Psychology: The Science of Behavior and Experience

When psychology student Laurian Della decided to conduct a study on the effects of sleep deprivation in laboratory rats, she turned to one of her professors, Dr. Sharon Himmanen, a biological psychologist, who is an expert in the study of animal behavior. The two literally began planning the study shortly after the start of the semester in September of 2011. To prepare for the experiment, Laurian had to review a number of studies on this topic, and in this process she learned that not much was published on how lack of sleep would affect sensory thresholds.

While reflecting on her collaboration with Della, Dr. Himmanen commented, “My research career has been largely devoted to animal behavior, and I welcome any studies involving the laboratory rats.” Since joining the faculty of psychology in 2009, she has worked tirelessly to bring the Animal Behavior and Learning Laboratory up to par. Every semester, as a part of their course work in Learning (PSY 317), students spend several hours a week training rats by using operant chambers, developed by one of the giants of psychology, B. F. Skinner. According to Himmanen, “Laurian Della is the first student to take advantage of the research opportunities in this laboratory, to conduct a study on the effects of sleep deprivation on odor detection thresholds in rats.” For the past several months, Himmanen and Della have been very busy working out the details of their work, designing a complex and yet remarkable study that applies concepts from the fields of learning and biological psychology, with focus on the effects of sleep deprivation on, sensation, memory and behavior. “I am very proud of this and other research projects we have devised this year. They reflect my own interests in these topics, but also belong to the students who had an enormous hand in designing and implementing the research,” Himmanen remarks.

After months of arduous work, Della’s study has come to an end. When asked why she chose rats as the subjects of her study, Della elaborates by saying, “The rats’ strong sense of smell and motivation to train make them an ideal sample for training discrimination between odor and non-odor stimuli. After interacting with the rats, I quickly became drawn to their friendly, lively personalities. My study entailed training the rats to discriminate between odor and non-odor stimuli. After the initial period of training, the rats’ odor detection thresholds were measured before, during and after a sleep deprivation period of 24 hours. Odor detection thresholds were compared across groups, and analyzed to see if a relationship between sleep deprivation and odor detection thresholds existed. The main goal of this study was to fur...
ther the research performed on sleep deprivation and the detection of sensory stimuli.”

Was the study successful? While reflecting on the findings of the study, both Della and Himmanen are excited and even thrilled beyond expectation. Not only were they able to support the stated research hypotheses for the study, they also made some interesting findings that can be seen in Figure 1. According to Della, “The findings suggested that rats in the sleep deprived condition showed an increase in odor detection threshold, hence they were less able to detect odor, which in real life could render them vulnerable to a variety of environmental hazards and reduced coping abilities.” This may further suggest that sleep plays an even more critical role in certain animals than previously expected.

How do students get involved in the advanced psychology research course? Junior and Senior psychology majors who have met certain qualifications are invited to take the two consecutive research courses (PSY 365-366) in fall and spring semesters. These courses are of special value to those students who are interested in pursuing experimental or non-experimental studies as a way of applying the principles of psychology to the study of behavior. The entire experience also prepares them for graduate studies in diverse fields of psychology (i.e., social, biological, clinical, etc.). Both Dr. Himmanen and Dr. Scepansky are currently teaching the research course. Himmanen further elaborates on the process of inviting and engaging the students in the course. “Every April we announce that sign-ups for the advanced research courses are available for the fall, and hold a meeting during which we survey the students in terms of their skill levels and interests. From that survey, we determine which students have interests within our particular areas of expertise, and then they are assigned to the faculty who can mentor them. Upon completing our assessment of students’ interests and potential projects, it is our task to help each student apply the knowledge she has learned as a psychology major at Cedar Crest College, from our research and statistics courses, as well as other courses, to the research process. For the fall semester, we guide students through the literature review process and assist them in designing their study, in addition to preparing them to submit an Institutional Review Board (IRB) proposal. In the spring, the data from the studies are collected and analyzed, at which time she turns in an APA style manuscript to the mentoring faculty. Throughout this process we work closely with the students, providing feedback, helping them troubleshoot, exchange thoughts and ideas about how best to implement the design, analyze the results, etc. It is very much a collaborative process, and we both benefit tremendously from it.”

Della and eight of her fellow students in PSY 366 will be presenting their research findings at the 27th Annual Lehigh Valley Association of Independent Colleges Psychology Conference on April 21, 2012. Abstracts of their studies appear on page 3. This year, the conference is being hosted by Cedar Crest College.
Psychology Thesis Abstracts

Violent Video Game Enjoyment and Frustration: Influences of Game Difficulty and Personality
Sara Barscheski

The effects of personality and frustration on perceived task difficulty while playing a violent video game were investigated. Participants were randomly assigned to two “Task Difficulty” conditions: 25 headshots before (1) dying or (2) completing the level. Participants were also assigned to two “Resource Quality” conditions (“Weak” vs. “Strong” weapon). Responses to a questionnaire recorded frustration, enjoyment, and perceived difficulty levels; participants also completed a personality inventory and a pretest and posttest mood checklist. It was hypothesized that individuals in the difficult task condition and low resource quality condition would be the most frustrated. No significant main effect was found in terms of resource quality, nor was a significant main effect found in terms of task difficulty on perceived frustration of the task. No significant interaction was found between resource quality, task difficulty on perceived frustration, suggesting that individuals were neither more or less frustrated in any of the conditions.

Sleep Deprivation and Odor Detection Thresholds in Rats (Rattus Norvegicus)
Laurian Della

The relationship between sleep deprivation and odor detection thresholds was studied in four rats. Odor detection thresholds were measured by presenting different concentrations of benzaldehyde along with distilled water on a Q-Tip. An operant response indicated that the rat detected the odor. Detection thresholds were measured immediately prior to sleep (baseline), immediately following 24 hours of sleep deprivation (sleep-deprived) and 43 hours upon resuming a normal sleep-wake schedule (recovery). We found that the odor detection thresholds for the baseline and recovery conditions were the same, but were able to detect only higher concentrations of the odor in the sleep-deprived condition, indicating less sensitivity. This study is the first to examine the relationship between sleep deprivation and odor detection thresholds in rats.

The Influence of Contraceptive Choice and Promiscuity on Perceptions of Sexual Behavior
Danica Hannis

This study was conducted to examine the influence of contraceptive choice and manner of female dress on perceptions of sexual behavior. Undergraduate students (N = 90) participated in a replication of a study by Hynie and Lydon (1995). Participants read a fictitious woman’s diary describing a sexual encounter where condom possession was manipulated and where the woman dressed promiscuously or conservatively. Behavioral and interpersonal judgments about the target were made. It was hypothesized participants would perceive the woman more negatively when she possessed the condom, rather than when the male had possession. Further, participants were predicted to rate the female target more negatively when promiscuously dressed. Results indicated that the female target viewed herself more negatively when dressed promiscuously, but there was not a significant difference in participants’ evaluation of the author. Further, there was not a significant main effect directly relating to female condom possession.
**The Perception of Young Mothers: The Effects of Age and Life Circumstances**  
Jennifer Kerns

This study examined perceptions of young mothers as a function of age and life circumstances. Participants read one of four vignettes about a young mother varying in terms of age (20 or 25 years old) and life circumstances (positive or negative). Participants then completed questionnaires assessing attitudes toward the young mother depicted in the vignette, attitudes towards young mothers in general, and the General Belief in a Just World scale. A main effect for mother’s age was predicted such that the older mother would be evaluated more favorably than the younger mother. Results provided limited support for this hypothesis: participants indicated higher respect for the 25-year-old, compared to the 20-year-old mother. The predicted life circumstance main effect and the two way interaction were not significant. Additionally, attitudes towards teen mothers and just world beliefs appear to be influenced by participants’ personal contact with a young mother.

**Effects of Face Shape and Symmetry on Mock Jurors’ Perception of Defendants**  
Crystal Morlock

Several studies have attempted to discriminate interactions between facial symmetry, averageness, sexual dimorphism, and attractiveness. The current study examined the effects of face shape and symmetry on mock jurors’ evaluations of a defendant. Ninety-six Cedar Crest students were asked to review statutes, case details, and an image of a defendant before completing surveys regarding verdict, sentencing and attractiveness. Since masculine faces have been associated with negative stereotypes and reduced attractiveness, and positive traits have been attributed to attractive people, it was hypothesized that asymmetrical square-shaped (masculine) faces would receive more guilty verdicts and longer sentences than symmetrical heart-shaped (feminine) and oval-shaped (gender neutral) faces. The results indicated that face shape and symmetry had no significant effects on verdict decisions or perceptions of attractiveness. However, face shape significantly affected sentencing decisions, suggesting that jurors’ perceptions of sexually dimorphic facial characteristics may affect defendants’ sentences.

**Recognition of a Face Following Superficial Modifications**  
Liselotte Penix

This study examined the ability of 120 female Cedar Crest College students to recognize faces after superficial modifications where made and whether or not time pressure influences accuracy of face recognition. There were four appearance change conditions: No change, hairstyle change, facial appearance change, or both hairstyle and facial appearance change. Participants read a short vignette about a theft and were presented with the target face, then were asked to choose the target face from an eight-face array either under a time constraint or not. Hairstyle appeared to be the most significant factor affecting the ability to recognize a face after brief exposure. Accuracy also decreased when the participants were given a limited amount of time in which to make their choice. Given the superficial nature of the changes made to facial appearance in this study, these results have implications for eyewitness testimony and identification of suspects, since they do not require a great deal of time or effort to implement.
Influence of Priming on the Categorization of Gender Stereotyped Role Words
Kristin Scott

Can priming influence perceptions of gender associated with role words? In a completely within-subjects experiment, participants (N = 22) were presented connotative masculine or feminine images before being presented with masculine or feminine stereotyped role words. Participants were instructed to categorize each role word as either masculine or feminine; categorizations and reaction times were recorded. I hypothesized that when there was a match between the gender associated with the prime (image) and the gender associated with the word, reaction times would be faster and words would be categorized consistent with their stereotypical gender association. In contrast, when there was a mismatch between the image and the gender associated with the word, reaction times were predicted to be slower and the influence of the prime (image) was predicted to be stronger. Reaction time data was not significant; however, image type significantly influenced how participants categorized role words.

The Effects of Priming Stereotype and Equality on Occupational Hiring
Kenia Valdez

This study focused on the influence of priming on occupational discrimination. Participants read a paragraph that either primed gender equality or gender stereotypes. All participants then reviewed resumes of a female and a male candidate for either a teacher’s assistant or automotive technician position. Furthermore, the qualifications of the candidates were manipulated; participants either evaluated a more qualified male or a more qualified female candidate. Hiring decision, starting salary recommendation and a 5-item Performance Evaluation Form were used to measure participants’ perceptions of the applicant’s suitability for the position. As predicted, results showed that more female candidates were hired for the teacher’s assistant position, and more male candidates were hired for the automotive technician position. Furthermore, significant main effect for priming essay on hiring decisions will be discussed.

The Effects of Frustration on Approach-Motivated Behavior
Rena Wallace

Frustration and anger are negative emotions that appear to have little or no relation to approach-motivated behavior. However, in the current study, participant’s (N=90) motivation for angry-linked objects was measured to detect approach-motivated behavior. Pre and post physiological measures collected before and after completion of a puzzle determined frustration and scores on the Positive and Negative Activation Schedule (PANAS) was measured. It was predicted that participants who were frustrated would have elevated blood pressure, resulting in higher motivation scores. If motivation scores were high, PANAS scores would be high. Ultimately, participants who were unable to solve the puzzle did not experience higher blood pressure than those who were able to solve it. Also, an increase in blood pressure did not increase motivation to obtain an angry-linked object. Furthermore, those with an increased motivation to obtain a neutral object paired with angry facial stimuli had higher positive affect (PA) scores.

Faculty Mentors: Dr. James Scepansky and Dr. Sharon Himmanen
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Jennifer Kerns- Secretary
Kim Hardiman- Events Coordinator
Sara Barscheski- Inductions Committee
Laurian Della- Inductions Committee
Contact- psichi@cedarcrest.edu

Chapter Advisors
Dr. Sharon Himmanen
Dr. Micah Sadigh

Cedar Crest College

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