

The Fifth Annual

Ranger Research Day

Friday, April 1, 2011

Student Center Ballroom ~ Alva campus



Northwestern

OKLAHOMA STATE UNIVERSITY

LIST OF ABSTRACTS

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ABSTRACTS

*an asterisks denotes a project authored by a NWOSU faculty member;
 Only student posters are eligible for competition and awards.

Education

3.06 Psychology

3.06.01, “Personality and the Choice of College Major”

Courtney Strzinek (Dr. Wayne McMillan, Sponsor)

The purpose of this descriptive study was to find whether people who choose certain majors have similar personality traits. It was hypothesized that students in certain majors will have similar personality traits, which will be useful in their vocation. Furthermore, those particular traits will be more prevalent in certain major choices than others. The personality types that were measured were based on Holland’s Six Personality Types: the Realistic, Investigative, Artistic, Social, Enterprising, and Conventional personalities. An anonymous survey based on Holland’s theory of Personality and Career Choice was given to sixty-six undergraduate college students from Northwestern Oklahoma State University and Northern Oklahoma College. These students were comprised of Nursing, Education, Business, and Psychology majors. The results of this study were not statistically significant and only partially supported the original hypothesis. It was found that Business and Nursing majors were approaching significance in their scores regarding the Realistic personality. In addition, Nursing and Education majors were approaching significance in their scores regarding the Investigative personality. The Social personality was also found to be relatively high among all four major groups. Through a follow-up investigation, it was shown that there are significant gender differences in the Realistic and Conventional personality types.

3.06.02, “The Psyche of the Killer”

Lila J. Pettyjohn (Dr. Wayne McMillan, Sponsor)

Most people are not killers, or are they? The law of the land and moral standard keep most normal people from committing acts of homicide, suicide, or genocide. However, in certain situations and conditions the standard of normalcy is shifted and morals can be compromised. This shift allows for the normal person to commit the act of killing while

simultaneously being justified by society to kill as a necessary act to achieve a common goal. Yet to others the act of killing another person is wrong no matter what the circumstances. Societal standards dictate when and where taking a life is accepted or not accepted. This research will examine where the line is drawn in which type of killing is justified and accepted and where is the line when crossing over is possible for the average human. This research hopes the results will find what divides the killer instinct from the non killer instinct; or what is the normal person's psyche when faced with death or murder. The results and conclusion of the study will be discussed.

3.06.03, “The Relationship of Video Game Usage and Stress Reduction” Jonathan Pritchett (Dr. Wayne McMillan, Sponsor)

The present study was conducted to determine if there is a relationship between video game playing and stress relief. A 20-item survey was created to assess video game usage, coping with stress, stress in everyday life, and quality of life. One hundred and five participants (79 male and 26 female) agreed to participate in the study. No correlation was found between video game playing and the stress dimensions. However, a significant relationship was found between video game playing and video game addiction. Additionally, significant correlations were found between stress handling, stress in life, and quality of life. The results and implications are discussed.

3.06.04, “Increase or Decrease of Alcohol Use During College Freshmen through Senior Years”

Russell Kyle Leisher (Dr. Nancy Knous, Sponsor)

The present study explored alcohol use for Northwestern Oklahoma State University students from their freshmen through senior years of college. Because alcohol use appears to be a problem among college students, identifying the differences in rates of use would facilitate the development of appropriate measures that are necessary to implement programs and take actions that could help curb alcohol use within those specific classification levels. One hundred and forty-three students (76 males, 67 females) were given a survey with a demographic section and five questions that were used to assess alcohol use. The students comprised a convenience sample selected from four undergraduate classes and were given the survey at the beginning of a class period. The age of the participants ranged from 18 to 48 with an average age of 21. The analysis of variance indicated that students experienced higher rates of alcohol use during their freshmen years ($M=2.63$; $SD=1.26$) and the use of alcohol decreases by their senior years ($M=1.89$; $SD=.937$). An analysis of variance indicated that four questions showed significant differences. Furthermore, a post hoc test revealed that seniors and freshmen were significantly different for the questions “I like to drink in social situations” and “I drink more on the weekends during the college semesters.” Juniors and freshmen were significantly different for the questions “I have used alcohol in a physically dangerous environment (example: drinking and driving)” and “My drinking has increased since I began college at NWOSU.”

3.06.05, “Music on the Mind”

Sabrina Miller (Professor Jesse Schroeder, Sponsor)

The subject matter of my presentation provides an exploration of the way music affects the mind. Within the project, a general definition of music begins a more detailed explanation on

the way the auditory part of the brain picks up and receives music. With the addition of historical figures that used music as a means of aid in complex mental cognition, viewers will see the benefits figures such as Einstein derived from improvisation and the positive correlation towards his work. Because music seems to merge the left and right brain to work in unison, many doctors use music as a means to treat degenerative memory illnesses quite effectively. Aside from the mental benefits, music also affects the emotional aspect of the human body, and as such creates a unique experience for every listener. Through this presentation, I hope to provide a better understanding of the regenerative powers of music so that students in any field could use this knowledge to help with every day aspects of their lives.

3.06.06, “The Effect Self-Esteem Has On Mate Selection”

Melissa Haden (Dr. Wayne McMillan, Sponsor)

Does a person’s self-esteem factor into their search for a mate? Self-esteem is described as a form of total self-evaluation thought to guide the behavior of individuals in many areas of their life (Zeigler-Hill, Campe, and Myers, 2010). It has even been suggested that self-esteem is an evolutionary factor that helps each person monitor his or her own relational value (Zeigler-Hill, et al., 2010). Social Exchange Theory (Klemer, 1971) suggests that individuals will seek the highest quality mate they believe they are capable of attracting based on their ability to exchange their own assets for those possessed by their potential romantic partners. According to this theory, and supporting research, it would seem logical that self-esteem does indeed come into play when someone searches for a mate. The hypothesis that the higher a person’s self-esteem the more “attractive” attributes that person would seek out in a mate was not supported. Implications and suggestions for future research are discussed.

3.06.07, “Who is the Typical College Student: A Content Analysis of Papers Written by Undergraduate College Students about Their Early Developmental Experiences”

Leisha Tompkins (Dr. Wayne McMillan, Sponsor)

Most college students remember specific events that have shaped who they are and who they become. As a part of a human development course requirement, 152 undergraduate students wrote reflective papers on their early childhood and adolescent experiences. Because these students were enrolled in this human development course, it is speculated that they represent a percentage of the population majoring in the helping professions. The question is to what extent do negative life events occur in these types of students? Reflective essays were numbered and identification of participants was removed to ensure confidentiality, and IRB approval was granted. Researchers conducted content analysis on the major themes of these experiences. Age groups were divided into three periods of development: prenatal, early childhood, and adolescence. Coding schemes were developed for several recurrent psychosocial experiences. Analysis revealed trends in the prevalence of these experiences across developmental periods. Frequencies and proportions are discussed.

Liberal Arts

4.01 Communication

***4.01.01, “Service Learning via Civic Journalism in Collegiate Media”**

Professor Melanie Wilderman

The purpose of this research is to describe the relationship between civic journalism and service learning in a collegiate news reporting course with emphasis on if or how a class project can function in both capacities. Secondary purposes of the study are to enhance the understanding of civic journalism projects as service learning requirements and enhance students’ understanding of the journalism profession. Civic journalism and service learning have key components (participating in the community, being engaged in community concerns and developing one’s professional skills) which overlap and make for seamless service-learning-based class projects. The projects can be carried out in any medium of mass communication (newspaper, TV, radio, online, public relations, etc.) and therefore have broad potential in media curricula. Though there is much separate literature on civic journalism in professional media and service learning in universities, there is not much that ties the two together, especially in a collegiate setting. However, civic journalism in the classroom can easily and naturally translate to service learning in the curriculum, and students can enhance their understanding about both practices while learning valuable information for their future journalism careers. Finally, this research can serve as a tool for collegiate media instructors who are seeking ways to incorporate service learning in their curriculum.

4.02 English

4.02.01, “Literary Censorship: The Loss of Individual Thought”

Matt Barnes (Dr. Shawn Holliday, Sponsor)

Literature as an art form relies heavily on the ability of authors to express themselves freely as necessary to fulfill their visions. Throughout history man has attempted to censor what he perceives as disagreeable or shocking in literature. The issue here lies in perceptions and perspectives. What is considered shocking to one is often invaluablely inspiring to another. History has proven that censorship is commonly the tool of despotic and violent forces. The Nazi regime displayed the most infamous example of this using their *Fahrenheit 451*-style approach to book burning as an attempt to destroy the influence of outside cultures. Included in this festival of state-driven censorship were works by influential authors such as Ernest Hemingway, Karl Marx, Jack London, and Theodore Dreiser. Shockingly, many of these same authors now appear on numerous banned lists here in the United States, and they share company with others such as Ray Bradbury, Kurt Vonnegut, Jack Kerouac, and George Orwell. Currently Mark Twain's *Huckleberry Finn* is again at the center of controversy. First banned for Twain's poignant portrayal of black and white friendship in a time of growing racial tensions, this historically rooted tale is now again being challenged for Twain's use of the word “nigger.” To remove this word or any other from the text of *Huckleberry Finn* is to destroy the historical context of the novel to the detriment of its understanding by contemporary readers.

4.02.02, “Father vs. Son (Which One Accomplished Their Goals?)”

Kristi Hunter (Dr. Shawn Holliday, Faculty Sponsor)

In Shakespeare’s Lancastrian Tetralogy, King Henry IV set himself up for high expectations by deposing King Richard II. Richard was appointed by God and Henry was not. Later, King Henry V made himself look impossible as a good king because of the way he lived in his youth. Was he capable of being a good king, and was he capable of setting goals that were worthy of his station in life?

King Henry IV accomplished taking the crown from Richard II. This was his main goal, and he carried it out. He also wanted a son that could carry on the crown and be a leader to his country. He did not think that he was successful at this for a long time, but he eventually realized his son would become a great king, and he was proud. Thus, King Henry IV accomplished his goals.

King Henry V wanted to live amongst the people and, at the same time, to become a great leader. He did eventually distance himself from some of his friends but only for the “good of the crown.” Subsequently, King Henry V accomplished his goals.

Because of this, there were no important “father versus son” issues in the tetralogy. King Henry IV and King Henry V both accomplished their goals by becoming successful kings.

4.02.03, “Shakespeare’s *Julius Caesar*. Exploitation and Misinterpretation of the Ambiguous”

Cody Jo Campbell (Dr. Shawn Holliday, Sponsor)

In *Julius Caesar*, there are three thematic lines that Shakespeare uses to form the ambiguity that the events and characters in the play evoke through their desire for personal and political honor and ambition. Through the line, “it is a strange-disposed time,” Shakespeare eludes to the fact that Rome is beginning to change from a republic to an empire; due to this change, the Roman people’s perceptions of their own reality inevitably leads to personal and political biases, misinterpretations, manipulations, and influences. The weakness of some characters’ fashions along with the strengths of others tie into the last two thematic lines: “But men may construe things after their fashion / Clean from the purpose of the things themselves.” My research explores how the characters in the play “construe things after their fashion.” Caesar and Brutus’s unawareness and ignorance branches from their constant misinterpretation of reality; they are easily exploited by those whose intense greediness for personal and political honor and ambition outweigh their own. In contrast, Cassius and Antony’s awareness and craving for power stems from their excessive desire for political freedom, ambition, personal honor, and achievement; they easily manipulate the weak (Caesar and Brutus) and bequeath the Roman people with an intense and sudden thirst for mutiny.

4.02.04, “Gender Roles in the West”

Destinee Burnham (Dr. James Bell, Sponsor)

Gender played an important role in the West. Both men and women had distinct expectations and standards to uphold. These extreme ideas of the two genders paved the way for most western novels. Although some western tales may contradict these ideas, most

maintain the stereotypical roles among both genders. In almost every true western the hero is a cowboy; a jaded, lonely man to whom is brave, noble, and quick with a gun who comes forth in a time of need. Of course, every great cowboy is tall, dark, and handsome. Although the cowboy must sometimes stand against the laws of society, he always comes true at the end. There are usually two outlooks on women in western novels. The most general idea is a dependent woman who seeks a man to look out for her. In another light, the women are sometimes extremely independent and completely capable. Some westerns would lead a reader to believe women's privileges were limited to only being a caretaker. In reality, women during the 1800s lived by a code which entitled them to specific expectations, careers, and privileges. Women were known to be more responsible than men, so they were often given loans before men. Western women were allowed to hold property in their own name so that families could increase their family's holdings.

4.02.05, “Evolution of the Western Genre: Androgynous Representation from the Classic to Revisionist Western”

Phoebe Bell (Dr. James Bell, Sponsor)

“There'd be nothing to explain, there'd be just the fact.” This quote expressed by the Virginian in Owen Wister's classic western exposes the raw elements of the difference between words and actions and more importantly the distinct line between the conduct of men and women in the western genre. This research evaluates the view of gender and the integration of androgynous representations from the classic to revisionist westerns. This research will look in depth at the transition of gender roles displayed in the core novels that emerge in the western genre. Research will also heavily rely on the work of Jane Tompkins, an English professor at Duke University and feminist critic. Novels used will include Owen Wister's *The Virginian*, Walter Van Tilburg Clark's *The Ox-Bow Incident*, and Thomas Berger's *Little Big Man*. Through Tompkins's research and the dissection of these novels, research will explore how and why the lines of gender blur from classic to revisionist westerns.

4.02.06, “Production of Western Fiction”

Amanda Tosh (Dr. James Bell, Sponsor)

The topic I have chosen to research is “The Production of Western Fiction.” I researched what authors of Western fiction look for in writing a novel. I found that many of the authors had grown up in the East and had traveled to the West for various reasons. When they had gotten to the West they then started writing Western novels. I researched a couple of the main authors that I read in my Western novels class and found that a lot of them had lived in the East and moved to the West. Those are mentioned on the poster. I put pictures of the some of the popular books that are Western fiction as well. They looked into what people wanted to read about the target market.

4.02.07, “Teaching Shakespeare: Somebody's Got to Do It”

Jandi Overton (Dr. Shawn Holliday, Sponsor)

The research for this project examines the article, “Shakespeare in Circles: How a New Approach Enlivened My Classroom,” by Matthew Ratz. The roles and assigned tasks for literature circle groups are as follows: the discussion director or moderator ensures that all members contribute to group discussion; the summarizer summarizes what's going on in the selected text; the connector makes connections with other subjects, popular culture, or

current events; the quiz master/riddler/provocateur asks challenging, thoughtful questions for group discussion; the stage director imagines and shares effective staging techniques with the group; the dramatic reader interprets and reads sections of the text for dramatic effect; the psychoanalyst or character expert analyzes and traces characters' motivations or attitudes; the analyzer or illuminator identifies and analyzes powerful phrases or sentences; the wordsmith or word wizard identifies and defines difficult words from the selected text; the illustrator helps others visualize the selected text through drawings and artwork; and the scribe keeps a record of the group's discussion, burning questions, and great ideas (Ratz 41). Since these roles are clearly defined, students know exactly what is expected of them. When it came time for the students to organize into groups, Ratz conducted a personality quiz for each student. This personality quiz revealed which student was compatible with another student. However, after the students took the quiz, they wanted to choose their own groups. Ratz agreed to allow the students to choose and states, "I had dedicated myself to a student centered approach to this unit" (42). Moreover, Ratz claims that "student choice of content is an incredibly powerful motivator in any classroom" (42). This approach would be a useful tool for anyone attempting to teach Shakespeare since it ensures that all students become actively involved in complicated textual reading, performance, and class participation.

4.04 History

***4.04.01, "The American Presidency as Seen through the Newspaper" Dr. Aaron Mason, Professor J. W. Platt, & Dr. Eric Schmaltz**

Private collections of original historic newspapers and magazines are being donated to the Northwestern Oklahoma State University-Masonic Institute for Citizenship Studies for both academic use and public display. To date, the Institute has received a 1793 Philadelphia weekly, a sizeable collection of the *New York Times* from the summer of 1882, and a wide assortment of local, state, and regional newspapers from the 1910s to the present. A few notable newspaper topics include an address by George Washington; details related to the assassination of James Garfield; an obituary of Mary Lincoln; Chester A. Arthur's handling of violence in the Old West; FDR and the outbreak of World War II; the assassination of JFK; and Richard Nixon and the Watergate Scandal. In particular, the Institute seeks to analyze the special connection between journalism and the historical portrayal of the office of the American presidency. The Institute finds that the American presidency serves as a cognitive aid to ordinary U.S. citizens to help them make sense of the federal government's complexities. Unlike the U.S. Congress, which holds hundreds of representatives, the office of president consists of a single individual. Because of easier identification, this one elected official is typically held in higher esteem and can be a recognizable symbol of American government and American society.

4.09 Sociology & Substance Abuse Studies

4.09.01, “Modern Communication: A Change for Better or Worse?”

Courtney Eck (Dr. Kay Decker, Sponsor)

Modern communication methods, while beneficial in many aspects, have led to a plethora of negative issues among the younger generation, including reduced social skills, grammatical abilities, and an inability to use discretion (specifically texting while driving or in the classroom and spending too much time online). The purpose of this research study is to explore the negative impacts of these modern communication methods (especially Facebook and text messaging) and to raise awareness as to how these things are affecting American culture and the implication of these issues. The objectives of this study are: to identify the negative impacts of modern communication methods on language and communication, to identify the problems Facebook and texting create for individuals, and to identify the frequency of people who text while driving, in class, or while engaging in another activity, such as talking with another person, as well as the frequency with which an individual would check Facebook or the amount of time typically spent on Facebook.

Math & Science

6.01 Biology

6.01.01, “Comparison of Cat Skull to a Human Skull”

Angelo (AJ) Majike (Dr. Cynthia Pfeifer-Hill, Sponsor)

I have an interest in neuroanatomy and chose to compare a mature cat skull to that of a human adult and fetal skull for my honor’s project in my Human Anatomy course (BIOL 3184). Comparisons between the skulls included anatomical measurements of widths and lengths of skull processes, foramen diameters, and cranial volumes. While humans and cats are both mammals, I was interested in these comparisons because adult humans have a larger body size and are bipedal while a cat has a smaller body size and is a quadruped. I wanted to see how the differences affected the anatomical skull measurements. With the measurements that were performed, I found that the fetal human skull shared many anatomical similarities in measurements to the adult cat skull. This may be expected as the fetal human and adult cat are very similar in body size. However, when comparing an adult human skull to an adult cat skull, even though adult human body size and weight is approximately 10 – 20 x that of an adult cat, the skull measurements were not ten to twenty times larger than that of an adult cat. This indicates as the human grows from a fetus to an adult, the skull measurements do not proportionately increase with body mass.

6.01.02, “Identification of the Cryptic North American Treefrog”

Gerald Mbara (Dr. Aaron J. Place, Sponsor)

Mystery surrounds four gray treefrogs that have been preserved at Northwestern’s Museum of Natural History for decades. Gray treefrogs are small, arboreal natives of North America hence the synonym—North American treefrog. They can be either of two identical species: *Hyla chrysoscelis* or *Hyla versicolor*. Physical examination of the museum frogs has so far not yielded conclusive results as to which species they belong. This study’s initial investigation

did reveal that the two possible species differ in DNA content, and so the hypothesis was that their karyotypes would identify them. A karyotype is made by extracting dividing cells from the blood or other tissues. These cells are stained and fixed, and a photo micrograph is taken. Karyotyping can be applied to the diagnosis of chromosomal abnormalities some of which are the causes of diseases such as Down syndrome and spinal bifida. Given that the technique has significant medical applications, this study sought not only to resolve the uncertainty about the identity of the museum's frogs, but also to elucidate the practical utility of karyotyping in genetic studies. In the case of identifying the frogs, previous investigators showed that *Hyla chrysoscelis* has a diploid genome meaning it has two copies of every chromosome, while *Hyla versicolor* has a tetraploid genome meaning it has four copies of each chromosome. Cells extracted from the gonads of one of the unknown frogs were stained and examined under a microscope. Results were inconclusive. I suspect preservation in formaldehyde precludes cell viability for karyotyping.

6.01.03, “Dyslexia: A Difference in Visual Comprehension”

Rebecca Fenton (Dr. Cynthia Pfeifer-Hill, Sponsor)

Today, one out of every five people suffers from dyslexia. It is estimated that 70 to 85 percent of school age children that have learning disorders suffer from dyslexia. The most common problem that dyslexics suffer from is the difficulty recognizing words. Letters will flip or reverse, and it is common for dyslexics to omit, replace, or add words when reading aloud or writing. There is no fully accepted definition of dyslexia, but one has recently been received well by most scientists. The World Federation of Neurology described dyslexia as “A disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence, and sociocultural opportunity.” There is still no explanation as to what causes dyslexia. Many think that it is a neurological disorder having to do with the neural synapses. However, others think that it may have something to do with the eyes. So, what is the cause of dyslexia? The question that arose during this project was: “What is the difference between the way a non-dyslexic and a dyslexic read?” Therefore, this project utilized electrooculogram (EOG) analysis and measured reading comprehension to help elucidate the differences in reading abilities between dyslexic and non-dyslexic readers and further explain the reasons behind dyslexia.

6.01.04, “Dentition Analysis”

Stephanie Martin (Dr. Cynthia Pfeifer-Hill, Sponsor)

This study compares the oral cavity of two adult human skulls. This was an honor's research project done in my Human Anatomy (BIOL 3184) course and was of interest for me because I hope to enter dentistry as a career. This project allowed me to become more familiar with the oral cavity, standard dental measurements and terminology, and have a more in-depth understanding of dentition analysis used in dentistry and forensics. When executing this dentition analysis, I determined the dental formula, presence of an overbite and sex of each skull based on various oral cavity measurements. Dental measurements were done with the use of calipers and other measuring instruments. These measurements included: alveolar length of entire tooth row, molars, and premolars in both the mandible and maxilla. The slope of the maxilla was also measured to determine if the subject had a prominent maxilla and helped indicate the sex of the skull. Due to the extent of the protrusion of the maxilla, both skulls were deemed to have an overbite and one was a female skull and the other a male skull.

6.01.05, “Magnetic Bracelet Fatigue Study”

William Wyatt Rice (Dr. Cynthia Pfeifer-Hill, Sponsor)

It is fairly common to see people walking around with a health-enhancing bracelet because they have been told that this bracelet will help with their balance, strength, fatigue, etc. The purpose of my research project was to test whether these health-enhancing bracelets help with fatigue like advertised or if they are simply a gimmick. I had six male participants in my study, and they each wore a placebo and health-enhancing bracelet during separate weeks while being tested. During my research, I used a device called a dynamometer and a computer preloaded with Biopac lab software; these were needed in order to test the individual's fatigue. The dynamometer is used to measure an individual's clench strength while the Biopac software interprets the data and is able to show the amount of clench strength on the computer programs graph. To calculate fatigue, I took the individual's maximum clench and calculated the amount of time it took for the individual to reach half of his maximum clench. With the results obtained from the study, I have been able to decipher whether these “miracle” bracelets truly help with fatigue. I am now able to inform people with research based data whether these bracelets actually help with fatigue.

6.07 Physics & Engineering

6.07.01, “Characteristics of Frost Formation on Micro-Channel Heat Exchangers”

Kody Jones (Dr. Steven Maier, Sponsor)

Micro-channel heat exchangers are components of air-to-air heat pump systems. In cold climates, frost forms on the micro-channel heat exchanger, thus restricting airflow and reducing the amount of energy that is transferred. This is a major inhibition on the performance of the heat pump. The overall objective of this project was to prevent frost from forming on the micro-channel heat exchanger. To accomplish this, we first needed the means to analyze unknown characteristics of frost formation on the heat exchanger. Our goal was to engineer an apparatus that would allow us to calculate the density and mass of the frost in various regions on the heat exchanger. A better understanding of frost formation would enable us to improve current frost growth models. We have engineered a design and a method to physically measure the mass distribution of the frost across the heat exchanger and also compare the densities of the frost according to different regions of the heat exchanger.