

The Eighth Annual
Ranger Research Day

Friday, November 22, 2013
Alabaster Room ~ Alva campus



Northwestern
OKLAHOMA STATE UNIVERSITY

**LIST OF
ABSTRACTS**

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ABSTRACTS

Arts and Music

1.02 Music

1.02.01, “‘Aimons-Nous’: A Comparative Musical Analysis and Commentary on 19th-century French Vocal Settings of Théodore de Banville’s Poem ‘Aimon-Nous’ by Composers Camille Saint-Saëns and Claude Debussy” [Poster]

Frank Dalton Lamberth (Dr. Sarah Chan, Sponsor)

This poster focuses on the musical analysis of 19th c. French Romantic composer Camille Saint-Saëns’ vocal work, “Aimons-Nous,” its relation to other vocal works of the composer, and its relation to the musical context of the same text by fellow French Romantic composer Claude Debussy. Exploration and analysis will focus on aspects of musical style, form, rhythm, melody, harmony, phase structure, and text-painting used by both Saint-Saëns and Debussy in their musical interpretations of Théodore de Banville’s poem, “Aimons-Nous.” Observations are made with regard to how the composers similarly set the poem as well as how their settings differ from one another. Additional information relating to composer biographical information, musical style, and musical language and historicity pertinent events to the Romantic and Impressionist Eras are given.

1.02.02, “A Comparative Analysis of Sonata-Allegro Procedures in Two Viennese Classical Piano Sonatas: The First Movements of Haydn’s Piano Sonata No. 53 in E minor, Hob. XVI:34, and Mozart’s Piano Sonata in A minor, K. 310” [Poster]

Joshua Faulkner (Dr. Sarah Chan, Sponsor)

This poster gives a comparative analysis of the exposition portions of first movements of two Viennese Classical Era piano sonatas: Franz Joseph Haydn’s Piano Sonata No. 53 in E minor, Hob. XVI:34, and Wolfgang Amadeus Mozart’s Piano Sonata in A minor, K. 310. A

detailed structural analysis of the expositions of each movement focuses on the drama of thematic and key area contrasts central to the sonata compositional principle at work in each piece; the analysis includes details about the similarities and differences in motivic treatment, rhythmic interest, and harmonic structure and a commentary on developmental procedures that follow the Exposition. While the two movements exhibit many similarities—both are authored by leading composers of the First Viennese School of the Classical Era, both employ the sonata-allegro compositional principle, and both are set in the minor mode--the outworking of musical drama in each piece pose significantly contrasting procedures that create largely differing narrative dramas.

1.02.03, “Musical Interpretations and 19th-c. French Symbolist Poetry: A Comparative Analysis of Two 19th c. French Art Song Settings of Paul Verlaine’s “Mandoline” by Composers Gabriel Fauré and Gabriel Dupont” [Poster]

Riley Wiebener (Dr. Sarah Chan, Sponsor)

This research will serve as a comparative analysis of two 19th-c. French art song settings by Gabriel Fauré and Gabriel Dupont to the poem “Mandoline,” by Paul Verlaine. The analysis will compare how each composer musically and stylistically set the same poem with individual compositional styles and techniques that employ textual, harmonic, melodic, rhythmic, articulative means of interpretation. Considered the greatest poet of the fin de siècle French Symbolist movement, Paul Verlaine used subtle literary suggestion to evoke moods and feelings rather than employing direct, precise statements normally associated with traditional poetic procedures of his time. This analysis will comment on both the language of fin de siècle French Symbolism (including the enchantment of words, repetition of sounds, and cadence of verse associated with Symbolist poetic language and imagery) and the effect of the two musical settings by Fauré and Dupont in interpreting the same literary piece.

Business

2.07 Business Management

2.02.01, “Negotiation Strategies in a Hostile Business Environment”

[Conference Paper]

Josh Cook (Dr. Joseph Nnanna, Sponsor)

Over the past few months in the political environment in the United States, we have witnessed “political gridlock” in passing a budget as well as funding the affordable care act which has ultimately caused the federal government to shut down. This researcher firmly believes that it is of paramount importance that effective negotiating strategies are employed in order to be successful in any business environment. Consequently, this paper aims to explore the various negotiating strategies at a macro and micro levels of organizations.

3.06 Psychology

3.06.01, “Sleep and Dreams” [Poster]

Brooke Beckner (Dr. Sherril Stone, Sponsor)

This study includes an overview of the reoccurrence of dreams. A questionnaire specifically designed for participants to give information prior to the experiment about their recent dreaming patterns was designed. Participants were randomly selected to drink a caffeinated beverage of their choice or to watch television. Participants were responsible for documenting any dream when they woke up during the night and first thing in the morning. It was hypothesized that television will cause the participant's to have the same dream more than once rather than when drinking a caffeinated beverage. A total of 60 people were randomly selected ranging from 18 to 60 years of age. They were asked to participate in a study conducted by a researcher from Northwestern Oklahoma State University. For this study there was a total of 30 questions in Appendix A designed for participants to take before the study. Participants were asked to write in blue or black ink pen and also to document dreams on a questionnaire sheet followed by a pamphlet that was provided. There were a total of 42 questions in Appendix C that was designed to take after the study was completed by the participant.

3.06.02, “Parenting Styles and the Effects on Personality” [Poster]

Katelyn James (Dr. Sherril Stone, Sponsor)

This study was conducted to determine whether the Baumrind parenting styles have different influences on their children's personalities in adulthood. A total of 75 adults, over the age of 16 years, were asked to complete the Parental Bonding Instrument (PBI). The PBI measures the fundamental parental styles as the participants perceived it to be in the first 16 years of their lives. The participants also were asked to complete the Big Five Inventory (BFI). The BFI is a self-report inventory designed to measure the Big Five dimensions of personality. It is a multidimensional personality inventory consisting of short phrases and uses a Likert scale from one to five for each measurement. The majority of the participants lived in a two parent household until the age of 16 years. The participants included adoptees, those from a divorced home, and those from a two parent household. The PBI and BFI were examined to determine if an association existed between the two scales.

3.06.03, “Artificial Vs. Real Animals in Nursing Homes” [Poster]

Alexandrea McBee (Dr. Sherril Stone, Sponsor)

Animal-assisted therapy (AAT) is the use of animals as a therapeutic adjunct. AAT was first used at the York Retreat in 1792 by William Tuke. AAT was first suggested in the United States in 1919. Organizations such as Pet Partners train service animals to help people with disabilities gain a sense of independence. One-on-one AAT has been found to be effective on long-term care facility (LTCF) residents suffering from loneliness. Although AAT seems to be successful in LTCF, some staff and residents are still reluctant because of the possibility of zoonosis, injuries, and falls that animals could cause. Multiple studies have been conducted to determine whether robotic animals would make a suitable substitute for live animals. Based on these findings, the current study examined the hypothesis that interactions with live pets will result in better moods in nursing home residents than interactions with artificial pets. Thirty residents received three visits each: 1) with the visitor alone, 2) with the visitor and a live cat, and 3) with the visitor and a robotic cat. After each visit, the resident was asked to complete the Brief Mood Introspection Scale (BMIS).

3.06.04, “Is Online Dating More Preferred Than Traditional Dating?”

[Poster]

Stephanie Metcalfe (Dr. Sherrill Stone, Sponsor)

The present study details the popularity advantages of online dating while exposing the problems associated with it. Online dating can be time saving and can eliminate incompatible persons without actually meeting them. It can easily provide a long list of potential partners with greatly simplifying the old fashioned method of face to face dating. Conclusions reached are twofold. 1. There are dangers involved in meeting people online as one does not know if the potential match is genuinely aligned with similar interests or they are a predator. 2. Online relationships are generally not as stable or long lasting as relationships formed by traditional face to face dating. Studies have found that the willingness of participants to create a dating profile was less likely to occur if the participant was not already in a relationship.

3.06.05, “The Effects of Eyewitness Accuracy Pertaining to Question Form” [Poster]

Chad Mittelstet (Dr. Sherril Stone, Sponsor)

Eyewitness accuracy plays an important role in over 75,000 court cases a year in the United States alone. Many defendants are prisoned or jailed by testimony given by witnesses in court hearings around the world. This poster is going to discuss the two various types of research, the system-variable and the estimator- variable approach, being conducted to implement a more scientific approach to eyewitness accounts. The system variable research is the approach in which the variables being manipulated in the experiment can also be controlled in actual cases by professionals serving in the criminal justice system (Wells, 1993). The estimator- variable research approach investigates sources of eyewitness accuracy or error that cannot be controlled by the justice system (Seelau & Wells 1995). This poster will also discuss the implications of memory trace when dealing with accuracy of eyewitness accounts. The researched being conducted involves collecting information from three varied approaches such as opened ended, fill in the blank, and multiple choice questionnaires, to learn which type is the more accurate form of questioning.

3.06.06, “Anxiety in Sports” [Poster]

Ty Stroble (Dr. Sherril Stone, Sponsor)

This paper will concentrate on anxiety amongst athletes at the college level. Anxiety is believed to be made up of two different components. These components include the mental component, which is known as cognitive anxiety, and somatic anxiety, which would be the physiological component. Sports psychology has focused on two main paradigms, the drive theory and the inverted-U hypothesis. Both are discussed as well as past experiments used to support each theory. The multidimensional anxiety theory has recently been the focus of the sports psychology field. While the drive theory and the inverted U- hypothesis focus on predicting performance, the multidimensional anxiety theory has been unable to predict performance. The multidimensional anxiety theory predicts that cognitive anxiety will remain high and stable prior to competition, whereas somatic anxiety peaks later (i. e., immediately prior to arrival at the site of the competition). This study will hope to support the multidimensional anxiety theory and support the hypothesis that male athletes' cognitive

anxiety levels will be higher than female athletes' cognitive anxiety level prior to competitive competition. Thirty starting athletes from NAIA football, volleyball, cross country, and soccer teams were tested for somatic anxiety by taking the CSAI-2 and cognitive anxiety by using the CSAI-2. The athletes were tested at leisure time, 20 to 60 minutes prior to competition, and immediately after. This research may be used to help further the study of anxiety amongst collegiate athletes and how to manage stress prior to competition.

Liberal Arts

4.02 English

4.02.01, “An Application of the Sociological Theories of Charles Horton Cooley to Frank Norris’s *McTeague*” [Conference Paper]

Ken LaFon (Dr. Shawn Holliday, Sponsor)

This paper presents an analysis and application of the social psychological concept of the looking-glass self, first introduced in 1902 by Charles Horton Cooley in his book *Human Nature and the Social Order*. Cooley postulates an organic and reciprocal relationship between man and society. I contend that Cooley’s theory of the looking glass self, when applied to Frank Norris’s 1899 novel *McTeague*, illustrates that the protagonist’s behavior is the result of a self-concept based on his idea of how others perceive him. This suggests that *McTeague* is unable to form an autonomous identity. Subsequently, he is highly suggestible and subjected to a flawed self-concept. Ultimately, Cooley’s idea of society as an organic living whole is well-suited to an analysis of and commentary on human behavior within the context of *McTeague*.

4.02.02, “The Linguistic Legacy of the Louisiana Purchase” [Conference Paper]

Ken LaFon (Prof. Kathy Earnest, Sponsor)

Few events in American history carry the geographical, cultural, and linguistic significance of the Louisiana Purchase. The size of the nation doubled, and free navigation of the Mississippi River enabled American commerce and migration. This guaranteed the movement of American English west of the Mississippi and, ultimately, cemented its place as the exclusive spoken language from the Atlantic to the Pacific. The idea of an “Empire of Liberty,” as driven and promoted by Thomas Jefferson, held dire linguistic consequences for the indigenous people of North America. This discussion will illustrate the regional aspects, dispersal characteristics, and features of this “common language,” and will explain its eventual deleterious effects on Native American languages. Information on the “English Only” movement and subsequent legislation in the state of Oklahoma will be provided in order to achieve a holistic and practical understanding of the linguistic legacy of the Louisiana Purchase.

4.05 Geography

4.05.01, “Geography and Effects of Global Warming” [Poster]

**Hunter Berglan, Jonae Isaac, & Bridgett Shook
(Dr. Justin Olmstead, Sponsor)**

Global warming affects everyone and has a strong link with geography. By studying the geographical region closely, one can learn a lot not only about the causes and effects of climate change but also about different ideas to combat and control these events. If you are interested in climate changes, then you can examine its ties and connections to the field of geography.

4.05.02, “How Geography Affects the Economy” [Poster]

Samy Mack III, Dylan Baun, & Kathleene Gluth

(Dr. Justin Olmstead, Sponsor)

The geography, that is the physical location, of a place plays an important role in economic growth and progress. An area's natural resources make the economy of the region stronger by providing energy as well as income through trade and exports. It would be interesting to analyze the relationship between geography and economy in different regions of the world.

4.05.03, “Examine the Impact of Natural Disasters” [Poster]

Jordan Evans, Katelyn Roberts, Taryn Phillips, Misty McCullough, & Cody Johnson (Dr. Justin Olmstead, Sponsor)

GIS is used to predict earthquakes and calculate their damage. In the last few years the planet has been plagued by earthquakes, tidal waves, and other natural disasters. Design a GIS that could calculate the damage these events inflict on an area. This could be used both to predict and to prevent damage to certain structures and areas. You could focus on one particular city or on a range of areas, for example, examine an area hit by an earthquake to determine the frequency of landslides in the region, what type of structures suffered the most damage, and so on.

4.05.04, “Technology and Geographic Tools, and Transportation”

[Poster]

Kelsey Leveling (Dr. Justin Olmstead, Sponsor)

Transportation is the action of movement of someone or something and is directly affected by the geography of the world as a whole. With technology such as GPS evolving steadily, transportation has become more efficient to keep up with the needs of society. In this presentation I will talk about the relationship between technology and geography tools and transportation. I will explain the relationship between technology and geography by showing how the growth of technology has changed the way transportation functions. Technology affects every aspect of life; as it continues to grow, our society changes, adapting to new technology. We will also be demonstrating the effects that technology will have on future geographical tools and the way our geography and society will develop and become more efficient worldwide.

4.05.05, “The Effectiveness of GIS in a Business” [Poster]

Taylor Parrish, Korina Lillard, Braxton Taylor, & Brady Hochhalter

(Dr. Justin Olmstead, Sponsor)

Our group will be presenting our poster over the effectiveness of the Geographic Information Service (GIS) in a business. We will be demonstrating the Geographic Information Service software on a laptop along with the poster. We will be discussing how GIS technology could be better used by a business or how businesses could use it differently. We will be talking about Peabody Energy using the GIS software in their mining

business. We will also be showing who else uses the GIS software and how they use it daily. Lastly, we will be discussing what other businesses that could benefit from using the GIS software and how they could use it to make their jobs easier and more efficient.

4.05.06, “The Relationship between Geography and Culture” [Poster]

Rachel Reardon, Melissa Noland, Relina Johnson, Nicholas Vanatta, & Mason Bowen (Dr. Justin Olmstead, Sponsor)

When people consider the geography of an area, they may only consider the physical aspects of it: vegetation, climate, landforms. The term *geography*, however, is more extensive than that, and there are many more factors that contribute to the geography of a place, not excluding those physical traits. One can look at a people to identify a place’s geography, as the geography and the culture of that people always go hand-in-hand. The way that civilization thrives - its religion, cuisine, values, etiquette, gender roles – everything can be attributed to global diversity, a primary study of geographers and the predominant reason this world is allowed the various cultures it possesses. The relation between geography and culture is not simply based on physical separation but also on human perception.

4.05.07, “Monitor the Effects of Climate Change” [Poster]

Fernanda Tomazini, Christopher Hill, Brent Palacios, & Justin Kincade (Dr. Justin Olmstead, Sponsor)

A thesis on climate change and its effects focuses on examining both recorded and projected impact on the land. A thesis for the project tracks changes in surface temperature, underground lakes, soil quality, and so on. It also explores how climate change has affected these elements, and what future impact can be predicted. The project also evaluates previous studies by climate change scientists and organizations such as the Climate Institute.

4.05.08, “GIS in Archaeology” [Poster]

Mitchel Rader, Michael Johnson, Kaleb McDonald, Daulton Reutlinger, & Jacob McGuire (Dr. Justin Olmstead, Sponsor)

GIS has long been used by archaeologists to search for artifacts below the surface, whether sea or land. They use global positioning satellites and underwater echo sounders to collect information and use software to translate this information into GIS. We explain how this technology can be further developed.

Math & Science

6.01 Biology

6.01.01, “Effects of Pre-Workout Supplements on the Male Human Body” [Poster]

Shane Engelken (Dr. Cynthia Pfeifer-Hill, Sponsor)

As pre-workout energy supplements such as Cellucore’s C4 Extreme continue dominating the dietary supplement industry more so than ever, a wide range of companies are producing these supplements with claims such as “produces more energy, prolongs muscular endurance, and heightens your level of mental focus.” After years of using these products myself, I set out to pinpoint what physiological effects these supplements produce, whether

or not they are truly effective in increasing muscular strength/endurance, as well as whether it is in fact the supplement that helps or merely the power of the human mind. In order to answer these questions I used six different subjects and four different measures of recordings, blood pressure, heart rate, EEG, and max number of repetitions on bench press using 60 percent of the subject's one rep max. Taking all recordings prior to consumption allowed me to establish a baseline for each subject. Subjects then consumed the supplement and, after waiting twenty minutes, all recordings were performed again, allowing me to gain insight into what physiological changes occurred and what effect these supplements had on muscular strength/endurance. In order to distinguish between the supplements' effectiveness and the power of the human mind, all subjects repeated the test several days later using a placebo pre-workout supplement.

6.01.02, “DOK3 Negatively Regulates RANKL-induced Osteoclastogenesis” [Poster]

Sapana Kadel (Dr. Venkata Moorthy, Sponsor)

Osteoclasts (OCs) are unique myeloid cells that resorb bone after activation of specific cell surface receptors including receptor activator for NF- κ B (RANK). RANK ligand (RANKL) promotes osteoclast differentiation in the presence of costimulation of immunoreceptor tyrosine-based activation motif (ITAM) proteins such as DAP12 which couples to Triggering Receptor Expresses on Myeloid Cells #2 (TREM 2). We have recently shown that downstream of kinase-3 (DOK3) negatively regulates TREM2-DAP12 signaling and inflammatory cytokine production in response to TLR stimulation of macrophages. Our goal was to test the hypothesis that DOK3 negatively regulates TREM2-DAP12 ITAM signaling in osteoclasts.

6.01.03, “Defensive Coloration in Long-Nosed Snake (*Rhinocheilus lecontei*)” [Poster]

Anjeela Shrestha (Dr. Aaron Place, Sponsor)

Mimicry is a defensive mechanism in which one organism resembles another as a form of protection. The model organism may be present in the same region as the mimic or live elsewhere. The northwest region of Oklahoma lacks a venomous coral snake. However, this region is home to the long-nosed snake (*Rhinocheilus lecontei*), which is a purported mimic of the western coral snake (*Micruroides euryxanthus*). I investigated the mimetic coloration of the long-nosed snake in northwest Oklahoma. My purpose was to see if the color pattern of the long-nosed snake protects them from being depredated by birds and mammals. Predation occurred more often on brown snake models than on the long-nosed snake models. I discuss possible mechanisms for maintenance of the dorsal pigmentation pattern in long-nosed snakes.

6.06 Nursing

6.06.01, “Tai Chi in Fall Prevention” [Poster]

**Benita Coffin, Angela Shuman, & Amy Quesada
(Prof. Leslie Collins, Sponsor)**

Fall prevention is essential for the elderly population. With this group of people, one of the

most common causes of injury is related to falls. This fact makes it a necessity to promote education and participation in activities that lessen the likelihood of impaired mobility and the consequences of losing one's balance. Tai Chi, a traditional Chinese exercise, has gained recognition in the United States among the elderly in the areas of balance, coordination, and the ability to increase flexibility.

Our study involved evaluation of participants who were sixty years of age and older in an effort to improve ambulation and to reduce the risk and incident of falls. For our research, we evaluated elderly participants; some who were active in Tai Chi programs and others who currently lived a sedentary lifestyle. In conclusion, it was found that Tai Chi did have a positive effect on reducing the risk of falls, but more extensive research would need to be completed in order to establish the importance of Tai Chi exercise among the elderly population.

6.06.02, "Communication in Nursing" [Poster]

Krystal Elliott, Roxanne Bridges, & Renata Simpson
(Prof. Leslie Collins, Sponsor)

Effective communication is a vital part of a healthy work environment in Critical Care Units enabling all members of the interdisciplinary team to proactively treat the patient and family. This presentation focuses on proper communication of healthy work environments in Critical Care Units and how it may affect potential patient errors. Increased positive communication among interdisciplinary members in Critical Care Units has been shown to increase nurse and physician retention, decrease patient anxiety, increase patient and family satisfaction, and decrease the amount of patient errors. Implementation of therapeutic communication techniques with the patients and family members can decrease anxiety leading to decrease in errors. Setting individualized daily patient goals and ensuring all staff are aware of these goals helps to provide a more personal level of care which can decrease errors. This information is important to the nursing profession because of the impact of communication has holistically on a patient and the impact communication has on the temperament of the interdisciplinary team.

6.06.03, "Sterile Technique" [Poster]

Shala McIntosh & Allison Arnold (Prof. Leslie Collins, Sponsor)

In sterile operations, what are the effects of using correct sterile technique opposed to breaking sterile field of infections rates of post-operative clients? This was an evidence based project that declared sterile field operations are more beneficial than breaking sterile field and not fixing it. The project was built upon a case study that was set up in an operating room in which the operation had a break in sterile field and nothing was done about it, leading to the patient receiving a surgical site infection. After making the case study, interventions and best practices were researched through articles to find the best solution that should have been implemented in the case study. Once best evidence based practices were established, a model study was made that provided how the situation should have been handled differently so that a better outcome for the patient would happen.

6.06.04, "S.A.N.E." [Poster]

Kelly Nech & Drew Hunter (Prof. Leslie Collins, Sponsor)

The purpose of this research project was to determine the overall effectiveness of the sexual assault nurse examiner program on a sexual assault victim that presents themselves to the emergency department for treatment and evidence collection. The case studies observed were scrutinized for comparison between an emergency department equipped with the capabilities to provide victims of a sexual assault crime with a certified SANE nurse as opposed to a facility that does not offer these services.

6.06.05, “A Systematic Review of Prehabilitation” [Poster]

Jana Washington, Emily Wadel, & Kelsey Fanning

(Prof. Leslie Collins, Sponsor)

This is a systematic review of prehabilitation utilized prior to total knee arthroplasties (TKA). It was found that prehabilitation improves strength and recovery time post-operatively with no negative side effects to date. The case study examined involved a 69-year-old female who had bilateral TKAs. Her treatment plan differed in the two surgeries in that the first one she did not participate in any type of pre-operative conditioning and prior to the second one she did. The results of this study showed an increase in functional ability and strength by 30% and 50% respectively. Other evidence presented also shows that prehabilitation has positive post-operative outcomes. It is felt that although the evidence to support prehabilitation is growing, there needs to be further research done on this emerging topic that encompass such things as longer prehabilitation program lengths and if long term benefits are gained.

6.06.06, “Do Patients Living in Rural Communities Receive a Lower Quality of Care Compared to Those Living in Higher Populated Areas?”

[Poster]

Kelsey Gingrich, Mary-Grace Schurter, & Karlea Pearson

(Prof. Leslie Collins, Sponsor)

The purpose of this study was to evaluate the quality of care at rural health care facilities. The study depicted that care was used as a preventative measure and is effective if the staff is well educated and has the appropriate technology. The main focus of the rural nurse should be to teach rural dwellers appropriate and adequate education towards their specific disease process with the aim of decreasing emergent situations.