

## Abstract Examples from SCHOLAR Day 2019

### **Dillon Frees and Barry Myers      Exercise Science**

"Effects of Caffeinated Chewing Gum on Collegiate Soccer Players: Improving a Battery of Common Soccer Tests"

The literature has shown that caffeine has been used to improve exercise performance (Cosa et al. 2012, Evan et al. 2018, Jacobson et al. 1992). In recent years, non-traditional forms of caffeine such as caffeinated chewing gum have been of great interest due to the quicker absorption rate compared to traditional forms of caffeine; this is attributed to the absorption in the buccal mucosa of the mouth. This could benefit athletes where there is limited time for nutrition interventions in competitions or games (i.e. halftime). The purpose of this study was to determine the ergogenic and physiological effects that caffeinated chewing gum will have on a battery of common soccer tests in collegiate soccer athletes. Additionally, the purpose was to measure the absorbance rate of caffeinated chewing gum. Sixteen men and women division III collegiate soccer players were recruited and the study was divided into two phases. Phase I consisted of a randomized sub-set of eight subjects who chewed the caffeinated chewing gum for five minutes and blood draws were taken at the baseline, ten- and twenty-minute mark and analyzed for serum caffeine. In phase II, subjects were randomly given either placebo or caffeinated gum and underwent a series of common soccer tests which included: standing broad jump, counter movement jump, arrowhead agility test, 30m sprint and a timed one-mile run. Following a seven-day washout period the same protocol was repeated but with the other intervention gum. Data collection was not complete at the time of abstract submission.

### **Aaron Merriman      Political Science**

"'It's the Economy, Stupid': The Impact of Economic Conditions in the Rust Belt on the 2016 Presidential Election"

The 2016 American presidential election was highly unique in that several states, some of which had historically voted strongly Democratic, switched their support to the Republican Party. In this study, I examine the effect of economic conditions in the Rust Belt on the election compared with demographics and party affiliation. I collected economic, demographic, and voter registration data from fifty counties in Michigan, Ohio, Pennsylvania, and Wisconsin, as well as voting percentages for Hillary Clinton and Donald Trump. These states were considered swing states in the election, and Trump's victories in these states gave him enough electoral votes to become President. My cases were counties in those states with populations of over 200,000 (using 2010 Census data), as well as the county in each state with the highest percentage of Clinton and Trump votes regardless of population. I then created a linear regression model; percentage of Trump votes was the dependent variable and economic, demographic, and voter registration data were independent variables. While some economic factors such as poverty rate ( $= -.549$ ) were important in determining support for Trump, they were not as important as party affiliation. Counties with higher percentages of registered Republicans ( $= .868$ ) and unaffiliated voters ( $= .744$ ) were more likely to support Trump. These results could hold many future implications; Democratic presidential candidates may have to prioritize economic growth and job creation in the Rust Belt if they are to win this area of the United States in future elections.

**Ryan Ditrick**

**Writing**

"The Place of Profanity in Fiction"

When is it ok to use the F word? When we speak, we use profane language to convey our extreme emotions. For this reason, it's only natural for fiction writers to use profanity to accurately construct a more realistic narrative. However, it's very easy to use it in a way that makes the work seem sloppy or even childish, so it's important for emerging writers to understand how to use profanity effectively if they want their work to succeed. In this presentation I will discuss the rhetorical decisions writers make about swearing. I will first explain what seasoned, professional writers have to say about the use of profanity in their writing, and then apply that research to a limited, original corpus analysis of amateur fiction from writingforums.com. Using this analysis, I will show what happens when profanity is used too much, and when it is used too little in both dialogue and narration.

**Graycen Wood**

**Communication Studies**

"Attitudes on Race and Criminal Justice"

The American criminal justice system relies on the presumption of innocence of the accused. Consequently, every defendant, regardless of gender, ethnicity, shape, or size, should enter the courtroom with a blank slate. While this may be the ideal standard, human beings carry with them biases which are perpetuated via the use of language. Past research has demonstrated a clear disconnect in the public's level of satisfaction with the criminal justice system. What has not been previously examined is how race plays a role in the public's satisfaction with sentences handed down to offenders and in the creation of bias that could interrupt the criminal justice process. In my research, respondents were asked to complete a 17-question survey administered online assessing participants' opinions on criminal sentencing, semantic differential ratings, and an implicit association test to identify implicit racial biases. It is hypothesized that results will reveal: people with any implicit preference for white people will rate the images closer to the negative words and will rate the sentences given to the offenders as adequate or lenient; people who identify sentences given to offenders as lenient will be less satisfied with the criminal justice system; and people with an implicit preference for black people will rate the sentences given to the offenders as harsh. Future implications of my research include implementing diversity training in the jury selection process. Limitations include the respondents' prior conception of the criminal justice system, respondents' tendency to answer dishonestly, and technological malfunctions with the implicit association test.

**Zachary Dozier, Kathleen Allen, Gunnar Maher, and Thomas Petrella    Mechanical Engineering**

"Gait Test Assistive Device"

A 400 m gait test is an inexpensive gait function test used by physical therapists to assess dynamic balance, aerobic ability, and muscular endurance. Currently, practitioners use gait belts to slow, but not always prevent the falling of unstable patients. There are many commercially available products to aid in stability including canes and walkers, however, these products alter the results of the test by eliminating natural arm motion and limiting stride length. The goal of this project was to develop an assistive device to enable physically unstable patients to complete walking gait tests without affecting the patient's gait velocity or stride length.

GAIT-X was created following the engineering design process. First, the principles of stability and existing commercial devices were researched. Three design concepts were then generated and evaluated using decision matrices. Technical analysis of the final design ensured the device will support the patients and that the components would meet performance requirements. Finally, the GAIT-X will be built and tested with a gait test.

The GAIT-X consists of an aluminum tubing frame built upon triangular bases. Two vertical tubes can slide into the main base, allowing the device to adapt to patients ranging in height from 51 to 72 inches. Patients are supported in the frame using a combination of three commercially available products: a steel tire swing swivel, adjustable bungee cords, and a fall-arrest safety harness. Overall, the GAIT-X enables participation in gait tests by reducing the risk of falling without impeding arm motion and stride length.