



Research & Creative Activity Day

Abstract Booklet

November 8, 2018

Office of Research and Sponsored Programs



Because West Chester University seeks to be a leader in local, regional, and global sustainability efforts, the Office of Research and Sponsored programs has collaborated with the Office of Sustainability to create a special designation for those Research and Creative Activity Day projects that perpetuate the health and welfare of people, economies, and the environment. Thus, all abstracts identified with *the Brandywine B* reveal the many ways that West Chester University faculty and students are helping to design, implement, evaluate, and improve a variety of environmental, social, and economic sustainability activities.

POSTER PRESENTATION ABSTRACTS

EASEL #1 Innovative Instruction for Grade-Appropriate Academic Content to Students with Autism

Patterson, Dawn; Naselli, Carly; Griffin, Jacklyn; Riesenber, Amanda & Porreca, Juliana (Special Education)

Faculty Mentor(s): Patterson, Dawn



Preparing students with autism to learn beside their same-aged peers, in the least restrictive environment, involves learning age-appropriate content in a format that closely resembles instruction in general education classrooms. This research study employs WCU students who are enrolled in a dual certification (general education and special education) program. Two students are implementing the research while completing their student teaching experience and two students are in field experiences during the final stages of their course work. Through this opportunity WCU teacher candidates will develop a rich understanding of the effects of research on classroom instructional practices. Using a single-case, multiple probe across word sets, the research is investigating the use of innovative teaching by using the principles of direct instruction, for students with autism, to learn grade-aligned vocabulary in a small group format. The goal is to determine that students with autism can learn in a small group, content specific vocabulary in order to increase student engagement and for those students to have age-appropriate conversations with peers. During the poster presentation, WCU teacher candidates will describe the research, their role in the research, and how it has impacted them in their upcoming role as a teacher.

EASEL #2 Schema, Style, and Speech: Translating Juan Rulfo's "No oyes ladrar los perros"

Patrick, Lisa (English, Languages and Cultures)

Faculty Mentor(s): Panagiotidou, Eirini (English)

This project aims to further and expand upon the way that cognitive poetics is able to be weaved into literary translation. Concerned with what is considered a "faithful" translation, the close examination of grammar as well as denotative and connotative meanings has been placed at the forefront of translation studies. However, the worlds of translation studies and cognitive poetics have only just recently begun to merge. Cognitive poetics, in contrast, is a relatively young field of study which emphasizes the way the reader experiences the text based on certain moves within a text such as the relationship between figure and ground as well as narrator and reader. Therefore, my project is twofold and take the shape of a case study examining how my choices as a translator change when the cognition of the reader is emphasized. I have translated Juan Rulfo's short story "No oyes ladrar los perros" into English. This work is unique in the way it hides its setting from the reader as the two protagonists face darkness and silence together. In addition to translating this text, I also examined the ways in which it is possible to use cognitive grammar and poetics to make the translation more meaningful in addition to faithful. From this, I investigated the ways that cognitive poetics affects the process of choosing appropriate words, grammatical structures, and points of focus to marry the theoretical aspects of cognitive studies to translation studies.

EASEL #3 Effects of Caffeinated Chewing Gum on Repeated Sprint Performance in Recreationally Active Individuals

Simcox, Matthew; Greenland, Peter; Berridge, Brooke; Schultz, Elizabeth & Hauser, James (Kinesiology)
Faculty Mentor(s): Whidden, Melissa (Kinesiology)

Caffeine is frequently consumed by athletes during training and competition to improve performance. Caffeine improves nervous system activation, muscle contraction, and fuel delivery to the muscle. However, the effects of caffeine on repeated bouts of short term high-intensity exercise are not clear.

Purpose: To investigate the effects of caffeinated chewing gum during repeated high-intensity sprints.

Methods: Six active subjects completed two experimental sessions, consisting of two sets of 60 meter sprints with three sprints per set. Caffeine or placebo was administered via chewing gum following the first set of sprints of each experimental session. Middle 20 meter sprint times, post sprint heart rates and post sprint ratings of perceived exertion (RPE Scale 1-10) were measured.

Results: There were no significant changes in 20 meter sprint times between the two conditions; 2.69 ± 0.08 secs (placebo) vs. 2.74 ± 1.6 secs (caffeine). However, sprint times were maintained in the caffeinated trial. There was a trend for post sprint heart rates to be lower following the fourth sprint but the effect did not carry over into the fifth and final sprint. There was a trend for RPE to be lower following the fifth sprint and it was significantly lower ($P \leq 0.05$) following the final sprint.

Conclusions: Caffeinated chewing gum appears to maintain speed during repeated sprints. Caffeinated chewing gum also seems to lower post sprint heart rates and ratings of perceived exertion. Further research is needed to ascertain if caffeinated chewing gum helps to maintain exercise performance and attenuate fatigue.

EASEL #4 The Effect of Vitamin D Supplementation on Depressive Symptoms in Adults: A Systematic Review

Versaggi, Natalie (Nutrition and Dietetics)

Faculty Mentor(s): Sarcona, Alessandra (Nutrition and Dietetics)

Objective: To review the most current evidence on the effect of vitamin D supplementation for decreasing depressive symptoms in adults with one or more medical concerns.

This is a systematic literature review of randomized controlled studies conducted from 2015 through 2018 that tested the effects of a vitamin D supplement on depression scores in adults. Six major databases were used to search for studies on this topic. Studies were to have examined effects on depressive scores as a primary or secondary outcome and were excluded if there was no comparison group or baseline data recorded.

Of the 86 articles initially screened, seven studies were included in the final review. These studies included seven randomized controlled trials. Based on the questions asked in the Quality Criteria checklist, there were five studies with positive ratings and two with neutral ratings. Two studies focused on adults with diagnosed major depression, two focused on overweight/obese adults, one focused on adults with vitamin D deficiency, one focused on adults with multiple sclerosis, and one focused on adults undergoing dialysis treatments. While depression scores were significantly improved compared to baseline data in all studies, only two studies resulted in a significant improvement compared to the control group.

The review of literature showed that vitamin D supplementation alone cannot significantly improve depressive symptoms among adults but has the potential to be a beneficial aid in lowering symptoms. Further studies should be done to evaluate the effect of vitamin D supplementation in addition to one or more interventions.

EASEL #5 Pilot of a Co-Curricular Assessment Model at Arkansas State University for Student Research Events

Devereux, Emily (Public Policy and Administration, DPA)

Faculty Mentor(s): Crossney, Kristen (Public Policy and Administration)

Universities provide diverse events for students to present their research and creative works to various audiences, and it is believed that participation in these events enhance students' learning in preparation and practice for writing conference abstracts and in making conference presentations. Models for co-curricular assessment of student learning outcomes from such events are not readily available, furthering the need to develop a model for assessment research. Arkansas State University developed and piloted a model for assessing student learning from Create@State, the official symposium of the University, focusing on student learning outcomes of creative and critical thinking and communication skills. Qualitative and quantitative assessment methods were utilized for this study. A survey adaptation of the Undergraduate Research Student Self-Assessment (URSSA; Hunter et al. 2009) instrument was administered to students at two points within the assessment investigation timeline, at time of abstract submission and after the symposium presentation. It provided self-perceptive data of the student learning outcomes at the beginning of the Create@State process and after the event. Rubrics were provided to students for both abstracts and presentation types. Rubric data was used to assess creative and critical thinking and communication skills. The study's findings revealed these events are the first conference setting many students experience, validating the need for this student opportunity, accompanied by a structured oral communication program leading up to the culminating event of a conference setting. It has contributed to a national pilot study launched this fall by the Council on Undergraduate Research for assessing student research events.

EASEL #6 Variation of Parameters in Metal-Assisted Catalytic Etching

Swanson, Joseph; Lee, Teresa & Benjamin, Roe (Chemistry, Physics)

Faculty Mentor(s): Kurt, Kolasinski & Shawn, Pfeil (Chemistry, Physics)

Porous silicon powders were produced by Ag-catalyzed etching in an aqueous solution of HF and CH₃COOH to which H₂O₂ is injected. This research investigates how variations in the amount of Ag and H₂O₂ as well as the injection time affect metal-assisted catalytic etching (MACE). This was done by analyzing the percent yield of the product and by examining SEM images of the products before and after exfoliation of silicon nanowires (SiNW). Atomic force microscopy (AFM) analysis was also used to characterize the size and aspect ratios of the nanowires. We demonstrate that the amount of silver catalyst that was used during etching, the time of the etching, and the amount of hydrogen peroxide that was used can be used to control the structure and yield of the product of MACE.

EASEL #7 Is Alternative Medicine the Answer to the Opioid Epidemic?

Taylor, Renee (Economics and Finance)

Faculty Mentor(s): Condliffe, Simon (Economics)



The United States' health care is undoubtedly expensive, and it has some type of effect on every individual. No matter what type of insurance a person uses, they are feeling the backlash of the price of this expenditure. What if there was something that could lessen the burden that takes its toll on all our wallets? For this project, we decided to hone in on back pain since it is one of the most common reasons for using healthcare. Because back pain is so common, the healthcare system often uses opioids as a quick, easy fix. The devastating effects of these drugs go past just our wallets. Our goal for this project is to see if alternative medication has positive impact on its users, specifically financially, so that we can begin to end the trend of opioid use. Alternative medication can be described as care by a chiropractor, acupuncturist, massage therapist, or anything related to homeopathic, naturopathic, or herbalist. Opioid use is a means of traditional medicine. We used the Medical Expenditure Panel Survey (MEPS) to guide us through this project, digging through massive data files to find pertinent information. With the help of SAS, a statistical software program and the data provided from MEPS, we performed descriptive statistics and other data analysis procedures. We were able to compare the prices of alternative and traditional medication across different forms of healthcare, such as out of pocket and private, by the number of doctor visits, the price per pill, etc.

EASEL #8 Characterization of Microbial Colonies Using an Interference Microscope

Wheeler, James (Biology)

Faculty Mentor(s): Pisciotta, John & Pfeil, Shawn (Biology, Physics)

The objective of this study is to quantify microbial colony growing on an agar plate in three dimensions using a new tool, the Zegage interference microscope.

The growth of microbe colonies cultivated on LB agar plates was followed over time using the Zegage interference microscope which gives a data file containing the x, y, and z dimensions. The output files from the Zegage were processed using the Gwyddion software program to give area, volume, and profile of the colonies verses time. The early stage growth of *Bacillus megaterium* was followed for eight hours. About 25 colonies were imaged every two hours. The colonies grew from about 0.04 microns to 1.5 microns diameter with a height of 200 microns over the eight hours. The area and volume data fit a sigmoidal model with a five-hour time shift. Visual examination of the raw images showed colonies started from random clumps of long bacilli strands. Similar experiments run on *Bacillus subtilis* didn't fit the sigmoidal model. The Zegage had difficulty imaging the sloping edge of colonies which resulted in z-direction spikes. Suggestions for further studies are to profile the growth of disparate microbes and compare results from similar studies carried out with laser confocal scanning microscopy.

EASEL #9 Sustainability of Self Glazing Porcelain

Driggers, Sara & Snyder, Andrew (Art)

Faculty Mentor(s): Snyder, Andrew



Through our extensive technical research, we developed translucent self-glazing porcelain. There are no published self-glazing clay recipes and there are very few examples of this material in history. We mixed various percentages of raw materials to create new clay bodies; we fired over one hundred recipes to develop self-glazing low-fire porcelain. Porcelain is traditionally known as a high fire ceramic form with few impurities, which needs to be fired to at least 2400° F. This high fire requirement is due to porcelain's need to vitrify (harden and increase density) so the porcelain will not be porous. If a clay body is porous after being fired, then it will not be functional due to liquid seeping through the piece while being used; most functional ceramics' porosity is between 1% and 3%. We conducted porosity tests with our porcelain to discover our porcelain has a .01% porosity which is as dense as traditional porcelain, but fired 500° F cooler. This brings us to the key significance of our porcelain; sustainability. Our porcelain matures as well as self-glazes at 1880°F (low fire). This gives users the ability to fire the final product in an electric kiln, which could be powered by sustainably sourced power. The normal process for ceramics is to create the form, bisque fire, glaze, and glaze fire. Our recipe skips the second firing for glazing; reducing the use of energy and time. This porcelain reduces cost due removing the glaze process, and not having to fire a second time.

EASEL #10 College Students' Perceptions of Terrorism and Terrorists

Leitz, Miranda (Criminal Justice)

Faculty Mentor(s): Antonio, Michael (Criminal Justice)

Terrorism is a topic at the forefront of the media and new terroristic events are reported every day. With a topic that is constantly in the news, one may think the general public has a mutual understanding as to what terrorism is and what constitutes someone becoming a terrorist. In reality, there is no mold that terrorists fall into specifically. Terrorist's motives are often different, including who they target or how they carry out an attack. This study examined the overall perceptions that West Chester University students had about terrorism and terrorists. Findings explored how differences in students' lived experiences contributed to perceptions of terrorism, while controlling for gender, race, age, and religion. Data from 279 participants were gathered through the administration of a 21 question survey comprised of open and close ended questions. The participants answered a variety of questions pertaining to terrorist characteristics, who they targeted, what their motives were, and how likely they believed another terroristic attack would occur in the next few months. The results showed that college students are conflicted about what defines terrorism and terroristic activity.

EASEL #11 The Effect of Calorie Labeling on the Purchase Decisions among University Students: A Systematic Review

Loggia, Margo (Nutrition)

Faculty Mentor(s): Sarcona, Alessandra (Nutrition)



Objective: To assess the effect of calorie labeling on the purchase decisions of university students.

Methods: A systematic review was conducted on eight studies with experimental or observational designs published between the years of 2013 and 2017 whose focus was how the presence of calorie labels affected the purchase decisions of university students in a university dining hall setting. The studies were found through searching six databases which were PubMed, MEDLINE, Cochrane Library, WCU OneSearch, Google Scholar, and Global Health. All studies were assessed for quality and validity using the Quality Criteria Checklist.

Results: Eight studies were found that matched the inclusion criteria for this review. Results were inconsistent among the studies regarding the effect of calorie labels on university students' purchase decisions. Three studies found calorie labels have a positive effect on students' decisions to choose lower-calorie options, four studies found calorie labels to have no effect on students' purchase decisions, and one study found calorie labels influenced female students with Anorexia Nervosa or Bulimia Nervosa to choose fewer calories while those with Binge-Eating Disorder chose a greater number of calories.

Conclusion: Due to the mixed results of the studies in this review, it cannot be said with confidence that calorie labels have an effect on the purchase decisions of university students. Future research should be conducted on this topic and population with stronger study designs, and more research should be conducted to better understand how university students with disordered eating are affected by the presence of calorie labels.

EASEL #12 A Matched Alternating Direction Implicit (ADI) Method for Solving the Heat Equation with Interfaces

Iaccarino, Anthony (Mathematics)

Faculty Mentor(s): Li, Chuan (Mathematics)

The heat equation is a Partial Differential Equation (PDE) that describes the distribution of a given unknown function throughout space at a given time. Although the solution is smooth over the domain in most circumstances, interfaces may introduce discontinuities and disturb the smoothness of the solution. These irregularities in the solution between the regions of the domain across the interface can be analytically quantified as jump conditions. As solutions of PDEs depend on the derivatives and continuity of the space, the careful treatment of jump conditions is necessary where interfaces are present. In this work, numerical solutions are found by a newly developed algorithm consisting of the Matched Interface and Boundary (MIB) method for treating the jump conditions into 1D approximations, and the Douglas Alternating Direction Implicit (ADI) method for time discretization. The resulting method can effectively and accurately solve most general interface problems.

EASEL #13 A Study of Molecular Surface Electrostatic Potentials

McGowan, Mark (Mathematics)

Faculty Mentor(s): Li, Chuan (Mathematics)

Electrostatics, as it pertains to the protein surfaces, is important when studying the interaction of molecules/proteins in a solution. One of the most well-known models for calculating electrostatic potentials and various energy in biophysics is the Poisson-Boltzmann equation (PBE). Using standard protein structure files obtained from the RCSB Protein Data Bank, the PBE can be solved numerically to generate the surface of a live molecule/protein and electrostatic potentials, which can then be used to create electrostatic potential distribution maps and also to calculate various types of energy. In this work, we present the numerical methods implemented in the scientific software DelPhi to fulfill the aforementioned tasks and demonstrate the resulting potential maps on selected proteins using two 3D visualization software, VMD and Chimera.

EASEL #14 A Content Analysis of Depictions of Rape in Hollywood Movies Over Time

Caprio, Brianna (Criminal Justice)

Faculty Mentor(s): Antonio, Michael (Criminal Justice)



Despite low reporting rates, rape is one of the most prevalent crimes committed against women. According to previous research, a woman is raped every six minutes, and one in five women will become a victim of either attempted or completed rape in their lifetime. The depiction of rape in film and television has increased exponentially since the 1970s. These sexual assaults are frequently portrayed utilizing stereotypical imagery and myths, thus negating the true reality of the crime. This study presents the results of a content analysis of twenty rape-centralized films spanning four decades (1980s, 1990s, 2000s, and 2010s) for the depictions of rape, rapists, and rape victims. Films were chosen based on the year they were released and those focusing on rape, in particular the act itself or the aftermath. Films were coded by demographic characteristics and themes emerging within the storylines. Findings examine race of the offender, social background, and the relationship between offender and victim. Specific rape myths uncovered and recorded include the idea that a woman's behavior is the cause of her assault.

EASEL #15 Spotted Lantern Fly (*Lycorma delicatula*) Surveillance of the Gordon Natural Area

Catranis, Christopher (Biology)

Faculty Mentor(s): Pisciotta, John (Microbiology)



The Spotted Lanternfly (SLF) is an invasive plant hopper native to China that feeds on grapes, fruit trees and various hardwoods. This exotic pest was first identified in Berks County, PA in 2014. Since then it has radiated into surrounding areas, devastating local crops and agriculture. The goal of this surveillance project was to locate, identify and map SLF's preferred host-tree (*Ailanthus altissima*) in advance of a possible WCU infestation. The host tree is known to exist within the Gordon Natural Area. An interactive GIS-based map of the host tree population was created using open source software. The map can provide for GPS-guided surveillance and eradication efforts as educational field components of sustainability-related courses. This will help safeguard sustainable biodiversity of the Gordon Natural Area. A second project goal was to map any lanternflies detected on campus. From April through mid-August no SLFs were detected. However, on August 21st, 2018, the first photographically verified SLF was documented at WCU in the Gordon Natural Area. The interactive map serves to document the verified sightings of spotted lanternfly to track the invasion. In fall 2018, it was adapted to help guide volunteer surveillance and extermination efforts by students and community members. Results of this study documented the SLF and its host tree at multiple locations in the West Chester University Campus and within the Gordon Natural Area. Follow up research and actions shall be required to address the high potential for further SLF spread or damage to WCU trees and gardens.

EASEL #16 Impact of a 10-week Nutrition Education and Fueling Program on Nutritional Attitudes and Practices of NCAA Division II Softball Players

Karpinski, Christine; Student RAs: Versak, Lex; Gunter, Katie; Wolf, Katya; Ritthamel, Mallory; Horvath, Chelsea & Zimmerman, Michaela (Nutrition)

Faculty Mentor(s): Karpinski, Christine

Objective: Assess the impact of a nutrition education and fueling program on the dietary attitudes and practices of collegiate NCAA Division II softball players.

Methods: One-group, pretest-posttest design. Participants utilized a mobile app that provided an individualized meal plan. In addition, the team received healthy snack bins for home and away games. Body composition data and a dietary perception survey was collected at baseline and week 18. A program satisfaction survey was completed in week 10.

Results: The sample consisted of 22 female athletes. From baseline to post-intervention, there were no significant mean difference in body weight and lean body mass. Perceptions of the effect of different diets, foods or nutrients on athletic performance did not significantly change from pre to post-intervention. Dietary fats, gels, and herbs were the only three items that were not perceived to not have a positive impact on athletic performance. Based on satisfaction survey results, 77.3-100% (n=17-22) reported being satisfied or very satisfied with fueling program; 63.6% (n=14) of subjects utilized the snack bins at every game; and 23.9% (n=11) reported choosing healthier foods throughout the day; but 50% (n=12) reported the mobile app was not helpful.

Conclusions and Implications: Despite satisfaction with the fueling program, the mobile app was not helpful. Having no significant change in weight or body composition, which is a goal for in-season. The results of this study can be used in the planning and implementation of future programs, including providing more in-person nutrition education.

EASEL #17 Expectancy Violations Theory's Influence on People's Responses to Grief and How to Improve Grief Communication

Stuetz, Kelley (Communication and Media)

Faculty Mentor(s): Meier, Matthew (Communication Studies)



The death of my mother and Expectancy Violations Theory guides my autoethnography by using connections through storytelling, communication research, and make sense of the grieving process. This research identifies the expectancies during bereavement and the tools in order to improve grief communication. I discuss the crucial role of funeral homes, their impact on grieving families, and their influence in the grieving process. During the bereavement process coping the loss of a loved one enables a new way of thinking and living. I present how conversations regarding death limit positive communication between the grieving and their audience. Death is a scary and saddening topic, however through this autoethnography I prove that this does not have to be the case.

EASEL #18 Developing a Campus UAS Mapping Methodology
Karian, Jason; Devers, Amanda & Pomeroy, Genevieve (Geography and Planning)
Faculty Mentor(s): Coutu, Gary (Geography and Planning)

Geographic and environmental research increasingly relies on unmanned aerial systems (UAS) to collect aerial imagery and conduct analysis. While technological advances have made the task simpler, there are still procedural considerations that must be tailored to fit the university environment. The purpose of this project was to develop a standard process for producing accurate, repeatable UAS aerial surveys could be conducted on West Chester University's campus. To accomplish this, a multi-step methodology was developed. Beginning with geographic information systems (GIS) data, the project integrated boundary data to create flight plans that cover defined study areas while ensuring the privacy of the university's neighbors. The study areas are then flown in accordance with FAA regulations, using commercially available UAS control systems, following which images are processed and georeferenced for accuracy using ground control points. A standard report template is used to capture relevant information for the flight and ensure it is accessible to members of the university community using it. The project found that existing campus GIS resources provide an authoritative starting point for planning UAS surveys, and ensure that UAS flights occur within university requirements and without incurring undue risk. In addition, existing open data and networking portals allow for this data to be shared within the university community. This outcome illustrates a methodology which can be standardized for use in UAS operations in support of West Chester University's research efforts.

EASEL #19 Facial Expressions and Performance: Testing the Effects during a Muscular Endurance Task
Woods, David; Shultz, Elizabeth & O'Brien, Anne (Kinesiology)
Faculty Mentor(s): Razon, Selen (Kinesiology)

Introduction: Recent research (Brick, McElhinney, & Metcalfe 2017) suggests that mood states mediated by facial expressions affect performance-related physiological variables such as: VO_2max , ratings of perceived exertion (RPE), and heart rate (HR). However, to date, there is a lack of literature concerning facial expressions' potential effects on muscular endurance tasks.

Purpose: The purpose of this study was to test the role of facial expressions and consequent mood states during a handgrip squeezing task.

Methods: Forty participants (20 female, 20 male), ranging from age 18-25, took part in this study. Participants were randomly assigned into one of the following conditions: (1) sad, (2) happy, (3) angry, and (4) control (no facial expression). A baseline measure of resting HR and maximal squeezing value was taken. Participants were instructed to squeeze the dynamometer at 30% of their maximal squeezing value up to volitional fatigue. Participants were also instructed to keep their assigned facial expression and reflect on a memory that provoked that expression in the course of their squeezing performance. Participants in the control group were not asked to hold any facial expressions. RPE, HR and time on task were recorded at task completion.

Results: Preliminary results from one-way ANOVA analyses showed no significant differences ($p > .05$) in RPE, HR, and time on task between the conditions. Based on a number of descriptive trends however, role of facial expressions and mood states should be further investigated within strength and endurance settings.

EASEL #20 2018 WCU Election Poll, Approval Rating of Governor Wolf and President Trump

Wanchisen, Emma (Mathematics)

Faculty Mentor(s): Pyott, Laura (Mathematics)

In an independent study, STA 201, we conducted a campus wide election poll. We surveyed 5,000 undergraduates about the midterm elections, their political attitudes, and their voting behavior. The research question I derived from the collected data was a comparison of West Chester University students' opinion of Governor Tom Wolf and President Donald Trump to that of population of all Pennsylvania registered voters. Comparing the rate of "do not knows" when asked "How would you rate the way that Tom Wolf is handling his job as Governor?" and "How would you rate the way that Donald Trump is handling his job as president?" on our poll to those from the Franklin and Marshall Poll. The results show that WCU students have a higher rate of "Do not knows" for their opinion on Tom Wolf but have a similarly low rate of "Do not knows" when asked about Trump. By then cross tabulating the "do not know" responses with gender and registered party, as a way to see what subsection of WCU students have the highest rate of "do not know".

EASEL #21 Objectification, Burke's Dramatic Pentad, and a Lawsuit on Behalf of a Transgender Child

Miller, Karli Jayne (Communication and Media)

Faculty Mentor(s): Meier, Matthew (Communication and Media)

This essay employs Kenneth Burke's method of dramatistic analysis to examine the intense debate surrounding the means by which Kathryn and Jeremy Mathis filed suit on behalf of their daughter, Coy Mathis, to ultimately reveal their motivations and examine how these motivations reflect Burke's notion that the driving force behind rhetoric is to purge one's guilt. *Growing Up Coy* documents Mathis family's journey before, during, and after the landmark ruling that set precedent for transgender bathroom legislation across the country, following as they are thrust into the spotlight and learn a difficult lesson about revealing their private lives to a world filled with vitriolic rhetoric surrounding transgender children. In this dramatistic analysis, agency is examined as the coordinating term of Burke's Pentad, and is used to reveal the Mathis' purpose and motivation. I propose an additional term – object - to partner with agency in the description of event, and examine the relationship between object – agent – agency to reveal how the use of Coy as an object of her parent's agency reveals selfish intentions of purpose and motive.

EASEL #22 Effect of Treadmill-Based Resistance on Landing Strategy and Force Attenuation in Female Collegiate Lacrosse Players

Sweeney, Joseph D.; Stearne, David J.; Clark, Kenneth P.; Garfole, Danielle N.; Whitacre, Tyler D.; Hall, Dilys R. & Pederson, Samantha T. (Kinesiology)

Faculty Mentor(s): Stearne, David

Female athletes are at risk for anterior cruciate ligament (ACL) injuries. Hip musculature aids in attenuating ground force and maintaining knee alignment during landing. ACL injury prevention research has focused on implementing novel methods to strengthen hip musculature which will promote better knee stability and coordinated landing strategies. However, using treadmill-based resistance training for developing hip-specific strength has not been investigated.

Purpose: To examine the effect of six weeks of modified incline treadmill-based resistance training on functional landing strategies, vertical ground force attenuation and knee and trunk flexion angles in female athletes, compared to active controls.

Methods: 15 healthy female intercollegiate lacrosse players participated and provided written informed consent. The independent variable was time (pre- and post- training). The dependent variable was the measurement of reactive strength index (RSI). Training occurred over six weeks with treadmill set at 15 percent grade and progressive cable resistance load set initially at 40% of hip extensor strength average for a duration of 7 minutes per session.

Results: Paired samples t-tests showed a significant ($p = .007$) increase in RSI post training, specifically reflecting a 12.5% increase in RSI scores. No other group differences in ROL or knee or trunk flexion angles were statistically significant pre to post training.

Conclusion: RSI is calculated as vertical jump height divided by pre jump ground contact time. The increase in RSI indicates improved power and plyometric performance. Future research should investigate strength and neuromuscular stiffness changes associated with dynamic knee restraint mechanisms protective against ACL injury.

EASEL #23 A Five-Year Reassessment of the Carbon Distribution in the Gordon Natural Area and its Implications for Climate Change

Polohovich, Sarah (Biology)

Faculty Mentor(s): Schedlbauer, Jessica (Biology)



Studying forest carbon storage is important in understanding both climate change and the global carbon budget. As forests age they can shift from carbon sink to source as older trees die, creating a positive feedback to climate change by releasing CO₂ to the atmosphere. The objective of this study was to quantify changes in three major carbon pools, aboveground biomass (AGBM), belowground biomass (BGBM), and coarse woody debris (CWD), over a five-year period. Research was conducted in West Chester University's Gordon Natural Area (GNA), an Eastern deciduous forest in southeastern Pennsylvania. Nine circular 0.2 ha plots were censused in both 2013 and 2018 to determine AGBM, BGBM, and CWD. The amount of carbon in living and dead biomass has grown significantly ($p < 0.05$) and the summed total of AGBM, BGBM, and CWD carbon storage has increased from 206 Mg C ha⁻¹ to 234 Mg C ha⁻¹. Nearly half this carbon is stored in large diameter trees (60+ cm), and we observed a significant increase in both the number of tree stems and total AGBM in these large trees over the past five years ($p < 0.01$). A recent synthesis of similar data from Mid-Atlantic forests indicates that AGBM in the GNA is at a likely upper limit, suggesting substantial loss of large trees will occur in the near future. Subsequent changes in GNA forest carbon pools will lead to increased CO₂ release to the atmosphere, thereby amplifying the effects of climate change.

EASEL #24 2018 WCU Election Poll: Measuring Youth Voter Enthusiasm at West Chester University

Weber, Kathleen (Political Science)

Faculty Mentor(s): Pyott, Laura (Mathematics)



The current administration has caused a great deal of contention in the United States' political system since Trump's election in 2016. With the midterm elections approaching, public opinion welcomes analysis of voter enthusiasm as the presidential approval rating is at an all-time low. Topics such as immigration reform, women's rights, and government corruption give democrats an edge this voting cycle, with many expressing the existence of a "blue wave." In this project, I investigated the following question: How does youth voter enthusiasm differ between parties, democrat or republican, amongst undergraduates on West Chester University's campus? Using West Chester University's Political Poll created by our STA 201 independent study group and modeled by Franklin & Marshall's political poll, I cross tabulated party affiliation and likelihood of voting. This poll asked 5,000 undergraduate students on their attitudes related to the 2018 midterm election, political attitudes, and voting behavior. For this study, voter enthusiasm is defined as those who indicate they are certain to vote or probable to vote. Analysis of these factors offers insight into the election on November 6th, 2018, as well as the political direction and behaviors of undergraduate youth voters at West Chester University.

EASEL #25 Microbial Assessment of Rainwater Tanks and Runoff Retention Basins: A Pilot Study

Mentado Sosa, Enrique (Biology)

Faculty Mentor(s): Pisciotta, John (Microbiology)



The purpose of this research involves exploring the reuse potential of storm water runoff and roof-top rainwater, to meet the water supply needs of the University. Although rainwater is generally considered clean, the potential of a public health risk associated with the presence of microorganisms cannot be ignored. Feces of wild birds, insects, mammals, and reptiles that have access to the roof can be washed into the holding tank during rain events. The main objective of this work is to characterize microbial quality of the collected rain/storm water on campus to understand the presence/absence of 6 target pathogens - *Shigella flexneri*, *Salmonella* spp., *Campylobacter* spp., *Legionella pneumophila* and *Pseudomonas aeruginosa*, in correspondence with the fecal indicator organism – enterococci. A secondary objective is to test for drug resistant bacteria in the samples, which will allow us to profile for priority contaminants in the study samples. The study focuses on testing the water stored in 6 retention basins and 2 rainwater barrels on the West Chester University (WCU) campus using PCR analysis and dilution plating techniques. The results of this study will provide baseline data to understand microbial threats to campus stored rain/runoff water. Preliminary results of a PCR testing conducted on water samples recovered from six WCU water retention areas indicated the presence of *Shigella flexneri* in tested samples.

EASEL #26 Folding Kinetics of Human Telomeric G Quadruplex (HTG) Sequence

Husain, Abbas (Physics)

Faculty Mentor(s): Pfeil, Shawn (Physics)

G-Quadruplex DNA sequences are a form of nucleic acid structures, where four tracts of guanines, bind to make a stable structure. While much work has been done on these structures, which appear in vivo, their folding kinetics is still not completely understood. Here, we report on the conformation dynamics of the HTG quadruplex monitored via Forester Energy Transfer (FRET). In this spectroscopic technique, the relative intensity of emission from a donor and acceptor dye report on their spacing. The intensity of measured light from each dye can be used to monitor the kinetics of the DNA strands as they go from an unfolded to a folded state. Our data is consistent with a kinetic scheme where the unfolded quadruplex passes through a long lived intermediate on the way to the folded state. Our goal is to characterize G-Quadruplex folding kinetics in the presence of various sucrose concentrations in order to better understand which intermediates have higher viscosity dependence.

EASEL #27 A Love Letter to the Letter: Reinventing the Epistolary in the Digital Age

Czachor, Kelsey (English)

Faculty Mentor(s): Shevlin, Dr. Eleanor (English)



When the novel emerged in the eighteenth-century as a recognizable genre, its most popular form of narration was through letters. That this genre embraced the epistolary form was somewhat ironic because of its close ties to print rather than the older handwritten manuscript tradition. Thus, the novel as a genre arguably appeared in the midst of a media transformation. Yet, rather than examine the epistolary novel as the result of eighteenth-century media transformations, my project examines the reinvention and appropriation of the epistolary form in two twenty-first century novels: Zachary Thomas Dodson's *Bats of the Republic* and J. J. Abrams and Doug Dorst's *S*. Based on close study and extensive research, I argue that these authors are intentionally and unintentionally seeking to rehabilitate and reinvent the epistolary form in their novels in response to the ways that the digital is transforming our own culture. Both *S* and *Bats of the Republic* resuscitate the epistolary form by using digital technology to remediate older forms of epistolary writing with new ideas. Their authors employ unprecedented artistry through digital publishing by including handwriting, inserts, and photographs into their novels as integral parts of their stories. Whether it is Dodson's envelope labelled "DO NOT OPEN" that creates the climax of interwoven narratives or Dorst and Abrams's dual stories side-by-side on the same page, one typed and one handwritten, both of these novels and their reinvention of the epistolary tradition compose what Abrams has dubbed "A love letter to the written word."

EASEL #28 Exercise is Medicine Day on Campus: A Survey of Opinions and Attitudes

O'Brien, Anne; Koser, Katelyn; Reed, Melissa A. & Razon, Selen (Kinesiology)

Faculty Mentor(s): Razon, Selen and Reed, Melissa

Exercise is Medicine (EIM) is a global joint initiative between the American Medical Association (AMA) and the American College of Sports Medicine (ACSM) intended to promote physical activity.

Purpose: The purpose of this study was to gauge opinions and attitudes related to EIM Day at WCU.

Methods: Forty participants (11 male, 29 female) ($M = 27.5$, $SD = 12.16$) responded to survey.

Results: Participants reported high levels of enjoyment related to the event ($M = 4.6$, $SD = 0.78$). They found the event largely beneficial for improving their physical activity and nutritional habits ($M = 4.4$, $SD = 0.97$; $M_n = 4.3$, $SD = 0.99$). Participants also expressed strong intentions to revisit the event in the future ($M = 4.7$, $SD = 0.75$). Additional Bayesian analysis also suggested that in comparison to their male counterparts ($M = 3.75$, $SD = 1.28$), female participants ($M = 4.67$, $SD = 0.51$) found the event significantly ($p < .05$) more helpful for improving their nutritional habits. Of the motives for participation, 87.5% of the participants reported that they participated because they expected the event to be fun. Finally, with regards to participants' recommendations two themes emerged from the qualitative content analysis: (1) additional activities to include in the event and, (2) greater variety of food and beverage options to offer throughout the event.

Conclusions: These results suggest that participants found the event beneficial for improving important health behaviors.

EASEL #29 Investigating the Luminosity Function of SDSS III/BOSS CMASS Galaxy Neighbours
Caler, Michelle; Smock, Amy & Sheth, Dr. Ravi K. (Physics and Engineering)

We investigate the luminous environment within 2 megaparsecs of 211,815 Sloan Digital Sky Survey (SDSS)-III/Baryon Oscillation Spectroscopic Survey Constant Mass (CMASS) galaxies. These galaxies are drawn from the CMASS Southern Galactic Gap catalog, and have redshifts that range between $0.43 \leq z \leq 0.72$. We use the SDSS Catalog Archive Server to identify galaxies projected near 6 arcminutes of each CMASS galaxy's position, and a background subtraction technique to estimate the absolute magnitude distribution and luminosity function of galaxies physically associated with CMASS galaxies. This poster presents our preliminary results. From our background subtraction technique, we obtain an absolute magnitude distribution and a luminosity function whose broad shapes are consistent with those seen in previous work. Work is ongoing to refine and improve our preliminary results.

EASEL #30 Trends in Self-Reported Use of Music while Studying: Implications for Research
Barbone, Jordan Mark (Psychology)
Faculty Mentor (s): Shivde, Geeta (Psychology)

Previous research into the effects of music on cognitive performance have produced mixed findings, reporting on both beneficial and detrimental results. One noticeable issues is a lack of a consistent method of song/music selection, often relying on the experimenter's intuition or methods which do not consider the relevance of the stimulus to the individual. This survey aims to examine trends in music listening and studying in college students to better inform research methodology. A total of 80 valid responses were received. Results show that classical and jazz genres, despite often selected for experiments, are generally not popular or preferred; unlike Rap, alternative, hip hop, rock and R&B. Students do not often listen to music while working on tasks related to reading or arithmetic but show a slight preference when conducting online research and writing a paper. Exemplars from past research do not appear to be concurrent with contemporary trends, and the diversity of songs may complicate selection even further. Researchers need to implement better cautious when selecting music stimuli for research purposes and consider task relevance. Research tasks concerning reading comprehension may not be as helpful as research may suggest as students appear not to be utilizing music during these tasks. However, tasks which involve less straightforward means of completion, that might rely on creativity and abstract thinking, have higher rates of supportive music listening. Future research should focus on better means of selecting songs, possibly relying on self-selection, and examining performance on relevant tasks.

EASEL #31 Decision Making Behaviors Regarding Insurance Participation and Licensed Clinical Social Workers (LCSWs) in Private Practice in Pennsylvania and the Implications for Social Work Practice
Tuohey, Meredith (BSW Philadelphia Campus)
Faculty Mentor (s): Wysor Nguema, Susan (BSW Philadelphia Campus)

In the United States, the profession of social work is grounded by the ethics, values, and principles of the National Association of Social Workers Code of Ethics. Historically, social work developed to help communities and individuals in need of social services. Over time, some social workers have moved into private practice which was one method to professionalize social work. Arguments developed about private practice and if psychotherapy was ethically within the bounds of social work (Wakefield, 1988; Specht & Courtney, 1995; Van Heughten, 2001). For this research, I use Wakefield's (1988) theory of minimum distributive justice as the defining factor of the social work profession. This study utilizes a sequential mixed methods design including a survey and semi-structured interviews, I applied the minimum distributive theory to the issue of participation or non-participation with insurance and social workers ideology. The results of the study will continue to inform the value base of the social work profession and provide findings on LCSW behavior versus ideology.

EASEL #33 GAP Analysis on Endangered Plant Species in Harford County, Maryland
Bilsky, Alexis (Geography and Planning)
Faculty Mentor (s): Coutu, Gary (Geography and Planning)



Throughout Harford County, Maryland, the number of endangered plant species has continued to increase due to the rise of invasive plant species. The need for more preserved land has ultimately increased due to the diminishing native plant species. When the area is under protection, the laws regarding preservation are quite strict to preserve the necessary plants. Soil profiles are analyzed for the proper living conditions for the species as well as the possibility for the plants to thrive and reproduce in the selected area. By performing GAP analysis on the areas in the county, the data will show the areas in need of protection for both the possibility for the endangered plants to thrive, and the necessary soils needed for the plants new growth.

EASEL #34 Mapping Observations of the Infestation of Spotted Lanternflies
Bilsky, Alexis; Sarlouis, Garrett; Pealer, Corinne; Owens, Marcus; Reilly, Emily & Bashioum, Jacob (Geography)
Faculty Mentor (s): Coutu, Gary (Geography and Planning)



The Spotted Lanternfly is an invasive pest that is threatening the agricultural, lumber, and ornamental industries throughout the southeastern areas of Pennsylvania. The fly feeds on plants, that include fruit trees, grapevines, hops, hardwoods, and ornamentals. The first sighting of the fly was in Berks County, Pennsylvania in early 2014. Since 2014, the infestation has spread to 13 counties in the southeastern areas of Pennsylvania. Fortunately, the fly is harmless to humans but not to plants. The flies are destructive to crops, secrete a harmful, sticky, black mold on grasses and plants. This project has developed a field data collector app, an online mapping app, and a story map to engage campus participation regarding data collection. This poster represents the data collected and trends regarding sightings.

EASEL #35 A Benign Approach to Analyzing Beer Degradation

Pazzaglia, Giacomo (Chemistry)

Faculty Mentor (s): Frost, Blaise (Chemistry)

There are hundreds of different brands of beers, each containing its own special blend of molecules that interact with the flavor receptors on your tongue. These flavor components that we refer to as molecules combine to give a pleasurable, or non-pleasurable experience. The non-pleasurable sensation could be due to several chemical processes that have altered the composition of the flavor components. The purpose of our experiment was to quantitatively examine the degradation of the flavor compounds found in beer, specifically the α -acids found in beers with a bitter taste. Cloud point extraction was used to separate out the organic, volatile, flavor molecules most common in beer. While Super-critical fluid chromatography was used to quantitatively analyze the difference in these components between different samples of beer subjected to different environments, including light and high oxidative pressure.

EASEL #36 Pilot Study for Assessment of Fluoride Concentrations in Private Wells and Tap Water in Chester County Using MDL+ Fluoride Test Kit Colorimetric Technology and Ion-Selective Electrode

Chikelu, Ifeoma (Environmental Health)

Faculty Mentor (s): Sunger, Neha (Health)



Background: The purpose of this study is to assess fluoride concentrations in private well and tap water of communities in different municipalities located around school districts within Chester County. In Pennsylvania, fluoride compounds are voluntarily added to drinking water systems as a public health measure to reduce dental cavities in children. Additionally, construction and water quality of private wells in PA are not regulated thus, tracking fluoride levels in drinking water and dental decay rates in PA can be challenging. Results from this study will; analyze the relationship between fluoride and dental decay history in families; develop a baseline profile for fluoride levels across different sources of drinking water.

Method: Water samples collected will be analyzed in the laboratory using MD4+ fluoride test kit method that uses colorimetry technology and the laboratory-based EPA approved ion-selective electrode method that measures free fluoride ions. The laboratory-based EPA approved ion-selective electrode method will be used to validate the MD4+ fluoride test kit method.

Results: Successful distribution and recruitment of participants have been achieved, and water analysis and fluoride measurement are presently ongoing. Results will be available by presentation.

EASEL #37 Biofuel Production by Wind Actuated Bio-electrochemical Systems

Allen, Octavia (Biology)

Faculty Mentor (s): Pisciotta, John (Microbiology)



Wind actuated vibrating electrochemical (W.A.V.E.) digesters containing graphite anodes and stainless-steel cathodes with the appropriate microorganisms can offer an environmentally friendly and cost-effective method of waste treatment with conversion to biogas biofuel. Mutualistic relationships between *Geobacter* and hydrogenotrophic methanogens can treat waste and generate methane gas as detected by gas chromatography. Over a 3 months period we have constructed a novel type of wind mixed bioelectrochemical digester. Inside 100 ml digesters, a synthetic waste water containing acetate was microbially catabolized. Methane concentrations were measured periodically by means of Gas Chromatography and organic carbon was quantified by chemical oxygen demand (COD). Metagenomic profiling of the microbial community was conducted via a Nanopore Minion DNA sequencer. Early results identified highest average methane production in WAVE digesters. These results suggests WAVE digesters may provide for enhanced CH₄ production compared to conventional Anaerobic Digesters (AD). *Geobacter* spp. were identified in digesters. Testing under simulated wind tunnel conditions further identified the vertical WAVE digester design as the robust embodiment for this technology.

EASEL #38 Size and Fluorescence characterization of Silicon Nanoparticles for Sensing Applications

Roe, Benjamin & Lee, Teresa (Chemistry)

Faculty Mentor (s): Dr. Pfeil, Shawn H. & Dr. Kolasinski, Kurt W. (Physics, Chemistry)

The goal of this project is to characterize the size distribution and fluorescence properties of Silicon nanoparticles with the intended final purpose being sensing applications. We are focused on Silicon due to its semiconducting properties as well as its lower toxicity relative to quantum dots used in modern biosensing. We are examining Silicon nanoparticles prepared by metal assisted catalytic etching (MACE) as these have band gaps compatible with photoluminescence in the visible region. Size characterization was carried out using Atomic Force and Scanning Electron microscopy (AFM and SEM respectively) and examines height and width distributions. We also report data on the photoluminescence of the Silicon nanostructures.

EASEL #39 The Bounce Back Program and Its Effects on Children's Top Presenting Problems

Aves, Taylor; Grasseti, Stevie N; DiFilippo, Rosa & Tennity, Cassidy (Psychology)

Faculty Mentor (s): Grasseti, Stevie



The Bounce Back (BB) Program is helpful in reducing anxiety and post-traumatic stress (PTS) symptoms among elementary aged-children. Reductions in these clinical symptoms is a positive therapeutic outcome of the program, but more work is needed to determine whether participating students also experience change in areas that are meaningful to them. The current study assessed whether change in students' self-identified "top problem" occurred during the BB Program. We hypothesized that, by the end of the BB program, students would report statistically significant change in distress related to their top problem identified at the beginning of the program. Participants were 22 (KN-5 th grade) students who were participating in a larger study of an open trial of the 10-week BB program. During the first week of the BB program, students identified their "top problem" and rated their associated distress in regards to this problem on a scale of 1-10 ($M=8.11$, $SD=3.142$). A paired samples t-test showed that distress significantly decreased from week 1 to week 10 $t(17)=5.064$ p

EASEL #40 Prenatal Drug Exposure: Long Term Impact on Children

Hudson, Molly & Moran, Macy (Nursing)

Faculty Mentor (s): Joseph, Rachel (Nursing)



Background: Of the 4.3 million infants born in the United States annually, at least 800,000 are born exposed to drugs in utero. Substances that trigger withdrawal symptoms, a condition known as Neonatal Abstinence Syndrome (NAS), include opioids, benzodiazepines, selective serotonin reuptake inhibitors, cocaine, and methamphetamines. Although early manifestations of prenatal drug exposure (PDE) and associated NAS have been well-documented, the long-term impact of PDE on children has been minimally researched.

Purpose: The purpose of this review was to examine the long-term effects of PDE on children, discuss potential strategies to prevent and reduce the severity of such effects, and discuss implications for nursing practice, education, and policy development.

Methods: Databases such as PubMed, CINAHL, and PsychINFO were explored. Search terms included "prenatal drug exposure (PDE)," "NAS," "neonatal withdrawal," and "long-term effects." 35 articles were reviewed for synthesis and a table demonstrating long-term effects relative to substance type was created.

Results: Late manifestations of PDE include sensory deficits, language deficits, and increased presence of otitis media. Delayed development of cognition, executive functioning, and memory were present. Long-term behavioral problems include hyperactivity, impulsivity, increased prevalence of conduct disorders, increased risk for delinquent behavior, and future drug experimentation.

Conclusion: It is important for pediatric nurses to be aware of the long-term outcomes of PDE to provide resources and services to affected families. Early interventions should emphasize the optimization of growth and development. Knowledge of PDE outcomes in children can prepare pediatric nurses to provide effective and supportive care to families.

EASEL #41 Group Therapy and Externalizing Problems
Boniface, Rosa; Tennity, Cassidy & Aves, Taylor (Psychology)
Faculty Mentor (s): Grasseti, Stevie (Psychology)



Exposure to traumatic events as a child increases risk of externalizing problems like aggression in adulthood¹. The Bounce Back (BB) Program^{2,3} is a school-based intervention that is effective in reducing internalizing and PTSD symptoms among children who have experienced trauma, yet it is unclear if this treatment is equally helpful for all children. Some literature suggests that group therapy, like the BB program, may be counter-indicated for youth with externalizing problems since children can learn negative behaviors from peers in the group⁴. The current study assessed whether children's baseline levels of externalizing problems predicted their response to treatment. We hypothesized a negative relationship between baseline externalizing symptoms and response to the BB program such that youth with low externalizing symptoms would experience greater benefits during the program. 22 elementary school children participated in the BB program for 10 weeks at school. Children completed the Brief Problems Checklist⁵ and the UCLA_R to measure externalizing problems, internalizing problems, and PTSD severity before and after treatment. Response to treatment was assessed by subtracting post-therapy internalizing and PTSD scores from the baseline scores. *T*-tests confirmed hypothesized reductions in PTSD and internalizing symptoms (See table 1) and there were no relationships between baseline externalizing problems and reductions in internalizing ($r = .19, p = .62$) and PTSD symptoms ($r = .50, p = .15$). The BB program appears is a promising approach for promoting change even among youth with externalizing problems, although the small sample may have limited the ability to detect effects.

EASEL #42 Employee Experiences with and Perceptions of Extended Mid-Day Breaks in Argentina
Filipuzzi-Barcelona, Antonella & Nolan, Megan (Psychology)
Faculty Mentor (s): Nolan, Megan



It is critical that employees recover from the stressors of work to maintain well-being and job performance (Sonnentag, 2011). The recovery literature tends to focus on the recovery experiences of American and European workers that occur during the workday (lunch and mid-day breaks (e.g., Trougakos et al., 2008), as well as after-work hours, during weekends, and vacations (e.g., Sonnentag, 2003). Although we have learned a great deal about recovery in these situations, the literature fails to consider the impact of *extended* mid-day breaks on employee well-being and performance. Extended mid-daybreaks are experienced in South American countries such as Argentina, where employees in some industries leave their jobs to “siesta” or rest. To our knowledge there are no scientific studies pertaining to South American workers and the impact this break has on their experiences, well-being, and performance during and after work. Understanding extended mid-day breaks may provide a new outlook on the function of mid-day breaks and its possible benefits or disadvantages compared to the breaks that are common in the United States and Europe. The current study will adopt a grounded theory approach to learn how employees perceive these breaks and their effects. Focus groups/interviews will be conducted with 15 Argentinean employees. Questions will focus on employees' perceptions of and experiences with extended mid-day breaks, as well as the perceived effects of these breaks. Then, qualitative data analysis techniques will be used to explore the data and develop propositions regarding these breaks and their effects.

EASEL #43 The Moderating Effect of Interpersonal Trauma Exposure on Externalizing Behaviors in Youth

Tennity, Cassidy; Boniface, Rosa & Aves, Taylor (Psychology)

Faculty Mentor (s): Grasseti, Stevie (Psychology)



Trauma detrimentally impacts children in many ways. Among the negative outcomes include externalizing problems like rule-breaking, aggression, attention difficulties, and difficulties with interpersonal relationships¹. Given the established link between number of traumas experienced and negative outcomes, it makes sense that youth who experience more traumas will have a higher level of externalizing problems. Furthermore, the *type* of trauma may also impact outcomes for children. Children who experience interpersonal trauma (IPT) like bullying and abuse may be at a particularly heightened risk of externalizing behaviors². In the current study, we tested whether having experienced IPT would impact the link between cumulative trauma exposure and externalizing problems. 121 school- aged youth (grades KN-5) completed the Traumatic Events Screening Inventory³ to measure trauma exposure and the Brief Problems Checklist⁴ to evaluate externalizing behaviors. Research assistants coded youth's TESI responses to reflect whether the student had experienced interpersonal trauma (coded "1") or not (coded as "0;" kappa=.988). A positive correlation supported the hypothesized link between traumas and externalizing symptoms ($r=.29$, $p=.001$). Furthermore, IPT status moderated this link; the relationship between trauma and externalizing symptoms was stronger for children who experienced IPT ($r=.25$, $p=.08$) than for children who experienced non-IPT ($r=.27$, $p=.02$). Results suggest that trauma exposure positively relates to externalizing problems and that this link is stronger for children who have experienced IPT than children who have experienced non-IPT. This information may help guide trauma-focused treatment such that children who have experienced IPT may need more focus on externalizing problems.

EASEL #44 Predation Risk's Effect on Snail Survivability and Fecundity

Budgeon, Jeremiah (Mathematics)

Faculty Mentor (s): Kolpas, Allison and Auld, Josh (Mathematics and Biology)



In this research experiment, snails were exposed to different levels of predation, and data was collected on the reproductive output of the snails. Snails detect chemical cues from their predators and alter their behavior based on these cues. Thus, levels of predation were simulated by varying the amounts of predator chemical that was put into the snails' tanks. For this experiment, there were three different levels of predation: no predation, 50% exposure, and 100% exposure. For each level of predation, data was collected on the frequency of snail reproduction, clutch size, and the reproductive lifespan of the snails. Using this data, a statistical analysis comparing different reproductive variables was conducted. In the analysis, the reproductive intervals of the snails were compared with the ages, predation levels, and clutch sizes of the snails. Based on these findings, we were able to predict and simulate the final reproductive interval of the snails. The final reproductive interval gets interrupted by a period of no reproduction before the snails die. Thus, we were interested in trying to predict the post reproductive lifespan based on the data collected on reproductive intervals and the other factors that contributed to the reproductive intervals.

EASEL #45 Registration Motivation vs. Gender on WCU

McCann, Chris (Statistics)

Faculty Mentor (s): Pyott, Laura (Statistics)

For my research project our STA 201 conducted a survey in which we asked a sample of 5000 undergraduate students about midterm elections, registration and voting behaviors. From our survey I wanted to look further into motivation to register and gender. I ran a cross tabulation of gender and registration in order to see whether or not registration patterns differed significantly between genders. In my conclusion I would like to see whether or not get out to vote campaigns are significant helpful for one gender or neither and help conclude what tactics are best in order to get the most registration within the undergraduate population here at West Chester University.

EASEL #46 Sprint Acceleration Patterns in Track & Field Athletes vs. Team-Sport Athletes

Mangeri, Sabrina (Kinesiology)

Faculty Mentor (s): Clark, Kenneth (Kinesiology)

Sprint acceleration is important in both track and field and team sports. However, while it may be beneficial for team sport athletes (TSA) to accelerate quickly in game situations, the optimal race strategy for track and field athletes (TFA) may require a prolonged acceleration pattern during the early portion of a sprint. **PURPOSE:** We aimed to compare the sprint acceleration patterns for athletes from different sporting backgrounds, with acceleration pattern quantified as the ratio of maximum velocity to maximum acceleration (v_{\max} / a_{\max} , or τ). **METHODS:** 23 healthy male and female intercollegiate athletes from a range of sports volunteered and provided written informed consent. This included 10 TFA (5M and 5F, height= 1.66 ± 0.23 m, mass= 68.3 ± 9.0 kg) and 13 TSA (6M and 7F, height= 1.69 ± 0.11 m, mass= 68.6 ± 13.5 kg). After warming up, subjects performed a maximal effort 40m sprint, and a radar system (ATS Stalker II collecting at 47 Hz) recorded velocity vs. time data. Calculations of a_{\max} and v_{\max} were determined from the radar's velocity vs. time data. **RESULTS:** Independent samples *t*-tests demonstrated that TFA had significantly greater v_{\max} than the TSA (TFA= 8.83 ± 0.94 m/s, TSA= 7.76 ± 0.78 m/s; $p < 0.01$) and that TFA had significantly greater τ values than the TSA (TFA= 1.40 ± 0.14 s, TSA= 1.28 ± 0.11 s; $p < 0.05$). **CONCLUSION:** These results indicate that, in spite of having a greater absolute v_{\max} , TFA took a relatively longer time to reach this v_{\max} than TSA. This may be due in part to specific race strategies practiced by TFA, or because TSA are consistently attempting to accelerate maximally in game situations.

EASEL #47 Correlating Self-Directed Learning Abilities to Lifelong Learning Orientation in Baccalaureate Nursing Students
Kaulback, Michelle (Nursing)

Healthcare professionals consider lifelong learning to be an element of professionalism within nursing practice and baccalaureate nursing programs have embodied lifelong learning attributes within program outcomes. The federal government has also called for higher education institutions to build more points of student assessment to evidence that program outcomes are being met throughout student learning experiences (Billings & Halstead, 2016). Careful attention to how program outcomes are measured and achieved is essential for prelicensure baccalaureate nursing programs and for their accrediting bodies. This quantitative, correlational research design examined the relationships between self-directed learning abilities and lifelong learning orientation in the prelicensure baccalaureate nursing student population. Through the use of a survey, lifelong learning orientation and self-directed learning abilities among the four domains of interpersonal communication, planning and implementing, self-monitoring, and learning motivation were examined. Results indicated strong positive correlations between self-directed learning abilities and lifelong learning orientation among prelicensure baccalaureate nursing students. Through the assessment of self-directed learning abilities of baccalaureate nursing students this research informs nurse educators regarding curricular implementation of teaching and learning strategies that may foster lifelong learning to evidence program outcomes. Recommendations for nurse educators regarding the implementation of teaching and learning strategies are provided for each domain within the curriculum to meet lifelong learning program outcomes.

EASEL #48 Heroes without Costumes: An Analysis of Criminal Justice Professionals in Marvel's Netflix Shows

Hernandez, Orlando (Criminal Justice)

Faculty Mentor (s): Przemieniecki, Christopher J. (Criminal Justice)

The portrayal of criminal justice professionals in the media can have a profound effect on a viewers' understanding of law and justice. This is particularly evident in Marvel's Netflix shows such as *Daredevil*, *The Punisher*, *Luke Cage*, *The Defenders*, *Iron Fist*, and *Jessica Jones*. Despite these stories originating from comic books, these characters represent extensions of law enforcement and the legal system. All these characters are fighting crime and seeking justice. This research study examined the portrayal of Marvel's Netflix shows and each of their main characters, including all those who represented the legal system and law enforcement (police). An analysis of these Marvel shows depicted the positive and negative portrayals of how each character dealt with the law and pursued justice, including those who represented law enforcement. Those positive portrayals consisted of law enforcement professionals who were reluctant to work with the protagonist, having faith in the criminal justice system, accepting the heroes' actions and their partnership, displaying acts of bravery, and caring for those they were charged to protect. The negative portrayals of criminal justice professionals also existed which included corruption, self-serving interests, the unwillingness to take responsibility for one's actions, and turning against the antagonist when faced with their own death. Additionally, the Marvel Netflix shows gave viewers a portrayal of a justice system that is unable to reach justice through legitimate means in the criminal justice system leaving viewers to question the fairness of law and justice.

EASEL #49 Improving the Honors College Experience: A Qualitative Research Project on Information Literacy, Communication, and Guidance

Majeeth, Matheeha T. (Higher Education Policy and Student Affairs)

Faculty Mentor (s): Martin, Gerardina L. (Honors College)

Students from various cohorts, who have successfully made it into the Honors College were interviewed to voice their thoughts, opinions and suggestions to help the Honors College better understand student knowledge, expectations, and methods of communication. Interviews included conducting discussions on the following topics:

- A quick glance of their entrance into the Honors College,
- First source(s) of information about the Honors College,
- Expectations prior to beginning courses,
- Experiences so far,
- What they are finding difficult,
- Thoughts on their courses and navigating through them,
- What kind of guidance/advising they expect, and
- Area(s) in which they feel the Honors College needs to work on.

The Honors College will review the answers and work on how to solve the issues students have raised, as well as what they like and appreciate to maximize the collected data from students.

EASEL #50 A Job Analysis of Human Resource Managers (HRM)

Collins, Amy; Filipuzzi-Barcelona, Antonella & Murphy, Devon

Faculty Mentor (s): Mishra, Vipanchi (IO Psychology)

By definition, A job analysis is an examination of a particular job's tasks, and required knowledge, skills, and abilities. For recruiting, hiring, and job description purposes, employers must identify these requirements. The purpose of this study was to conduct a job analysis for Human Resource Managers (HRMs). Data for this project was collected by interviewing 3 subject matter experts (SMEs) on the main tasks requires to perform the job of a Human Resource Manager as well as the knowledge, skills, and abilities (KSAs) required to complete those tasks. A qualitative analysis of the data was conducted to identify the similarities and differences in SME responses. Results indicated that SMEs' agreed that knowledge in HRM included knowledge of federal and state guidelines and that the most important skills required for the job included prioritization and time management. Further, SMEs differed in the responses regarding the nature of HRM tasks, such as recruitment versus resolving employee complaints, as well as identifying the characteristics of a poor performing HRM. These results of SME interview analysis were part one of the job analysis project. Next steps in the job analysis process include developing a job analysis questionnaire based on interviewee responses. Limitations of the study, including a larger and diverse sample of SMEs, are also noted.

EASEL #51 Innovations in Teaching and Learning about Addiction through a Mindfulness Lens of Clinical Experiences with BSN Students

Moriconi, Chris; McCown, Don & McCoy, Candice (Nursing and Health)

Faculty Mentor (s): Moriconi, Chris



The ethical education of nurses, which embodies the values of caring and compassion, can be informed by teaching nursing students mindfulness skills. These skills include, learning how to focus and be present for clients which may lead to the development of a caring and compassionate nurse. Focus and presence skills of mindfulness may assist students in decision making during assessment, interventions and affect outcomes for clients. Clients who struggle with substance use disorders, often experience a negative bias from health care providers when seeking or obtaining care. The proposed pilot study is a descriptive quasi- experimental mixed design pilot study to measure mindfulness, self –efficacy and bias. Students will participate in a seven week mindfulness skills program during their psychiatric clinical experience on in patient behavioral health units as well as outpatient community settings. Use of mindfulness during the assessment and treatment of these clients will be evaluated by measuring students’ level of self-efficacy, mindfulness (pre, during and post the study). A qualitative approach to bias and the effect of mindfulness will be reflected on by students in a personal log entry after each clinical day. A curricular shift to a more holistic approach to communication is aimed at enhancing relational care of clients who struggle with substance use disorders. A pilot study of about 8 nursing students in the quasi-experimental group and a control group of 8 nursing students is planned for the fall or spring pending IRB approval.

EASEL #52 Addiction and Mental Health: A Brief Study of Variables that may Influence Treatment and Relapse Vulnerability
Marks, Emily & Boden, Mikayla (Psychology)
Faculty Mentor (s): Gawrysiak, Michael (Psychology)



Background: Drug related conflicts (i.e., crime, violence, health problems, work productivity) account for an estimated \$740 billion in annual expenses. Addiction is characterized as a chronically relapsing disorder where an estimated 60-90% of individuals relapse within one year following treatment. It is important to recognize psychological variables that can lead to improvements in drug addiction treatments, which will result in a decrease of relapses.

Methods: This study examined psychological characteristics (i.e., results from clinician administered diagnostic interviews, self-reports on well-validated questionnaires) among individuals (n=49) seeking enrollment into an addiction focused treatment-research study. Hypotheses: measures reflecting psychological vulnerabilities (i.e., experiential avoidance, psychiatric comorbidity, posttraumatic stress symptom severity) and adaptive psychological qualities (i.e., motivation, self-compassion, self-efficacy) will associate with drug-use severity (e.g., drug-craving, use in past 30 days).

Outcomes: Statistical analyses revealed a significant positive correlation between experiential avoidance and treatment motivation and PTSD symptom severity [(r(44)=.30, p=.043); r(48)=.672, p=.000), respectively], but not drug-use severity. Psychiatric comorbidity (i.e., 2 or more diagnoses) demonstrated significant and negative associations with self-compassion (r(48)=-.470, p=.001), and positive associations with alcohol craving (r(48)=.357, p=.012) and alcohol intoxication in the past 30 days (r(46)=.310, p=.034). Self-compassion had a significant negative association with posttraumatic stress severity (r(48)=-.469, p=.001), but no other drug-use variables.

Implications: Experiential avoidance and self-compassion show important relationships with psychological vulnerabilities present in individuals suffering from drug addiction. Discussion will reveal the meaning of these studied variables (i.e., vulnerabilities and adaptive psychological qualities) and focus on how observed relationships are significant to addiction treatment.

ORAL PRESENTATION ABSTRACTS

Presentation #1 Digital Storytelling and Philadelphia Immigration

Boyd, Nicolette (History and Secondary Education)

Faculty Mentor (s): Hardy, Charles (History)



In this presentation I will show and discuss the digital history projects that I created in HON Immigration & Digital Storytelling, in spring 2018. One of the great challenges of historians is to make history relevant to students and other audiences. In the early 1980s, Dr. Charles Hardy interviewed immigrants from Europe to capture the stories of their lives in Philadelphia in the early 1900s. In the Spring of 2018, I with the help of Dr. Hardy and Dr. Janneken Smucker, transformed one of these oral histories into digital history projects. From a 90-minute interview with Irish-American Dennis Clark, I created an index with 43 sections that each included a photograph, GPS location, synopsis, partial transcript, and keywords. This index helps viewers easily listen to segments they are interested in, while getting context from the corresponding Philadelphia location and images. I then wrote an online biographical sketch of Clark built around six of his most intriguing quotations, background history that I wrote, and images that illustrated the stories he shared about growing up in Kensington in the 1930s, an industrial neighborhood that helped give Philadelphia its nickname as the Workshop of the World. I also worked on a digital storytelling project in which four classmates and I created an interactive map of Philadelphia jobs in the early 1900s. Based on 17 immigrants' firsthand accounts, it includes 35 pins of jobs, and over 50 images from the early 1900s. All of this work appears on the [Philly Immigration website](#).

Presentation #2 Use of Best Practices in Instruction of Vocational Skills in Foodservice for Young Adults with Developmental Disabilities

Subach, Regina; Strzemieczny, Mary; Valentini, Talia; Haque, Zainab & Cary, Julia (Nutrition)

Faculty Mentor (s): Subach, Regina



The “PEP” program is a vocational development program for young adults with developmental disabilities (DD) that encompasses the production of protein balls. Participants (N=4) were members of the WCU Adapted Wellness Program who are young adults with various DD. A pilot study was conducted using a mixed methodology to determine to what extent will use of best practices for vocational training increase the skill-set of food production of persons with DD, and to what extent will vocational training have on increasing self-determination and independence of persons with DD?

Participants completed a “Basic Psychological Need Satisfaction” questionnaire at the beginning and end of the study. A “Basic Psychological Need Satisfaction and Frustration Work Domain” questionnaire was also completed at weeks four and eight as a method of determining self-determination and independence. Student researchers were assigned to assist participants on lab set-up and recipe execution over a nine-week period. Participants completed lab set-up and recipe execution using pictorial recipes independently on weeks two through five, and video instruction on weeks six through nine. Observational data revealed an improvement in self-confidence with the use of the pictorial recipe and an increase in frustration levels and a decrease in recipe completion time with video instruction. These observations suggest that the best practice of instruction for persons with DD is largely individualized. Although quantitative data did not reveal any significant change in self-determination levels, observational data suggest that the training did have a positive impact on increasing self-determination and independence of persons with DD.

Presentation #3 Animal-Assisted Activities (AAA) and the Positive Social Emotional Impacts for

Children on the Autism Spectrum

Zimmerman, Hannah (Graduate Social Work)

Faculty Mentor (s): Buck, Page (Graduate Social Work)



Animal-Assisted Activities (AAA) have been shown to have positive social emotional impacts for children on the autism spectrum (O’Haire et al., 2013). To further the research in this area, we invited parents whose children were enrolled in one such program to share their experiences with us in an exploratory, qualitative study. We interviewed 10 families for approximately 90-minutes each. Interviews were recorded on secure devices and processed through encryption software for a transcription. One major finding was parents’ experiences with the social emotional impacts that AAA had on their children. Parents noted differences in their children’s mood and behavior around the animals and after the interactions. One mother explained, “Oh, it’s amazing. Just the fact that he can sit there calmly and be so gentle.” In this presentation I will highlight these findings and share how I have personally observed the social emotional impact of AAA for children diagnosed with autism spectrum disorder through my volunteer work at the summer camp and in the 12-week individual program. During this program a skilled volunteer works alongside a child on a predetermined Activity Plan. The child can interact with a wide range of non-human animals such as horses, goats and sheep to name a few. This qualitative study was rooted in the ideology of allowing parents to reveal their stories honestly and avoid confirmation bias from the researchers. Potential limitations and future implications of this study will be discussed.

Presentation #4 “Cursing in the Classroom: The Censorship of Expression”

Schiff, Nicole (English Education)

Faculty Mentor (s): Schmidt, Pauline (English Education)

The secondary English classroom should serve as a platform for students to find their voice. Expression is a right that all students have, and need. A person is typically more creative when they are given the freedom to choose what they are going to express and how they will do just that. In some classrooms it is evident that student creativity is on a decline. My presentation will focus on the importance of student creativity, how censorship is an extreme detriment to all students, and what it means for students to find their voice within the walls of their high school English classroom. I plan to have an activity in place to scaffold my audience’s understanding of what the concept of censorship is and how it negatively affects student agency. It is crucial for young people to find their safe space where they can be endlessly creative. My presentation will speak on what it means for students to have a place to advocate for what matters to them and others.

My hope is for the listeners of my presentation to exit the room with a new perspective of what it means to encourage young people to use their voice. There are leaders in our present society have difficulty expressing their ideas and opinions in an effective way. If we cultivate a safe place for adolescents to begin practicing this skill earlier in life, there is a much better chance of us breaking this toxic cycle of hate we see today

Presentation #5 Teachers’ Perceptions of Technology’s Impact on the K-12 Classroom

Elizardo, Marissa (Middle Grades Preparation)

Faculty Mentor (s): Van Schooneveld, Jacqueline (Early and Middle Grades Education)

Over the last ten years, technology has become more and more prevalent in America’s schools. From school-wide computer labs to district-wide one-to-one technology initiatives, it is becoming increasingly common for students and teachers to interact with technology on a daily basis. While previous research has been conducted to investigate the impact of technology on student success (Cheung & Slavin, 2013), very little research has been conducted to investigate the impact technology has had on teachers. This study investigated teachers' perceptions of the impact technology has had the K-12 classroom. Prior to the research, we hypothesized currently practicing teachers would have favorable perceptions of the impact technology has had on their lesson planning procedures. Additionally, we hypothesized that veteran teachers would have negative perceptions of the impact technology has had on their students’ behavior and academic skills. Participants in this study included 119 practicing K-12 teachers. Participants completed an online survey about their classroom use of technology. Additionally, 15 of those participants completed semi-structured follow-up interviews. This study found that teachers perceived technology as an accessory to enhance a lesson, but that technology may not stand alone or replace strong pedagogy. There were additional findings, including links to classroom management and perceptions being categorized by teachers’ years of experience. Results from these findings suggest that teachers’ perceptions of technology have the potential to impact how technology is used in the K-12 classroom.

Presentation #6 A Case Study Focusing on Self-Care and Quality of Life with Social Work Caseworkers

Daniels, Quianna & Radis, Brie (Undergraduate Social Work)

Faculty Mentor (s): Radis, Brie



A brief comparative case study analysis of the professionals who work within the child welfare system in Philadelphia County's Department of Human Services (DHS) will be conducted. This case study will explore the effects of self-care practices and perceptions of the professional quality of life, including burnout, compassion fatigue, secondary trauma among social worker caseworkers at DHS. This study will focus on the relationship between the self-care that is promoted within the social profession with the expectations and systems of working in a busy child welfare system in the poorest urban city in the United States. The aim of this qualitative case study is to provide insight into the lived experiences of social workers and their quality of life working full time within the child welfare system.

Presentation #7 Mechanical Constraints of Force Production during a Maximal Sprint-Start

Brooks, Lance (Kinesiology)

Faculty Mentor (s): Clark, Kenneth (Kinesiology)

The ability to accelerate is a desirable attribute for competitive sprinters and can be affected largely by the amount of force produced through the initial push out of the blocks, or step-0. It is widely accepted in the literature that more force is always better for block performance.

Purpose: To explore the limits of force production by the musculoskeletal system at a forward-oriented ground-reaction-force angle, like ones seen in sprint events, when not limited by friction, balance, and trajectory.

Methods: Four experienced adult male sprinters volunteered and provided informed written consent. Horizontal and vertical ground-reaction-force data was collected at 1,000 Hz as subjects performed three variations of the sprint start using track blocks. Each subject performed three trials of a Normal Track Start (NS), Mat Dive (MD), and an In-line Mat Dive with a side-by-side block configuration (IMD). Resultant vector angles and magnitudes (normalized to body weight) were calculated for each trial and averaged for each condition, as well as block-clearance and post-block aerial times.

Results: The average vector magnitude for the three conditions were 1.46, 1.56, and 1.77 x body weight for the NS, MD, and IMD, respectively, while aerial times were 0.059, 0.055, 0.062 seconds for the same conditions. Vector angles for NS, MD, and IMD were 52.0, 47.5, and 43.3, respectively.

Conclusion: Since subjects were able to increase their total force production without significantly increasing aerial time, we conclude that athletes produce force sub-maximally to perform a successful sprint start, resulting from the requirement for balance.

Presentation #8 Risks of Child Safety Seats and Other Sitting and Carrying Devices: A Review of the Literature

Slifer, Christina (Nursing)

Faculty Mentor (s): Joseph, Rachel (Nursing)



Despite their seemingly harmless nature, accidental deaths occur both with proper and improper use of child safety seats [CSS] (car seats), strollers, bouncers, jumpers, swings, and baby carriers. CSS are used improperly in several ways; babies are left in the CSS for extended periods of time, possibly unsupervised and sometimes for routine sleep. The CSS angle of incline is more upright when the baby is seated in it outside the car than when it is clicked into the CSS base in the car. This greater angle allows the infant's head to fall forward toward his chest, which increases the risk of fatal positional asphyxiation if he cannot pull his head up. Infants and toddlers have also died in CSS from strangulation as a result of improperly tightened or partially or completely unbuckled straps. If the straps are not fastened properly the child can slouch and be put in a compromising position. Other sitting devices, including bouncers and some swings, have three-point harnesses, which are not effective at preventing babies from slumping down or falling out. Babies can also be seriously injured or killed if their sitting device falls over or falls from a higher surface on which it was placed. Finally, infants have died in baby carriers by positional asphyxiation when their heads fell to their chest and occluded their airways. This project reviews the literature on hazards of these devices with the goal to promote more universal education and prevent these devastating tragedies.

Presentation #9 Investigating Bilateral Asymmetries in Joint Angular Motion of the Lower Limb During Running

Whitacre, Tyler D.; Mangeri, Sabrina M.; Stearne, David J. & Clark, Kenneth P. (Kinesiology)

Faculty Mentor (s): Clark, Kenneth

Measures of bilateral symmetry are frequently employed to assess athletic performance and injury risk. While prior research has utilized spatial-temporal variables such as stride length and rate, joint angular asymmetries during across faster velocities remains relatively unexplored.

Purpose: Investigate bilateral asymmetries at the hip and knee during running in trained athletes.

Methods: Eleven healthy male and female intercollegiate athletes (height=1.66±0.23m ,mass=67.80±18.77kg, age=21.18±1.08yrs) from a range of sports volunteered. Subjects performed a series of 40m runs in an indoor facility. Two trials were completed at the following self-selected speeds: jog, run, submaximal sprint, and maximal sprint. A 3D motion capture system (OptiTrack,200Hz) collected kinematic data as subjects ran through the 30-38m field of view. Angular kinematics for the hip and knee joints were analyzed for both a right and left gait cycle. Angular position vs. time data was synchronized for right vs. left hip and knee joints. A total of 36 trials (72 steps) were analyzed, with asymmetry quantified by Root Mean Squared Error (RMSE).

Results: Paired-samples *t*-tests for angular motion revealed significantly less asymmetry in the hip compared to the knee ($p < 0.001$, hip RMSE=4.95±1.86 degrees, knee RMSE=7.97±2.40 degrees). The relationship between hip and knee asymmetry was moderate ($R^2 = 0.38$), implying that asymmetry at the knee is not completely determined by hip angular motion.

Conclusion: Analysis of joint kinematics may provide further insight into locomotor control in athletic populations. In this athletic population, hip angular motion was relatively symmetrical, perhaps functioning to reduce torques about the center of mass.

Presentation #10 Antigone Dramaturgy

Mancaruso, Christopher & Smith, Rebecca (Theater)

Faculty Mentor (s): Dallago, Martin (Theater)

Our submission for the research and creative activity day is our dramaturgical research into the play *Antigone* by Sophocles and translated by Anne Carson. We, Chris Mancaruso and Rebecca Smith, were the dramaturges for the Department of Theater and Dance's production of this show. That meant that we had to collect research revolving around the play, the author, the translator, and any other pertinent information that would help the production grow. We collected research into ancient Greek culture, women's roles in ancient Greece, ancient Greek theater and many other items that were relevant to the show. Our goal with the research is to help our cast, crew, and designers have a larger understanding of the play, the author, the translator, and the world that the play revolves around. Our research was tailored to our director Assistant Professor John Bellomo's production and it's needs within in the research

Presentation #11 The Relationship Between Athletic Identity and Concussion Symptom Reporting Intention in Collegiate Athletes
Baer, Daniel (Sports Medicine)



Underreporting of concussion symptoms in college athletics presents a challenge for sports medicine clinicians in evaluating and diagnosing such injuries. Some athletes do not report concussion symptoms because they do not recognize that they have a brain injury, however many athletes intentionally withhold symptoms to avoid removal from sport participation. The purpose of this cross-sectional survey study was to examine individual factors that influence college athletes' intentions to report concussion symptoms. The study examines concussion symptom reporting intention in NCAA student-athletes in Pennsylvania, using the reasoned action approach and identity theory as theoretical frameworks.

An anonymous survey about athletic identity, attitudes, social pressure, and perceived control provided insight to the determinants of concussion underreporting. In total, 2,649 U.S. born student-athletes from 23 sports, across 22 colleges/universities completed the survey. Hierarchical regression analysis revealed positive effects of attitude, descriptive norms, injunctive norms, and capacity on intention to report concussion symptoms. Athletic identity and participation in collision sports had small negative effects on intention when operating through the reasoned action variables. Perceived concussion knowledge had a small positive effect when operating through the reasoned action variables. The full regression model explained 14.24% of the variance in concussion reporting intention.

These findings may help clinicians develop more focused interventions that address key social and individual determinants of underreporting, including attitude, perceived injunctive and descriptive norms, and capacity to report. Athletic identity, sport type, and perceived understanding of concussion symptoms also influence reporting intention to a lesser extent.

WORKS OF ART PRESENTATION ABSTRACT

Presentation #1 Copenhagen Poster

Olson, Sophie (Art & Design)

Faculty Mentor(s): Watkins, Karen (Art & Design)



The purpose of this poster was to attract students to the first meeting regarding the graphic design study abroad trip to Copenhagen. The posters were hung inside E.O. Bull leading up to the study abroad trip. The intent was to create a visually appealing poster that utilized Danish design while informing the audience of the date, time and place of the meeting. For this purpose, the poster had to be noticeable enough to get the attention of passers-by, and simultaneously visually interesting enough to keep their attention. It also had to be clearly legible, as the main function of the poster was to inform.

My method for creating the poster began with understanding the theme of the study abroad course, as well as drawing from traditional Danish culture and design. This year's trip will focus on sustainability, as Denmark is a world leader and pioneer of renewable and clean energy. To highlight this, I included a windmill. I drew inspiration from several other embodiments of Danish culture, which I stylized to replace letterforms. These included a bicycle, the famously favored mode of transportation in Copenhagen, and the celebrated "Egg Chair" designed by Danish designer Arne Jacobsen in 1958.

The lettering style and color palette is inspired by traditional Danish folk art, with ornate yet clean linework and patterns. The result of these elements is an eye-catching poster composed of bold and beautiful elements in the elegant, orderly style of Danish design.

PERFORMANCES PRESENTATION ABSTRACT

Presentation #1 Spaghattata di Mezzanote

Bellomo, John (Theatre and Dance)

Spaghattata di Mezzanote! Is an original commedia dell'arte play that was created in the summer of 2018 while on a faculty led study abroad program in Calabria, Italy. Commedia dell'Arte is a form of popular theatre that originated in the Italian Renaissance. In commedia, the actors do not rehearse from a written text but from a scenario, or *canovaccio*. The scenarios utilized stock characters in simple storylines. Nine WCU Students, led by one faculty member, travelled to Copanello, Calabria and spent three weeks studying commedia. Through improvisation, character work, gesture exploration and ensemble building exercises, they created a new commedia play which was performed at **Il** Piccolo Teatro d'Arte di Montepaone and in the Piazza Santa Barbara in Davoli Superiore for Italian audiences.

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