

Fall Research Day

November 8, 2017

Abstract Booklet

Office of Research and Sponsored Programs

POSTER PRESENTATION ABSTRACTS

EASEL #1: The Effect of Reading Food Labels on Food Choice and Diet Quality: A Systematic Review Ericha Grace (Nutrition) Faculty Mentor: Alessandra Sarcona

Objective: To evaluate existing evidence of the relationship between reading food labels, food choice, and diet quality.

Methods: A systematic literature review was conducted and included articles from January 2010 through May 2017 regarding the use of food labels and the Nutrition Facts Panel and impact on consumers' food choice and diet quality. Studies were to be specific to reading labels on packaged food and were excluded if in regard to menu labeling. The Quality Criteria Checklist was used to evaluate each article included in the review.

Results: Of 428 articles screened, eight were included in the final review, six cross-sectional in design and two randomized control trials. Evaluation of the eight articles resulted in three positive ratings, four neutral, and one negative rating based on questions asked in the Quality Criteria Checklist. Five studies focused on food choice and three on diet quality, the majority of which discovered a positive relationship between label-reading and food choice and/or diet quality.

Conclusion: Existing research on reading food labels, food choice, and diet quality partially demonstrates a positive relationship, but the quality of studies assessed provides inconclusive evidence and fails to provide a definitive association. Further, more controlled research should be conducted to solidify this relationship.

EASEL #2: The Effects of a Six-Week Weight Loss Program on Muscular Strength and Endurance Paul Stickles and Katie Cooper (Kinesiology) Faculty Mentor: Melissa Whidden

Purpose: The purpose of this study was to determine if a weight loss program would result in increases in muscular strength and endurance.

Methods: To test muscular strength, shoulder press, bicep curls, squats, and dead lifts (RDL) were assessed using the 6 repetition maximum analysis. For core endurance, plank and six inches were performed for time. Whole body endurance was determined by measuring time to fatigue for high knees and wall taps. Variables were assessed before and after in thirty four sedentary adults. Subjects were required to participate in a boot camp program five days per week and follow a structured diet.

Results: There was a significant increase in squat strength (61 ± 8 lbs vs. 81 ± 9 lbs, P < 0.001) and RDL strength (75 ± 8 lbs vs. 90 ± 9 lbs, P < 0.01) following the program. Upper body strength increased in the shoulder press (40 ± 3 lbs vs. 44 ± 3 lbs, P < 0.01) and bicep curls (35 ± 2 lbs vs. 40 ± 2 lbs, P < 0.01). Core endurance improved in the plank (P = 0.004) and whole body endurance improved with wall taps (P = 0.02).

Conclusions: These data suggest that this weight loss program is effective in increasing both muscular strength and endurance. While these gains may clearly be the result of participating in an exercise program, further research can contribute to training specificity and the impact cardiovascular and weight training have in junction with a structured weight loss program.

EASEL #3: The Gendered Face of Diabetes Amarachi Akwarandu, Jasmin Tahmaseb-McConatha, and Elizabeth Raymond (Psychology) Faculty Mentor: Jasmin Tahmaseb-McConatha

Diabetes is a debilitating illness that affects more than 30 million Americans. At least 79 million people around the world have pre-diabetes and millions more are undiagnosed (Bernstein & Munoz, 2016). Among older adults, more than one quarter of those over the age of 65 have type 2 diabetes and an even greater number have pre-diabetes (Briscoe, 2014). Evidence suggests that gender influences successful chronic illness management, particularly a lifestyle related illness such as type 2 diabetes (Siddiqui, Khan, & Carline, 2013). This presentation focuses on the relationship between gender, social support, and diabetes management. The results of qualitative interviews with 28 older men and women suggest that women face greater stress and more complex challenges in managing diabetes. Analysis of the data suggests that men, particularly those who are partnered, tended to rely heavily on their female partners for illness management support. Women diagnosed with type 2 diabetes faced considerably greater challenges in their attempts to make lifestyle changes, particularly those related to diet and exercise. For women, chronic illness appears to be more likely to also increase the risk of isolation and loneliness. Social support serves a mediating role in diabetes self-care (Torenholt, Schwennsesen, & Willaing, 2013). As the results of this study suggest, support is contoured by gendered roles. Researchers need to further consider the gendered consequences of successful diabetes management.

EASEL #4: The Relationship Between Depression, Alcohol, Tobacco, and Other Drugs (ATOD) Among College Students from 2010-2015

Whitney Katirai, Christine Williams, Matin Katirai, and Shannon Fyalkowski (Health and Geography)

Objective: The purpose of the study was to determine the relationship between depression and ATOD among college students between 2010- 2015. For this study, ATOD will include alcohol, tobacco, marijuana, opioids and sedatives.

Methods: The NCHA survey data was used for analysis. Survey results included 200,000 US college student participants between 2010-2015. Items included in the survey measuring ATOD, depression and stress were analyzed.

Results: Rates of being diagnosed with depression (within the past 12 months) steadily increased every year from 2010 to 2015 from 9.75% to 13.06%. Results from the logistical regression analysis from the two separate models indicate that students who used cigarettes, alcohol, opioids, marijuana and sedatives were more likely to have been diagnosed with depression within the past 12 months, while controlling for campus size, public/private status, religion, race and gender. Specifically, students who used marijuana (OR = 1.524, 95% C.I. 1.495 - 1.554), cigarettes (OR = 1.978, C.I. 1.936 - 2.022) and sedatives (OR = 2.72, C.I. 2.637 - 2.805) were more likely to have been diagnosed with depression. Those who were female (OR = 1.978, C.I. 1.938 - 2.019) and Non-Hispanic white (OR = 1.585, C.I. 1.552 - 1.619) were also more likely to have been diagnosed with depression during the last 12 months compared to nonwhite females and all white and nonwhite males.

Conclusions: Student depression is increasing and student stress levels remain high. Teaching mental health first aid on college campuses can empower students to help their peers seek help for depression/anxiety. Using effective techniques to mitigate stress can help students throughout their lifetime.

EASEL #5: The effect of vitamin D supplementation on vitamin D status in pregnant women and infants: A systematic review Melissa Fleck (Nutrition & Dietetics) Faculty Mentor: Alessandra Sarcona

Objective: To evaluate the effect of vitamin D supplementation during pregnancy and early infancy on infant and maternal vitamin D status.

Methods: A systematic review of randomized controlled trials published between 2008 and 2017 was conducted using Medline, PubMed, Ebscohost CINAHL, and reference lists of retrieved literature. Studies included pregnant women with mean age \pm SD from 22.4 \pm 3.5 to 34.5 \pm 4.6 and infants from birth to 12 months of age. Participants included: either both women and infants, only women, or only infants, and were supplemented with vitamin D. Critical appraisal of each study was conducted using the Quality Criteria Checklist, which found an overall high validity.

Results: Eight studies met the inclusion criteria and were reviewed. Overall, the studies were consistent in showing that higher doses of vitamin D were effective in improving vitamin D status in infants and women. Two studies involved vitamin D supplementation in infants and six studies involved vitamin D supplementation in pregnant women. Two studies did not include a control group and one study had to discontinue interventions in one group of infants due to risk of hypercalcemia.

Conclusion: Daily vitamin D supplementation ranging from 600 IU to 2000 IU and monthly vitamin D supplementation ranging from 35,000 IU to 100,000 IU have been shown to effectively improve vitamin D status and decrease vitamin D deficiency in pregnant women and breastfed infants. Further studies are required to assess long-term effects of supplementation and optimal dose and frequency of supplementation.

EASEL #6: Will Men and Women Ever Compete Equally in the 200M Summer Olympic Back Stroke? Renee Taylor (Mathematics) Faculty Mentor: Thomas Short

My project investigates the difference in performance of men and women in the 200m back stroke in the Summer Olympics. My main objective of this project was to estimate whether this difference will get larger, smaller, or cease to exist. After collecting data sets, I performed different statistical methods. I constructed scatterplots and histograms, which exhibited a lack of fit, unequal variances, and no lack of normality in the two data sets. I ran a linear regression analysis to test the interactions between the year and the sex. Through hypothesis testing, the result determined that there was not a significant relationship between year and sex. Using the linear regression equation for both sexes, I determined that men and women are not predicted to compete equally until approximately the year 2168. Finally, I computed confidence intervals to predict performance in the next three Olympics, 2020, 2024, and 2028. Through this statistical evidence, I found that men and women are both becoming faster at the event. They are each experiencing a decrease in the amount of time it takes them to complete the 200m back stroke. Since 2168 is very far in the future, it is hard to determine whether they will exactly cross paths. This year is extrapolation, which further shows it is unlikely men and women will perform equally.

EASEL #7: Lessons Learned from Cold-Calling Medication Assisted Treatment Facilities Elizabeth Britton Mendenhall (Public Health) Faculty Mentor: Whitney Katirai

Purpose: The purpose of this study was to verify the Medication Assisted Treatment (MAT) facility information provided by the State of Pennsylvania and the Substance Abuse and Mental Health Services Administration (SAMHSA) so that accurate data can be entered into GIS software to display the resources available in rural Pennsylvanian counties.

Methods: Using a database complied from the State of Pennsylvania and SAMHSA, entries designated as MAT facilities were called to verify their current existence and the services they provide. An explanatory script was used for introduction and then upon agreement to participate, individuals were asked 12 questions concerning the facility's MAT services.

Results: Many entries were incorrect in the database and a small number of facilities were no longer operational. Addresses and phone numbers were inaccurately reported, as well as the level of services provided. Many individuals felt uncomfortable answering questions, or were unable to provide the information necessary to respond.

Conclusion: Cold-calling from an inaccurate database can be a difficult way to acquire information, particularly when dealing with a sensitive topic. When first calling, be prepared to alter the script to find the appropriate introduction that makes individuals feel confident and comfortable in answering questions. Be open to any unsolicited information offered and don't be afraid to further inquire over interesting or confusing statements. When forced to investigate the data, surprising and useful knowledge may add a new dimension to the research that was not previously explored.

EASEL #8: The Relationship between Grit, Self-Concept Clarity, and Conscientiousness among Undergraduate Freshman Nutrition and Dietetics College Students Dara Dirhan (Nutrition)

Grit, conscientiousness, and self-concept clarity have been shown to be strongly related to one another in the literature and have further demonstrated to be predictive of retention, educational attainment, and goal achievement. While this has been well documented in the study of child, military, and teacher populations, little is known about the correlation of these three variables among the college student population. Further, there is no existing literature to document the correlation of these variables among the undergraduate nutrition college student population. Therefore, the purpose of this cross-sectional study was twofold: first, to measure the level of grit, self-concept clarity, and conscientiousness among freshman nutrition and dietetics undergraduate college students, and second, to investigate the relationships between grit, self-concept clarity, and conscientiousness among this group.

EASEL #9: Effects of a Short-Term Neuromuscular Training Program on Jump Performance and Landing Mechanics Tyler D. Whitacre, Chris E. Toland and Kenneth P. Clark (Kinesiology) Faculty Mentor: Kenneth Clark

Non-contact knee injuries are prevalent in sports involving jumping and cutting. Implementing an effective training protocol can be challenging due to restrictions from the academic calendar and rules of the athletic governing body.

Purpose: Investigate changes in jump performance and jump landing mechanics in collegiate team sport athletes after a short-term neuromuscular training (NMT) protocol.

Methods: 9 healthy athletes (6 females, height = 1.60 ± 0.02 m, mass = 59.4 ± 5.1 kg; 3 males, height = 1.71 ± 0.07 m, mass = 69.8 ± 13.6 kg) volunteered and provided written informed consent. The pre- and post-test measure was a repeat vertical jump task, where subjects performed two consecutive jumps aiming to maximize height and minimize ground contact time (GCT). Subjects performed three trials with one-minute rest between each trial. Two cameras (60Hz) filmed trials from the frontal and sagittal plane. Variables of interest were Vertical Jump Height (VJH), GCT, Reactive Strength Index (RSI), and Landing Error Scoring System (LESS). Video review was used to determine GCT and flight time, with VJH calculated from flight time (VJH= $1/8 \cdot g \cdot t_2$). Two investigators analyzed landing mechanics using LESS. NMT protocol included 12 one-hour sessions over six weeks, on non-consecutive days (Mon-Thu). Each session included warm-up, jump training, sprint training, and strength training.

Results: Effect Size (ES) statistics were calculated for each variable. Improvements were seen in RSI, GCT, and LESS, with ES values of 2.2, 1.5, and 0.6, respectively. VJH showed only trivial changes (ES < 0.2).

Conclusion: A short-term NMT program can improve jump landing mechanics and enhance performance in explosive jumping tasks.

EASEL #10: Topics and Methods in q-Series James Mc Laughlin (Mathematics)

The book (by James Mc Laughlin, published by World Scientific in September 2017) provides a comprehensive introduction to the many aspects of the subject of basic hypergeometric series. The book essentially assumes no prior knowledge but eventually provides a comprehensive introduction to many important topics. After developing a treatment of historically important topics such as the q-binomial theorem, Heine's transformation, the Jacobi triple product identity, Ramanujan's 1-psi-1 summation formula, Bailey's 6-psi-6 summation formula and the Rogers-Fine identity, the book goes on to delve more deeply into important topics such as Bailey- and WP-Bailey pairs and chains, q-continued fractions, and mock theta functions. There are also chapters on other topics such as Lambert series and combinatorial proofs of basic hypergeometric identities.

The book could serve as a textbook for the subject at the graduate level and as a textbook for a topic course at the undergraduate level (earlier chapters). It could also serve as a reference work for researchers in the area. The bulk of this book was completed while on sabbatical in Fall 2014.

EASEL #11: The Effect of Dietary Nitrates on Exercise Capacity in Chronic Kidney Disease Meghan G. Ramick, Danielle L. Kirkman, Joseph M. Stock, Bryce J. Muth and David G. Edwards (Kinesiology)

Purpose: The purpose of this study was to test the hypothesis that an acute dose of 12.6mmol dietary nitrate in the form of concentrated beetroot juice (BRJ) would improve exercise capacity and skeletal muscle mitochondria function in adults with moderate to severe chronic kidney disease (CKD).

Methods: 12 individuals with moderate to severe CKD participated in this study (61±4 yrs; 9 males; eGFR 47.8ml•min-1•1.73m2). Participants were randomized to ingest 12.6mmol of BRJ or a nitrate-depleted placebo (PLA). Skeletal muscle mitochondrial oxidative function testing was performed using near infrared spectroscopy (NIRS) followed by a symptom limited graded exercise test on a cycle ergometer for determination of peak oxygen consumption (VO2peak). Participants repeated the entire protocol in the other condition a minimum of 7 days later.

Results: We did not observe an improvement in mitochondrial oxidative capacity or VO2peak in the BRJ condition. Work performed and total exercise time was significantly increased after BRJ (Work: PLA 39.5±9.9 vs BRJ 44.7±10.7kJ; Time:

PLA 627 \pm 86 vs BRJ 674 \pm 85s; p<0.05 for both). VO2 at the ventilatory threshold (VT) was also significantly greater in the BRJ condition (PLA 0.79 \pm 0.08 vs BRJ 0.95 \pm 0.09 L/min; p<0.05).

Conclusion: An acute dose of 12.6mmol dietary nitrate significantly improved VO2 at VT, work performed, and total exercise time in adults with moderate to severe CKD.

EASEL #12: The Anonymous Collection of Longitudinal Data: An Investigation of Self-Generated Identification Codes and Methodological Challenges Sarah Fisher (Psychology) Faculty Mentor: Jodi McKibben

When collecting personal and sensitive information over multiple time periods, it is not only necessary to match participants' responses, but also desirable to maintain participants' anonymity. In such longitudinal research, a common approach is to use a Self-Generated Identification Code. Unfortunately, there is a dearth of research identifying the ideal elements to use in such codes. The purpose of this research is to identify an SGIC that efficiently connects respondents over time while maintaining their anonymity.

In this two-session study (n=24), the experimental group was informed that the research included providing sensitive information on a second survey set, whereas the control group was informed that the research was solely focused on the SGIC. No sensitive information was requested. However, this minor deception permitted the analysis of believing that sensitive information would be requested and the consequent matching of the SGIC over a four-week period.

It was found that 100% of participants matched on 4 of the 12 SGIC code elements. Further, 95.8% and 91.7% matched on an additional 2 and 3 elements, respectively. Overall, all participants yielded at least 9 matches on the SGIC. No differences were detected between the experimental and control groups.

These results suggest that contrary to much of the previous literature, it is possible to create a stable SGIC that allows for matching participants over multiple time periods, even when participants are informed that sensitive information will be requested. Additional research is in progress to increase sample size and further evaluate the hypotheses.

EASEL #13: Creating a Campus Tree Geodatabase for Online Public Use: Challenges Connie Driedger and Vincent Fortino (Geography and Planning) Faculty Mentors: Joan Welch and Joy Fritschle

Research has established the benefits offered by urban forests to environmental health and well-being in communities. Urban forests should be managed to provide a maximum level of environmental, ecological, social, and economic benefits over time. Allowing for public access and use of an urban forest database provides for education of local citizens about the resource and how it could be improved over time, however this is accompanied by many challenges.

This research addresses the challenges that are encountered when developing an online geodatabase of the West Chester University campus trees for public use. Since 2009, West Chester University students have been working in collaboration with faculty and staff to create such a database which now holds over 2000 trees. The data was collected using GPS for locations and specifics were taken from each tree and input into an ESRI ArcGIS geodatabase.

The many challenges encountered through this research began with the initial creation of the database. This research was conducted during a time when technology was rapidly changing and the data collection technology and software used for this research was quickly outdated or drastically changed. There were also numerous people involved in the data

collection which resulted in inconsistencies in the use of codes and data input. Many of the points taken had missing data and a method to recover the missing data must be determined.

The lesson to learn is that consistency is key when collecting and reporting data, especially in database management.

EASEL #14: Sentiment analysis of emoji usage on Twitter Matthew Bonham (Computer Science & Psychology) Faculty Mentor: Richard Burns

The use of emoji has skyrocketed since their introduction and adoption in mobile phones and social media platforms. Emoji are used as a distinct part of text, as a way to ensure that a certain message is being conveyed. The state-of-the-art right now for approaches wishing to analyze text is to skip over the emoji and focus purely on the text. This may be leaving out a large portion of the sentiment that could be conveyed in the text. We are interested in studying the usage of emoji in Twitter text, to understand the sentiment of individual emoji, and to develop approaches for taking into consideration emoji when attempting to automatically understand the sentiment of an overall tweet. To say "Oh my god " and "Oh my god " are the same phrase would be correct if looking solely at the words, but as a human viewing the additional emoji, ostensibly the two tweets have very different sentiment. With this research, a method has been proposed as a way to begin the assignment of sentiment attributed to each emoji character. A corpus of over forty million original tweets was used with an averaging algorithm to take into account all instances of emoji usage. Our current results include individual sentiment scores for each emoji based on their actual usage and context.

EASEL #15: Investigation Into The Ways In Which Novice and Experienced Mathematics Teachers Identify and Respond to Unsuccessful Lessons Brian Bowen (Mathematics)

As pre-service teachers on the precipitous of joining the ranks of practicing teachers, we are inherently curious as to the role that experience plays upon in making pedagogical decisions. In previous studies researchers found that "experienced mathematics teachers were more likely than novice to construct coherent, highly organized lesson plans that build upon students' prior knowledge" (Leichardt, 1989). In one our last undergraduate classes we have focused this curiosity into a research project that focuses on examining how a teacher's experience influences their recognition and response to a failed or successful lesson. This research project attempts to build on these findings by shifting the focus from planning to the reflection stage instruction. Results from our study suggest a complex relationship between a teacher's level of experience and response to their lessons.

EASEL #16: Safety of Pellet Hormone Therapy vs. FDA Approved Hormone Therapy for Menopausal Women Kellie Matson and Daniel Jiang (Biology) Faculty Mentor: Jessica Schedlbauer

Menopause is a period of hormonal transition in a woman's life when her body stops producing estrogen; this commonly causes hot flashes, insomnia, weight gain, and other symptoms. Hormone Therapy (HT) is a treatment that alleviates these menopausal symptoms, but recent studies have warned that the risks from using HT do not outweigh the benefits. As an alternative, Pellet Hormone Therapy has arisen as a compounded form of bio-identical hormones thought to be more natural and safer. Pellet HT is unable to be FDA-approved due to its compounded nature, and this causes a gap in the understanding of its safety. This retrospective study aims to compare the side effects of women using FDA-approved HT to women using Pellet-HT to determine if there is a higher safety risk of using one over the other. Extensive chart review and data collection was conducted on 183 women using Pellet-HT and 120 women using FDA-HT. Our results demonstrate that women on Pellet-HT experienced significantly more side effects than women on FDA-HT, 66.8%, compared to 14.5%. Our findings from one specific side effect showed 62.6% women on Pellet HT compared to 17.7% of

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women on FDA-HT experienced at least one episode of abnormal uterine bleeding. These findings indicate Pellet-HT is not safer than traditional FDA-HT, and more research is warranted before its further use.

EASEL #17: Kids first: A Pilot study of mindfulness and emotional wellbeing for preschool children Christine Moriconi (Nursing and Center for Contemplative Studies)

Why teach mindfulness to children? Teaching mindfulness to preschool children through direct and indirect experiences of mindfulness with their parents and teachers yields a systemic approach to learning emotional regulation which has been successful (Siegel, 2012). This pilot study (n=19) was a mixed method quasi-experimental, pre-post design. In the quasi-experimental group, parents and teachers were trained in mindfulness to indirectly teach children emotion regulation. Children learned mindfulness skills directly from parents. The population was a convenience sample of parents, teachers, and children at two local preschools. The intervention was 6 weekly sessions for 90 minutes. The control group did not receive the mindful parenting classes and will not receive the mindful teaching classes. Both control and quasi experimental groups received Second Step training , a social emotional leaning program. Results are significant (p.05) for Describe and Observe factors of parents' mindfulness in daily interactions decreased stress of parenting. Implications for parenting programs through pre-schools.

EASEL #18: The Effects of a Six-Week Weight Loss Program on Body Composition and Metabolic Rate Anna Schade (Kinesiology)

Faculty Mentors: Selen Razon and Melissa Whidden

Purpose: The purpose of this study was to determine if a weight loss driven program would also result in a decrease in body fat percentage, a decrease in waist and hip circumference, and improve resting metabolic rate (RMR).

Methods: Total weight (lbs), body fat (%), lean muscle mass (%), waist and hip circumferences (in) and RMR were assessed before and after the program in thirty four sedentary adults. Subjects were required to participate in a boot camp program a minimum of five days per week and follow a structured diet plan.

Results: There was a significant decrease in total body weight following the six-week challenge (197.1 ± 7.76 lbs pre vs. 187.8 ± 7.16 lbs post; P < 0.001). There was also a significant decrease in body fat ($38.6 \pm 1.52\%$ pre vs. $36.2 \pm 1.52\%$ post; P < 0.001) as lean muscle mass increased ($61.4 \pm 1.52\%$ pre vs. $63.8 \pm 1.52\%$ post; P < 0.001). Participants successfully lost 1 inch off their waist (P < 0.01) and hip (P < 0.001) circumference. Interestingly, RMR decreased from 1678.6 ± 59.36 kcal/day to 1602.7 ± 49.87 kcal/day although it was not statistically significant (P = 0.09).

Conclusions: These data suggest that this particular weight loss program is effective in significantly reducing total weight, body fat, waist and hip circumference as lean muscle mass increased. This study supports the effectiveness of a financially driven six-week weight loss program and emphasizes its positive impact on body composition in previously sedentary individuals.

EASEL #19: 4 x 100 Meter Relay Summer Olympics James Haffey (Mathematics) Faculty Mentor: Thomas Short

Track and field was a large part of my life growing up. I ran all different sorts of sprint events from the 100-meter dash to the 400-meter race and all possible relays in between. Since track interests me so much and has been such a big part of my life so far, I conducted a research project to use statistical models to predict in what year men and women might be able to

run the 4 by 100-meter relay at the same time. To do this I first researched the gold medalist time for both men and women every year this race was run in the Olympics. Men started running this event in the Summer Olympics in 1912 and women started in 1928, 16 years later. Using this information and the statistical software package Minitab, I calculated a regression equation for both men and women. These equations were created in order to predict a winning time in any year I chose. I computed and compared prediction intervals for both men and women, for the years 2020, 2028 and 2032. As expected, as the years went on the women's times decreased at a faster rate than the men's. This result supports my hypothesis that men and women might eventually run the same times. Following these predictions, I then set my regression equations equal to each other and calculated that in about the year 2162, men and women could possibly be running the 4 by 100 meter relay race in the same winning time.

EASEL #20: Human Bocavirus: An exploratory risk assessment Chelsey Moore (Health) Faculty Mentor: Neha Sunger

Human bocavirus (HBoV) was first identified in 2005 as pathogenic parvovirus, due to its presence in respiratory tract specimens from Swedish children with lower respiratory tract infections (RTIs). Currently, a causal relation between the presence of the virus and respiratory illnesses has not been established. However, increasing evidence in literature and epidemiological studies indicates a statistical association between HBoV and acute respiratory tract disease (citations). Herein, we aim to conduct an exploratory risk assessment for exposure to HBoV in young children using surrogate viruses (Adenovirus 4 and Coxsackie virus). A hypothetical scenario involving an adult day-care worker with active HBoV releasing infectious viral particles as aerolized droplets while tending to infants aged six-to twelve-months was evaluated. The infant's risk of contracting the virus was calculated using an Airborne Infection Risk Model and existing dose-response models for each surrogate. Stochastic exposure models were developed to capture the uncertainty in the risk assessment. The mean risk estimate based on the Coxsackie and Adenovirus 4 models were 0.18 and 0.96, respectively. Overall, the risk to infants in the facility was significant (> 10-3), indicating the need to further evaluate the potency of this virus. Pathogen concentration in air (PFU/m3) appeared as the key driver of the risk assessment. As a result of this study, a benchmark framework presenting the quantitative risk assessment for HBoV infection in infants in a daycare setting was designed that can be potentially used as a template for analysis in future as more information becomes available on HBoV infectivity.

EASEL #21: Italian Agritourismi, Globalization and Tradition Emily Rodden (Anthropology) Faculty Mentor: Michael A. Di Giovine

Drawing on ethnographic interviews and participant observation conducted in agriturismi near the Umbrian region, this poster analyzes the way in which Italian agriturismi have chosen to resolve the conflict between globalization, which has caused standardization of foodways, and growing financially successful businesses while preparing food according to local traditions. This solution is often called glocalization. It also analyzes how agriturismi perform tradition to both local and global tourists, how their role in navigating a global marketplace while linked to a particular locality affects the preservation and transmission of knowledge, and how they have found a ready platform and ally in the slow food movement.

EASEL #22: Exploratory risk assessment for private wells and recreational water exposures to children in the State of New Jersey Brandon Owen (Geology and Astronomy) Faculty Mentor: Neha Sunger

In this study, we conducted a worst-case risk assessment for children from the ingestion of private well water in two densely populated counties of the Piedmont province in New Jersey - Hunterdon and Mercer counties. Additionally, an exploratory risk assessment was conducted to estimate the potential of health risk to children from common recreational activities in the Delaware River. Three exposure scenarios examined in this study were: 1) ingestion exposure to untreated groundwater from contaminated private wells, 2) recreational exposure through incidental ingestion of contaminated water from the Delaware River during swimming, boating, and fishing activities, and 3) ingestion exposure through fish consumption sourced from the Delaware River. The contaminants selected for analysis were Arsenic, Benzene, Trichloroethylene (TCE), Tetrachloroethylene (PCE), and the contaminant of emerging concern 2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE-209). As a result of this analysis, Arsenic and TCE in the source water were identified as key drivers of the health risk assessment and hence, are proposed as the contaminants of primary concern for the target population. Significantly high excess cancer risk of 2.28 X 10-3 was obtained for the scenarios evaluated, highlighting the need for testing and treating water sources as well as setting a framework for more detailed work in the future.

EASEL #23: The Hydra in First-Year Writing: What Is Good Writing? Stacy Esch (English)

A writing studies approach to teaching first-year composition is the cornerstone of curriculum upgrades in writing programs here and nationwide that guide effective writing instruction across the curriculum. One mission is for FYW to better reach across disciplines by helping students develop a coherent "theory of writing" that can lead them to understand writing, not only as a skill to practice, but as a theoretical construct—a key element in the transfer of skills across disciplines. Composition scholars roundly agree that a key activity for transfer is metacognitive practice. One key reflexive question is "what is good writing?"—a question at the heart of both rhetoric and composition, two disciplinary twins typically conjoined but increasingly studied separately. (see Horner and Lu, 2011; Detweiler, 2015). "What does it mean to teach rhetoric? What does it mean to teach composition and performance seriously? What is the relationship between rhetoric and composition." (Miller, 2016)—significantly overlap. My research analyzes the metacognitive question, "what is good writing?" from three fundamental philosophical "perspectives" in the study of rhetoric and four "orientations" in the study of composition. Though the answers multiply like heads on a hydra, I do not reduce them to any single, overriding, one-size-fits-all prescriptive answer. Instead, I hope my analysis points us in the direction of a more "rhetoric-infused" conception of first-year composition, towards rhetorical agility by way of multiplicity, and helps us understand how to guide first-year writers toward developing a more sophisticated conception of the power and reach of writing.

EASEL #24: Student Attitudes toward Inclusion Anna Landis (Early Grades/Middle Grades/Special Education) Faculty Mentor: David Bolton

Inclusion involves the education of students with special needs in the regular classroom as opposed to educating them in exclusive, separate classrooms. Including students with special needs has the potential to increase difficulties in the classroom for the teacher who will need to address the needs of all students. Even with an instructional support teacher, the inclusion of special needs students has the potential to be a distraction to the teacher and other students. On the other hand, the inclusion of students with special needs can be quite beneficial to the included students both academically and emotionally, reducing their isolation. If handled appropriately, inclusion can also be beneficial for non-special-needs students as well, promoting growth in learning to understand and accept others.

In Margevica, Tubele, Bolton, Doan, & McGinley (2017), data from a survey of Latvian students' attitudes toward inclusion was factor analyzed. Three factors were found: Negative Effect of Inclusion, Positive Effect of Inclusion, and Benefits of Segregated Special Education. The current study replicates the previous studies, surveying U.S. students. It is hypothesized that the same three factors will be the found. In addition, differences in attitudes between males and females will be analyzed. The study will help educators in understanding the conflicting views of students about inclusion so that they can better prepare them for teaching in included classrooms.

EASEL #25: Coastline Delineation Method from Landsat Data Alexander J. Roccaro (Earth and Space Science) Faculty Mentor: Timothy Lutz

Monitoring coastline change is an important aspect in the study of coastal geomorphology. To better quantify coastal changes, a record of accurate coastlines made on a regular basis is required. The purpose of this study is to create a method of delineating coastlines for further fractal analysis from Landsat data using the geographic information system QGIS. The method converts the raster Landsat data available from the United States Geological Survey into vector polyline format. This conversion is done by setting a threshold value between 0-255 (8-bit image file) and reclassifying cells equal to and above the threshold to land cells and cells below the threshold to water cells. The threshold value is selected based on the local minimum value between two local maxima in a histogram of pixel values, which represent mean values for water and land. The resultant classified image is then processed using the raster to vector operation, giving a polygon shapefile. A further conversion from polygon to polyline is performed. The polyline in this shapefile representing the coastline of interest is selected and isolated from other coastlines in the study area. The method has been applied successfully to delineate a portion of New Jersey's coastline using Landsat 5 TM data. This method, combined with the temporal regularity of Landsat data, can be used for the analysis of coastline change over a ~30-year period at 16 to 18-day resolution. Future work in this area will focus on fractal analysis of delineated coastlines and coastline change.

EASEL #26: Identity and Self-Efficacy: Exploring the Professional Experiences and Aspirations of Female Midlevel Higher Education Administrators Tiffany Jones (USSSS Educational Services (ADP))

Women's roles in higher education have evolved; however, women remain underrepresented in upper-level administrative positions. This qualitative study examined how personal identities serve as tools for studying self-efficacy, and subsequently, the professional experiences of female midlevel higher education administrators who have held administrative positions in colleges or universities for five years or more. I explored the experiences of female midlevel administrators to examine their pathway to administrative leadership roles. A literature review of the evolution of women in higher education, midlevel administrators, organizational barriers, intersectionality, salient personal identities, self-efficacy, and methodological approaches were conducted for this study. Intersectionality research is not common in higher education research, particularly the experiences of administrators, thus there is no known literature on the intersection of personal identities and self-efficacy as they relate to female administrators.

Thirteen midlevel administrators employed in higher education for five or more years participated in this study through a snowball sampling method. This phenomenological study incorporated data from twenty-six semi-structured interviews and visual documents as artifacts. Only one participant indicated a desire to become a president of a higher education institution and two participants stated that they planned to pursue upper level administrative positions. It is recommended that the following be explored further for research and practice on this topic: the role that supervisors of higher education female midlevel administrators play in supporting them, support for women administrators of color, support for administrators who have caregiving responsibilities, and the affect of spirituality on professional experiences and aspirations.

EASEL #27: Predicting Men's and Women's Olympic 100m Backstroke Performances Patrick Corrigan (Mathematics) Faculty Mentor: Thomas Short

The objective of my research is to determine if and when men and women might perform equally in the Olympic 100m Backstroke event. I fit an interaction model for performance in the event by sex and year to obtain two least squares regression lines, one for each sex. I rejected the null hypothesis that the three beta coefficients (for men, women, and the interaction term) were equal to zero. I then tested for the significance of the interaction term, and obtained a t-value of - 0.58 and a p-value of 0.565. Therefore, I failed to reject the null hypothesis that the beta coefficient for the interaction term was statistically different from zero. Hence, I concluded that the slopes of the two least squares regression lines were statistically parallel.

The linear model I built predicted that men and women will perform equally in the Olympic 100m Backstroke by the year 2452. However, the lack of significance of the interaction term along with the failure to meet all of the conditions for a valid least squares regression led me to conclude that the linear model I had built would not be very accurate in predicting future times for the event. Moving forward with this analysis, I would recommend building a second-order model. A parabolic predictor equation would likely solve the issue of lack of fit, and I believe it more accurately represents the trend portrayed in the initial scatterplot of time vs. year.

EASEL #28: Growth and Characterization of ZnO Nanowires for Biological Sensing Applications Joshua M. Carlson, Benjamin Roe and Tylor J. Peca (Physics) Faculty Mentors: Shawn H. Pfeil and Kurt W. Kolasinski

We present data on the growth of ZnO nanowires, which are under development as a less toxic alternative to quantum dots. Nanowires, grown via thermal oxidation of seed particles deposited by laser ablation, were characterized by scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS) and atomic force microscopy (AFM). AFM studies focused on the details of the growth processes that occur on sub-100 nm seed particles. There appear to be three main archetypes of wire decorated nanoparticles, they follow a general trend in the sizes of "seed" particles from which wires originate, as well as the width, length, and variety of their nanowires. We bin the seed particles into three classes by diameter, small (~1 nm), medium (~2.5-5 nm), and large (~7-10 nm). Small seeds give rise to short nanowire spikes, ~0.5 nm in length, medium seeds give rise to intermediate length wires, 4-12 nm in length, and large seeds give rise to longer wires, 20-40 nm in length. This suggests that the size of the particle is qualitatively related to the "upper ceiling" on potential nanowire length.

SEM studies focused on the details of growth processes that occur on 100 nm to 1 µm seed particles. Large particles exhibits a remarkable growth regime in which nanowires completely consume the seed particle.

EASEL #29: Excessive Foot Mobility Enhances Static Stability under Visual Perturbation Richard P. Bruno, David J. Stearne, Kenneth P. Clark, Molly Murphy, and Hyunsoo Kim (Kinesiology) Faculty Mentor: David Stearne

Purpose: Excessive foot mobility may affect balance and stability, particularly under visual distortion. Since static instability may be associated with lower extremity injury and foot mobility may be associated with instability, the purpose was to investigate the influence of foot mobility differences and visual perturbation on center of pressure displacement, measured by sway path linear mean (SPLM) on a force plate.

Methods: We tested 58 recreationally active, healthy male and female college age subjects (age = 21.12 ± 1.21 years, height = 66.67 ± 3.33 in., weight = 152.43 ± 23.92 lbs.) in a cross-sectional design and compared static stability by foot West Chester University Research Day Fall 2017 13 | P a g e mobility levels both unperturbed and then under visual perturbation. Independent variables were foot mobility, established by arch height index and navicular drop test, to define rigid or mobile foot type, and visual condition distorted with Fatal Vision goggles. Dependent variable was SPLM, established as average distance traveled between sample intervals collected over multiple 20 sec. one-legged static balance trials.

Results: Independent t-tests showed significantly lower SPLM in mobile foot group (t = 2.05, p = .048), compared to less mobile (rigid) foot type. However, between group differences emerged only in the visually distorted condition, where higher foot mobility was associated with greater stability. Interestingly, static stability was not statistically different between foot mobility levels in the visual (eyes open) condition during balance testing.

Conclusion: Since group differences occurred only in the visually perturbed condition, we infer that foot mobility appears to affect static stability when appreciation of visual field is diminished and subjects are left to rely on other substrates of postural control for balance.

EASEL #30: Fake News? Information Literacy Among WCU Graduates Michael Schwartz (Communication Studies) Faculty Mentors: Ola Kopacz and Bessie Lawton

The ability to differentiate between accurate news and news containing falsehoods is becoming increasingly difficult. Stories shared on social media platforms do not have to go through any vetting process before being consumed by the public. As a result, consumers risk exposure to inaccurate reporting. Young adults rely on social networks as their news source and are therefore likely to encounter inaccurate information regularly. The purpose of this pilot study is to measure news literacy across West Chester University students, specifically, their ability to assess the accuracy and trustworthiness of news articles. The study proposed the following research questions: 1) are participants able to accurately estimate the truthfulness of news stories?, 2) how trusting are the participants of news stories, and 3) what are participants' attitudes toward news media in general? 50 WCU students were randomly assigned to read either with a truthful news story or one containing falsehoods and then completed an online questionnaire measuring perceptions of the article, media attitudes, and background variables. Preliminary findings will be shared and discussed during the poster presentation.

EASEL #31: The Effects of Human Contact and Hair Color on Hair Cortisol Levels of Goats at the Philadelphia Zoo

Mary O'Brien, Tara Fitzgerald, Amanda Johnston, Katelyn Vala, Danielle Steinmetz, Matthew Batuk and Taylor Potts-Gordon (Psychology)

Faculty Mentors: Aaron Rundus and Rebecca Chancellor

Chronic stress can negatively impact the health and welfare of captive animals. Several methods exist to quantify stress, including the analysis of cortisol. Hair cortisol analysis provides a novel and non-intrusive method of assessing long-term cortisol deposition. To measure the impact of visitors on hair cortisol levels in goats at the Philadelphia Zoo, twenty-one goats exposed to higher volumes of visitors in the contact yard and nine goats experiencing lower volumes in the non-contact yard were shaved monthly for a year. A subset were shaved in two locations to examine the effect of hair color on cortisol levels. The impact of pregnancy on hair cortisol levels in four goats was also examined. We found that neither housing location (contact vs. non-contact) nor attendance affected hair cortisol levels. However, lighter hair color was found to have higher concentrations of cortisol.

EASEL #32: Pilot study for surface water discharge pattern in the Brandywine Creek watershed under different seasonal conditions Connie Driedger (Geography and Planning) Faculty Mentor: Neha Sunger

Understanding the variability in occurrences of contaminants of emerging concern (CECs) is important for developing monitoring and mitigation strategies across watersheds. Within Brandywine Creek watershed, common CEC sources include effluents from wastewater treatment plant (WWTP), concentrated animal feeding operations, and runoff from land applied biosolids. Since the potential for human health hazard from CECs and required measures to control the runoffs are largely unknown, additional information is needed to analyze how different land-cover types, season of the year (pre-harvest v/s post-harvest) and weather conditions (dry v/s heavy rainfall events) alter the concentration of CECs in the water systems. This study will seek to demonstrate the use of ArcGIS tool in assessment of seasonal and annual runoff in the Brandywine Creek watershed, to help provide a platform for further GIS analysis integrating land cover, socio-demography, CSO and stormwater discharges in the watershed. Three specific objectives of this study are – i) identify potential water sampling locations in the watershed to capture the loading burden in the creek from each of the potential sources of CECs in the watershed (sources include- agricultural runoff, WWTP runoff, runoffs from developed areas), ii) estimate surface runoff volumes at sampling locations with respect to the season of the year and, iii) assess association between land cover types and socio-demographic profile of the community with the stormwater discharges. This environmental GIS-based investigation evaluating linkages between land-use pattern and seasonal variations with CEC loading rates in a mixed-use watershed will improve predictability from site to site in future studies.

EASEL #33: Release and Transport of Phosphorus in the West Branch Brandywine Creek, Chester County, PA Charles V. Shorten, Emily Condron, Jacob Brycki, Justice Lambon and Ashley Dellinger (Health)

Phosphorus is a key nutrient for plant growth but too much of it can trigger unwanted algal growth in waterways. The W. Branch Brandywine Creek in Chester County, PA is plagued by excessive P levels causing it to fail to meet in-stream water quality standards established by the Clean Water Act of 1972. Phosphorus tends to adhere to solid sediments but evidence suggests that it can be released back to aquatic systems following sediment re-suspension during storm events. This study examines P levels in W. Branch Brandywine Creek water during storms and release kinetics from associated sediments. Preliminary studies show that P levels peak during storm events. Leaching studies for a sediment sample obtained at the site of an old dam in Hibernia County Park (40.029446° N, 75.835647^\circW) show that P release follows a two-stage mechanism; fast release occurs over the first few hours of mixing with lab water followed by a slower release mechanism over the next several days. Modeling followed the relationship: Soluble [PO4-P] = [CFast-CFast e(-kFast*t)] + [CSlow-CSlow e(-kSlow*t)]; where C = maximal concentration of fast and slow releases, k = first order rate coefficients for fast and slow release and t = time; model fits showed CFast = 0.069 mg/L, kFast = 1.259 day-1, CSlow = 0.341 mg/L and kSlow = 0.002 day-1; R2 = 0.951. These results help elucidate the mechanisms of phosphorus deposition and transport and can be used to plan for control and cleanup efforts.

EASEL #34: Improving the Literacy Skills of Justice Involved Youth Mimi Staulters, Ashley Miller, and Jessica Huff (Special Education and Early Childhood)

Undergraduate teacher candidates in a dual certification program participated in a service learning experience to deliver literacy instruction over four semesters to 36 youth on probation. The youth were between the ages of 12 – 18 and the majority demonstrated significant deficits in reading achievement or had previously been identified as having learning or intellectual disabilities and emotional disturbance. The teacher candidates considered culture and personal interests of the students and employed self-regulated strategy instruction (Graham, Harris, & McKeown, 2013); explicit instruction in phonemics (Boardman, et al., 2008) and comprehension (Biancarosa & Snow, 2006) to support the literacy development of the youth they worked with. A grounded theory approach (Glaser & Strauss, 1967) was utilized to collect, code, and

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analyze data from observations, focus group interviews, and journal reflections. Qualitative data from these sources describe the outcomes of the project as experienced by the pre-service teachers involved. Results indicated teacher candidates believed the experience made contributions toward their professional knowledge and skills, understanding of youth who experience learning and behavioral problems, and ability to collaborate with other professionals. Teacher candidates also noted specific areas for programmatic improvement including the need for more supports to reduce truancy and increase motivation for academic content.

EASEL #35: A Six-Week Boot Camp: Changes in Exercise-related Affects and Perceptions Antonia Battaglino (Kinesiology) Faculty Mentor: Melissa Whidden

Purpose: The purpose of this study was to 1) examine the effects of a six-week boot camp program on exercise-related affects and 2) identify motivations for program-adherence.

Methods: Twenty-seven sedentary individuals (Mage=30.04, SD=10.33) joined a six-week boot camp program to exercise at least five days per week, fifty minutes a day. At the onset and completion of the program, participants were administered surveys measuring their motivation for behavior change, self-efficacy for exercise and, perceptions of general health. Participants were also administered a single qualitative item scale at program completion for identifying motivations for program adherence.

Results: Paired sample t tests revealed a significant improvement in participants' mean scores for self-efficacy for exercise (M=7.21 \pm 2.2 pre vs. 8 \pm 1.65 post; t= -2.38, p < 0.05) and overall perception of general health (M=3.17 \pm 1.01 pre vs. 3.92 \pm 0.7 post; t= -4.21, p < 0.05). Qualitative analyses indicated three themes for program adherence: (1) systemic programing, (2) peer accountability and (3) the sense of community.

Conclusions: These results imply that alternative physical activity (PA) inventions can impact critical precursors of PA behaviors. Structured alternative programs that center around a supportive community while providing a sense of accountability may play a key role in facilitating long term PA behavior Additional research is needed to further evaluate the potentials of these unconventional approaches to increase activity and decrease sedentariness.

EASEL #36: Amino Acid stabilization of Fluorescent Gold Nanoclusters Erin Cunningham (Chemistry) Faculty Mentor: Jingqiu Hu

The optical properties of gold nanoclusters are showing to be of potentially great value in biological imagery and sensory. This research aims to synthesize fluorescent gold nanoclusters (AuNCs) stabilized by amino acids to investigate the effect of viscosity, metal ions, organic molecules, or microenvironment on the fluorescent properties of gold nanoclusters. Three amino acids were used to reduce tetrachloroauric acid trihydrate to synthesize gold nanoclusters: histidine, proline and methionine. Proline stabilized gold AuNcs remained stable over the period of four weeks, while Methionine AuNCs aggregated quickly after being made. Under UV iiradiation, Proline AuNCs emit blue light, Histdine stabilized AuNCs emit green light and Methionine capped AuNCs emit orange light. The emission spectra of gold nano clusters were recorded. When excited at 360 nm , the emission maximum of L-proline Aunts is 433 nm while the emissions of L-histidine AuNCS is 475 nm. Anthracene was used as a reference to measure the quantum yield. Viscosity showed little effect on the optical properties of gold nanoclusters. The addition of mercury ions reduced the emission of Proline stabilized AuNCs . The addition of heptyl viologen, an organic molecule commonly used as an electron acceptor, also reduced the emission of gold nanoclusters. With the addition of Bovine Serum Albumin solution and Poly-L glutamic solution, the emission of gold nanoclusters continue to decrease. Future research will focus on the modification of surface functional groups of AuNCs to improve protein-AuNCs interaction and recognition.

EASEL #37: Phylogenetic patterns of maternal reproductive energetics in mammals Danielle Adams (Biology) Faculty Mentor: Jennifer Maresh

Compared to other animal groups, mammals invest substantial amounts of energy in their offspring via gestation and lactation. Despite this unifying characteristic, strategies of maternal investment – i.e., reproductive energetics – differ considerably across species. Indicators of maternal investment strategies include gestation time, fetal and offspring growth rates, birth mass, litter size, lactation time, and weaning mass. While these indicators scale to some degree with maternal body size, comparisons among groups indicate investment strategies may differ between terrestrial and aquatic mammals. In this study, we compiled multiple datasets of approximately 3000 placental mammals from the scientific literature, with the specific aim of comparing maternal investment indicators between marine and terrestrial groups. Our results show that the effects of maternal body size on some investment indicators differ between aquatic and terrestrial mammals, but that phylogenetic relationships tend to be stronger predictors of these traits. Specifically, (1) year-long gestation times, (2) slow fetal growth rates and (3) fast offspring growth rates between birth and weaning are shared traits among Carnivorans, Cetartiodactyls and Afrotherians in both the aquatic and terrestrial environments. These results indicate that mammalian reproductive energetics have a strong phylogenetic underpinning. In addition, aquatic species resemble other large-bodied, "K-selected" species in their reproductive energetics. The relationships between these traits in mammals and their respective environments (aquatic vs. terrestrial) remain to be further explored.

EASEL #38: Drones: Evolution and Meteorological Applications David Kodokian (Earth and Space Science) Faculty Mentor: Joby Hilliker

The purpose of this poster is to share the origins and history of drone use and technology to give viewers a greater appreciation of modern uses of drones, including research projects currently being conducted at West Chester University. One current project at WCU involves collecting meteorological data to identify microscale features. This poster provides the viewer of other ongoing meteorological research projects using drones, including: a) NASA's HS3 study to improve hurricane forecasting, b) Oklahoma State's CLOUDMAP to improve tornado forecasting, and c) Ebaerhard Karls University 2013 study on boundary layer changes at sunrise. Moreover, this literature review summarizes data collection methods using the Global-Hawk-equipped Hurricane and Severe Storm Sentinel, and data methodologies and techniques incorporated by NOAA. As readers recognize how the drone industry grew into serving a scientific role in the meteorological community, a synopsis of the pros and cons of drone are examined. The last section focuses on the future of the drone industry as the Economist predicts over 100,000 jobs will be created as a result of this new technology by 2025.

EASEL #39: Validation of a Concussion Knowledge & Attitudes Survey Instrument in a Collegiate Population Carrie Smith, Daniel J. Baer, Lindsey C. Keenan, and Nicole Cattano (Kinesiology and Sports Medicine) Faculty Mentor: Daniel Baer

Purpose: Researchers often use Rosenbaum's Concussion Knowledge and Attitude Survey (RoCKAS) to assess knowledge and attitudes in athletes, which may influence concussion reporting behavior. However, this instrument has not been validated in college students. The purpose of this cross-sectional study was to validate the RoCKAS in a collegiate population.

Methods: We surveyed 280 WCU students, including athletic training students (ATS; n = 48), student-athletes (n = 179), and marching band (MB; n = 53). Only freshmen and senior students completed the survey. Following factor analysis of

the RoCKAS Concussion Knowledge Index (CKI) and Concussion Attitudes Index (CAI), one-way ANOVAs compared CKI and CAI by group. Independent t-tests compared CKI and CAI between freshmen and seniors.

Results: CKI scores were highest in ATS, with no significant difference between athletes and MB. CKI was significantly higher in seniors versus freshmen in both ATS and athlete groups, but not in MB. Athletes scored lowest on CAI, with no significant differences between ATS and MB. Senior ATS scored significantly higher in CAI compared to freshmen, with no class differences in MB or athletes. Overall, CKI and CAI scores were significantly higher in senior ATS compared to senior MB and athletes, with no differences among freshmen groups.

Conclusions: This study provides validation for the RoCKAS for use in a collegiate population. ATS scored highest on both CKI and CAI. Significant differences among seniors, and no differences among freshmen, suggest that attitudes and knowledge change over time, especially among ATS as they learn about concussion management.

EASEL #40: Alterations in the ventral hippocampus of LRRK2-G2019S transgenic mice Julia Chau (Biology) Faculty Mentor: Eric Sweet

Parkinson's Disease (PD) is a progressive neurodegenerative disease that gives rise to a spectrum of non-motor and cognitive symptoms, such as mild cognitive impairment (MCI), depression, fear or anxiety, and dementia. Thus, the areas of the brain involved in these functions, such as the hippocampus, play an important role in disease. The hippocampus is a C-shaped cortical structure that can be divided up into three parts: dorsal (septal pole), intermediate, and ventral (temporal pole), which differ in neuronal activity and synaptic pathways. The dorsal hippocampus is associated with spatial navigation and memory, whereas the ventral hippocampus is involved in the regulation of stress responses and cognitive/emotional behavior. In this study, the effects of how a mutation in the Leucine Rich Repeat Kinase 2 (LRRK2) gene alters the plasticity and neuronal function in the ventral hippocampus are investigated. Research focusing on the plasticity of the ventral hippocampus is important because it may lead to a better understanding of how the LRRK2-GS2019S mutation affects cognitive symptoms of Parkinson's Disease. In addition, it allows for a greater understanding of how the neuronal activity in the ventral hippocampus differs from the dorsal hippocampus, which could become valuable knowledge for a Parkinson's patient and other researchers.

EASEL #41: Determination and occurrence of pharmaceuticals in Brandywine river samples by LC-MS/MS Justice Lambon and Casey Anderson (Health and Chemistry) Faculty Mentors: Neha Sunger and Pistos Constantinos

Growing presence of pharmaceuticals, classified as "contaminants of emerging concern" in our nation's rivers, has resulted in public health concern among scientists in recent years. This study focuses on characterization of 3 pharmaceutical compounds in the Brandywine watershed using liquid chromatography tandem mass spectrometry (LC-MS/MS) method. Land use patterns along the Brandywine creek varies as the river cuts through rural/suburban communities in Chester County, PA to Christina River in Wilmington, Delaware. Due to variabilities in land use along the river, we sought to understand how its use correlates with the excessive chemical pollution emanating from human drug use and agricultural activities. Understanding the correlates would provide informed strategic decisions to control the pollution at source.

To achieve this, an MRM-LC-(QqQ)MS/MS method was developed and validated to determine the presence of codeine, fluoxetine and acetaminophen in river samples from 9 different locations: six sites along East Branch in Downingtown, PA, and three sites on West Branch (2- in Coatesville, PA and 1- in Wilmington PA). For efficient separation and ionization of low dose levels, different analytical columns, mobile phase composition and MS parameters were tested and optimized for their successful detection. Optimization of mobile phase, solid phase extraction and MS response was also

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performed to cope with different polarities. The method was validated and proved to be accurate, precise, selective and specific with satisfactory linearity within the calibration range.

EASEL #42: Numerical Solution of the Non-linear Schrödinger Equation via Theta-Method Ben Plumridge (Mathematics) Faculty Mentor: DAndreas Aristotelous

An algorithm is being developed for the numerical solution to the non-linear Schrödinger equation using the finite difference method for the spatial and temporal discretization. First, the well-known theta-method is being implemented with fixed point iteration to solve for nonlinearities. Next, the goal is to implement the Besse relaxation method to solve the semi-classical limit Schrödinger equation where the Planck constant is small and compare its performance with the theta-method. The advantage of the Besse relaxation method is that is linear and thus, it does not require the solution of nonlinear systems.

Results from the theta-method algorithm will be presented. The convergence of the algorithm is tested for known solutions, as a means of validating the algorithm. The theta method so far has been tested on the diffusion equation, complex diffusion equation, non-linear diffusion equation and the linear Schrödinger equation. Numerical convergence has been established for all of these equations. The theta and Besse relaxation methods for the numerical solution of the non-linear Schrödinger equation are still under development. Once developed, convergence will be tested for each method applied to the non-linear Schrödinger equation.

EASEL #43: Direct instruction makes a difference: A qualitative examination of ESL learners' production of academic formulas in a controlled situation Jelena Colovic-Markovic (Languages and Cultures)

Vocabulary research in corpus linguistics reveals that formals are frequent and functional in academic prose. Despite this, many ESL learners lack the knowledge of academic lexical phrases. To help ESL students learn the formulas, it has been suggested that they be explicitly taught. Previous research (Colovic-Markovic, under review) found that the ESL learners who received explicit instruction made more significant gains in their abilities to produce academic formulas in a controlled situation (i.e., C-test) than those who did not. However, more needs to be known about how ESL students' abilities to produce the target phrases change over time when they receive and when they do not receive explicit instruction.

This research, an extension of the Colovic-Markovic's study (under review), involves a qualitative analysis of the academic formulas produced on a C-test at the start and end of an 8-week term by 52 ESL students assigned to the contrast (N= 22) and treatment (N=30) groups based on their enrollment in high-intermediate writing classes in an IEP. The treatment group received training on a selected set of academic formulas over the instructional period. The contrast group received no direct vocabulary instruction. Both groups were exposed to the target formulas through reading the same course materials and discussing them in class. The target structures the participants produced were analyzed manually.

The study results indicate the treatment group, in contrast to the control, was able to produce accurately a greater variety of the target lexical phrases. The findings have implications on ESL/EFL writing pedagogy.

EASEL #44: Feasibility of Drone Use in 3D Geologic Mapping Daniel Bochicchio (Earth and Space Sciences) Faculty Mentor: LeeAnn Srogi

Collecting aerial imagery with drones/UAVs (Unmanned Aerial Vehicles) rather than manned aircraft in order to create orthomosaic images and Digital Elevation Models (DEM) is becoming a routine practice for data collection throughout the geologic industry. The primary goal of this research is to determine the feasibility of combining drone imagery and photogrammetry to create 3D models of rock features that are difficult to access on foot. This information is highly valuable to geologists that operate the diabase quarry in Elverson, PA, where the research is being conducted. The targeted feature is a mineral layer that may extend laterally for several meters but is thin, no more than 1-5 cm thick. Using a DJI Inspire 1 drone and integrated 4K resolution camera, pictures have been taken from all orientatons of the target. Those pictures are assembled using photogrammetry software which creates a 3-dimensional mosaic based on the orientation of each photo. This layering is of interest to igneous petrologists seeking to understand how magma crystallizes. Current results and observations show that a specific combination of modeling software and targeted geologic features can produce models of varying degrees of accuracy. Moving forward, more modeling techniques will be implemented to determine the "best-fit" solution to this type of survey. Because of the cost and multi-use functionality of drone surveying, this will likely be the predominant practice of non-invasive and non-destructive analysis in the near future.

EASEL #45: The Bilingual Advantage: A meta-analysis Andrea Brandt (Communication Sciences and Disorders) Faculty Mentor: Ana Rivera

A meta-analysis is a widely used research strategy consisting of asking a question, reviewing all previous studies, and synthesizing the information gathered. It is considered the best method of research in terms of evidence based practice in the medical field. The following meta-analysis explores the bilingual advantage in cognitive control tasks and the influence of inhibition on bilinguals. The bilingual advantage theorizes that bilinguals, who naturally experience inhibition on a daily basis by inhibiting one language while using the other, are better at nonlinguistic tasks that require inhibitory control. The cognitive control tasks examined in this study are: the Stroop, the Simon, and the Flanker tasks. This meta-analysis includes a literature review of publications within the past ten years that meet the criteria for review, utilizing the EBSCOhost search engine.

EASEL #46: Hip Strength Influences Ground Reaction Force Attenuation on a Side Leap in Collegiate Dancers Michelle S. Sobel, David J. Stearne, Samantha Pederson and Kenneth P. Clark (Kinesiology-Exercise Science) Faculty Mentor: David Stearne

Purpose: The majority of dance-related hip injuries are due to overuse, muscular compensation secondary to strength imbalances, and lower extremity misalignment. Fatigue-influenced altered landing mechanics may decrease force attenuation capacity so evaluation of jump landing strategies exhibited by dancers on a side leap maneuver might elucidate injury risk. The purpose was to examine ground reaction force attenuation differences pre and post fatigue potentially influenced by strength and alignment factors.

Methods: 16 healthy experienced female dancers from a university dance team participated in a cross-sectional design. Independent variables were strength and agonist-antagonist strength ratios for hip extensors, flexors, abductors, adductors, lateral and medial rotators, and knee extensors, q-angle, foot type and time. Dependent variables were peak vertical force, rate of loading, and anterolateral shear force composite. Results: Independent t-test showed dancers with higher composite hip strength scores had significantly lower peak normalized vertical force (p = .01, t = 2.16) and vertical rate of loading (p = .004, t = 2.16) pre-fatigue on a side leap landing. No other group differences in strength, static Q-angle, foot mobility or fatigue were statistically significant.

Conclusion: Hip-strong dancers were better able to attenuate vertical force at ground contact pre-fatigue. Traditional analyses on dance-related impact landings have examined vertical components and associated alignment flaws. However, lateral type landings a side leap might redirect some of the landing force attenuation load from sagittal and vertical components to lateral shear force. Future research models should consider multi-directional forces imposed at ground contact during complex landing maneuvers.

EASEL #47: Medication Assisted Treatment for Opioid Abuse: A review of best practices for delivery Harry D. Holt (Health)

This study assesses the assesses the efficacy of Medication Assisted Treatment (MAT) as compared with other drug overdose treatment methodologies. The purpose of the study is provided clinicians and policy makers with support from the peer-reviewed literature to support increasing reimbursement and delivery of MAT services. There is a widely-held stigma against providing patients with MAT services, however, this review of the peer-reviewed literature shows that MAT services are superior to other detoxification techniques when assessed in the short-term and the long-term (greater than 90 days). The methods that were used in this study include performing key word searches of the extant peer-reviewed literature, searching the bibliography of select studies, and identifying the key areas in which MAT services are more effective. Searchers of the peer-reviewed literature were also conducted of the respective drugs that are part of the MAT service delivery. These drugs include vivitrol, suboxone, methadone and other medications. A review of the extant literature indicates that the combination of these drugs, along with significant amounts of clinical counseling, are significantly more effective than abstinence treatments for opioid abuse.

EASEL #48: The Readmission Difference: Examining the Negative Impact of Hospital Readmissions on Financial Performance Harry D. Holt (Health)

This study assesses the impact of hospital readmissions on the financial performance of hospitals. Understanding the determinants of hospital performance is one of the most important issues for managers of hospitals and policy makers. The study assesses the impact of readmissions due to infections and complications on financial performance. Financial and hospital readmission variables are captured with data from the Pennsylvania Health Care Cost Containment Council for years 2003 through 2009. Market and organizational variables are from the American Hospital Association Annual Survey Database. Hospital case-mix data is from Center for Medicare and Medicaid Services.

This study combines exploratory factor analysis and multiple regression with random effects and clustering. A risk adjusted composite score of hospital readmissions in a multiple regression model is used as the independent variable. Hospital readmissions were found to have a negative impact on operating margin in both the random effects model ($\beta = -0.788$, p < 0.01) and in the fixed effects model ($\beta = -0.576$, p < 0.10). The results of this study suggest unplanned readmissions from complications and infection have a strong negative impact on the financial performance of hospitals. Implications for management and policy are outlined.

EASEL #49: Drone Applications in Meteorological Research Erica Rice (Earth and Space Science) Faculty Mentor: Joby Hilliker

The purpose of this research is to identify micrometeorological features using data collected using an IMetXQ sensor attached to the drone. This sensor collects data of high temporal resolution (i.e., every second). Three experiments were conducted: a) transects (flying north-south across the field at different altitudes); b) sounding (flying up and down over a location); and c) a 'perfect circle' over the South Campus Rugby Field, a location that is convenient, flat, open, and has a homogenous surface. Results reveals that as the drone increased in altitude, temperature dropped on average by 3°C (from 26°C to 23°C) from the ground to 70 m. Dewpoint, a reflection of the amount of moisture in the atmosphere, dropped more significantly from 23°C to 15°C. With respect to the horizontal, temperature variations were much less, ~1°C over a 120 m distance. These data suggest that there are notable differences in temperature and moisture both in the vertical and horizontal, which require further analysis.

EASEL #50: Comparison of BESS and LESS Scores in Participants With and Without History of Concussion and Lower Extremity Injury

Haley J. Anderson, Morganne J. Lundin, Marissa M. Breymeier, Katherine E. Morrison, Daniel J. Baer, and Nicole Cattano (Kinesiology and Sports Medicine) Faculty Mentor: Nicole Cattano

Background: A positive association has been found between concussion and elevated risks of subsequent lower extremity injury yet it is uncertain what deficits are causing this. Further investigating the relationship between concussion and lower extremity injury could help enhance rehabilitation and decrease risk of subsequent injury.

Purpose: To compare the results of the Balance Error Scoring System (BESS) and a jump-landing task in participants with a history of concussion and lower extremity injury (Hx) and those without history of concussion or lower extremity injury (NoHx)

Methods: A cross-sectional study was used. Twenty participants reported to complete the BESS and a jump-landing task.

Results: Significant group differences were found between groups for BESS Tandem Stance Floor scores (Hx: 1.1 ± 1.0 , NoHx: 0.2 ± 0.7 ; P = 0.045). A significant moderate positive correlation (r = 0.661; P = 0.002) was found between BESS Single Leg Floor scores (1.35 ± 2.37) and BESS Tandem Stance Floor scores (0.7 ± 0.97). A significant moderate positive correlation was found in those with a history between BESS total errors on firm surface and BESS total errors on foam surface (r = 0.454; P = 0.03).

Conclusions: Those with a history of concussion and lower extremity injury had poorer balance scores (specifically in the tandem stance) then healthy controls. Ultimately, clinicians should assess athletes with a history of both concussion and lower extremity injury during pre-participation evaluations to discover poor performing athletes. Those who may be at risk could benefit from targeted preventative exercises.

EASEL #51: A possible pathway to measure single particle absorption of micrometer-sized aerosol particles Sequoyah Walters (Physics and Engineering) Faculty Mentor: Kevin Aptowicz

The morphology of atmospheric aerosol particles varies greatly from homogenous spheres to complex aggregates. This diversity of particles morphologies challenges radiative models and remote sensing techniques since the light scattering behavior of aerosols is greatly influenced by particle morphology. In this work, we have explored using an analysis technique to extract single particle absorption from the experimentally measured scattering patterns of aerosol particles. In particular, we calculate the two-dimensional autocorrelation function of over 30,000 single-particle light-scattering

patterns from atmospheric aerosol particles in Las Cruces, NM. The size and shape of the central peak of the autocorrelation function provides insight into particle morphology. Using a combination of the parameters extracted from autocorrelation analysis and the total scattering signal measured by the apparatus, we have discovers a possible pathway to measure single particle absorption. We will present the results of a simulation showing how the technique works as well as some preliminary analysis of data collected from actual atmospheric aerosols.

EASEL #52: Relationship between Carotenoid-Rich Diets and Age-Related Macular Degeneration (AMD) Prevention: A Systematic Review Amanda Tome (Nutrition) Faculty Mentor: Dr. Alessandra Sarcona

Objective: To determine the effect of a diet rich in carotenoids in the prevention of age-related macular degeneration (AMD) among adults.

Methods: Scholarly, English language studies, published between May 2010 and June 2017, were identified via MEDLINE, CINAHL, and PubMed electronic databases. Randomized control trials or observational studies investigating the effect of carotenoids from diet on the development of AMD among adults were included. Included studies were critically evaluated using the Quality Criteria Checklist.

Results: Seven observational studies met the inclusion criteria and were included in this review. All studies received a neutral rating and one was rated positive. Of the five studies that investigated lutein and zeaxanthin, three found a reduced risk of late or combined AMD among subjects with the highest dietary intake and two only found a reduced risk among participants with genetic susceptibility. Higher intake of lutein and zeaxanthin was associated with a reduced risk of early AMD among CFH genotype carriers. All three studies that examined β -carotene found a reduced risk of late or combined AMD. Only observational studies met the inclusion criteria, so a causal relationship cannot be ascertained.

Conclusion: A carotenoid-rich diet may be associated with a reduced risk of AMD, particularly late AMD among a general adult population, and early AMD among adult CFH genotype carriers. More research and higher quality studies are needed to definitively establish this association and to ascertain the amount of carotenoids needed to prevent AMD.

EASEL #53: Testing different models of nonspherical particles in our atmosphere Gabe Seymour (Physics and Engineering) Faculty Mentor: Kevin Aptowicz

Characterizing the distribution of aerosol particles in Earth's atmosphere is a challenging endeavor. Traditionally, aerosol distributions are extracted from land-based and space-based measurements of light scattering. However, in order to invert light scattering data to characterize aerosol distributions, the light scattering properties of the constituent particles must be known. Although the scattering properties of homogenous spherical particles are well known, the same is not true for nonspherical particles. In this work, we explore different models of nonspherical aerosol particles and test our models using light scattering from real atmospheric aerosol particles. In particular, using an image autocorrelation method which was previously devised, we quantify features in the light scattering patterns from atmospheric aerosol particles. Using three different models for nonspherical particles (i.e. spheroid, Chebyshev, and inclusions) we calculated simulated light scattering patterns and performed the autocorrelation analysis on these simulated patterns. We then compared the results of the analysis of the simulated particles to that of the experimentally captured atmospheric aerosols particles. We found that the calculated light scattering patterns from simulated spheroids particles were the best match to the experimentally captured light scattering patterns from atmospheric aerosol particles.

ORAL PRESENTATION ABSTRACTS

Presentation #1: Working the Oceans: Indian Merchant Seamen in the Second World War Valerian DeSousa (Anthropology and Sociology)

The history of the Second World War, mostly written as Britain's war, has largely overlooked the important contribution made by India and other imperial territories to the war effort. It is only recently that historians have begun to address the impact on India, or to the part played by India and Indians in its outcome. Some 2.5 million Indian soldiers fought in all the theaters with about 90,000 casualties. Besides this, numerous others worked behind the scene to secure supply lines and support the allies. One such group were the seamen - or lascars as they are often called - who served with the Indian Merchant Navy that organized a system of convoys connecting all the imperial territories around the world. During World War II thousands of Indian seamen served in the war on vessels throughout the world, especially those of the British India Steam Navigation Company, P&O and other British shipping companies, and of these, 6,099 lives were recorded as lost. There was a strict demarcation of work with Muslims assigned to the engine room, Hindus on the deck, and Christians in the kitchen and saloon. Very little is known about these seamen and their lives and death went largely unrecorded. This paper seeks to reconstruct the experiences of these men drawing from various archival material and reports.

Presentation #2: "Speaking Skook": Analyzing Dialect Features in Schuylkill County, Pennsylvania Kelsey Czachor (English) Faculty Mentor: Joshua Raclaw

Schuylkill County is located in northeastern Pennsylvania's coal region. For this project, I chose to study how English is spoken in this geographic area because it has not been studied extensively by linguists. While there are brief mentions of the "coal region" of Pennsylvania in Labov, Ash, and Boberg (2005), the only explicit study of a linguistic phenomenon in Schuylkill County is Herold's (1990, 1997) study on the low-back merger, which causes the vowel in "caught" to be pronounced like "cot", in Tamaqua, PA. In order to help fill the gap in research about the dialects in Pennsylvania's coal region, I collected linguistic data for this project by interviewing speakers who had lived most, or all, of their lives in Schuylkill County. The interviews consisted of questions regarding language attitudes, which are beliefs held about how language is used, and linguistic features used in Schuylkill County. I also included a "draw-a-map" activity, where the interviewees colored in a map of Schuylkill County to show boundaries of how they believe language is used in different parts of the area. These interviews and maps allowed me to gather insight into how residents of Schuylkill County feel about their own language and the language used by speakers around them. After completing the interviews, I analyzed them for grammatical, phonological (pronunciation), and lexical (word choice) features that could be particular to Schuylkill County. My findings included many features in each of these categories that have the potential to be dialect features in Schuylkill County.

Presentation #3: Providing Critical Feedback on Student Writing Innhwa Park (Languages and Cultures)

This study examines how the writing instructor uses reported thought as an instructional resource to provide critical feedback on student writing. The data consists of a total of 24 hours of video-recordings of one-on-one writing instruction sessions with 17 instructors and 51 undergraduate students. The data were transcribed and analyzed using the Conversation Analysis methodology (for a detailed review see ten Have, 2007). The analyses show how the reported thought depicts a reader's real-time reaction on the current issue to be revised as well as on the potential issue to be avoided in student writing. Such a depiction provides a ground for the instructor's advice for revision. The findings suggest that the instructor draws upon the function of reported thought that distances the speaker from the message to

objectify the critical feedback. As the practice of embedding reported thought allows the instructor to displace speakership and respond to student writing as an intended reader, it is used as an instructional tool to "bend space and time" (Barnes & Moss, 2007, p. 142) and substantiate the accompanying advice. This study has implications for conversational analytic work on reported talk and thought and advice-giving in educational discourse.

Presentation #4: Political Antipathy: Divisive Tactics in Cable News Tyler Walton (Sociology) Faculty Mentor: Julie Wiest

It is well documented in the scholarly literature that news consumers prefer like-minded stories and that news organizations often slant coverage to match the ideologies of their niche audiences. Further, prior research has shown that some news organizations are more offensive and divisive than others and that such content tends to be more persuasive. Given the currently contentious political atmosphere, it seems more important than ever to understand the role that news media may play in sowing discord throughout American society. This study draws on research and theorizing in media effects and persuasion to develop a framework for identifying divisive tactics used in news programs and uncovering any evidence of Gerbner's concept of mainstreaming. A qualitative content analysis was performed on the 6 p.m. and 10 p.m. news shows on the three biggest cable news channels—Fox News, CNN, and MSNBC—for a one-week period. Findings indicate (1) that 6 p.m. shows tend to be less divisive than 10 p.m. shows, (2) that one channel stands out from the rest in terms of divisiveness, and (3) that one show in particular contributes to what is being coined as a "mainstream of hate."

Presentation #5: Dissenting to Trans Diagnosis Liam Lair (Women's & Gender Studies)

American sexologists created trans diagnoses in the early 20th century, a time when eugenics was ubiquitous. While eugenicists applied the terms "degenerate" and "unfit" to those they deemed undesirable, so too did sexologists use these terms when constructing trans diagnostic categories, defining transness in relation to eugenic norms of whiteness, ability, and gender conformity. This influence continues today. Transpeople, people of color, and people with disabilities share a common history of pathologization, and thus stand to benefit from a common strategy of dissent and resistance. However, dissent has too often taken up oppressive rhetoric. When transpeople use this rhetoric, they perpetuate the very systems that oppress these communities, but also evade their complex and overlapping histories.

In this paper, I analyze the strategies for change that have appropriated oppressive rhetoric, and also those strategies that refuse to do so. My findings are two-fold. First, I demonstrate how discourses in which many transpeople claim their 'sanity' is one way to distance transness from disability. I contextualize this analysis in two social movement frameworks: 1.) in the midst of mainstream LGBTQ movements that are largely white; and 2.) how mainstream disability activists often rely on normative heterosexuality. Second, I analyze data and argue how transpeople can use their history of medicalization for subversive purposes. I conclude that the best resistance to pathologization is for communities to work in anti-transphobic, anti-racist, and anti-ableist coalitions. This will ensure that we disinvest in and resist being defined as pathological by those outside our communities.

Presentation #6: Life amongst the Rubble: Psychological Effects of the 2016-2017 Earthquakes on the People of Norcia, Italy Charles Floyd (Psychology) Faculty Mentor: Michael A. Di Giovine

This presentation argues that the October 2016 earthquakes in the Umbria region of Italy may have had negative psychological effects on its citizens. Qualitative research utilizing participant observation and ethnographic interviews

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was conducted to gather information on the physical and psychological pressures placed on the citizens of Norcia following the 6.6 magnitude earthquake and its subsequent aftershocks. Using the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V), specifically the six criteria required to diagnose an individual for the development of acute stress disorder (ASD) and post-traumatic stress disorder (PTSD), the author assessed the possibilities that negative psychological pressures experienced by the interviewed citizens of Norcia could be a factor in developing stress-related disorders. Negative psychological pressures taken into consideration were the fear of loss of life during the earthquakes, the loss of personal property, the loss of culturally significant artifacts and structures, the displacement from homes, farms, and family, and the response, both positive and negative, of the Italian government. These factors were weighed against the criteria for developing a stress-related disorder to determine whether or not the possibility exists that the citizens of Norcia could be experiencing PTSD.

Presentation #7: Combating Rape Culture: The Role of Media in the Oppressive System Toward Victims of Sexual Violence Madison Pollino (Communication Studies)

Faculty Mentor: Maxine Gesualdi

The negative media portrayals of sexual violence have systemically evolved over time in the western world. Although the term rape culture emerged in the 1970s, the concept traces back centuries and explains how the public criticized victims of sexual violence. Media portrayals play a significant role in shaping societal perceptions as well as establishing and reinforcing social norms. As a result, mass media remains a central power structure in public influence. In today's growing information society, media outlets have diverged into two segments: traditional and alternative. Traditional media outlets such as the news and newspapers follow pre-established, traditional dynamics based on journalistic values, whereas alternative media generate an all-inclusive atmosphere through interactive blogs and networking sites. An analysis of the discourse of rape culture in media reports, advertisements, and social media platforms shows how traditional media create a single narrative of the perfect victim, while alternative media allow individuals to challenge the widely accepted acts and behaviors that oppress rape victims. However, despite the advancements that alternative media have provided, rape culture remains the prevailing standard governing media portrayals of sexual violence. Through this analysis, traditional media are shown to have a greater advantage when influencing the public, therefore until traditional media alter perceptions of victimhood, changing the dominant ideology regarding rape culture will be difficult.

Presentation #8: Music as Testimony In The Southern Cone Kayla McGuire (Languages and Cultures, Spanish) Faculty Mentor: Megan Corbin

This presentation argues for a new definition of Latin American testimonio, one that recognizes the use of music and film to communicate the experience of a survivor. Traditional definitions of testimony consider almost exclusively written or spoken word, this presentation challenges that notion by examining the artistic process of Quique Cruz, a survivor of the concentration camps in Chile during the 1970s, who leaves testimony to his experience in a non-conventional format. In Archeology of Memory: Villa Grimaldi, Cruz crafts a dual text of film and music, presenting his musical suite of remembering to the viewer. In this musical testimony, Quique communicates his experience during the dictatorship by invoking the folklore traditions of the Chilean New Song Movement and using them to communicate his memories from the time of his captivity. This presentation examines the techniques used in the film that invoke sound and music as a way of leaving testimony, and argues for an expansion of the definition of Latin American testimonio that would include music as a means of representing traumatic experience.

Presentation #9: Job Satisfaction, Enrichment, and Institutional Policy: Listening to Faculty Mothers across West Chester University Cheryl Neale-McFall (Counselor Education)

With a growing number of mothers in academia, this presentation gives voice to the experiences and perceptions of faculty mothers across West Chester University. The purpose of this study was to assess overall job satisfaction for faculty mothers in academia by examining the variables of work/family enrichment, university support, and institutional policy. The presentation will share highlights from the data, including factors that assist in predicting job satisfaction, suggestions toward family-friendly policies, as well as the benefits and challenges of engaging in academia and motherhood.

Presentation #10: Qualitative Investigations of Teachers' Perceptions of Teacher Bullying and School Climate Laura E. Fiorenza (Early and Middle Grades Education)

The purpose of this qualitative multi-case study research was to explore how the phenomenon of teacher bullying influenced K-12 teachers' perceptions of school climate in southeastern Pennsylvania. A convenience sample of 11 urban, suburban, rural, public, and parochial schools in southeastern Pennsylvania were included. Ten teachers and one vice principal participated as representatives of their respective schools. A researcher-designed Teacher Bullying and School Climate Questionnaire identified teacher bullying. Two questions addressed how teachers perceived the phenomenon of teacher bullying and school climate. Bandura's theories of moral disengagement, social learning, and aggression, and Zimbardo's deindividuation theory, framed this research. Personal interviews, the questionnaire, and researcher's notes were collected and analyzed. A two-cycle qualitative coding process supported the formation of themes to answer the research questions. Results indicated teacher bullying behaviors existed in most schools as isolated incidents. Teacher bullying did not negatively influence the teachers' perceptions of school climate. Collegial relationships and supportive school administrators positively influenced the perception of school climate. Teacher bullying was most prominent in urban schools and in schools with non-participative leadership. Results support the development of anti-bullying measures inclusive of teacher bullying.

Presentation #11: Juggalos - Whoop! Whoop! A Family or a Gang? A Participant Observational Study of an FBI defined Hybrid Street Gang Samantha Compitello and Josiah Lindquist (Criminal Justice) Faculty Mentor: Christopher J. Przemieniecki

Followers of the horror/rap group Insane Clown Posse (ICP) are known as Juggalos. In 2011, the FBI's National Gang Threat Assessment Report labeled Juggalos as a "loosely organized hybrid gang". A lawsuit has been filed by ICP in hopes to remove the label. In order to better understand the assertion that Juggalos are a street gang, an unstructured participant observational study was conducted at the Juggalo March in Washington DC, where fans gathered to protest the FBI label. Several themes were observed from the protest including criminal/non-criminal behaviors, gang identifiers, attitudes, and the cultural phenomenon of being a Juggalo.

Presentation #12: Writing, Learning, and Working in Google Docs: An Initial Case Study Report Matthew Kruger-Ross (Educational Foundation and Policy Studies)

Writing in the 21st century is largely and primarily mediated via information and communication technologies. We expect students to draft, compose, edit, and ultimately submit static copies of their papers and assignments in a word processed format. The technological innovation of typing a la the typewriter is maintained in how we teach and lead students in utilizing word processing applications. Computerized text editing technologies have continued to innovate beyond the typical standalone software packages such as Microsoft Office and its word processing application Microsoft Word. Google Docs and Google Drive are two such innovations in word processing that, as I have integrated them into my

teaching, have transformed the way I teach and assess students. Whereas students compose assignments in a program such as Microsoft Word alone to produce a static representation of their understanding and learning, in Google Docs students are able to collaborate with myself and with their peers as their understanding and writing develops throughout a term. There are, to be sure, simple adjustments that need to be made, e.g., I no longer have to require a certain font size or line spacing because if I want it changed I can, as a co-editor, make those changes. The truly dramatic changes, however, are in the nature and type of assignments I'm able to assign students and the benchmarking that has been integrated into my teaching. In this presentation I will sketch how I use Google Docs in my classes and provide feedback from students as well as templates of the documents I use to support student learning.

Presentation #13: Faculty Attitudes about Distance Education: Today vs. 4 Years Ago Rui Li and Esther Smidt (Distance Education and Languages & Cultures)

Although demand for online education is ever growing, there is still widespread speculation among faculty in their perceptions of online learning (Allen & Seaman, 2012). With faculty at the forefront of the online education movement, it is important to understand their attitudes as well as factors that impact their participation in online education. As a replication study of Babson Group's Survey of Online Learning and a previous study conducted at West Chester University, this study seeks to answer two research questions: 1) What are our faculty's attitudes toward online education and how do they compare with the institution's results from four years ago? 2) What are the main concerns faculty have about online education? Survey data from 115 part- and full-time WCU faculty was utilized to compare with the survey data from 115 part- and full-time WCU faculty was utilized to compare with the survey data from 169 WCU faculty collected in 2013. Our results demonstrate that the percentage of faculty who have taught an online/blended course has increased. Additionally, faculty use of digital materials, video lectures, and LMS have increased significantly. In general, faculty perception of online education effectiveness as well as online learning outcomes increased significantly over the last 4 years. Our results further reveal faculty concerns regarding online education. Time constraint, perceptions, technology and pedagogy support and resources are viewed as the main obstacles to designing and delivering a quality online course.

Presentation #14: Following the Followers: Mutual Fund Performance When Managers Follow Analyst Coverage

Gerald Abdesaken (Economics and Finance)

Mutual fund managers who adjust portfolio holdings based on analyst coverage and consensus recommendations achieve significantly lower risk-adjusted returns but perform better than when consensus recommendations are considered alone. In a rational expectations equilibrium setup, an unskilled investor places greater weight on a risky asset's public signal given an increase in the asset's analyst coverage. A new measure of managerial skill based on analyst coverage is formulated and shown to be decreasing in mutual fund alphas.

Presentation #15: Humanizing Punishment: Lessons Learned from a Norwegian Prison Sami Abdel-Salam (Criminal Justice)

Solutions to America's problem of mass incarceration may be discovered in other countries. Norway, in particular, has committed itself to the principle of rehabilitation within prisons. The current project is designed to better understand the Norwegian penal model and the rehabilitative benefits of prison from the perspective of the inmates. This study includes a mixed methods approach involving both quantitative and qualitative measures. Quantitative analysis examines relationships between key elements of Norwegian prisons and motivation for change and engagement in treatment. Qualitative data is used to add contextual understanding of the issues discovered within the quantitative data. This project will yield significant information concerning the value of a correctional approach rooted in a rehabilitative philosophy.

Presentation #16: The Effects of Financial Incentives on Physical Fitness Todd Randolph (Economics and Finance) Faculty Mentors: Simon Condliffe, Matt Saboe and Ebru Isgin

Objective: To determine if financial incentives encourage college students to visit the gym more, and if the efficacy of these incentives is magnified when the student has a partner, is part of a trio, is part of a community, receives midweek performance information, or sets an exercise schedule.

Methods: 389 college students participated during the 2017 spring semester. Participants were part of either the control group or one of the incentive groups that received monetary payments for meeting gym attendance goals. Students in the incentive groups were randomly assigned to 1 of 7 groups: (1) had a partner and received information, (2) did not have a partner and received information, (3) had a partner and did not receive information, (4) did not have a partner and did not receive information, (5) part of a trio and did not receive information, (6) part of a community group, or (7) had an exercise schedule.

Results: The average weekly visits for the partner, trio, and community incentive groups increased significantly from the pre-experiment period to the experiment period. For example, the average weekly visits for the trio group increased by 31.3% between the 2 time periods. Information enhanced the effects for partners but not for individuals.

Conclusions: This suggests that financial incentives increase gym attendance in college students and that the change in behavior is greatest in those with a partner, in a trio, or in the community group.

Presentation #17: Student Learning Outcomes Assessment for Financial Accounting Joseph Cunningham (Accounting)

Is a student's early efforts a strong indication in overall success of a comprehensive Financial Accounting project? Project development and the research performed will be discussed as well as analysis of the results in a typical 1st college accounting course.

Presentation #18: "Carrying someone in your tummy is kinda hectic": Conceptualizations of Pregnancy and Planning for Pregnancy among Adolescent Girls and Young Women in Harare, Zimbabwe Chiwoneso Tinago (Health)

Zimbabwe has one of the highest rates of maternal mortality, yet little is understood about adolescent girls and young women's perspectives on pregnancy or planning for pregnancy; important information to aid efforts to improve maternal health. The research study took an emic approach to understand and describe how adolescent girls and young women in Harare, Zimbabwe conceptualize pregnancy and planning for pregnancy and how these conceptualizations inform decisions about pregnancy and planning for pregnancy. Semi-structured, in-depth, qualitative interviews were conducted with adolescent girls and young women aged 14-24 years (N=48) in two low-income high-density communities in Harare. Data were analyzed thematically using NVivo 10 software. Conceptualizations of pregnancy focused on the social aspects of pregnancy. Pregnancy was conceptualized across 9 themes: carrying a child and oneself, growing a family, motherhood, the best time for pregnancy, pregnancy decision makers, who is responsible for the pregnancy, pregnancy burden, pregnancy dangers, and increase in social status with pregnancy. Participants expressed mixed views concerning the possibility of planning a pregnancy. Planning for pregnancy was conceptualized during the pre-pregnancy, pregnancy, and post-pregnancy phases, with planning beginning in early adolescence with a plan to avoid sexual activity to prevent pregnancy. Findings highlight the need to consider socio-cultural views concerning pregnancy and include social networks in maternal health efforts in Zimbabwe. More studies are needed to understand women's perspectives on

pregnancy and what it means to "plan for pregnancy" to enhance the effectiveness of efforts to improve pregnancy outcomes and maternal and child health in Zimbabwe

Presentation #19: The Effects of Pedometers on Body Weight and Metabolic Factors in Patients with Prediabetes James J. Pinola, Patricia Davidson, and Melissa A. Reed (Kinesiology) Faculty Mentor: Melissa Reed

Sedentary behavior, increased total body weight, elevated blood glucose levels and hyperlipidemia increase the risk of prediabetes. Physical activity and weight loss are two strategies for reducing the prevalence of prediabetes and type II diabetes. However, there is little known about the role of pedometers with regards to a Diabetes Prevention Program (DPP)

Purpose: To determine if pedometer use could aid in the reduction of total body weight, cholesterol, and blood glucose levels as a part of the CDC's DPP.

Methods: Body weight, FBG and lipids were measured prior to the start of the DPP and 16 weeks following intervention. The pedometer group (PG) (n=9) received pedometers and the control group (CG) (n=8) did not. The PG was asked to wear a pedometer for sixteen weeks. A 2x2 ANOVA was performed to examine differences.

Results: The PG experienced significant (p<0.05) weight loss from pre to post-test (186.2lbs + 9.7 to 180.7 + 8.9) while the control group did not (191.3lbs + 16.8l to 190.1 + 17.0). Interestingly, HDL significantly decreased from pre to post-test (p>0.05) in the PD group (58.1mg/dL + 4.0 to 54.1mg/dL + 3.6) while the CG remained unchanged (50.9mg/dL + 5.1 to 50.5mg/dL + 4.8). There were no differences between any other variables.

Conclusion: It appears that the addition of pedometers into the DPP can contribute positively to weight loss. However, further research and a larger participation population is needed to elucidate the mechanisms that contribute to the changes in body weight and lipid profile.

Presentation #20: A Case Study Evaluating the Efficacy and Cost-Effectiveness of Two Acute Wound Management Strategies Sean McCann (Sports Medicine) Faculty Mentors: John Smith and Dan Baer

Purpose: Proper management of acute skin trauma creates an optimal healing environment and reduces complication risk. Due to the physical demands of sport, athlete wound care requires frequent dressing changes to maintain healing conditions. Expensive materials for best practice wound management may not be accessible to athletic trainers in all settings. While research and practice guidelines support using occlusive dressings, some clinicians may benefit from more cost-effective strategies due to budgetary restrictions. In this case study, we compare the efficacy and cost-effectiveness of two wound care strategies recommended by the National Athletic Trainers' Association (NATA).

Methods: Two collegiate football athletes suffered superficial skin abrasions on the anterior knee during the 2017 season. We managed one wound using recommended occlusive dressings, and managed the other with acceptable non-occlusive dressings. We applied NATA guidelines for recommended management and monitored athletes daily for wound healing. After healing occurred, we conducted a cost analysis of each method.

Results: Healing time between the two athletes was comparable. The total cost for occlusive management over 11 days was \$100.38 (\$16.73/dressing). The cost for non-occlusive management over 7 days was \$12.74 (\$0.91/dressing).

Conclusions: We observed no differences in healing between the two athletes in this case study, suggesting that the efficacy of appropriate non-occlusive wound management is comparable to recommended occlusive management. The cost of occlusive dressing is 10 times greater than acceptable non-occlusive dressing. Based on these findings, non-occlusive dressing may be appropriate to achieve wound healing in settings where expensive occlusive dressings are not available.

Presentation #21: Mindfulness Training Opportunities for Students in the Pennsylvania State System of Higher Education Michelle Laurenzi (Health) Faculty Mentor: Donald McCown

Mindfulness practices have been identified as evidence-based techniques that offer benefits of stress reduction and support of health and wellness, with specific application with students in higher education. In the Pennsylvania State System of Higher Education (PASSHE), many schools have begun to add mindfulness and contemplative practices into their curriculum and activities. The purpose of this study was to find out which PASSHE schools are making mindfulness practices available to their students and through what avenues they are reaching students, with the intention of understanding how the schools might support each other, and what might be done to expand mindfulness training opportunities for students across the state. Using telephone and email interviews, data was gathered on each PASSHE university, as well as Lincoln University, a state-related neighbor of West Chester University. Through snowball sampling and unstructured telephone interviews, it was found that twelve of the fifteen schools (80%) in PASSHE, as well as Lincoln, currently offer mindfulness training (or had plans in place to begin programs). Of those twelve schools, eight (66.7%) offer mindfulness through academic coursework, eleven (91.7%) offer mindfulness through wellness initiatives, and seven out of twelve (58.3%) use both avenues. A conference held at WCU in Spring 2017 brought representatives of the schools together for dialogue around common themes: funding, space, training of faculty, and buy-in from administration and students. The group has committed to an annual PASSHE Mindfulness Conference to continue dialogue and expansion of mindfulness offerings throughout the PASSHE system.

Presentation #22: Health Care Career Choice: Perspectives of nurses and nursing students Michaela Killian and Rachel Joseph (Nursing) Faculty Mentor: Rachel Joseph

Purpose: The purpose of the study is to explore why people choose nursing as a career.

Introduction OR Rationale: Nurses are the largest group of healthcare professionals and reports of nurse burnout abound in literature. Why then do people choose Nursing as a career? A study conducted in one academic institution in the U. S. in 2016 in one institution indicated that altruism was a major factor that draws people to Nursing. The current study explored perspectives of nurses beyond national, academic and geographic boundaries.

Methods: Researchers designed a survey utilizing Qualtrics software to self-report the factors that influence individuals to choose nursing as a career along with demographic data. The survey link was distributed through email and Facebook inviting participants to indicate their motivating factors. Researchers collected data and completed a preliminary analysis. Results and Practice Implications: Several factors influenced the 179 participants to choose nursing, the predominant factor being altruism followed by job opportunities, job security and career flexibility. Generational difference and other factors that influence the career choice can be analyzed.

Conclusions: Nurses have a variety of reasons for choosing the career. The sociopolitical and economic factors that drive people to choose a career must work in tandem with their intrinsic values. Exploring the barriers can help recruiters to facilitate a positive experience for the nurses which will enhance nurse satisfaction and retention.

Presentation #23: First Do No Harm: Medical Marijuana, A Gateway Drug?? Samantha Barnett, Alexandra Foust, Emily DiCesare, with Jack Veasy as moderator (Nursing) Faculty Mentor: Rachel Joseph

Although medical marijuana (MM) has been found effective in the treatment of seizures, there is an ongoing debate on its use in children. According to the American Academy of Pediatrics, MM has a negative cognitive effect on pediatric brain, including physical and mental development. In addition, MM contains different forms of toxins (The National Institute on Drug Abuse, 2017) Smoking marijuana, similarly to smoking tobacco, is an irritant to the throat and lungs and can cause a heavy cough during use. Its toxic gases and particles that can damage the lungs. Vaporizers expose the lung to ammonia which can cause irritation and has shown to have negative effects on the central nervous system. Ingesting an edible form of MM, while doesn't directly release a toxin, leaves a chance for overdose due to the slow onset of its effects. Discussions abound to state that MM can be a 'gateway drug' to more potent habit forming drug and lead to related social problems. When MM is legal, the availability of this drug can lead to harder drugs. One in six teenagers who use Marijuana are reported to become addicts in two years warranting caution in any use of MM (Volkow, 2014). Due to the limited research on the side effects and long-term effects of MM on the developing brain, its use in pediatric population should not be made legal. Nurses should be patient and family educators and advocates and direct them to other resources for pain or seizure reduction.

Presentation #24: Medical Marijuana: Should it be Legal for Use in Children? Brianna Rebiszv, Alex Siebecker, Hugh Doherty, with Jack Veasy as moderator (Nursing) Faculty Mentor: Rachel Joseph

Marijuana, also known as cannabis, has been found to reduce pain in patients with cancer, spinal cord injury, or posttraumatic stress disorder. With the emergence of opioid epidemic the use of medical marijuana (MM) is much debated. The Food and Drug Administration (FDA) has not found enough evidence to approve it for regular medical use for concerns of safety and effectiveness.

The effect of MM in children is unclear, due to the potential impact on the developing brain. MM is found to effective in reducing the frequency of seizures in 68% of patients with resistant epilepsy (N=201; Goldstein, 2016). Goldstein also reports its value in children with autism spectrum disorder and psychiatric illnesses. If MM is valuable in controlling seizures, the impact on the quality of life of these children and their families. Some states made MM legal, while those in other states need to cross several barriers to obtain it for their children with seizures. Use of MM may give financial benefit to families as well.

Lack of evidence on the effectiveness and safety of MM exists. The scientific community should consider it a priority area of research to explore the benefits, so that the potential families will not be denied of its benefits. Research also will help FDA and policymakers to develop policies on safe prescription of MM. Until that time, nurses should examine the history of patients, particularly those diagnosed with seizures, and teach parents on safe storage and administration to prevent abuse.

Presentation #25: A Quantitative Risk Assessment for *Stachybotrys chartarum* Paula Morgan (Health) Faculty Mentor: Neha Sunger

The inhalation exposure to Stachybotrys chartarum (SC) has been playing a critical role in public health domain due to its ability to produce toxins (trichothecene and other mycotoxins), that are implicated in the cases of acute idiopathic pulmonary hemorrhages (AIPH) in infants. Despite multiple studies reporting an association of exposure to airborne mold with negative human health effects such as respiratory, immunological, and hematological diseases, there currently are no regulatory guidelines for quantifying the airborne exposure threat associated with SC spores/toxins in indoor

environments. The primary goal for this study was to use risk assessment framework as a mechanism to quantify the potential risk of death associated with known concentrations of S. chartarum spores and toxins in human infants. Additionally, an attempt was made to provide a benchmark dose level above which an adverse effect may occur in human infants. To this end, best-fit dose-response models were generated by using published animal studies, followed by stochastic risk assessment to predict the likelihood of death in infants from AIPH. By using 10% as the benchmark response level, permissible exposure limits were obtained as 413 SC-spores/m3 or 2.66 x 10-04 mg-toxin/m3. The predicted risk of death in infants for acute 24-hour exposure to toxins ranged from 1.0 x 10-11 to 3.0 x 10-06. This study suggests that S. chartarum exposure via inhalation in residential conditions may pose a risk for AIPH resulting in mortality in human infants, but a conclusive epidemiological study is needed to validate risk estimates.

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