WCU
WEST CHESTER UNIVERSITY

Research & Creative Activity Day
Abstract Booklet
April 29, 2021

Office of Research and Sponsored Programs

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

ORAL PRESENTATION ABSTRACTS

Presentation #1 Examining the Experiences of Community College Students
Presenter: Melanie Snyder, Bayley Saffier, Abigail McLane, Colleen Keeler, Zsa Zsa Alston
Faculty Mentor: Dr. Mia Ocean
Department: Social Work

Community colleges often have low graduation and retention rates but are more accessible to individuals from low- and moderate-income backgrounds due to affordable tuition. Receiving financial aid, such as the Pell Grant, has a positive influence on ability to achieve academic goals. The aim of this study was to investigate impeding and strengthening factors that impacted academic goal attainment in community college students eligible for the Pell Grant. Data was collected through face-to-face semi-structured interviews with current financially eligible Pell grant community college students (n=62). The research team conducted thematic analysis guided by empowerment and strength-based theories. Participants reported on the impacts of having parents who are immigrants, economic factors, experiences with staff, and social support systems. Findings reinforce the importance of equitable policy and practice to enhance student completion rates.

Presentation #2 Biomechanical Energetics of Terrestrial Locomotion in California Sea Lions
Presenter(s): Sarah Kerr
Faculty Mentor: Dr. Frank Fish
Department: Biology

Pinnipedia, an order of semi-aquatic marine mammals, adapted a body design to locomote both aquatically and terrestrially. The limbs of these amphibious mammals are modified as flippers, which are beneficial for aquatic locomotion, but can limit their locomotion on land. Phocids (true seals) have reduced forelimbs and are unable to bring their hindlimbs beneath them during terrestrial locomotion. Otariids, like the California sea lion (*Zalophus californianus*), have enlarged forelimbs and can bring their hindlimbs under the body to locomote quadrupedally on land. Due to these differences, phocids are expected to move on land with greater energetic costs compared to otariids. The energetic cost of terrestrial locomotion in pinnipeds has only been examined in the elephant seal. To compare the mechanical costs of transport of terrestrial locomotion between otariids and phocids, one male and two female adult California sea lions were video recorded galloping across a runway. The center of mass, along with six other anatomical points, were digitized to obtain variables such as velocity (V), amplitude of heave (A), and the frequency (f) of oscillations during the gallop cycle of the California sea lions. These variables represent the principal parameters of a biomechanical model that computes the power output of individuals. Power input and cost of transport were compared between four pinniped species: the California sea lion, the harbor seal, the gray seal, and the Northern elephant seal. The model indicates that the quadrupedal gait of otariids has a lower cost of transport than the undulatory gait of phocids.

Presentation #3 The Evaluation of a Soft Skills Curriculum in Athletic Training Education: A Mixed Methods Study
Presenter(s): Emily Duckett
Faculty Mentor: Dr. Heather Schugar
Department: Literacy

Purpose: Athletic Training Education Competencies (2011) include exhibiting empathy and compassion as foundational behaviors of practice. Despite abundant evidence supporting the importance of compassionate patient care, there is currently evidence to suggest that healthcare is experiencing a compassion crisis (Patel et al., 2019). The purpose of this study was to investigate the ways in which pre-professional athletic training students' transfer knowledge from a soft skills curriculum to clinical practice. Methods: This study utilized an explanatory sequential mixed method design with a preliminary quantitative input (Morgan, 2014). Phase 1 of the study includes participants (n=19) enrolled in a pre-professional AT course. The quantitative questionnaires utilized are the Jefferson Empathy Scale-HPS (Fields, 2011) and the Compassion Scale (Pommier & Neff, 2019). Phase 2 included the same participants now in an MS AT program. Participants completed bi-weekly reflection logs describing empathy and compassion occurrence during their clinical experience. Reflection logs were coded with a constant comparative analysis. The embedded Phase 2 included four (n=4) semi-structured interviews. Outcomes: A repeated measures ANOVA calculated the student's empathy and compassion composite at three time points. The results revealed statistical significance within the students' development of empathy and the compassion construct of kindness. The results revealed that students applied empathy by connecting with their patients through lived experiences and the ability to stay out of judgement when listening to patients. The students described using compassion by reassuring their patients that they were not going to endure their injury alone and that a support system is in place.

Presentation #4 Online Instructors' Use of the Cognitive Theory of Multimedia Learning Design Principles: A Mixed Methods Investigation
Presenter(s): Thomas Pantazes
Faculty Mentor: Dr. Heather Schugar
Department: Literacy

The use of digital video in online education is increasing alongside the growth of online learning in higher education in the United States driven in part by the COVID-19 pandemic (Bétrancourt & Benetos, 2018; McCormack, 2020; Seaman, et al, 2018). The study of digital instructional video is still at an early stage (Chorianopoulos, 2018) and current research has examined students and not instructors (Kay, 2012; Pan, et al, 2012). There are no studies solely focused on higher education instructors' perspectives of digital video use for instruction (Kay, 2012). The purpose of this explanatory sequential mixed methods study (QUAN à qual) was to develop a case study describing instructor implementation of the 11 Cognitive Theory of Multimedia Learning (CTML) design principles in videos created for use in online courses (Mayer, 2019). The case study combined self-reported survey data from 55 online instructors, interview data from five instructors with the highest self-reported implementation of CTML design principle, and analysis data from five video artifacts. Results indicate that instructors are implementing the coherence, modality and voice principles with fidelity while the signaling, redundancy, segmenting, and embodiment principles are lagging. Themes from the interviewees suggest possible video creation techniques that can assist instructors in implementing all of the CTML design principles in future instructional videos.

Presentation #6 WCU Business Students' Attitudes and Perceptions towards Information Literacy
Presenter(s): Grace Liu
Department: Library

This presentation is a preliminary report for the Provost Research Grant sponsored project "Bridging Information Literacy Gaps in Business Students: A Case Study from West Chester University." The purpose of the project is to build a sustainable library service model to help over 3,800 WCU business students develop well-rounded information literacy knowledge and skills to be able to confidently meet business research challenges in class and at workplace, and make informed decisions as a student, a business professional, and an active citizen. A business student survey was conducted in fall 2020 semester to understand students' perceptions and attitudes towards information literacy and seek their ideas on how library ca help them learn. The survey received over 400 responses and the research findings not only shed light on possible library programs but also present great value for faculty to understand our business student population, their interest, academic intent, motivation, challenges, and more.

Presentation #7 Immigration Law
Presenter(s): Emily Nair
Faculty Mentor: Dr. Jacqueline Zalewski
Department: Anthropology & Sociology

This study explores the educational and work experiences of immigration lawyers. Areas to be explored in interviews include typical academic paths, the challenges immigration lawyers commonly face in practicing immigration law, and the ways they manage them. Recent literature suggests that immigration lawyers encounter many ethical challenges in their work and have increased rates of burnout. (Markham, 2020) Immigration policies present their own challenges with assisting clients, and recent COVID restrictions have added to these existing issues in the immigration system. A snowball technique is used to locate study participants, and interview data will be obtained using zoom. This study is currently under review by the WCU IRB. By conducting this study, we hope to gain a better sense of why burn-out is so common in this area of law and if this is due to the ethical issues that immigration lawyers face throughout their career or whether it is due to other reasons (e.g., employment benefits).

Presentation #9 Fostering Healthy Disability Identity Development in College Students
Presenter(s): Lauren Andrulewich
Faculty Mentor: Dr. Vickie Ann McCoy
Department: Counselor Education

The Presenter is a Graduate Assistant for Dr. Vickie Ann McCoy, and together they are exploring the literature pertaining to intersectional identity development in college students with disabilities, to be published later this year in a higher education textbook. This presentation will highlight the importance of viewing disability as an aspect of identity development. Paralleling discussions of race, ethnicity, class, gender, and sexual orientation, these researchers believe it is essential to include disability when examining individual identity through an intersectional lens. Disability is unique in that it can occur at any point in a person's life and the term encompasses both visible and invisible aspects. Disability identity development theory is young and though research is still emerging, there is much to learn within the current literature. The focus of the textbook chapter is the utilization of different disability identity theories in higher education settings. We'll be taking a closer look at the Model of Social & Psychosocial Disability Identity Development (Forber-Pratt & Zape); why the four developmental statuses are fundamental to the development of disability identity; and how this theory has given foundation to further research pertaining to college student identity development. We believe that higher education professionals can play a significant role in creating a more inclusive and supportive campus for their students with disabilities. In addition to mandatory accommodation provision, there are additional aspirational strategies that allow higher education professionals to facilitate a healthy identity which allows students with disabilities to feel safe, make connections, and grow.

Presentation #10 How Do Practice-Based Experiences Influence Preservice Teacher Preparation
Presenter(s): Dr. Crystal Loose, Julia Formicola, David Hearn
Department: Early and Middle Grades Education

This study fills a gap in research on personalized learning (PL) training and research opportunities for preservice teachers. 21st Century educators require many competencies and are encouraged to become digitally literate, while integrating technology into teaching and learning with emphasis on PL inputs for students. This study reports on preservice teachers' knowledge about new and emerging PL techniques, as they study PL and apply techniques through the development research portfolios during seminars. There is a gap in the research regarding preservice teachers and their understanding of PL strategies. This study uses an online survey and journals to further reveal preservice teacher knowledge and comfort level of PL domains. Implications of this study have shown that teacher preparation suffers from a lack of evidence that guides the design of learning experiences to produce well-prepared beginners. This study examines the role of PL practices introduced during preparatory experiences in shaping preservice teachers during their student teaching block. It has become evident that COVID restricts the ability to instruct using PL pedagogy, and the inability to personalize learning disproportionately effects students in low-income schools.

Presentation #11 The Ever-Changing Work Environment During COVID-19: Nurses' Experiences in the Early Phase
Presenter(s): Dr. Julie McCulloh Nair, Amanda Thomas
Collaborator: Amanda Thomas
Department: Nursing

The COVID-19 pandemic is a history-changing event of unprecedented scale and magnitude that affected nurses at all levels and thrust them into uncharted territories. Healthcare institutions have pivoted from the usual standards of care to adopting crisis standards of care thereby contributing to a constantly changing work environment. Interestingly, little was found in the literature focusing on nurses' first-hand accounts of their experiences working through previous pandemics. This qualitative study sought to explore nurses' first-hand experiences during the early phase of the COVID-19 pandemic using a phenomenological approach. One hundred sixty-one participants enrolled in the study. Demographic data, written narratives, and digital images were collected. The study utilized thematic analysis, and ever-changing environment emerged as the overarching theme along with six subthemes - adapting to a new role, innovation to practice, nurses' fears and anxiety, job loss, lack of supplies, and emotional distress. The overarching theme and subthemes reflect the many changes that occurred within the work environment, to nursing practice, and to policies, resulting from the implementation of crisis standards of care. COVID-19 proved to be a history-making event that created great uncertainty among nurses in all settings and specialty areas. As crisis standards were adopted, frequent and sometimes significant changes to the work environment occurred. The first-hand accounts of the study participants illuminated the many gaps in public health emergency preparedness and response that require additional education, training, and policy development. Nurses need specialized support and education to manage their constantly changing environment.

Presentation #12 Realities of a pandemic: A Qualitative Study of Women Faculty with Caregiving Responsibilities
Presenter(s): Dr. Angela Kline, Dimple Sunayna Johnson
Department: Public Policy and Administration

Over the years, higher education institutions have evolved into a more stressful work environment, particularly for women who have had to contend with the intricacies of work while juggling the demands of their professional and personal responsibilities (Kresh, 2018). Work and home dynamics that were accentuated during the onset of the pandemic, whereby 33 percent of working mothers were solely responsible for childcare (Zamarro et al., 2020). While the higher education mandated remote work of Spring 2020 was intended to implement social distancing and safer at home measures, it resulted in a virtual invasion that impacted the lives of many (Boncori, 2020) women tasked as the primary caregiver.

With this premise in mind, the current research sought to explore how institutions managed the conflicting demands of women faculty, making specific inquiries about support and stress during the onset of the pandemic. Using qualitative research, this study conducted confidential semi-structured interviews with full-time women faculty that had caregiving responsibilities during the Spring 2020 semester. This study was undertaken to understand and deduce workplace support, and the associated implications to stress for women faculty during the start of COVID-19.

Presentation #13 Effects of Artificial Enrichment for Captive Western Lowland Gorillas (*Gorilla gorilla gorilla*) Activity Budgets
Presenter(s): Angela Perretti
Collaborators: Madeline Vandevere
Faculty Mentor: Dr. Rebecca Chancellor
Department: Psychology

The benefits of enrichment and proper husbandry protocols and their applicability in wildlife research have been important topics of zoological research. Examining activity budgets of various species throughout zoological facilities reap biological, educational and conservation benefits. We collected data on the behavioral responses of five western lowland gorillas (*Gorilla gorilla gorilla*) (1 adult male, 2 adult females, 2 infants/juveniles) to a novel climbing structure in the outdoor enclosure at the Philadelphia Zoo. Over a period of 53 nonconsecutive months, we conducted 30-minute focals with 2-minute scan samples on the gorillas (488 total observation hours). We recorded frequency of behaviors for each gorilla (e.g., playing, foraging, traveling, resting), variations of those behaviors between indoor and outdoor, and general outdoor use. Our results suggest that, on average, the troop increased general outdoor usage by 37%, indoor foraging by 11%, and outdoor regurgitation and reingestion by 19%. The troop also decreased outdoor foraging by 17% and sedentary behaviors by 12%. Zoological facilities invest in enrichment, with the hope of satisfying captive species' biological needs. Our data suggest that the novel climbing structure at the Philadelphia Zoo provided an important enrichment opportunity for specific gorillas, while it may not have been particularly useful for other gorillas, suggesting there are individual differences. Additional comparisons at other zoos would expand this research and further offer critical insight into the enrichment needs of captive gorilla populations.

Presentation #14 Relationship between Emotional Intelligence and Coping among Children in the United States: A Meta-Analysis
Presenter(s): Sarah Vengen
Faculty Mentor: Dr. Hadih Deedat
Department: Social Work

Thorndike included emotional intelligence (EI) when he defined social intelligence (SI) (Sharma, 2008) due to the influence of social and cognitive functions on SI and EI (Schutte et al., 1998). Salovey and Mayer later developed a Four-Branch Model for EI including the following skills: 1) perceiving/identifying emotions, 2) integrating emotions into thought processes, 3) understanding emotions and 4) managing emotions. A meta-analysis on the construct of EI revealed many available methods for evaluating the presence and extent of EI such as the Bar-On Emotional Quotient Inventory and the Wong and Law EI Scale. These scales and questionnaires measure qualities and skills that are indicative of EI (Sharma, 2008).
EI is positively related to resilience (McCrimmon et al., 2016), greater academic performance and self-efficacy (Shenaar-Golan et al., 2020). For example, adolescents report lower use of EI skills as cybervictimization increases, making cybervictimization a risk factor for developing and maintaining EI (Rey et al., 2018). The lack of significant differences for trait EI between children with high-functioning autism spectrum disorder and "typically developing" children may indicate steady EI competency during middle childhood that must be nurtured to avoid subsequent EI deficits (McCrimmon et al, 2016).
Despite multiple extant studies on EI and children, the role of EI in coping among children has not been clearly explored. This on-going meta-analysis research is aimed at exploring the relationship between EI and coping among U.S. children. Understanding how EI impacts children's coping will enhance social workers' ability to apply age-specific strengths-based approaches when serving children.

Presentation #15 The Seen and the Known, The Visible and the Invisible
Presenter(s): Jeff Wasch
Faculty Mentor: Dr. Steven James
Department: Philosophy

In this project I make the argument that we never really see what we know. What I have found is that there are two fundamentally different kinds of content which make up experience. The first kind of content is the phenomenological content of experience. This content is purely passive and is constructed by our sensory organs. In short, phenomenological content constructs a perceptual field which is what is seen. The second kind of content is the semantic content of experience. This content is deployed by our conceptual and linguistic capabilities which stems from the fact that humans are fundamentally social, and in order to navigate the social world, humans have created (via the productive imagination) a number of cultural items (namely, language) which are handed down via tradition. I argue that in order to make sense of the phenomenological content of experience, our cognitive capacities make use of the cultural artifact of language to form culturally normative beliefs, which are themselves semantic. Therefore, seeing is never believing because belief is semantic. My claim is inspired by Merleau-Ponty, in The Visible and the Invisible he suggests that there is a gap between visible and invisible contents of experience. The visible is made up of the flesh of the world and is the phenomenological content, while the invisible contents are semantic. Nevertheless, if what we require for knowledge is belief, and belief is semantic, then we never really see what we know because the semantic contents of experience are invisible.

Presentation #17 Solving the Heat Equation with Interfaces
Presenter(s): Michael Bauer
Collaborators: Rex Llewellyn, Shauna Frank
Faculty Mentor: Dr. Chuan Li
Department: Mathematics

When modeling systems made up of two materials with different thermodynamic properties, a physical interface can be introduced to account for the border where the materials meet. This interface separates our model's standard grid into two regions, each with its unique physical properties. At these interfaces, boundary conditions can be imposed to represent the difference in heat and in heat flux between the different materials so that their interaction may be modeled accurately. Because standard finite difference methods are inadequate to deal with interfaces, a Matched Interface and Boundary (MIB) technique is investigated in this work to solve the heat equation with interfaces. MIB techniques are powerful tools used to solve partial differential equations due to their efficiency and stability. Without loss of generality, this work will solve 1-dimensional interface problems to demonstrate the accuracy and computational efficiency of this method, which will create a linear system of equations to be solved at each step in time throughout the duration of the model.

Presentation #18 Solving Parabolic Interface Problems with a Finite Element Method
Presenter(s): Henry Brown
Faculty Mentor: Dr. Chuan Li
Department: Mathematics

Partial differential equations (PDEs) dominate mathematical models given their effectiveness and accuracy at modeling the physical realities which govern the world. Though we have these powerful tools, analytic solutions can only be found in the simplest of cases due to the complexity of PDE models. Thus, efficient and accurate computational methods are needed to approximate solutions to PDE models. One class of these methods are finite element methods which can be used domain to provide close approximations to the PDE model in a finite domain. In this presentation, we discuss the use of a Discontinuous Galerkin (DG) Finite Element Methods to solve parabolic interface problems, the intuitive geometric view of the theory which ensures the best approximation, and further applications of this method which are prevalent in science and engineering.

Presentation #19 Parallel Computation of Action Potentials in the Hodgkin-Huxley Model via the Parareal Algorithm
Presenter(s): Eric Boerman
Collaborators: Katie Peltier, Peter Khanh Pham
Faculty Mentor: Dr. Chuan Li
Department: Mathematics

The Hodgkin-Huxley model is a system of differential equations that describe the membrane voltage of an axon as it fires the basic signal of the nervous system: the action potential. When charge-carrying ions such as sodium, potassium, and others are enabled to cross a selectively permeable membrane, the resulting current propagates along the length of the axon as a wave of altered ionic potential. However, the degree to which the membrane is permeable to sodium and potassium is itself gated by voltage; therefore, voltage depends on permeability and permeability depends on voltage. This interdependent cellular system is expressed as a system of differential equations with experimentally obtained initial conditions, which must be solved numerically to model changes in the behavior of axons.
Additionally, this project aims to solve the system of equations of the Hodgkin-Huxley Model using a novel time-parallel algorithm named the Parareal algorithm. Parareal is a method for solving initial value problems involving either partial or ordinary differential equations. It allows expensive computation to be carried out simultaneously for improved time efficiency and enables calculations to be completed in fewer iterations/evolutions than the equivalent sequential computing method.

Presentation #20 Pilot Analysis of the Contemporary Beliefs and Identity Inventory
Presenter(s): Kathleen Moser
Collaborators: Caroline Guzi, Shelby Kreglow
Faculty Mentor: Dr. Stevie N. Grassetti
Department: Psychology

Background: Feminism is a social movement that advocates for the protection and implementation of policies that promote gender equality. In one study of 116 master's program students, 42 percent identified as feminist (Charter, 2015). Although little variation was detected between genders, only 6% of participants were male; this disparity is seen in much of the feminism research published today (Rickard, 1987; Bargad, & Hyde 1991, Fischer et al. 2000). The support of people who do not identify as women is imperative to advancing feminist ideals (Precopio, & Ramsey, 2017). While many non-women may support feminist views, measures of feminist identity typically focus exclusively on the views of women (Wiley et al., 2012).
Purpose: The purpose of this study is to test the psychometric properties of a new measure of feminist identity designed to measure feminist identity among feminists of diverse gender identities.
Method: Undergraduate students are currently completing a new 20-item measure of gender identity. Of 340 participants, 66.4% identify as female, 32.5% as male, and 0.4% as "other". Participants identified as 66.4% Caucasian, 10% African, 7% multiple races or "mixed" 4.4% "other," 4.1% Latinx, 3.7% Asian, 1.8% Middle Eastern, and 1.8% Caribbean. 62.2% of participants indicate that they consider themselves a feminist. We will conduct an exploratory factor analysis and multiple group confirmatory factor analysis to assess the structure of the scale and gender invariance among responses, respectively.
Implications: An improved questionnaire assessing feminist identity will help to better evaluate feminist identity among people of all gender identities.

Presentation #21 An Assessment of the Needs of at-Risk Prison Populations: Supports and Challenges
Presenter(s): Shanon Ward
Faculty Mentor: Dr. Jasmin Tahmaseb McConatha
Department: Psychology

The prison population of the United States is estimated at around 6,410,000 (Maruschak & Minton, 2018). Studies have found that access to healthcare for inmates is subpar with a lack of routine examinations and preventative care and an earlier onset and higher rate of chronic medical conditions than the general population. In addition to the lack of healthcare for all inmates, specific at-risk subpopulations are likely to receive even less healthcare support due to discrimination and "invisible" illnesses. This research explores the health care and support services available to an underrepresented and vulnerable group of prisoners: Female inmates, pregnant inmates, and transgender inmates. This project also addresses the discriminatory and biased practices and policies that have resulted in a lack of services and programs for these populations. The lasting personal and societal costs of inadequate support are discussed.

Presentation #23 Personal Perceived Stigma and Mental Health in Sub-Saharan African Immigrant Students
Presenter(s): Kiersten Millward
Collaborators: Mabintu Donzo
Faculty Mentors: Dr. Zeinab Baba and Dr. Heather Edelblute
Department: Health

Background
Studies looking at perceived stigma and mental health in sub-Saharan African (SSA) populations have been limited to examining stigma in HIV-affected populations. Mental health issues are of increasing concern for college students, and this rise necessitates understanding perceived stigma in African immigrant students in the US to address their mental health care needs.
Methods
Data on SSA undergraduate and graduate students (n=723) was obtained from the 2016-2019 cycles of the Healthy Minds Network (HMN), an annual survey conducted on US university campuses. Perceived stigma was determined using agreement with the following statement: "Most people think less of a person who has received mental health treatment." Logistic regression analysis was conducted to identify factors associated with perceived stigma for mental health treatment in SSA students.
Results
More than half (60%) of the African immigrant students in the sample were male, with a mean age of 25.7 (SD 8.2). Forty percent of the sample agreed with the statement "Most people think less of a person who has received mental health treatment". In multivariate models, students who had seriously considered suicide in the past year were more likely (OR 3.64 (1.39, 9.56), p=0.0087) to agree with the perceived stigma statement. Students who reported having six or more days in the past four weeks when emotional or mental difficulties hurt academic performance were more likely (OR 3.00 (1.34, 6.72), p=0.0078)) to agree with the perceived stigma statement.
Conclusions
Stigma is recognized as a leading barrier in the treatment of mental disorders.

Presentation #24 Evaluating the Effects of Temperature and Time of Day on the Activity of Captive Western Lowland Gorillas (*Gorilla gorilla gorilla*)
Presenter(s): Jennifer Ryan, William Volpe, Laura DeHart, Emily Mauser, Angela Perretti, Madeline Vandevere
Faculty Mentor: Dr. Rebecca Chancellor
Department: Psychology

Research on captive animals reaps substantial benefits for conservation, education, and enrichment efforts. As more species become displaced in their natural habitats, it is the job of the researcher to better understand how these animals behave in captivity. To contribute to these efforts, we have been observing the activity budgets of a group of captive western lowland gorillas (*Gorilla gorilla gorilla*) (1 adult male, 2 subadult males, 2 adult females, 2 infant/juveniles) at the Philadelphia Zoo. Over a period of 16 non-consecutive months, we conducted 30-minute focals with 2-minute scan samples on the gorillas (54.66 hours), recording time of day, specific behaviors, temperature, and level of activity in their outdoor enclosure. We categorized behaviors as either low activity (e.g., laying down, self-grooming, sitting, and standing), or high activity (e.g., foraging, moving/traveling, nest building, chasing, playing, and self-scratching). We predicted that warmer temperatures as well as later time in the day would decrease the activity level of the gorillas. Our results showed a non-significant relationship between temperature and activity budget ($F_{1,79} = 0.059$, $p = 0.8$, $R_2 = 0.001$). We also found a non-significant relationship between time of day and activity budget ($t_{79} = 0.637$, $p = 0.5$). Our results suggest that temperature and time of day have little to no effect on the gorillas' activity level. We discuss ways that this research could be expanded upon in the future to further our understanding of how best to care for captive gorillas.

Presentation #25 Influences on Female Athletic Training Graduates During Their Transition to Professional Practice
Presenter(s): Heather Wood
Faculty Mentor: Dr. Alison Gardiner-Shires
Department: Sports Medicine

Context: Career socialization includes the acquisition of knowledge, skills, and shared attitudes of a profession. The career socialization process of graduates from athletic training (AT) bachelor's programs have been studied; however, these results are not necessarily applicable to graduates of an entry-level master's (ELM) program. This change may result in different experiences and socialization processes of the students.
Objective: Describe the experiences ELM students have as they transition from the professional to organizational socialization phases. To understand how their experiences, socialization agents, and the global pandemic have impacted their first professional employment opportunities. Design: Qualitative Study (In-depth Interviews). Setting: Various AT settings. Participants: Six females (24.83 ± .96 years old); all graduated from the same ELM program and are currently working in various AT settings. Data Collection and Analysis: Participants completed semi-structured interviews over Zoom within the first few months of working in their first job. Follow-up questions were completed via email. All transcribed interviews were analyzed using a general inductive approach. Member checks, multiple analyst triangulation, and peer review were used to ensure trustworthiness. Results: Participants shared that they had various, meaningful clinical experiences that allowed them to affirm their career goals. The influence of their preceptors aided their professional development. As they sought out their first jobs, they became adaptable to the effects of the global pandemic, which caused a stressful environment and increased the desire for mentorship. Now in their current roles, the participants weigh their options and level of job satisfaction in planning their futures.

Presentation #26 Statistical Analysis of Eclipse Refactoring Bug Reports
Presenter(s): Lipika Chandrashekar, Jasmine Howard, Akash Kumar, Eric Lacker, Srilaxmi Paramaiahgari
Faculty Mentor: Dr. Jongwook Kim
Department: Computer Science

Software refactoring is the process of making code changes to a program to improve its structure, design, and implementation, in such a way that it does not change the original program behavior. One example is the "rename" refactoring that changes program elements to new names that are easier to understand. Many software development tools, including Eclipse, offer various built-in refactorings such as rename, move, extract, etc. However, we discovered that over four thousand bugs related to Eclipse refactorings were reported as of January 2021. Many of these bugs get fixed after they are reported on the Eclipse bug report website (called Bugzilla), but others remain unfixed or even forgotten. This raises interesting questions – What percentage of refactoring bugs cannot be fixed or will not be fixed? How long does it take for a bug to get fixed on average? etc. Our analysis of the reported refactoring bugs showed that 20% of the bugs would not be fixed. We also found that on average, an Eclipse refactoring bug takes 223 days to be fixed. To the best of our knowledge, our research work is the first statistical analysis of the Eclipse refactoring bug reports in Bugzilla.

Presentation #27 A Theoretical Foundation Introducing an Innovative Service Delivery Model for Families Impacted by Intimate Partner Violence
Presenter(s): Rosa Boniface
Faculty Mentor: Dr. Stevie N. Grassetti
Department: Psychology

Trauma confers risk for many psychological difficulties among adults and children. Families who have experienced intimate partner violence (IPV) may have unique mental health needs because multiple family members have experienced risk due to trauma exposure (either directly or indirectly) and this experience may impact the protective factor of positive parent and child relationships. Currently available therapeutic services target either adult PTS symptoms *or* child PTS symptoms and the parent-child relationship. This narrow focus provides suboptimal care for families impacted by IPV. A three-pronged treatment approach targeting adult PTS symptoms, child PTS symptoms, and the parent-child relationship may improve psychological functioning for adults and children by reducing PTS and enhancing the parent-child relationship, which can serve as a protective factor. Drawing from existing evidence-based models, this presentation introduces the Two Generation Approach for Trauma (2G4T), a hybrid service modality by which adults and children can access comprehensive care together.

Presentation #28 Identification of Mitochondrial Transfer Sequences in Homologs of a Folic Acid Metabolism Gene
Presenter(s): Alyson Hally
Faculty Mentor: Dr. Jessica Sullivan-Brown
Department: Biology

Neural tube defects (NTDs) are common malformities resulting in exposed spinal cord or brain tissues caused by the inability to close the neural tube in embryogenesis. Previous research has shown folate deficiency increases the risk of NTDs. A folic acid metabolism gene, *serine hydroxymethyltransferase* (*SHMT*) is responsible for the synthesis of thymidylates, purines, and methionine which are important for DNA replication especially during embryogenesis. Typically, eukaryotes have two copies of *SHMT* which are either localized to remain in the cytosol or transferred to the mitochondria. The different localizations are a result of mitochondrial target sequences on the N-terminus. Interestingly, the model system *Caenorhabditis elegans* only have one homolog of *SHMT* called *mel-32* and it was unclear if this gene's product was cytosolic, mitochondrial, or both. To address this question, a bioinformatics approach was taken to identify if *mel-32/SHMT* has a mitochondrial transfer sequence. We identified putative mitochondrial transfer sequences that are present in specific isoforms. Molecular phylogenies of different organisms were then generated to show prominent cytosolic *SHMT* and mitochondrial *SHMT* clustering especially around the phyla Nematoda, Arthropoda, and Tardigrada. By comparing isoforms with different *SHMT* localizations, potential mitochondrial target sequences were identified for organisms that could later be experimentally assessed.

Presentation #29 Curriculum and Critical Disability Studies
Presenter(s): Jessica Keogh
Faculty Mentor: Dr. Matthew Kruger-Ross
Department: Educational Foundations & Policy Studies

Overview: As an educator, advocate, doctoral student, and woman living with a physical disability, my research surrounds curriculum and disability representation. I would like to present my findings to this research question: What is the relationship between curriculum and critical disability studies?
Purpose: The purpose is to first identify the gaps in curriculum and disability representation and discuss common themes.
Methods: This research is part of my literature review and includes the summary of my findings of the intersection of curriculum and representation.

Presentation #30 From "A Favourable Specimen of the Genuine" to the Bitter Fruit of Rafinesque
Presenter(s): Ron McColl
Department: Library

Near the turn of the nineteenth century, Benjamin Gottlieb Kohlmeister, a Moravian missionary and amateur botanist stationed in Labrador, collected a rather unremarkable specimen of *Rubus idaeus*, or red raspberry. During the half century that followed, Kohlmeister's specimen passed through the herbaria of men with vastly differing scientific reputations. The poor standing of its third owner, the controversial autodidact Constantine Samuel Rafinesque, nearly doomed the specimen sheet. When Rafinesque died, Elias Durand, the curator of the Academy of Natural Sciences and the specimen's fourth owner, acquired the portion of Rafinesque's herbarium that rats had not yet riddled. Durand would have discarded all of Rafinesque's specimens, the raspberry among them, if the second owner of the specimen had not been Zaccheus Collins, an esteemed Philadelphia botanist with an outstanding reputation among his contemporaries.
Today the *Rubus idaeus* is one of relatively few surviving botanical specimens associated with Rafinesque, a figure whose own reputation has greatly improved during the last century. Ironically, the same association that once rendered the specimen nearly worthless makes it a desirable object of study today. While tracing the lineage of this single specimen sheet, I consider the impact of authority and decorum on scientific validity. Employing Actor Network Theory, I treat all of the actants that imperiled or perpetuated the survival of this well-travelled raspberry and suggest that scientific worth, or in this case botanical validity, is the product of a broader ecosystem including both natural habitats and scientific networks.

Presentation #31 The Effects of Vestibular Rehabilitation on Reaction Time: A Critically Appraised Topic
Presenter(s): Christian Miles
Faculty Mentor: Dr. Daniel Baer
Department: Sports Medicine

In the U.S, mild traumatic brain injuries (mTBI) account for 5-10% of all athletic injuries at the high school and collegiate levels. Following mTBI, reaction time is often delayed, which can increase risk for additional injury. Research shows that vestibular rehabilitation therapy (VRT) for mTBI/concussion can reduce symptoms and reduce recovery time; however, research is limited on the effects of VRT on reaction time. Therefore, the purpose of this research project was to critically appraise current evidence on the effects of VRT on reaction time in patients with an mTBI or concussion.

To achieve this objective, I conducted a literature search through EBSCOHost using multiple discipline-specific databases, including Medline, CINAHL, and SportsDiscus. Of the 123 articles identified, 121 were eliminated using a priori inclusion and exclusion screening criteria based on article titles, abstracts, and finally full article review. Following screening, two single-group pretest-posttest studies remained, both of which demonstrated improvements in reaction time after VRT; however, these improvements were not statistically significant.

Based on current evidence, the utility of VRT in improving reaction time in concussed patients remains unclear. Because VRT is beneficial for a variety of concussion symptoms, its use is still recommended; however, this critically appraised topic highlights the need for additional research, including randomized controlled trials, to determine the effectiveness of VRT on improving reaction time in concussed patients, and ultimately in reducing subsequent injury risk.

Presentation #32 Evaluating Differences between Psychedelic Drug-Users and Non-Psychedelic Drug Users among College Students
Presenter(s): Zachery Engle, Samuel Colligan
Faculty Mentor: Dr. Michael Gawrysiak
Department: Psychology

There has been a recent surge in scientific publications documenting the therapeutic applications of psychedelic drugs (e.g., LSD, psilocybin). Emerging research has demonstrated the potential for medicinal use of psychedelic drugs to mitigate psychiatric concerns, including depression, anxiety, and addiction. While research into psychedelics suggests promise for these atypical substances to address psychiatric concerns, additional research is needed to focus on the associated consequences of recreational psychedelic use (i.e., use of psychedelics for fun or to get "high") engaged in outside the observation and guidance of a trained mental health practitioner. The present proposal used an archival dataset collected from a sample of undergraduate students that completed an assessment battery evaluating drug-use and mental health variables. In the current project, the study focus was restricted to student participants that endorsed recreational use of any kind (n=711). Of the stratified sample, participants that endorsed past year of psychedelic drug use (PSY; n=38) were compared to recreational drug-alcohol users not endorsing prior psychedelic drug-use (REC; n=673). No statistically significant differences were observed between PSY and REC groups on age, GPA or stress. However, the PSY group evidenced statistically significant higher levels of alcohol use, cannabis use, depression and anxiety ($p < .05$). Although findings are relational and do not suggest causation, they suggest potentially greater mental health conflicts among individuals reporting recreational psychedelic drug use. Follow-up analyses will further stratify the sample compare none-PSY drug users to PSY users on variables of interest and will included expanded discussion of study implications.

Presentation #33 Impact of Paid Internships for MSW Students
Presenter(s): Veronica Gillen, Wendy Myers
Faculty Mentor: Dr. Julie Tennille
Department: Graduate Social Work

A review of the literature indicated graduate education debt disproportionately impacts students who are black, Indigenous, people of color (BIPOC), women, and of low socioeconomic status (SES). Required unpaid internships further negatively impact degree completion, quality of life, and perception of graduate program experience. This study focused on the impact of $10,000 stipends awarded to Master of Social Work students in their final year of practicum at integrated care settings as a result of a competitive application process through a grant-funded project. The primary Research Question was to explore differences between graduation rates over the last two years between stipend-funded recipients and non-stipend funded recipients. In addition, we elicited field instructor input at year-end and alumni feedback one-year after graduation. We used content analysis to look at alumni perceptions regarding quality of life and attitudes during their final year placement and field instructor perceptions regarding the impact of stipends on students. Results from both alumni and field instructors show the positive impact paid internships have on quality of life and financial stress. Implications offer insight into the impact of paid internships on all MSW students, including BIPOC, women, and students of low SES.

Presentation #35 Water Footprint and the Impact on Food Production and Environmental Sustainability
Presenter(s): Syreeta Morgan
Faculty Mentor: Dr. Amir Golmohamadi
Department: Nutrition

Freshwater is in short supply but the demand for it is constantly growing. Water footprint is used to indicate the amount of fresh water that any given process or activity uses. Growing and processing animal products have a much higher water footprint than crops such as fruits and vegetables. More information and research must be carried out regarding water footprints to improve overall sustainability and use of fresh water. Continuous research on developing policies, and more sustainable habits, must be developed to conserve the current freshwater resources.

The objective of this research is preparing a report that can be used for generating guidelines for reducing water footprint by decreasing the amount of food waste. This research is meant to contribute to improving the planet's overall water footprint and Sustainable Development Goals of the United Nations.

The outcome of this report may be used by businesses or consumers to inform them how changing diet that contains less fruits and vegetables and is animal-based, into plant-based proteins would improve the sustainability index of food chain. It will also partially meet the requirements of the Sustainable Food Systems Management capstone course (NTD 450) at the department of nutrition.

Presentation #36 Does It Hurt and Heal? A Qualitative Study of the Relationships Among Sexual Assault Survivors in Support Groups
Presenter(s): Brittni Gettys, Sydney Monaghan, and Autumn Greene
Faculty Mentor: Dr. Susan Gans
Department: Psychology

Research exploring relationships between trauma survivors is largely non-existent. This study will explore effects of social relationships formed between individuals sharing experiences of sexual trauma through group therapy. Researchers will examine potential buffering and supportive effects, and potential negative effects of vicarious traumatization, that may occur from social support. These complex dynamics are explored through examining relationships and experiences of individuals in support groups; open-ended and semi-structured interviews will be utilized in this qualitative approach. The interviews explore experiences such as: healing effects of group therapy for sexual trauma, the extent to which relationships facilitate healing and trauma recovery, experiences of shared trauma and vicarious traumatization during participation, and how participants cope with exposure to sexual trauma of others. Interviews will be analyzed following the process of Thematic Analysis outlined by Braun & Clarke (2006) allowing for buffering effects, potential impact of vicarious traumatization, and shared trauma between survivors in support groups. Semi-structured interviews will be conducted virtually, recorded, and transcribed for analysis. Participant interviews will be coded, and results will be analyzed to find/define themes, select participant statements will provide examples of themes across data. This study, among the first to examine shared and vicarious traumatization, adds to scarce literature on buffering and supportive effects of relationships among sexual assault survivors and underlying mechanisms that contribute to supportive effects. This research will increase clinicians' and group leaders' awareness of potential risks involved in group treatment for sexual assault survivors and assists clinicians and group members in mitigating these risks.

Presentation #37 The Effect of Cryotherapy on Inflammation and Myofiber Regeneration Following Skeletal Muscle Injury
Presenter(s): Noah MacNiven
Faculty Mentor: Dr. Carolyn Jimenez, John Smith
Department: Sports Medicine

Cryotherapy is a widely used modality to treat acute skeletal muscle injury. Traditionally, cryotherapy is used immediately following an injury to accelerate the healing process by decreasing pain, inflammation and secondary hypoxic injury. Recent studies conflict with this long-standing practice and have suggested that cryotherapy may actually impair the myofiber regeneration process after muscle injury due to suppression of the inflammatory process. Therefore, delaying the healing process. A critical appraisal was conducted on three studies that have examined the inflammatory markers and markers of muscle regeneration. These studies were conducted over the past five years and have examined the effects of cryotherapy on inflammatory markers (mRNA levels of TNF-α, NF-κB, TGF-β and MMP-9), and myofiber regeneration (MyoD, IGF-1, platelet-derived growth factor (PDGF), vascular endothelial growth factor (VEGF), hepatocyte growth factor (HGF), brain-derived neurotrophic factor (BDNF), Desmin) after acute skeletal muscle injury. These studies found that cryotherapy suppressed inflammatory markers when compared to a control group. In addition, cryotherapy was found to either have no effect on myofiber regeneration or in the case of one study, it may delay skeletal muscle regeneration. In conclusion, these studies provide evidence that cryotherapy decreases the inflammation process which may lead to a delay in myofiber regeneration following skeletal muscle injury.

Presentation #38 The Return to a More Basic and Traditional Approach to Foodways and the Three Pillars of Sustainability
Presenter(s): Tommy Benedetti
Faculty Mentor: Dr Amir Golmohamadi
Department: Nutrition

The declining health of the planet, of humans and even of local economies can all be traced directly back to where our food comes from and how it is prepared. Returning to more basic and traditional food practices would benefit the issues stated previously in a multitude of ways. Putting an emphasis on local, fresh and in turn mainly healthier foods will allow individuals to form a deeper connection with where their food comes from. Through developing this deeper association with and understanding of the origins of their food, people will be able to revisit a more meaningful relationship with the rituals of eating, which often will result in increased time spent with family and loved ones. This would benefit human health on both a physical and mental level.
In this project the potential positive impacts of emphasizing and remembering the geographic and cultural origins of our food will be demonstrated and explained. The importance of returning to more traditional, localized food practices will be presented. This report will partially meet the requirements of the NTD 450 course and will contain the ways these practices can directly improve human physical and mental health, fueling the incomes of local communities and reducing global waste and greenhouse gas emissions. The outcome of this research will help local policy makers, and social welfare departments such as the Pennsylvania Department of Health and Human Services to identify and recognize not only the need for such changes, but ways in which they can be achieved.

Presentation #39 Opioid Prevention in Higher Education in a Virtual Environment Due to the COVID Pandemic
Presenter(s): Kena Patel, Shivani Naik
Faculty Mentor: Dr. Harry Holt
Department: Health

This study examines how institutions of higher learning throughout Pennsylvania responded to the influence of the Covid Pandemic on their campuses. Specifically, their strategies for delivering opioid use disorder prevention services funded through the Pennsylvania Department of Drug and Alcohol Services Universities funded by state grant. Universities were required to quickly transform their delivery of opioid use disorder prevention services due to the faculty, students, and staff operating in a virtual environment starting in spring 2020. Universities were required to be creative and modify their delivery channels for crucial opioid use disorder services for their students, faculty, and staff. West Chester University was one of those universities and this study examines how it adapted to provide its students with virtual training and opioid use disorder prevention content. The lessons learned from this ongoing experience are presented and recommendations for best practices in delivering prevention services remotely are presented.

Presentation #40 Music Education Program Relates to Social-Emotional Growth for Children Facing Economic Hardship
Presenter(s): Suzanne Varnell
Collaborators: Mallory Garnett, Blanca Velazquez-Martin
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Background: The start of the 21st century has hosted decreased access to music education, particularly for children facing economic hardship and children who are Black, Indigenous, and People of Color (BIPOC) (McMurrer, 2007). This is problematic in terms of arts equity and social-emotional benefits children may gain via music participation. The present study examines the impact of an afterschool music education program on social-emotional functioning for elementary school children facing risks related to poverty and racism.

Method: Participants were 503 students who attended public elementary schools: 345 students received the Music Education Program (MEP), whereas 158 students enrolled for comparison purposes, did not receive MEP. Of participants, 60.8% were female, and 70.1% Black/African American. Child age ranged from 7 to 14 years (M = 9 yrs, 7 mo). Nearly all children had family income-to-needs ratios falling below the federal threshold for poverty status.

Ethical standards were followed, and all procedures were approved by the appropriate IRBs. At start-of-year and end-of-year time points, students completed The Brief™ Problem Monitor (Achenbach, McConaughy, Ivanova, et al., 2011).

Results and Implications: Multivariate tests revealed a significant main effect of MEP, and a significant interaction of MEP and time, with MEP students showing greater improvement across the year. Univariate tests indicated a significant interaction of time and MEP for: internalizing, externalizing, and total problems. Although not designed as music therapy, this after school music education program seemed to have something of a therapeutic benefit for participating students.

Presentation #41 Playtime and Bedtime Relate to Stress Levels for Children Facing Economic Hardship
Presenter(s): Fola Shokunbi
Collaborators: Mallory Garnett
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Background: Poverty circumstances tax physiological systems that respond to stress. Yet research suggests that supportive parenting may offer some protection. The present study uses daily interview methodology to probe how parents might structure children's days to promote lower stress levels in the context of poverty risks.

Method: Participants were 139 children who attended a Head Start preschool. Mean age was 4 years, 2 months, and 48.9% were identified as female, and 51.1% as male. Approximately 52.6% were identified as Black/African American, 16.6% as Latino/Hispanic American, 8.6% as Asian American and 22.3% as White/European American. Nearly 100% faced economic hardship.

Ethical standards were followed, and all procedures were approved by the WCU IRB. Primary caregivers completed interviews, conducted over the telephone by trained research assistants, to collect information about daily routines on 10 days across two weeks. Child cortisol was measured via assays of saliva samples collected at 9am, just following preschool drop-off and prior to breakfast.

Results and Implications: Results of a zero-order correlational analysis suggested that, of the activity categories in the present study, more playtime related to lower levels of the stress hormone cortisol, and later bedtime related to higher levels of cortisol. In a regression analysis, both playtime and bedtime explained unique variance in cortisol. Implications concern how parents might structure children's days to foster physiological regulation in the context of poverty-related stress and suggest that both playtime and bedtime matter.

Presentation #42 Want to Change Perspectives on Social Justice? Academic Courses and Social Movements Matter
Presenter(s): Ben Wolfe
Collaborators: Kenia Tumbiolo, Sam Miller (alum), Keriann Mosley (Research Fellow)
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Background: Ending systemic racism and other interrelated forms of oppression depends on institutional change, as well as changing individuals' hearts and minds. The present study examines first the impact of a course focusing on social justice and second the impact of 2020, with the COVID-19 pandemic, a critical stage of the Black Lives Matter Movement, and increasing awareness of racism and classism. Method: Participants were 139 WCU students (87% female identified, 36% BIPOC): 101 were enrolled in 2017-2019, and 38 in 2020. Measures included the White Privileges Attitudes Scale (Pinterits, Poteat, & Spanierman, 2009) in its original form as well as an adapted form to measure attitudes about middle class privilege, and the Coping with Discrimination Scale (Wei, Alvarez, Ku, Russell, & Bonett, 2010). Results and Implications: A repeated measures MANCOVA revealed significant change from pre- to post-course in student ratings for awareness of White privilege, willingness to confront White privilege, willingness to confront middle class privilege, and interest in advocating for education about discrimination. A GLM comparing pre-course scores for students in 2017-2019 versus those in 2020, revealed significant differences for awareness of White privilege, remorse about White privilege, awareness of middle-class privilege, willingness to confront middle class privilege, remorse about middle class privilege, interest in advocating for education about discrimination, interest in resisting discrimination, and detachment from discrimination. If we are interested in changing perspectives about issues of social justice, academic courses can matter, but social conditions and movements may matter more.

Presentation #43 Stress Hormone Cortisol Relates to, Emotion Expression for Young Children Facing Economic Hardship
Presenter(s): Corinne Yost
Collaborators: Jessa Malatesta, Alyssa Allen, Mallory Garnett, Blanca Velazquez-Martin, Savina Lawrence
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Background: Around 40% of children in the US face economic hardship. Related stressors influence physiological functioning and brain development, with implications for cognitive and social-emotional functioning. The hormone cortisol indicates stress levels, yet because cortisol responses to current stressors are imposed on baseline levels, the meaning of cortisol as measured on a particular occasion often is unclear: both elevated and depressed cortisol levels can indicate problematic dysregulation. The present study aims to elucidate how cortisol levels relate to expressed emotion for children attending Head Start preschool. Participants: Participants included 70 children attending a Head Start preschool in Philadelphia, PA. Mean age was 4 years, 1 month, and 52.3% were female, 54.5% Black/African American, 15.2% Latino/Hispanic American, 10.3% Asian American, and 20.0% Caucasian/European American. Procedure: Ethical standards were followed, and all procedures were approved by the WCU IRB. The study included: (1) parent demographic interviews at the start of the school year; (2) measurement of child cortisol levels via salivary assay at four times of day on six different days across the school year; (3) coding of children's emotion expression in their preschool classes directly prior to the measurement of cortisol, using a well validated observational system called AFFEX (Izard, Dougherty, & Hembree, 1989). Results and implications: Preliminary zero-order correlational analyses indicated that children's expression of sadness was uniquely correlated with elevations in cortisol. No significant relations were indicated for other types of emotion expression. Implications concern understanding how child cortisol levels relate to observed emotions in preschool context.

Presentation #44 The Opioid Crisis and its Impact on Coroner / Medical Examiner Services in Pennsylvania
Presenter(s): Danisha Heyward, Miskyat Oladosu
Collaborators: Dr. Harry Holt
Department: Health

This study examines the impact of the Opioid Crisis and the COVID Pandemic on the Coroner and Medical Examiner (C/ME) services in Pennsylvania. A quanitative survey instrument was used to collect data on staffing, funding, and resources. Qualitative interviews were then conducted with Coroners and Medical Examiners to provide additional explanatory power to the initial survey. The interviews focused on the simultaneous crises of the Opioid Crisis and the COVID Pandemic and the unique experiences faced by rural C/ME offices and their ability to offer services. Conclusions are drawn regarding the impact of the simultaneous crises and recommendations are provided to enhance the performance of the C/ME offices. Specifically, policy recommendations made to enhance the professionalism and capacity of rural C/ME offices to serve both rural and urban populations.

Presentation #45 Given that participation in "Shared Reading" groups appears to increase mindfulness and improve quality of life in undergraduate students, what experiences most impact participants?
Presenter(s): Abigail Zimondi
Collaborators: King Frayneld, Abigail Kennedy, Victoria Maurone
Faculty Mentor: Dr. Donald McCown
Department: Health

Purpose: Report on the qualitative data from a mixed-methods study that investigated effects of a specific literature-based intervention, Shared Reading (SR), on undergraduate students, and how adding formal mindfulness practice affects shared reading experience.
Method: Qualitative data from post-intervention interviews explored participants' experiences: 1) with the shared reading process; 2) with mindfulness practice, when included; 3) impact on the participant's thinking or emotions of a particular story or character; 4) the participants' relational experience within the group. Analysis applied grounded theory to understand and organize findings.
Results: Analysis indicated that SR can be effective in reducing stress, improving attention, and increasing quality of life, and SR plus formal mindfulness practice enhances effects. Qualitative data from this mixed-methods study also indicated that SR in either form can also enhance sense of achievement, self-worth, and social engagement.
Conclusion: These qualitative findings build on previous positive quantitative findings on this undergraduate population, as well as the research on Shared Reading groups emanating from the United Kingdom. SR alone appears to improve the quality of mindfulness in undergraduate students, while the combination of SR and formal mindfulness practice appears to offer further impact. Additionally, it is suggested that SR may help reduce loneliness in new students seeking connection through group participation. Given current COVID-19 limitations, research on remote delivery of the intervention may be of value.

Presentation #46 Low Sugar Oat Products Are More Sustainable, Why Are They not on the Shelves of Supermarket?
Presenter(s): Laura (Nicole) Heth
Faculty Mentor: Dr. Amir Golmohamadi
Department: Nutrition

Excess sugar in individuals' diets may lead to weight related health problems such as obesity and diabetes. Sugar in processed foods is used to add sweetness and intensify flavor this is common in products such as oatmeal and granola bars. Reducing the amount of sugar in food products can contribute to all three pillars of sustainability environmental, economic and social. The goal of this report is to show the steps of developing a reduced sugar oatmeal food product up to the point that it is ready for conducting a sensory evaluation. This report and possible presentation at the WCU's research day will also partially meet the requirements of the NTD 450 (Field to Fork Events), the capstone course of the Department of Nutrition's Sustainable Food Systems Management concentration. This report and presentation will connect the developed food product with environmental sustainability (impact of sugar refining industry on the environment) and address social sustainability of this locally sourced food product. The ultimate goal of this project is to show-case an example of a sustainable food product development from farm to event.

Presentation #47 Declining Knowledge on Paper Food Storage and Preparation Household Food Waste and Sustainability
Presenter(s): Luke Ramirez-Bryan
Faculty Mentor: Dr. Amir Golmohamadi
Department: Nutrition

In 2020 in the U.S alone over 40 million tons of food was wasted. Part of this this waste is attributed to discarded fruits and vegetables and equals to 7% of croplands' yearly production. Reducing food waste can be an important factor in improving environmental and social sustainability. Lack, or inadequate, knowledge of food preparation, storage, and cooking has contributed to this loss. One method of reducing food wastes is decreasing the amount of waste in households by using nutrition education intervention such as training local communities to improve their cooking skills and general food storage and preparation knowledge. Consumers will also be more environmentally and economically sustainable, with less food waste in each household. The objective of this study is preparing a report that can be used for developing nutrition education guidelines for nutrition educators, with the ultimate goal being to increase the knowledge of local residents to create a more sustainable community. This report will also partially meet the requirements of the Department of Nutrition's capstone course (NTD 450) for Sustainable Food Systems Management concentration. This report will list and discuss the practical strategies that increase the awareness of consumers by starting a multi-platform social media campaign that posts daily tips, and offers free educational classes on sustainable shopping practices, cooking lessons, and proper storage and food disposal. The ultimate goal of this project is contributing to the Sustainable Development Goals of the United Nations.

Presentation #48 Mentorship Matters: An Instrumental Case Study of Mentorship in a Student Affairs Graduate Preparatory Program
Presenter(s): John Linetty
Faculty Mentor: Dr. Heather Schugar
Department: Literacy

The purpose of this study is to understand graduate student's experience with mentorship in their educational pursuits, as well as the implications of mentorship on the student's personal and professional development within a graduate student affairs program in higher education. The research questions guiding this study are: (a) in what ways have graduate students in a master's program in student affairs experienced mentorship? And (b) how has mentorship impacted their (graduate students) personal and professional development? Utilizing instrumental case study methodology with a phenomenological data collection instrument, three graduate student participants met individually with the researcher for two 60-90 minute interviews across seven weeks and composed a series of two reflective journals. The application of a phenomenological instrument bounded within a case study developed a deeper understanding of mentorship experiences for graduate student participants within the context of a graduate program in student affairs. Moreover, the qualitative nature of the methodology and instrumentation focused the data collected on actual student voice, which has been shown to be lacking in relevant student affairs literature. Results from this study indicate a clear definition of mentorship in student affairs, as well as a set of characteristics that are common to the participant's mentors. Participants also reflected on the implications of negative and positive mentoring experiences, as well as the value of mentorship within student affairs graduate education. Finally, participants considered a combined approach between faculty and professional staff in student affairs graduate preparatory education and the implications for future programmatic reform.

Presentation #49 Examining Student Service Members/Veterans (SSM/V) College Adjustment and Mental Health Risk-Resilience Factors
Presenter(s): Michael Quin
Faculty Mentor: Dr. Michael Gawrysiak
Department: Psychology

Student Service Members/Veterans (SSM/V) are an important proportion of the college student population and may be at risk for unique mental health difficulties in comparison to civilian students. Prior research has indicated that the SSM/V population (1) is at greater risk for depression, anxiety, and posttraumatic stress (PTS), (2) experiences greater stigma surrounding mental health issues and treatment, (3) is more likely to engage in problematic alcohol/drug misuse, and (4) experiences greater difficulty adapting to college. Currently, there is limited research attempting to identify risk and protective factors that may exacerbate or attenuate the difficulties SSM/V may face. The present study is actively recruiting SSM/V participants (current $n = 30$) with the aim of identifying mental health risk/resilience factors among this understudied population. It is hypothesized that: (1) SSM/Vs will report greater rates of anxiety, depression and posttraumatic stress compared to civilian student peers, and (2) SSM/Vs experience greater difficulty in adapting to college life relative to civilian students. It is further hypothesized that (3) SSM/V reported resilience will positively correlate with dispositional mindfulness and that (4) mindfulness will mediate the relationship between conflicts and adjustment to college. Participants are actively being recruited and anonymously completing study measures through an online research portal.

Presentation #50 Cortisol Relates to Executive Functioning for Children Attending Head Start Preschool
Presenter(s): Zachary Weaver
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Background: Approximately 15 million children in the United States grow up in poverty circumstances (National Center for Children in Poverty, 2018), as 24% of all children under the age of 6 live in households with income levels classified as below the federal poverty guideline (Jiang et al., 2016). Recent research has highlighted the impact of early childhood poverty circumstances on physiological systems that respond to stress (Lupien et al., 2001), with implications for typical development in the prefrontal cortex (Hair et al., 2015) and related executive functioning (Blair & Raver, 2016).
Method: The present study investigated relations among various components of teacher-reported executive functioning (BRIEF; Gioia et al., 2000) and total cortisol output of 318 young children (ages 3-5 years) across a preschool day. Salivary cortisol was sampled in duplicate at 4 times across 2 days in the beginning of the school year, resulting in a total of 16 samples per child.
Results and Implications: We hypothesized that higher cortisol levels, likely attributable to poverty-stress (Blair et al., 2011) across the preschool day would relate to greater difficulties in teacher-reported EF, controlling for child age, sex, and family income. A multiple regression model that aligned with this hypothesis predicted BRIEF, General Composite Score with statistical significance. Moreover, child salivary cortisol across the preschool day predicted teacher-reported executive functioning for each domain score of the BRIEF. Implications concern understanding the impact of stress on executive functioning in the preschool classroom and promoting positive outcomes for children facing poverty risk.

Presentation #51 Ageism and Perceptions of Vulnerability: Framing of Age during Covid-19 Pandemic
Presenter(s): Jordan Broussard
Collaborator(s): Jacki Magnarelli
Faculty Mentor: Dr. Jasmin Tahmaseb McConatha
Department: Psychology

Media representations of the Covid-19 pandemic and its devastating consequences have shaped people's fears, anxiety, and perceptions of vulnerability. Social scientists have examined the consequences of how information is "framed." Framing theory asserts that issues can be portrayed differently by emphasizing or de-emphasizing aspects and information. According to Lakoff (2004) the impact of a message is not based on what is said but how it is said. Theories of framing focus on how the media frames issues, which then structure and shape attitudes and policies. A news article serves as a frame for an intended message. This paper examines the ways that "age" has been framed during the Covid-19 pandemic. One of the most dominant frames in terms of COVID-19 coverage is how the pandemic has been analyzed through the lens of age and framed in terms of age discrimination. The results of news articles appearing in several prominent newspapers indicate that the perceptions of elders and their vulnerabilities to severe consequences from Covid-19 are likely to help perpetuate or create age discrimination.

PERFORMANCES PRESENTATION ABSTRACTS

Performance #1 Coming together - for Solo Double Bass and Electronic Media
Presenter(s): James Devor
Faculty Mentor: Peter Paulsen
Department: Instrumental Music

The electroacoustic work, Coming Together, is a union of my musical backgrounds in double bass performance, composition, and electronic media. The compositional process of the piece took place in a variety of stages, where I approached my initial design concepts from each of these three backgrounds separately, and then finally fusing them all together. All of the audio editing, recording, and engineering was completed using the software Logic X. The following program notes detail my thoughts about Coming Together: Coming Together is a piece representing the culmination of the double bass. Being the most versatile of the instruments, the bass has a high level of potential in modern music. Coming Together merges the benefits and capabilities of the acoustic double bass with the electric, resulting in a sort of bass introspection and contemplation. All sounds throughout the entire work are derived only from the double bass and the composer. The recorded performance can be viewed at this link: https://youtu.be/-inTeM4V9z0.

Performance #2 Carnival of Ruin, Excerpts
Presenter(s): Constance Case, Gretchen Studlien-Webb, and Maria Urrutia
Department: Theatre and Dance

Carnival of Ruin, created and directed by Constance Case, Gretchen Studlien-Webb, and maria urrutia, is an immersive performance devised for all ages. The goal of the project is to increase awareness of sustainability issues through visually stunning costumes, props, and scenic elements all made from post-consumer waste. The timeless production is scripted with original music and dialogue. The action revolves around 6 dances with stories of change. This piece involves students and recent alumni in all performance roles. As three multi-discipline artists, our goal for this project is to create consumer awareness of what it means to "just throw it away". Carnival of Ruin is an impactful and innovative work that is based on sustainability research and is expressed through thought-provoking movement language and cutting-edge costuming. We are pushing the boundaries of what it means to create innovative dance costumes in a work that clearly speaks through the movement narrative about the effects of consumerism.

Carnival of Ruin has a survey component that will be administered to the ticketed attendees pre and post attendance at the East Goshen township premiere performance. This survey will assess the impact of the work on the viewing public. Images and video for this presentation are from the March 2021 John H. Baker Gallery exhibit. Carnival of Ruin will have its premiere of the full performance event at East Goshen Township Park, Memorial Day Weekend, 2021. carnivalofruin.com

SCHOLARLY RESEARCH & CREATIVE ACTIVITY (SRCA) AWARD ABSTRACTS
(Listed in Alphabetical Order)

Title: April Acceptance Brings May Integration
Presenter(s): Emma Billingsley
Faculty Mentor: Cherie Fishbaugh
Department: DUB-C Autism Program (DCAP)

April Acceptance Brings May Integration is a web show presented on YouTube that contains interviews with a variety of people such as politicians, students, and professionals. In January, I thought of this project as a way for me to discuss and educate others about issues related to disabilities. From what I have seen, disability is not discussed properly in the mainstream media, and I want to change that. This web show will also give me a chance to learn about the experiences of others in the disability community and other marginalized communities. Different topics of discussion include ableism, policy, controversial topics related to Autism, and intersectionality. In the future, I would like to be able to develop a website for this project, and to have interviews with well-known activists such as Greta Thunberg, Paigle Layle, Temple Grandin, Brandon Leake, and Morgan Harper Nichols. My hope by having these live, controversial discussions is to have people learn something new and to challenge prejudiced thinking.

Title: Effects of Capsid and Delta Orsay Virus Proteins on the Intracellular Pathogen Response of C. elegans
Presenter(s): Barbara Chen
Faculty Mentor: Dr. Jessica Sowa
Department: Biology

In the evolutionary host-pathogens arms race, selective pressure between a pathogen and its host led to the necessity for pathogens to evolve to evade detection by host immune systems, weakening the host's ability to effectively resist the pathogen. The goal of this project is to better understand the interactions between viruses and their hosts' innate immune systems. To study innate immunity exclusively, the roundworm C. elegans is a useful invertebrate model because it relies exclusively on epithelial innate immunity for pathogen defense. The Orsay virus is an RNA virus that activates an immune response in C. elegans called the Intracellular Pathogen Response (IPR)2. The Orsay virus has a very small genome containing only four proteins. Preliminary evidence suggests that either one or a combination of these Orsay virus proteins can suppress the IPR (unpublished data), which is surprising considering the small size of the genome. In this project, the effects of the viral capsid and delta proteins located on the RNA2 genome segment of the Orsay virus on the IPR will be investigated3,4. Thus far, molecular cloning has be used to construct plasmids that will be microinjected into C. elegans, which will create transgenic animals that overexpress each of the two Orsay proteins. We will then test the animals under stresses that activate the IPR to observe the individual effects of the capsid protein and delta protein on IPR suppression. From this we will better understand how viruses evolved to evade the host immune system.

Title: Studying Break-In Attempts Across Multiple Servers Using Apache Spark and Security Logs
Presenter(s): Tyler Clark & Kevin Codd
Faculty Mentor: Dr. Linh Ngo
Department: Computer Science

In our research, we analyzed month-long security log data from various departmental servers that are exposed to the Internet. The analytical tasks involved identifying temporal patterns and sources of attacks in order to provide insights for system administrators. We utilized Apache Spark, a data-intensive computing framework, to conduct our analysis in anticipation of future extension and scalability. We present the final analytical results.

Title: Reading Disabilities and Anxiety, Stress, Depression, and Stigma among College-Age Adults
Presenter(s): Hannah Crespy
Faculty Mentor: Dr. Michael Gawrysiak
Department: Psychology

Prior research indicates that children who struggle with a learning disability are at increased risk for comorbid anxiety and other mental health issues (Undheim & Sund, 2008). However, there is limited research examining adults with reading disorders, and their relationship with anxiety, chronic stress, depression, and stigma. This study will examine college students with reading disorders (n=200, experimental group) and without (n=200, control group). This proposal aims to determine the extent to which reading disorders and anxiety, chronic stress, depression, and stigma continue into adulthood. Both the control and experimental group will complete the Depression Anxiety Stress Scales (DASS), College Chronic Life Stress Survey (CCLSS), and the experimental group will also complete the Stigma Consciousness Questionnaire–Learning Disabilities (SCQ-LD). Hypothesized outcomes include adults with reading disabilities scoring higher in all measures. This research will be instrumental in clarifying the impact of reading disorders on the adult population.

Title: Intelligibility as a Measure of Dysarthria: Survey of SLPs Working with Adult Populations
Presenter(s): Madeline Esch
Faculty Mentor: Dr. Patricia Swasey Washington
Collaborator: Dr. Elizabeth Grillo
Department: Communication Sciences and Disorders

Background: Dysarthria is a speech disorder which impacts the strength, speed, and/or accuracy of an individual's speech production. Dysarthria results from neurological disruption and is often secondary to conditions such as amyotrophic lateral sclerosis (ALS), Parkinson's disease, stroke, and traumatic brain injury. Intelligibility, the degree to which a listener understands a speaker, can be used to provide a quantitative measurement of dysarthric speech. However, aside from dysarthria, intelligibility may also be influenced by the speaker and listeners' familiarity and language/dialect/accent differences. Each of these factors can influence the assessment and treatment of dysarthria in the field of speech-language pathology.

Purpose: Considering technological advancements, the increasing diversity in dialects and languages, and shifting workplace expectations, this study was conducted to gain insight into the current conditions of the field of speech-language pathology regarding: (1) the incidence of dysarthria, (2) client/clinician languages in the field, (3) dysarthria assessment tools and strategies, and (4) the availability of technology within workplace settings.

Method: A survey designed for speech-language pathologists (SLPs) working with adult populations was distributed via online professional groups and other clinical contacts. The survey was open to SLPs who are currently working in the field with adult clients and who hold their certification from the American Speech-Language Hearing Association.

Outcomes: Sixty-three SLPs completed the survey, providing enlightening information regarding their experiences evaluating, monitoring, and treating adults with dysarthria, their practices for overcoming language barriers, and their use of technology in their practice.

Title: Spiritual Assessment in Palliative Care Clinical Practice: Nurse Practitioner Focused Educational Interventions and Outcomes
Presenter(s): Caitlyn Moore
Faculty Mentor: Dr. Veronica Wilbur
Department: Nursing

Spiritual care is an essential component of quality palliative care. Research demonstrates the positive impacts of healthcare providers engaging with patients regarding spirituality. Lack of education and training are barriers for nurse practitioners to incorporate spiritual care into practice, often having it be left out or inadequate. To promote an evidence-based approach to spiritual care provided by nurse practitioners in a home-based palliative care program, a quality improvement project was implemented to examine the impact of a comprehensive educational intervention. The intervention consisted of the Interprofessional Spiritual Care Education Curriculum© (ISPEC©) and adoption of the Faith or Beliefs, Importance, Community, and Address (FICA©) spiritual history tool. Nurse practitioners were able to demonstrate statistically significant improvements in rates of spiritual assessments ($p<.001$) and spiritual care professional referrals ($p<0.01$). Increases in spiritual care self-efficacy for the nurse practitioners as measured by the Spiritual Care Competency Scale (SCCS) were also noted, though the SCCS results were not statistically significant. Patient-reported scores of anxiety and well-being were not available in sufficient numbers to analyze. Future quality improvement projects on patient outcomes associated with spiritual care should be further explored. The study protocol and data trends provide a possible template for future evidence-based practice and quality improvement projects.

Keywords: Palliative Care, Spirituality, Spiritual Care, Chaplain, FICA©, Interprofessional Spiritual Care Education Curriculum© (ISPEC©), Spiritual Care Competency Scale

Title: It's in the Process: A Process Evaluation of a Peer Support Group Intervention to Improve the Mental Health of Adolescent Mothers in Harare, Zimbabwe
Presenter(s): Victoria Pauline & Shannon Fyalkowski
Faculty Mentor: Dr. Chiwoneso Tinago
Department: Health

Background: In Zimbabwe, nearly a quarter of adolescent girls aged 15-19 have begun childbearing. Adolescent mothers feel isolated due to the loss and lack of social support, networks and opportunities for education, resulting in adverse mental health. No interventions target adolescent mothers in Zimbabwe to improve mental health outside of the peer support group intervention Young Women of Today (YWOT) (May 2018-October 2019). Adolescent mothers aged 14-18 years met in groups of 9-10 bi-weekly for 6 months. Groups were co-facilitated by a community health worker (CHW) and peer educator. YWOT significantly mitigated social isolation, stigma, and improved mental health and social support of adolescent mothers. The purpose of this research was to analyze the extensive process evaluation data for YWOT.
Disciplinary Context: Process evaluation determines whether intervention activities are implemented as intended and resulted in certain outputs.
Methodology: Between January-April 2021, data analysis was conducted in NVivo 12 and Excel. Interviews (n=24 adolescent mothers; n=22 facilitators) and focus groups (n=2 with 25 key community stakeholders) were coded thematically in NVivo 12. Attendance registers, observation and facilitator session reports were analyzed in Excel.
Results, Outcomes, & Implications:
Fidelity: Observation reports highlighted that session plans were conducted as intended. Five categories were assessed on a Likert scale of 1-3, averaging 2.87.
Dose Delivered: All 12 sessions were delivered by each group, showing a 100% completeness rate.
Dose Received: Participants expressed positive feedback and requested YWOT continues.
Reach: 97.18% in the intervention arm were reached. On average, 9-10 adolescent mothers attended each peer support group. High intervention arm cohort retention rates existed at midline (80%) and endline (93%).
Recruitment: Recruitment occurred at the local clinic and during home visits by CHWs.
Context: Participants referred to the financial crisis with requests for income generation activities.
Conclusion: Results will inform the scale up of YWOT.

Title: Nontraditional and First-Generation College Graduates: Help Seeking and College Adjustment
Presenter(s): Erin Walsh & Daniel Purnell
Faculty Mentor: Dr. Janet Chang
Department: Psychology

Research on social-class culture and the help-seeking experiences of nontraditional and first-generation college students/graduates is limited. There is a dearth of research on these students, despite their need for academic and social support. Both nontraditional students (students who are 25 years or older), and first-generation college students (FGCS), those whose parents have not obtained a 4-year college degree, commonly feel socially excluded in college environments compared to traditional and continuing-generation students. A paucity of research has examined how cultural norms tied to social class influence the help-seeking behaviors of FGCS and FGC graduates. The purpose of this family case study was to gain an in-depth understanding of how three White first-generation college graduates (two being nontraditional students) adjusted to college and engaged in help-seeking behaviors. A qualitative approach enabled comparisons between siblings and examination of the interplay of familial and cultural norms expressed in college. The age when they attended college influenced their college adjustment. Findings revealed the importance of social reputation, self-reliance, and relational concerns that inhibited the use of social support. They sought help for academic problems from others who were in comparable situations or similar to them. The present research attests to the importance of social connections and cultural norms that affect college experiences.

West Chester University of Pennsylvania
Office of Research and Sponsored Programs
700 S. Church Street
West Chester, PA 19383

610-436-3557
research@wcupa.edu