



Senior Honors Thesis Presentations Spring 2023

Session	Location	Presenters
Tuesday, March 21st 2:00 pm – 4:00 pm	TNSC 108	<p>Megan Kungle - <i>Self-Evaluation of Registered School Nurses Competency in Scoliosis Screenings</i></p> <p>Myla Demko - <i>Designing Assessment Strategies to Evaluate Student Success in Qualitative Analysis for Organic Chemistry Laboratory</i></p> <p>Claire Olds - <i>Storytelling in Education: Engagement and Relation to the Wider World in a Fifth Grade Social Studies Classroom</i></p> <p>Cole Brogan - <i>Logistic Regression Analysis on the Value of Statistics in Major League Baseball</i></p>
Wednesday, March 22nd 2:00pm – 3:30pm	CSI 161	<p>Sarah Marie Oboy - <i>Alterations of Positive Coping Mechanisms Usage of the College Student Population during the Height of the COVID-19 Pandemic</i></p> <p>Sarah Pancake – <i>The Effect of Load Carriage on a Quadriceps Angle During Walking and Running</i></p> <p>Logan Ison - <i>The Correlation Between Kinematic Variables, Balance, and Running Economy in Long Distance Runners: A Pilot Study</i></p>
Wednesday, March 22nd 4:00pm – 6:00pm	CSI 161	<p>Elizabeth West - <i>Collection of Timed Up and Down Stairs Reference Data for Young Adults</i></p> <p>Lauren Michel - <i>Surface electromyography examination of quadriceps and hamstrings muscle coactivation ratio between genders during the front squat in collegiate athletes: A pilot study</i></p> <p>Michaela Christy - <i>Prevalence of Overweight Bag Carriage Between Males and Females on a College Campus</i></p> <p>Anthony Fire - <i>How COVID-19 Impacted the Practice of Anesthesia</i></p>

<p>Tuesday, March 28th 2:00 pm - 3:30 pm</p>	<p>Barrette Business Center</p>	<p>Kaitlyn Bryant - <i>A Correlational Examination of Family Function and the Media</i></p> <p>Grace Heighway - <i>School-Based Occupational Therapists' Perceptions of the Most Effective Interventions to Improve Fine Motor Functioning in School-Aged Children</i></p> <p>Madi Bentz - <i>Repercussions of Systemic Fear Invoked Upon Sexual Assault Survivors</i></p>
<p>Tuesday, March 28th 4:00 pm - 5:00 pm</p>	<p>Barrette Business Center</p>	<p>Elena Gioiello - <i>Determination of Altered SOX7 Variant A379V c-terminal Protein-Protein Interactions</i></p> <p>Luke Bologna - <i>Evaluation of Singlet Oxygen Generation in Anthraquinone and Perylene Tetracarboxylate Ester Derivatives as Photosensitizers in Photodynamic Therapy</i></p>
<p>Wednesday, March 29th 2:00 pm - 3:30 pm</p>	<p>CSI 161</p>	<p>Audrey Estes - <i>An Exploratory Study of College Students with Tattoos: Goals, Meanings, Prejudice, and Unfair Treatment</i></p> <p>Francesca Sberna - <i>The Lingering Effects of the COVID-19 Pandemic on Children's Academic and Social Skills</i></p> <p>Adamaris Cortes - <i>The Relationship Between Socio-Political Changes and Film: Early 2000s</i></p>
<p>Thursday, March 30th 3:30 pm - 5:30 pm</p>	<p>Barrette Business Center</p>	<p>Yi-hsuan (Rebecca) Tsai - <i>An Anti-Bias Storybook that Initiates Discussions about Diversity with Readers</i></p> <p>Shruti Gupta - <i>Building a Full-Stack web application prototype specially designed for young girls with a goal to encourage their participation in computer science and other technology-related fields</i></p> <p>Michael Sproull - <i>The Effect of Accountants' Gender, Generation, CPA Certification, and Agreeableness on Perceived Sense of Agency (SoA)</i></p> <p>Ashley Zgodzinski - <i>Buying Behavior: Identifying if Sustainability Matters When in Relation to Purchasing Decisions in the Fashion Industry and Corporate Social Responsibility</i></p>

Please scroll down for more detailed information about each presentation.

Tuesday, March 21st
2:00 pm – 4:00 pm
Location: TNSC 108

Megan Kungle

Self-Evaluation of Registered School Nurses Competency in Scoliosis Screenings

Advisor: Zana Zawahri MSN, RN, Clinical Assistant Professor of Nursing

Reader: Tracey Herstich, APRN, CNP, DNP, Clinical Associate Professor of Nursing

Registered school nurses are responsible for completing routine screenings of their students. Recently, there has been a debate regarding whether or not scoliosis screenings should continue to be mandated in schools. Early detection of scoliosis is vital as almost all children attend school, but not all children attend their annual physicals. There has been an increase in over-referral rates, false positive referrals, and false negative referrals. This project analyzes the confidence level of school nurses in their ability to screen students for scoliosis. Demographic information including years of practice, location of practice, number of students screened, and previous employment experience was used to investigate how confidence level can depend upon these factors. Improvement of health outcomes for school-aged children is a fundamental aspect of the school nurse's role. There is a lack of existing literature on the confidence levels of school nurses. This research study aims to fill this gap and look for improvements in the screening of scoliosis.

Myla Demko

Designing Assessment Strategies to Evaluate Student Success in Qualitative Analysis for Organic Chemistry Laboratory

Thesis Advisor: Amy J. Heston, PhD, Professor of Chemistry

Reader: Timothy J. Smith, PhD, Assistant Professor of Chemistry

The organic chemistry laboratory provides students with the opportunity to gain new knowledge in the fundamentals of chemical reactivity and how to conduct organic syntheses. Therefore, creating laboratory experiences that teach these critical skills is vital to the learning process, particularly for science majors. In this unique study, we evaluated the effectiveness of two organic chemistry laboratory experiments with a focus on student success in crystallization techniques, gas chromatography, and lab safety procedures. Assessment rubrics were created to measure the achievement of the student learning outcomes. Students in Organic Chemistry I Laboratory were assessed through two different means. First, visual observation was conducted to determine qualitative success. Then, students were given a set of questions to complete that pertained to the laboratory activities completed that day. When the data was collected, student performance was scored by using a 0-3 points scale. Based on the results, modifications to the labs will be implemented to ensure learner success within this course. Ultimately, this initiative is a critical step in our efforts toward continuous improvement in chemistry and the overall educational programs in the Division of Math and Science at Walsh University.

Claire Olds

Storytelling in Education: Engagement and Relation to the Wider World in a Fifth Grade Social Studies Classroom

Thesis Advisor: Seth Hepner EdD, Assistant Professor of English

Reader: Jennifer J. Green, PhD, Assistant Professor of Education

The purpose of this study was to examine the effects of narrative instruction on student engagement, ability to relate to the content, and connections to the modern world. Through analysis of a parent survey given at the beginning and end of the unit, narrative instruction was found to be an effective means of engagement, but not a flawless educational structure. The input of the parents also showcased the many other factors that affect student engagement and learning. Through the parent input, the experience of implementing a narrative unit, and educational research, student-centered and experiential learning emerge as the most effective forms of instruction.

Cole Brogan

Logistic Regression Analysis on the Value of Statistics in Major League Baseball

Thesis Advisor: Steven Daniel Harris, MEd, Professional Instructor of Mathematics

Reader: Kai Brunkalla, PhD, Associate Professor of Mathematics

Currently, there is limited information for the public sector of Major League Baseball on the processes regarding data analytics and statistics in MLB. Prior to the release of Moneyball, there was an imperfect understanding of success in professional baseball. After the developments which created sabermetrics in baseball, it remained to be seen which statistics were valued by baseball organizations. It was the goal of this analysis to determine which offensive metrics could be used to predict whether an MLB team makes the playoffs. A binary logistic regression analysis using IBM SPSS Statistics (Version 28) was used to create the model. Sabermetric statistics used were wins above replacement (WAR), runs created (RC), batting average on balls in play (BABIP), and on base percentage plus slugging percentage plus (OPS+). These predictor variables were compared to a measure of success, whether a team made the postseason. These team statistics were used for all 30 MLB teams over the years 2015-2019 to create the regression model. Upon completion the model was significant in predicting whether a team made the playoffs. A further study found that WAR and RC were the two variables that correlated most closely with making the postseason.

Wednesday, March 22nd

2:00pm – 3:30pm

Location: CSI 161

Sarah Marie Oboy

Alterations of Positive Coping Mechanisms Usage of the College Student Population during the Height of the COVID-19 Pandemic

Thesis Advisor: Stephanie Bachman, DHSc

Reader: Laci Fiala, PhD

The purpose of this research study was to evaluate whether an alteration of usage and frequency of positive coping mechanisms occurred during the height of the COVID-19 pandemic among undergraduate college students at Walsh University. A mixed model survey was the primary data collection instrument and the survey prompted 100 undergraduate students retrospectively evaluate their coping tendencies during the shelter-in-place order of the pandemic. The research findings noted majority of the participants self-identified themselves as primarily utilizing either meaning-focused or problem-focused coping mechanisms. Problem-solved coping mechanisms were the most frequently utilized coping mechanism during the shelter-in-place mandate portion of the pandemic, and lastly, there was a minor trend that the individual's current self-identified coping mechanism was the same coping mechanism that was utilized by the individual during the COVID-19 pandemic.

Sarah Pancake

The Effect of Load Carriage on a Quadriceps Angle During Walking and Running

Thesis Advisor: Keith Burns, PhD

Reader: Nathan Edwards, MS, TSAC-F

Females tend to have a larger quadriceps angle (Q angle) than males, and it has been inferred that larger Q angles can change movement patterns and increase the potential for musculoskeletal injury. Movement biomechanics can also be affected by load carriage, that is external weight added to one's body, whether in exercise or in tactical settings (e.g., soldiers, police officers, firefighters wearing equipment). However, the interaction of how Q angle and load carriage impact movement and biomechanics together is unknown, therefore the purpose was to investigate if load carriage changes the Q angle during walking and running. For the study we had 10 healthy recreational or competitive female athletes aged 18-35 participate. Demographics and previous injuries data were collected using a set of questionnaires, static Q angle was measured using a goniometer, and dynamic Q angle was measured using a motion capture system and treadmill with embedded force plates. Participants walked and ran on the treadmill at a self-selected pace for five minutes each with and without the weighted vest. Q angle changes were measured as frontal plane knee angle movement during weight acceptance throughout the gait cycle. Overall, the dynamic Q angle in females was different at a walking pace versus running pace, while unloaded and loaded variables did not significantly affect dynamic Q angle either in valgus or varus positions. Therefore, future research can provide society with more knowledge and understanding of how load carriage may affect Q angle, and thus alter movement patterns with the potential to cause patellofemoral pain syndrome as well as increase injury risk.

Logan Ison

The Correlation Between Kinematic Variables, Balance, and Running Economy in Long Distance Runners: A Pilot Study

Thesis Advisor: Jennifer Clevinger, PhD, Professor of Biology

Reader: Keith Burns, PhD

It is widely accepted that balance is important in distance runners to prevent injuries, however the relationship between performance, running economy, and balance remains unclear. The goal of this study was to determine if there is a significant relationship between running economy, kinematic variables, static balance, and dynamic balance. To examine this possible relationship, 30 members of the Walsh University Cross Country teams were studied. Of the 30 runners, 18 were men and 12 were women ages 18-23 years old. The participants completed a submaximal VO₂ test, which involved running on a treadmill for ten minutes. Five minutes were at a calculated easy pace, and five were at a calculated marathon pace. Participants then completed a series of balance tests, including the weight-bearing squat and rhythmic weight shift tests on the NeuroCom Balance Master. Bivariate correlational tests and paired sample t- tests were run for the data to determine if there was a significant relationship. Interestingly, there seemed to be no relation between static balance and running economy, however, dynamic balance and running economy were determined to have a significant positive correlation ($p < 0.05$). The results of this study bring up interesting findings surrounding the sport of distance running that could potentially contribute to best training practices in the future.

Wednesday, March 22nd

4:00pm – 6:00pm

Location: CSI 161

Elizabeth West

Collection of Timed Up and Down Stairs Reference Data for Young Adults

Thesis Advisor: Antonette Doty, PT, PhD, PCS, Visiting Clinical Assistant Professor of Physical Therapy

Reader: Alysha Walter PT, DPT, CCS, Clinical Assistant Professor of Physical Therapy

This study collected normative data for the Timed Up and Down Stairs (TUDS) outcome measure, which can be used by healthcare providers, specifically physical therapists, to measure lower extremity range of motion, coordination and balance, and movement control. This data was collected because there has been limited data collected on this test for young adults. The research questions were as follows: 1) What is the average time in seconds required for the completion of the TUDS in healthy young adults from 18-24 y.o? 2) Is the TUDS a reliable outcome measure for the evaluation of the young adult population? 3) Do age, BMI, sex, or activity level impact TUDS completion speed? 4) Is there a significant change in HR when completing the TUDS test? The amount of time required to complete this test was recorded using an automatic timing system and two handheld stopwatches. The age, height, weight, sex, and exercise frequency as well as informed consent of each participant was collected prior to the beginning of the study. Heart rate was measured at the beginning and the end of each set of trials. One practice trial followed by three experimental trials were conducted for

each participant. There were 44 female and 37 male participants involved in this research study (N=81). The mean performance time overall was 10.43 seconds. The maximum mean performance time was 11.81 seconds (18-year-old age group) while the minimum was 7.94 seconds (24-year-old age group). There were no statistical differences in mean time based on body mass index (BMI) or exercise frequency. Statistically significant differences were found related to sex and age. A statistically significant increase in heart rate was also found. The interrater and intrarater reliability of this test was also analyzed and the TUDS test was found to be reliable. This study provides reference data for the TUDS outcome measure in young adults, which can be used by physical therapists (PTs) in the clinical setting to assess mobility in young adults with and without lifelong disabilities.

Lauren Michel

Surface electromyography examination of quadriceps and hamstrings muscle coactivation ratio between genders during the front squat in collegiate athletes: A pilot study

Thesis Advisor: Ryan Monti, PT, DPT, SCS, Assistant Professor of Physical Therapy

Reader: Jenna York, PT, DPT, OCS, Clinical Assistant Professor of Physical Therapy

To date, there is limited information observing muscle activity differences between the genders on the front squat. The front squat is a widely used resistance exercise that strengthens the lower body and utilizes other muscles of the body as well. For this reason, the differences between males and females during this exercise should be defined more clearly for future exercise prescription. This study examined muscle activation patterns between the genders during the front squat by utilizing surface electromyography. Collegiate male (n = 7) and female (n = 11) athletes participating in soccer, lacrosse, or basketball performed 3 sets of 5 repetitions of the front squat using 80% of their one repetition maximum. Muscle activity was collected for the rectus femoris and the biceps femoris. Descriptive statistics were used to generate summaries about the data samples. Men displayed a higher hamstring to quadriceps (H: Q) ratio than women but significance of these results could not be determined. More extensive research is needed in the future to determine gender differences in muscle activation among various resistance exercises such as the front squat. For both genders, it may be necessary to supplement additional accessory lifts to strengthen the hamstring musculature to prevent ACL injuries.

Michaela Christy - *Prevalence of Overweight Bag Carriage Between Males and Females on a College Campus*

Thesis Advisor: Carey Minard, MAEd, OTD, OTR/L, Clinical Assistant Professor of Occupational Therapy

Reader: Kelsey Scanlon, PhD, Program Director and Chair of Exercise Science

Backpacks are a useful tool seen all over college campuses on a daily basis. The weight of objects carried in a backpack adds up, and musculoskeletal issues can arise when a person carries a backpack that is heavier than the recommended weight limit. This thesis examines the prevalence of overweight bag carriage between males and females on a college campus to identify if there is a need for intervention programming. Previous studies have been conducted regarding the prevalence of overweight bag carriage but have generally involved school-aged children and often do not examine gender differences in any detail. This study is a secondary data analysis of a convenience sampling of individuals on Walsh University's campus between 2017 and 2019. Findings indicated there is a higher prevalence of overweight bag carriage in one gender over the other. Future research on overweight bag carriage could identify variables other than gender that may affect the prevalence to further inform intervention programming on college campuses.

Anthony Fire - *How COVID-19 Impacted the Practice of Anesthesia*

Thesis Advisor: Tammie Davis, MSN, RN, CCRN, CPNP, Clinical Associate Professor of Nursing

Reader: Akiko Komura, MD, Anesthesiologist, Cleveland Clinic Mercy Hospital

The healthcare system has been greatly impacted by the COVID-19 outbreak. One area affected includes the standards for healthcare professionals providing anesthesia. Nurses and other medical professionals have had to adjust to new standards and protocols of care during the pandemic to protect patients as well as themselves. Anesthesia healthcare providers were among those who had to adapt quickly to maintain this protection. The purpose of this study is to examine these changes and how they compare to pre COVID-19 guidelines among providers of anesthesia care. Though there is still much to learn from the pandemic and about COVID-19, there has been research conducted on changes in these guidelines during the pandemic. The guidelines that have been modified and put in place have been meant to help lessen the spread of infection. One such guideline worth investigating is how anesthesia providers should be using their personal protective equipment (PPE) when interacting with patients. This study will focus on modifications in the use of personal protective equipment, intubation procedures, and medical equipment usage in anesthesia practice during the COVID-19 pandemic. The aim is to compare these changes in practice since the initial experience with COVID-19 and how they have impacted the provision of anesthesia. This is an integrated study that compares peer-reviewed scholarly articles with research studies on the changes in the care of patients during the pandemic. The findings discovered may provide other researchers with the opportunity to add to this topic and find other ways to help decrease the spread of COVID-19 in all settings in which patients require anesthesia services. An integrative review is a research method that involves reviewing prior studies as well as analyzing and synthesizing the literature to provide new knowledge and views on a certain topic. Identifying an issue, searching the literature, evaluating the data, strengths, and limitations, and making recommendations for future practices and advances are all part of the review. By using this method and analyzing different articles, this study will explore changes in guidelines that have been effective during the COVID-19 pandemic, and how they can impact the future practice of care in anesthesia. The guidelines that are working and may remain in the future will be explored to identify ways that can help prevent the spread of COVID-19 and other infections in anesthesia practice.

Tuesday, March 28th

2:00 pm - 3:30 pm

Location: Barrette Business Center

Kaitlyn Bryant

A Correlational Examination of Family Function and the Media

Thesis Advisor: Joseph Wayand, PhD, Associate Professor of Psychology

Reader: Yanmei Xu, PhD, Assistant Professor of Sociology

Past research suggests that people are being introduced to media usage and technology from a younger age than ever before. The accessibility and affordability of technology has led to its usage everywhere. As media developments continue to increase, it is important to understand how technology usage impacts family functioning. This research investigated the effects of technology on family structure and family development. An online survey was utilized to recruit 117 parent and young adult participants. Participants were asked personal questions about activities and time spent

on media devices. Such questions were asked in order to evaluate and compare the data of both sample groups. Survey questions were adapted from past studies relative to the topic. These questions were incorporated into the study in order to approximate how much time each participant spent utilizing media, to gauge media attitudes, media addiction tendencies, and any perceived impact on family functioning. Results showed no differences in media usage between students and parents. However, students had higher scores for questions nine through 16, which involved an Internet Addiction Diagnostic Questionnaire. Despite this, there was no evidence to support that high media users reported lower rates of family functioning. Limitations of the study included a small population size, population group disparities, and a limited number of valid respondents. Future studies should extend the sample group to include participants outside of Walsh University as well as hold interviews with respondents to ensure that participants respond to each question with care.

Grace Heighway

School-Based Occupational Therapists' Perceptions of the Most Effective Interventions to Improve Fine Motor Functioning in School-Aged Children

Thesis Advisor: Joseph Wayand, PhD, Associate Professor of Psychology

Reader: Carey Minard, MAEd, OTD, OTR/L, Clinical Assistant Professor of Occupational Therapy

Pediatric occupational therapy is a common form of therapy used to treat children with all types of developmental delays and diagnoses. One main developmental delay for school-aged children six to twelve years of age are fine motor skills. Fine motor skills are movements that are smaller than that gross motor and involve the hands, wrists, and fingers. In school, fine motor skills include things like cutting, coloring, drawing, and handwriting. School-based occupational therapists (SBOT) play a significant role in supporting developmentally delayed children through individualized interventions to help each individual student be able to accomplish crucial fine motor milestones. This research collected interview data from nine SBOT practitioners concerning the most effective interventions for fine motor delays from their perceptions and compared to that of supported research articles. The significance of this study was to identify if a group of local SBOT practitioners utilizes evidence-based fine motor interventions or other approaches in practice. These results determined that SBOT practitioners' intervention techniques for fine motor skills aligned with that of empirically supported research. The main point of this research study was supported, but other findings concerning fine motor intervention in schools were recognized for future direction. Several SBOT practitioners and several research articles noted the need for collaboration of teachers, parents, and aids in expediting student fine motor development.

Madi Bentz

Repercussions of Systemic Fear Invoked Upon Sexual Assault Survivors

Thesis Advisor: Yanmei Xu, PhD, Assistant Professor of Sociology

Reader: Seth Hepner, EdD, Assistant Professor of English

Sociologist Erving Goffman has studied and established the prevalence of stigma and introduced theories of Dramaturgy (passing strategies) based on stigma. As defended by prominent scholars, stigma is considered a primary cause of negative emotions felt by survivors of sexual assault and highly risk revictimization (e.g., self-blame, mental health problems, loss of relationships, etc.). Whilst researchers investigate potential consequences of stigma, negative social reactions, and trauma, the direct connection between a survivor of sexual assault and their hypothesized intention to present in a self-orchestrated passing strategy is unknown. Additionally, there is nominal research regarding the usage of negative social reactions amongst different social groups. In account of prospective dangers

exacted by society towards survivors, this content analysis is aimed to uncover the depth of consequences related to societal stigma in sexual assault and the responses of a survivor or the lengths they may go to avoid them (as well as other reasons one may pass). Furthermore, the goal is to assess the roles and influences different social groups may have regarding the consequences mentioned prior. Findings indicate survivors were likely to respond negatively to most interactions, regardless of social group or reaction type. The weight stigma bears on fear is highlighted in the analysis and further obligates society members to be mindful of their interactions with sexual assault survivors.

Tuesday, March 28th

4:00 pm - 5:00 pm

Location: Barrette Business Center

Elena Gioiello

Determination of Altered SOX7 Variant A379V c-terminal Protein-Protein Interactions

Thesis Advisor: Adam Underwood, PhD, Professor of Biology

Reader: Darlene Walro, PhD, Professor of Microbiology

The 20 member SRY-box (SOX) related proteins contain a conserved High Mobility Group-box (HMG-box) DNA binding domain that allows these proteins to function as transcription factors. Much research has focused on the HMG-box, while the function of conserved regions flanking this domain remain elusive. Sequence analysis of all SOX genes has identified conserved areas in these flanking regions encoding potentially impactful sequence variants. One such polymorphism occurs at residue 379 in the C-terminus of SOX7, exchanging an alanine (A) for valine (V). Variant A379V is predicted to alter SOX7 protein-protein interactions (PPI). The A379V variant has been linked to glaucoma and retinal degeneration based on Geno2MP queries that associate exomic datasets to phenotype. The purpose of this project was to express native and variant SOX7 proteins in transfected HeLa cells to identify differences in PPI. The hypothesis tested was: FLAG epitope tagged SOX7 and SOX7 A379V will differentially bind and coimmunoprecipitate (CoIP) proteins from transfected cells. To test this hypothesis, 55,000 HeLa cells were seeded onto 60mm tissue culture plates and transfected with codon-optimized expression constructs encoding Red Fluorescent Protein (RFP), a C-terminal 3x-FLAG epitope and native or variant SOX7. 24hr post transfection, RFP expression confirmed expression of SOX7. HeLa cells were lysed in immunoprecipitation buffer and SOX7 and interacting proteins were subjected to CoIP using monoclonal anti-FLAG epitope linked Dynabeads[®]. Captured proteins were then subjected to SDS-PAGE and stained with BioRad Oriole[™] Fluorescent Stain to show protein banding differences in native and variant SOX7 lanes.

Luke Bologna

Evaluation of Singlet Oxygen Generation in Anthraquinone and Perylene Tetracarboxylate Ester Derivatives as Photosensitizers in Photodynamic Therapy

Thesis Advisor: Timothy J. Smith, PhD, Assistant Professor of Chemistry

Reader: Peter Tandler, Ph.D., Associate Professor of Chemistry

Photodynamic therapy (PDT) is a minimally invasive medical treatment that uses light and a photosensitizer, a light-sensitive molecule, to destroy cancer cells and abnormal tissue, which occurs through either a Type I or Type II process. Studies regarding photosensitizers are incredibly important

to furthering the potential of this treatment option, as their efficacy and safety depend on the properties of the photosensitizer as well as the type of cancer. Different photosensitizers have different chemical structures and spectral properties, which affect their ability to reach and accumulate in target tissues. Furthermore, a photosensitizer's ability to generate singlet oxygen, a highly reactive species that is responsible for cell death under PDT, varies from compound to compound. This study explores anthraquinone and perylene tetracarboxylate ester derivatives as photosensitizers for PDT. Various dyes were synthesized and characterized using UV-Vis spectroscopy, FTIR spectroscopy, ¹H NMR spectroscopy and through the use of 1,3-diphenylisobenzofuran as the photoreactive reagent observance of decay was measured and quantified in each respective dye. This information provided details regarding singlet oxygen generation. Results showed that many of the perylene-based compounds showed potential as photosensitizing molecules. However, further research is needed to enhance these findings and garner absolute data.

Wednesday, March 29th

2:00 pm - 3:30 pm

Location: CSI 161

Audrey Estes

An Exploratory Study of College Students with Tattoos: Goals, Meanings, Prejudice, and Unfair Treatment

Thesis Advisor: Yanmei Xu, PhD, Assistant Professor of Sociology

Reader: Eugenia Johnson-Whitt, PhD, Assistant Professor of Education

Tattoos have been through many different meanings and changes throughout the centuries. Currently, there were still negative perceptions of those who get tattoos and a disconnect between those in college who have tattoos. College was typically thought of with positive connotations, while tattoos entice negative ones. Therefore, semi-structured in-depth interviews were conducted with five college students who have tattoos in order to discover their own goals, meanings, prejudice, and unfair treatment. Manifest and theme coding were utilized in order to interpret results. It was found that college students resort to covering their tattoos and other passing strategies to have a "normal" appearance. That way, they were able to have tattoos but minimize the negative implications that may occur due to them.

Francesca Sberna

The Lingering Effects of the COVID-19 Pandemic on Children's Academic and Social Skills

Thesis Advisor: Nina Rytwinski, PhD, Assistant Professor of Psychology

Reader: Yanmei Xu, PhD, Assistant Professor of Sociology

The COVID-19 pandemic had a substantial impact on the education of school-aged children in the United States. Schools were suddenly shut down and virtual learning became heavily utilized. Students who were in early elementary school (kindergarten through second grade) when the pandemic began may have been particularly negatively affected by online education because this is a time of important social and academic growth that is difficult to acquire in an online environment. Thus, the current research project involved interviewing nine 3rd or 4th grade teachers and fifteen parents of 3rd or 4th grade students about their perceptions of how the pandemic impacted and continues to impact their students and children. The results showed differences in perceptions

between parents and teachers on how children were affected by the pandemic. Parents believed that their children were more negatively affected socially than academically. On the other hand, teachers held strong negative views of the pandemic's academic and social effects on students. On a positive note, both parents and teachers were hopeful that children will continue to be resilient and will not show enduring negative social or academic consequences. Longitudinal research is needed to continue analyzing the lasting effects of the pandemic on children's development and to further understand parents' and teachers' points of view.

Adamaris Cortes

The Relationship Between Socio-Political Changes and Film: Early 2000s

Thesis Advisor: Mark C. Rogers, Professor of Communication

Reader: Michael Modarelli, PhD, Associate Professor of English

Film is a useful way for the entertainment industry to communicate with its audience. It can be utilized to bring awareness to many issues and share important messages with audiences around the world. As film continues to become more popular, it is essential that we understand how to interpret what we are seeing, so we can explore the relationship between film and society really is. Films released during a specific decade can express a lot about what was going on in society at the time. To gain a better understanding of this relationship this project will be making an argument that shows how American popular films from the early 2000s (2000-2010) relate to social issues that were relevant to Americans 15-30 years of age during this decade. Based on research that determined what Americans considered to be the significant events of the decade, this project focuses on how social issues like terrorism, racism, and the financial crisis were depicted in three of the decade's biggest box office hits: *Spider-Man (2002)*, *Cars (2006)*, and *Avatar (2009)*. As we examine how film and society relate to each, we can begin to understand how codependent they truly are.

Thursday, March 30th

3:30 pm - 5:30 pm

Location: Barrette Business Center

Yi-hsuan (Rebecca) Tsai

An Anti-Bias Storybook that Initiates Discussions about Diversity with Readers

Thesis Advisor: Jennifer Green, PhD, Assistant Professor of Education

Reader: Eugenia Johnson-Whitt, PhD, Assistant Professor of Education

This Anti-Bias storybook demonstrates the importance of teaching young children from kindergarten to second grade how to be respectful of others who are different from them and how this knowledge could positively support their social-emotional development. Biased opinions can cause conflicts in society and create a social hierarchy, which people use to consider themselves as superior or inferior to other diverse groups, based on characteristics such as race, gender, and ability. Many young children take in biased opinions on diverse groups of people from their environment, which include family members, teachers, and peers. Following the Anti-Bias Framework (ABF), the storybook provides an entry point and guides readers through the stages of feeling, thinking, responding, and sharing, with hands-on activities and research-based strategies to encourage discussions and reflections that align with the Ohio Department of Education's Social and Emotional Learning Standards. The anti-bias storybook is a tool for teachers and adults to address diverse topics and

encourage conversations in classroom and at home for students to recognize unfairness and bias, as well as further promote actions against prejudice and racism.

Shruti Gupta

Building a Full-Stack web application prototype specially designed for young girls with a goal to encourage their participation in computer science and other technology-related fields

Thesis Advisor: Kai Brunkalla, PhD, Associate Professor of Mathematics

Reader: Jennifer Loudiana, MEd, Director of User Support and Classroom Technology

It is a fact that there are more men than women in technology-related disciplines. Girls Who Code reports that about 74 percent of young girls show interest in computer science and STEM fields. And yet, by the time they make decisions about their field of study and career, they step back from choosing Computer Science and other STEM majors. Usually, they are discouraged or intimidated by the male-dominated field. Some of them do not know where to start and how to start. Some of them do not have enough financial resources to take the step to pursue a degree in a technology-related discipline or join boot camps. In response, my research is focused on building a full-stack web application prototype specially designed for young girls with the goal of encouraging them to learn Computer Science. Women should have access to all kinds of necessary resources at an early age so that they can be confident enough when it comes to choosing their careers in technology. To meet this goal, the web application will have information about resources like scholarships, clubs, organizations, helpful websites, YouTube videos, projects, events, and many more. Therefore, the website will fulfill the purpose by increasing the visibility of resources and opportunities and sharing inspirational stories of successful female professionals in STEM.

Michael Sproull

The Effect of Accountants' Gender, Generation, CPA Certification, and Agreeableness on Perceived Sense of Agency (SoA)

Thesis Advisor: Julie Szendrey, DBA, PCM, Professor of Business

Reader: Patty Goedl, Ph.D., MPA, BBA

“Agency theory has been one of the most important theoretical paradigms in accounting during the last 25 years,” (Lambert, 2006, p, 260). Lambert writes that agency theory in the accounting profession focuses on the client-business relationship, specifically how incentives affect information, accounting, and compensation designs and structures. This specific research examines “agency” in the accounting profession from a different perspective—as a psychological concept relating to accountants’ perceptions of their own control over one’s mind, body, and immediate environment, known as “Sense of Agency” (SoA) (Tapal et al., 2017). This concept is further divided into the sub-constructs of positive sense of agency (SoPA) and negative sense of agency (SoNA) with positive sense of agency referring to a sense that respondents believe that they can successfully enact desired outcomes and negative agency being they believe they cannot.

To explore the relationships between variables, an online survey administration organization was used to collect data from 90 professionally active accountants living throughout the United States on the variables of gender, generation (age), and Certified Public Accountant (CPA) certification. In addition to collecting responses on Sense of Agency (SoA), the Big 5 personality concept of Agreeableness was also included because of its connection with similar past research. After performing descriptive statistics and factor analysis, 8-items from the original SoA scale were used to test the research hypotheses statements. Results indicated partial support of the proposed

hypotheses, most specifically a relationship between SoA, both positive and negative, of accountants and generation (age). The results of this research add to the body of knowledge and can be compared to previous studies on agency in France (Tapal et al., 2017) and Israel (Hurault et al., 2020). Future researchers may consider using the Sense of Agency (SoA) scale by career field and compare findings to results within this study.

Ashley Zgodzinski

Buying Behavior: Identifying if Sustainability Matters When in Relation to Purchasing Decisions in the Fashion Industry and Corporate Social Responsibility

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Fashion companies today have several options when it comes to producing clothing items. As a society, companies are more likely to listen to their consumers' opinions and buying patterns as a way to be the most profitable. Literature has shown that people who have more background knowledge about healthy environmental patterns are more likely to restrict and be selective with who they purchase from, as they want products that are produced in eco-friendly ways by companies who are able to demonstrate corporate social responsibility. The previous literature findings were based on a more global scale. This study seeks to narrow down how buying behavior can affect corporations' decisions with the focus on participants from the United States. My study focused primarily on the correlation between the demographic of an individual and how that affects their behavior when faced with purchasing or the association with companies either demonstrating good or bad corporate social responsibility. Participants were found to not demonstrate any high significant correlation when comparing the demographics to the research questions that were pulled based on previous literature findings. With that being said, there was a slight distinction that separated age from the other demographics, but as stated above it does not demonstrate a correlation significantly. I would recommend that future studies concentrate on the measures that were used to address the research question, as the measures may not have been appropriately reflecting what the research was trying to focus on.