GRADUATE STUDENT RESEARCHERS

Title: Balancing Act: Job Satisfaction and Stress among Principals in Pennsylvania
Student Researcher: Barbara Sliker Weikert
Faculty Mentor: Mary Calderone, Ed.D.
Department of Education

Abstract:
This qualitative study explored job satisfaction and stress among principals in Pennsylvania. The study took place in seven public school districts from 1 county in southeastern Pennsylvania that serves students from Kindergarten to 12th grade. Instruments used in this study included the Principal Satisfaction and Stress Questionnaire (PSSQ), which is a survey with Likert scale and open-ended questions designed for this study; and individual interviews. Thirty four principals participated in the PSSQ and 9 principals participated in the interviews. Principals involved in the study led either elementary, middle, or high schools. The results of the study suggest that there are factors which directly affect job satisfaction for principals and also factors which contribute to the stress of the position. According to principals, spending time with students and teachers positively affects job satisfaction. Principals also reported that policy instructions from the Pennsylvania Department of Education negatively affect job satisfaction. Principals indicated that challenging policy demands and overwhelming mandates were the greatest stressor of the position. The 2nd greatest stressor faced by principals was time constraints. Principals stated that additional support and limiting state mandates would increase job satisfaction.

Title: Nutrition Intervention: Healthy Food Choices for Young, Single Mothers
Student Researcher: Melinda Allen
Faculty Mentor: Tracy Oliver, Ph.D., RD, LDN
Department Nutrition and Dietetics

Abstract:
Background: Many changes in the lifestyles of Americans have contributed to the rise in overweight and obesity that has been reported over the last few decades. These changes include food choices made both at home and outside of the home. Education on healthy eating habits and food choices needs to be presented to our youth and next generation to help improve the overall health of our country.
Objective: To implement and evaluate an intervention of healthy food choices intended to improve the knowledge of young single mothers on a budget. The long-term goal of the intervention is to change the dietary habits of mothers and their children.
Methods/Procedure: The study utilized a quasi-experimental, pre/post-test design which provided a PowerPoint presentation with visual aids to a convenience population. The 8 female subjects were single mothers of at least one child from low-income households, between the ages of 18-21.
Results/Conclusions: Results revealed a 9% increase in mean knowledge score. Of the 8 participants, 63% (n=5) improved scores; 25% (n=2) decreased scores; and 12% (n=1) had no change in score from pre-test to post-test. Further research is needed to evaluate if the intervention was successful long-term with the participants and their children.
Title: Pediatric Obesity and Serving Sizes for Children  
Student Researcher: Joy Saudargas  
Faculty Mentor: Laura Frank, Ph.D., RD, LDN  
Department of Nutrition and Dietetics

Abstract:

Background: Pediatric obesity has been on the rise in the last few decades. A child with a Body Mass Index over the 95th percentile is considered obese. Being obese can lead to an array of health conditions including diabetes mellitus, heart conditions, joint conditions, and polycystic ovary disease. Research has shown that educating parents about obesity can encourage them to note the warning signs and work toward preventing pediatric obesity in their children by serving age-appropriate serving sizes, eating more at home, and promoting healthy activity.

Objective: Provide a nutrition education in-service to the parents and teachers of the Springton Lake Montessori School, to improve their understanding of pediatric obesity and serving sizes for children, utilizing a PowerPoint Presentation and handout presented by the researcher.

Methods/Procedure: The study utilized a quasi-experimental, pre/post test design, with a convenience population of parents and teachers from Springton Lake Montessori School who are directly associated with children. The 13 subjects will be primarily Caucasian females, between 30-60 years old.

Results/Conclusions: Results are pending as the nutrition education will take place on March 11, 2015.

Title: The Effects of Portion Control on Religious Sisters Living in a Nursing Home  
Student Researcher: Carla DiProspero  
Faculty Mentor: Tracy Oliver, Ph.D., RD, LDN  
Department of Nutrition and Dietetics

Background: Approximately 35-85% of the elderly living in long-term care facilities experience malnutrition. According to the National Health and Nutrition Examination Survey (NHANES) almost 35% of adults aged 65 and over were obese in 2007–2010, however 16% of community-dwelling Americans older than 65 years consumed fewer than 1000 calories per day. Though these statistics represent seemingly opposing results, both are results from one potential cause; portion control.

Objective: Provide a nutrition education in-service to the food service staff to improve their ability to portion out serving sizes appropriately, utilizing a presentation, discussion, and handout presented by the researcher.

Methods/Procedure: The study utilized a quasi-experimental, pre/post-test design, with a convenience population of food service staff directly engaged in patient care. Twelve participants took part in the study on two separate days. Eleven of the subjects were female, one was male; ages ranged from 18-mid fifties. The ethnic breakdown was: one Asian, one Hispanic, two African American, and eight Caucasians.

Results/Conclusions: Of the 12 participants, 42% (n=5) improved scores from pre-test to post-test, 25% (n=3) decreased their scores, and 33% (n=4) showed no change. Further research is needed to investigate the influence of RD-provided staff education on portion size knowledge.
Title: The Effect of Avocados on Weight Management, Cholesterol, and Cardiovascular Disease Risk Factors
Student Researcher: Susan Stalte
Faculty Mentor: Cathie Ostrowski, MS, RD, LDN, FAND
Department of Nutrition and Dietetics – Meredith College

Abstract:
Avocados are a nutrient-dense source of healthy monounsaturated fats, dietary fiber, and essential nutrients. Recent epidemiological data has demonstrated the relationship between avocado and avocado oil consumption on weight management, cholesterol, and cardiovascular disease (CVD) risk factors. The purpose of this literature review is to discuss published information and summarize the findings of recently conducted studies on avocado intake with these factors. Research articles used were obtained through the Meredith College Library EBSCOhost Online Research Database and included the Journal of the American Heart Association, Nutrition Journal, and Disease Markers. An introduction to this topic is followed by a discussion of whether moderate avocado intake can have a positive effect on diet quality, weight management, cholesterol, and cardio-metabolic risk factors. This information can be useful for the Registered Dietitian in addressing avocado intake recommendations.

Title: How Clinicians Intervene when Treating Narcissistic Disorders: A Survey of Psychoanalytic Practice
Student Researcher: Brian Esposito
Faculty Mentor: Jed Yalof, Psy.D., A.B.P.P.
Department of Graduate Psychology

Abstract:
This study investigated how psychoanalytic clinicians would anticipate treating two distinct forms of narcissistic personality disorder. In this study, psychoanalytic practitioners were asked to review two vignettes depicting variations on narcissistic personality disorders (overt and covert) and endorse interventions along a non-interpretive-interpretive continuum that they might use when treating these two clients. While the study was exploratory, it was hypothesized that different types of narcissistic disorders would elicit different preferences for interventions. Results of intervention endorsement varied and were organized by intervention median score. Strongly endorsed interventions for the overt case included: mirroring affect, processing two forms of countertransference (feeling distanced from and anger towards client), and maintaining a nonjudgmental attitude. Strongly endorsed covert interventions included: mirroring affect, processing one form of countertransference (feeling distanced from client), and maintaining a nonjudgmental attitude. Strengths of the study included a comprehensive literature review and the study's direct clinical applicability. Limitations to this study included a small sample size and neutral wording of interventions. Future directions could increase sample size and use population filters.
Title: The Era of Sports Concussion: Evolution of Knowledge, Practice, Patient Care & the Role of Psychology
Student Researchers: Brittany Lebretore, Jesse Main, Katelyn DeFrangesco, Jessica Taylor
Faculty Mentor: Julie Guay, Psy.D.
Department of Graduate Psychology

Abstract:
The topic of sport concussion has gained significant prominence, resulting in dramatic growth in research funding, widespread media coverage, and increased public awareness. These efforts have provided evidence that concussion, once believed to be a benign injury, may have devastating consequences for some individuals, particularly those who experience prolonged recovery from injury or long-term cognitive and psychological effects. In response to growing concerns, professional sports organization, federal/state government, and various health-related disciplines have all contributed to efforts to educate the public, and improve assessment, treatment, and management of this injury. This has resulted in widespread changes to laws, game rules and policies, and recovery management protocols. Because recovery from concussion can be affected by the interplay of psychological, psychosocial, cognitive, cultural, and physical factors, psychologists are uniquely positioned to provide comprehensive care for individuals affected by this injury and play a critical role in enhancing patient care. Presented is a summary of some of the latest research findings on sport concussion.

Title: Effectively Counseling First Generation College Students
Student Researcher: Jessica Fegely Reinhard
Faculty Mentor: Marie McGrath, Ph.D.
Department of Graduate Psychology

Abstract:
In the United States, the attainment of a four-year college degree is associated with a gain in lifetime earnings (Perna, 2003), active participation in the workforce (Pascarella & Terenzini, 2005), and an enriched development in a sense of self (Markus, Ryff, Curhan, & Palmersheim, 2004). As such, enrollment at degree-seeking institutions has increased by 32 percent since 2001 (U.S. Department of Education, 2013). As the number of students on college campuses has begun to rise, however, so too have the prevalence and severity of mental health problems in college counseling centers (Kitzrow, 2003). Of particular concern is the level of anxiety and depression experienced by young adults (Levine & Cureton, 1998). Those at high risk include individuals whose parents did not attend or never enrolled in post-secondary education (FGCS) (Terenzini, Spring, Yaeger, Pascarella, & Nora, 1996), primarily because FGCS experience a higher degree of difficulty adjusting to college (Hertel, 2002; Orozco, 1999). As FGCS make up approximately 43 to 50 percent of the total students attending postsecondary institutions, the unique challenges experienced by this group have generated recent interest. This presentation will address common therapeutic concerns of FGCS as well as strategies to facilitate retention on college campuses.
Title: Personality Factors and Treatment Outcome in Roman Catholic Clergy
Student Researcher: AnnMarie Whithed
Faculty Mentor: Sr. Donna Kelley, IHM, Psy.D.
Department of Graduate Psychology

Abstract:
Personality dysfunction can have a damaging effect on one’s ability to negotiate social, family and work relationships. Considering their role in the community, if a cleric becomes dysfunctional it can have a deleterious effect on those who rely on him for support and leadership. Examining personality profiles seen in clergy who are admitted for residential treatment and those that appear to respond to treatment may help psychologists who work with this population develop and implement more effective treatment. This paper will examine personality factors in 148 Roman Catholic diocesan priests who were admitted into a private, residential psychiatric facility serving primarily Roman Catholic clergy and religious order men and women. Specifically, pre- and post-treatment profiles from the Millon Clinical Multiaxial Inventory – III (MCMI-III) will be examined, clinically elevated scales identified, and pre-and post-treatment differences noted. Similarly, differences between length of treatment and changes in personality patterns will be identified. Implications for treatment will be considered.

UNDERGRADUATE STUDENT RESEARCHERS

Title: Isolation of Novel Arthrobacter sp. Phages with a Robust New Method
Student Researcher: Dylan Chudoff
Faculty Mentor: David Dunbar, Ph.D.
Department of Biology – Cabrini College

Abstract:
As Arthrobacter sp. bacteriophages are being discovered and investigated for their genomic diversity, host range specificities, and possible applications in bioremediation, increasing attention is placed on finding new phage isolates. Previous isolation procedures resulted in little success and required long incubations. Here, we present the discovery and initial characterization of multiple Arthrobacterphages found in southeastern Pennsylvania to be added to the current collection of 101 discovered and 18 sequenced Arthrobacterphages. Soils were gathered from several locations and phages were extracted from soil and filtered into enrichment culture with host strain Arthrobacter sp. KY3901, previously not attempted in Arthrobacterphage isolation. Initial attempts with this new method yielded several phage isolates showing varying plaque morphologies indicative of several putatively different phages. Calcium chloride dependency has also been shown to be a relevant parameter in isolating Arthrobacterphages. Results showed that three putative phages were highly dependent on high concentrations to form plaques whereas others grew independent of calcium. New phages were analyzed by restriction digest showing possible methylation of the genome. This enrichment procedure has shown to be effective in isolating various types of phages with Arthrobacter and other types of bacteria, also.
Title: The Analysis of Microbes on Common College Surfaces and their Survivability in the Presence of Anti-Microbial Agents
Student Researchers: Krystal Tolson, Brittany Sturdivant
Faculty Mentor: Kelly Orlando, Ph.D.
Department of Biology

Abstract:
From study sessions to part-time jobs to involvement in campus activities, college students cannot afford to be sick. Thus, staying healthy is key for students to balance and stay on top of everything in their life. However, college students come across many surfaces that are touched by numerous people, causing students to pick up bacteria that can ultimately affect their health. Constantly on-the-go, students do not have the time nor ability to properly wash their hands throughout the day, thus hand sanitizers are popularly used as an alternative. We tested a number of hand sanitizer brands, including Purell, Germ Ex, a Bath & Body Works brand, and Avagard. We swabbed our hands after the use of each brand in order to determine the effectiveness of the hand sanitizers. In addition, we also swabbed at different time points to determine how long it took for the hand sanitizer to have an effect on the bacteria. Finally, we used DNA barcoding to identify the bacteria that grew on the various surfaces around campus. Ultimately, if we find a potentially pathogenic bacteria on the common surfaces we use, specifically bacteria that was transferred to the hand and not killed by a hand sanitizer, we should focus on using a more effective hand sanitizer in the future.

Title: DNA Barcoding of Diptera Nematocera
Student Researchers: Danielle Lopez, Rebecca Oulton
Faculty Mentor: Sr. Susan Cronin, IHM, Ph.D.
Department of Biology

Abstract:
The purpose of this experiment is to utilize DNA Barcoding to identify and classify different families and species of Diptera Nematocera in order to determine whether DNA Barcoding is specific and beneficial. Specific Barcoding protocol is followed by collecting and identifying specimens, isolating DNA, amplifying the COI region of the mitochondrial DNA by PCR, analyzing PCR by Gel Electrophoresis, sending away for DNA sequencing, and utilizing DNA Subway to analyze the results. DNA Barcoding is helpful in identifying different species and subspecies; however, more research should be conducted in order to determine the effectiveness of Barcoding and the number of samples needed for accurate data analysis.
Title: Mercury: Neofunctionalization of Candida glabrata PMU3 as a Thiamine Phosphatase

Student Researchers: Zefanne Bergado, Pamela Myers
Faculty Mentor: Kelly Orlando, Ph.D.
Department of Biology

Abstract:
Candida glabrata is evolutionarily related to the well-characterized budding yeast Saccharomyces cerevisiae, which is commonly utilized in baking and in alcohol fermentation. However, C. glabrata lacks homologs for the phosphatases required for a number of vital pathways in S. cerevisiae, including thiamine (Vitamin B1) uptake. Survival of single-celled organisms is contingent on this pathway; therefore, there must be other enzyme(s) replacing this necessary function in C. glabrata. The Wykoff lab at Villanova University has uncovered a family of genes in C. glabrata (PMU1, PMU2, and PMU3) created by gene duplication whose members seem to have neofunctionalized in order to replace various missing phosphatases. Preliminary studies from the Wykoff lab and from our lab suggest that PMU3 encodes an enzyme that can remove phosphate from TPP, a phosphorylated form of thiamine, which then allows it to be taken into the cell. Our objective for this study is to uncover the amino acid changes in the ancestral PMU sequence necessary to generate this novel PMU3 activity. We are testing the phosphatase activity of various fusions of PMU2 (which does not share this neofunctionalized activity) and PMU3 to narrow down the region(s) that confer thiamine phosphatase activity. Once a smaller region is identified we can create point mutations in PMU2 or in the fusions to determine the individual amino acids that confer thiamine phosphatase activity. Our goal is to determine the vital regions of the C. glabrata PMU3 gene necessary for its neofunctionalized enzymatic activity.

Title: Immigration Issues in Schools

Student Researcher: Matt Dunn
Faculty Mentor: Peggy Schooling, Ed.D.
Department of Education

Abstract:
The rise in immigrant children as a result of war and political strife have placed pressure on educational systems to deal with many challenges. As a result, school districts have responded by developing programs to support immigrant children as they enter the school system. Additionally, schools stress developing relationships with parents and the community as a means of helping students succeed. One major challenge has been trying to help immigrant children adapt to the new culture and learn English as some children have experienced trauma in their lives as well as lack of schooling. In some cases, overcrowding due to a large influx of students creates a problem in providing enough ELL programs and ensuring the success of children who may be unfamiliar with the language or even formal education. Schools will require new tools and programs to continue to address the needs of these students.
Title: Schoolhouse to Jailhouse: The School to Prison Pipeline
Student Researcher: Mollie Dunbar
Faculty Mentor: Peggy Schooling, Ed.D.
Department of Education

Abstract:
As more schools have continued to adopt overly strict discipline policies, the rate of prison inmates has drastically increased over time, especially amongst minority groups. Due to the increase of severe behavioral policies, as well as the extreme emphasis on standardized testing, more young adults are now sitting in jail cells, rather than classrooms. This issue is becoming progressively problematic, as it has decreased the number of educated citizens in the United States. Possible solutions exist that could cut the flow of students placed in detention centers, which would ultimately benefit the individual student as well as the greater society, if schools, detention centers and government officials were willing to work cohesively on this issue.

Title: Analysis of Teacher Interactions with Students According to Gender
Student Researchers: Lindsay Dugan, Kadi Waltz
Faculty Mentor: David Brennan, Ed.D.
Department of Education

Abstract:
They purpose of the poster presentation will provide a tool for the analysis of teacher interactions with students according to gender. The presentation will document teacher interaction between students of different languages or cultural back grounds, students from different economic back grounds, or students with different academic ability levels. The poster will display the following: the amount of time given for each interaction, the response time given by the teacher according to student gender, and other student characteristics, such as ethnicity. This research was completed over a 3 week period in Pre K to 4 classrooms. The research involved 21 different teachers and 262 students.
Title: School Safety and Security  
Student Researcher: Erica Buckley  
Faculty Mentor: Peggy Schooling, Ed.D.  
Department of Education

Abstract:
Since the event of the school shooting at Columbine High School that occurred on April 20, 1999 in Colorado and the shooting at Sandy Hook Elementary School, in Connecticut, on December 14th, 2012, schools all over the nation have stepped up to provide a more intensive school security system and a safer school environment for all students and administrators. Administrators are constantly looking for new and cost effective security strategies to make their schools as safe as possible. The problem is that violence is everywhere. Safety is a broad topic, but this paper will explore many different security policies that schools are trying to implement and how teachers and administrators play an important role in in the safety of the students and of themselves. Though there are many different types of policies being implemented in schools there are imperative policies and tactics that need to be in place in all educational settings to ensure the safety of all students, teachers, and administrators.

Title: Advantages and Disadvantages of Bring Your Own Device  
Student Researcher: Rose Corcoran  
Faculty Mentor: Peggy Schooling, Ed.D.  
Department of Education

Abstract:
Bring Your Own Device, or BYOD, is a relatively new program that encourages students and faculty to bring their personal electronic devices into school, and use them as learning tools. Some devices that students may use include smartphones, tablets, iPads, laptops, and e-readers. The idea is that because technology is such an important part of today’s society, using a personal electronic device will help students learn and become more engaged in the classroom. However, BYOD can be controversial because it has advantages and disadvantages that affect the schools, students, and teachers. Some possible advantages of BYOD include providing a source of collaboration, enabling students to access more information, and encouraging students to use their devices in an academic manner rather than a recreational one. However, some of the disadvantages of BYOD include a decreased student use of the library, a possible source of distraction, and the reality that not all students own a device. This paper will use current research to compare the advantages and disadvantages of BYOD to determine if the program is worth the risks and obstacles. Policies and procedures for how the program works best will also be discussed. The research shows that although there are advantages and disadvantages to BYOD, if implemented correctly, the program has the ability to be successful in the classroom.
Title: Standardized Testing and its Effects on American Education
Student Researcher: Lucio Costantini
Faculty Mentor: Peggy Schooling, Ed.D.
Department of Education

Abstract:
Recently in America, there has been an unprecedented reliance on standardized testing by the public school systems. These tests are often termed high-stakes because, not only is the student’s progression through school in jeopardy, but so are the jobs of the teachers and administrators. The emergence of high-stakes testing has had a profound impact on the education system and the nation as a whole. With America’s continual reliance on high-stakes testing, it is important to examine whether or not standardized testing is helping, or hurting American education. Through an examination of the competing viewpoints on the subject, this research will conclude that not only is standardized testing stagnating American education, it is making it worse. With the evidence presented, it is impossible to assume that education will improve unless the high-stakes tests undergo significant changes, or are completely removed from the education system.

Title: School Funding Issues in Pennsylvania
Student Researcher: Lexie Dias
Faculty Mentor: Peggy Schooling, Ed.D.
Department of Education

Abstract:
In 2011, former Governor Tom Corbett cut Pennsylvania’s school funding almost one billion dollars. The budget cuts have hurt schools throughout the state, but the hardest hit schools are Pennsylvania’s poorest schools districts with the neediest students. Statewide, the budget cuts have contributed to various issues in providing a quality education. After the disbandment of a funding formula, enacted in 2008 and discontinued in 2011 by Governor Corbett, PA school districts became more dependent on the wealth of their community to support the district financially. Compared to other states, which contribute 45% to their total education funds, Pennsylvania contributes only 36% and ranks 45th in the nation in terms of state funding for education funding. According to the Pennsylvania Department of Education, education funding is proposed to decrease by nearly half a million dollars (PDE, 2015). Pennsylvania's regressive funding system makes it so districts with high poverty actually receive less per student than their wealthier counterparts. This makes it impossible for poverty stricken districts to overcome the opportunity gaps and provide their students with the necessary education. In order to better the education program in Pennsylvania and create more productive schools, the state must increase the educational budget and assist low-income districts.
Title: Writing Colleagues in Cyberspace: The Ethics of Multimodal Dynamics  
Student Researcher: Amelia Falcone  
Faculty Mentor: Melanie Kisthardt, Ph.D.  
Department of English/Communication

Abstract:  
In fall of 2014, Dr. Kisthardt and Professor McCann added a Writing Colleague to ENG 106 online and face-to-face, respectively. As the assigned Writing Colleague, I assisted students with various assignments, and added weekly lessons of my own into the course. This research project examined the dynamic of a Writing Colleague in each of the two sections. The research was conducted through weekly journal entries by Dr. Kisthardt, Professor McCann, and myself; these entries were then examined and compared. This research project will posit the idea that Writing Colleagues should be incorporated into online classes, as they will benefit the learning process and serve as mediator between the professor and students.

Title: Can Music Inspire Fashion?  
Student Researchers: Johnathan Fillion, Annaliese Kambouroglou, Wilmaire Rodriguez, Michaela Raffaele, Alayya Arison, Bria Cannon  
Faculty Mentor: Sr. Denise Mollica, IHM, MS, C.F.C.S.  
Department of Fashion and Family Consumer Science

Abstract:  
The assignment was to research and create a mood board and outfit based on a movement from Pictures at an Exhibition. We listened to the music, created a mood board, and executed our designs in fabric. Our poster will highlight some of these interpretations.

Title: Differences of Outcome of Concussions Based on Gender  
Student Researcher: Dana Disney  
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.  
Department of Human Movement Sciences

Abstract:  
It is estimated that more than 1.6 million sport-related concussions occur every year in the United States (Frommer, Gurka, Cross, Ingersoll, Comstock, & Saliba, 2011). Although males continue to participate in athletics more than females, research has shown that females have a higher incidence rate of sport-related concussions and may respond differently than their male counterparts (Dvorak, McCrory, Kirkendall, 2007). Understanding the differences between males and females following a concussion can help medical personnel gain a better knowledge of what to look for and expect from males and females after a concussion. 15 student-athletes (57% female and 43% male), who had previously sustained a concussion, participated in this study. The participants completed an online survey consisting of questions related to symptoms, location of impact, resolution time, and number of. A qualitative review of the responses was conducted to determine gender differences following a concussion.
Title: The Correlation between Anxiety and Fear of Injury among Collegiate Athletes

Student Researcher: Amanda Grahn
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.
Department of Human Movement Sciences

Abstract:
Participation in competitive sports has nearly doubled since the early 1970’s and it is estimated that millions of Americans seek medical attention for injuries that are sport related. When the athlete is injured the athletic trainer must take into consideration both physical and psychological responses the athlete’s body may have to the injury (Covassin, Crutcher, Bleecker, Heiden, Dailey & Yang, 2014). The objective of this study was to determine if there is a correlation between fear of injury and anxiety based on gender, past injury, and sport in NCAA Division III student-athletes. 74 (n=48 females, n=26 males) student-athletes from Immaculata University completed a survey that included three sections: demographics, anxiety scale, and fear of injury scale. Students were sent a link to the survey via the Immaculata email database and asked to complete the survey. After analyzing the data, results indicated that there was a possible correlation between the State Trait Anxiety Inventory scale and the Fear of Injury scale used in the study.

Title: High School Knowledge of Acute Injuries and Concussion Management in a Southeastern Pennsylvania High School

Student Researcher: Michelle Lewis
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.
Department of Human Movement Sciences

Abstract:
Approximately 7.8 million high school students participate in athletics each year, about 2 million athletes a year that participate will obtain an injury (Cross et al., 2010). In an ideal world a physician or athletic trainer would be present when an injury occurs, but most physicians do not have the time and 58 percent of schools do not have athletic trainers (Cross et al., 2012; Cooper, 2013). Without the presence of a physician or an athletic trainer, the administration turns to the coaches to assume responsibility for managing the injured athletes. In this study, 50 head and assistant coaches were given a survey to assess their knowledge on first aid and concussion management. A total of 15 coaches (30%) responded to the study. Analysis was conducted to determine differences between gender, head or assistant coach status, full or part time status, age, education level, sport coaching, and experience.
Title: The Effects of Ankle Support of Vertical Jump Height  
Student Researchers: Jacquelyn McClellan and Tara Rodgers  
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.  
Department of Human Movement Sciences

Abstract:  
Injuries to the ankle are extremely common in athletes (Mackean, Bell, & Burnham, 1995). Prophylactic methods of support, such as tape and different braces, can be used to prevent and reduce the risk of injury. These methods tend to restrict the normal range of motion in the ankle, possibility impeding performance quality and dynamic movement (Arakawa, Nagano, Hay, & Kanehisa, 2013). The purpose of this study was to compare the effects of various prophylactic ankle supports on vertical jump height in a chosen group of college female athletes. It was hypothesized that vertical jump height will vary based on the type of ankle support the athlete is wearing. Nine college athletes were recruited to participate in this study and placed into three random groups. Each participant completed a series of three jumps; while the ankle was unsupported, while the ankle was supported by tape and while the ankle was supported by a brace. Ankle range of motion was measured before each type of jump was performed. An ANOVA was used to determine statistical differences in the vertical jump height between the three independent variables, and also to determine differences in ankle range of motion for each variable.

Title: Differences in Hand-Eye Coordination using and iPhone Application  
Student Researchers: Karissa Gretkowski, Stephanie Johler  
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.  
Department of Human Movement Sciences

Abstract:  
One goal of occupational therapy is to improve hand–eye coordination; this can be used to help improve patient quality of life (Norrgard & Kraft, 2010). The purpose of this study was to examine if differences exist in hand-eye coordination due to amount of smart phone use (i.e. texting). Ten people from the older population (35 years or older) and ten people from the younger population (25 years or younger) were recruited for this study. Participants completed a survey and the iPhone application Dots (GTS Software LLC, 2013) was to be used to collect data. The researchers observed the participant use the thumb on their dominant hand to complete the task on the iPhone. T-tests were used to determine if differences exist in hand-eye coordination based on age, gender, dominant hand, and texting finger. ANOVAs were used to determine if differences exist in hand-eye coordination based on years of smartphone ownership, amount of daily smart phone use, and font size.
Title: The Effects of Hand Exercises on the Legibility of Handwriting  
Student Researchers: Anna Burke, Siobhaun Manion  
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.  
Department of Human Movement Sciences

Abstract:  
Handwriting is an essential part of everyday life. There are many characteristics of handwriting that can affect the legibility of handwriting, this can include speed, and grip strength (Case-Smith, 2002). The purpose of this study was to determine if the legibility of handwriting would be improved by strengthening the hand muscles through exercises in male and female college students at Immaculata University. The 24 participants completed Handwriting Assessment Battery writing samples, a survey and a hand dynamometer measurement. Participants were then randomly split into four groups (play dough, coins, coloring, and control) and asked to complete their assigned therapeutic exercises for seven days. On the seventh day the participants returned to undergo follow up samples. An ANOVA was used to comparison differences between therapeutic exercise groups. Correlations were used to analyze grip strength and legibility, speed and legibility, legibility and daily writing activities, and legibility and professions. A t-test was used to examine differences between genders. It was hypothesized that the participants that do the hand exercises will see a greater improvement in handwriting than those of the control group, and that male participants will have greater improvement than females. It is also hypothesized that as speed increases legibility will decrease, and that grip strength will increase in participants that performed exercises.

Title: Differences in Finger Dexterity Performance Following Varied Therapeutic Modalities  
Student Researchers: Allison Jakavick, Kelly Lapp  
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.  
Department of Human Movement Sciences

Abstract:  
The application of therapeutic modalities is beneficial to many injuries; studies have shown that these forms of remedial techniques have had effects of range of motion on particular joints (Denegar, Saliba, & Saliba, 2010). However, the effects of massage therapy, cryotherapy, and thermotherapy on the dexterity of fine motor skills are unknown. Therefore, the purpose of this study was to determine the effects of various therapeutic modalities on finger dexterity. Specifically, this research attempted to determine if there were differences in finger dexterity based on modality of treatment: massage therapy, heat application, and cold application. Twenty-four undergraduate students were randomly assigned to four experimental groups. Each group then completed a 100-meter race on the app Finger Treadmill (Tsimpuntii Games, 2011) before receiving a cold whirlpool, warm whirlpool, hand massage, or no treatment. Each group was retested after their treatment. The pre and post-test results were compared using t-tests. Differences between groups were examined using an ANCOVA. The hypotheses for this study were that the application of heat from a warm whirlpool would yield the greatest increase in performance followed by the massage treatment. The group receiving no treatment would not vary significantly in pre and post test times, while the cold whirlpool group will yield a decrease in performance time.
Title: Differences in Range of Motion at the Hip Joint Following Treatments of Ultrasound and Moist Heat Packs

Student Researcher: Kyle Counsellor
Faculty Mentor: Kelly Stalker, Ed.D., A.T.C.
Department of Human Movement Sciences

Abstract:
No matter what age, sport, or gender collegiate athletes are always looking to increase their range of motion. Athletic Trainers want to provide their student athletes with the best treatment possible. Increased range of motion allows for more explosion for an athlete, which can give them an advantage on their competition (Zegler, 2014). The purpose of this study was to compare the effects of moist heat packs and ultrasound treatments on range of motion of the hamstring muscle at the hip joint. Twelve participants (6 male and 6 female) were divided into two treatment groups with even distribution of gender in each group. Hip flexion range of motion was measured before and after the modality treatments. Each group received both modalities exactly a week apart. Results from this study will assist athletic trainers in determining the most effective modality to increase flexion at the hip joint.

Title: Cyber School Education

Student Researcher: Alyssa Polselli
Faculty Mentor: M.E. Jones, Ph.D.
Department of Math/Information and Digital Systems

Abstract:
Typically in a traditional classroom setting, a student is learning effectively and efficiently if they are able to focus on tasks, work individually, collaborate with classmates, apply time management skills, and reflect on their learning. However, there are students who cannot learn effectively and efficiently in a traditional classroom setting. As an alternative to traditional education, cyber school education has emerged. Cyber education is a relatively new approach. In Pennsylvania the first cyber school opened in 1998 with 44 students enrolled. Since then, cyber education has progressed. This research will discuss the history of cyber school education and compare and contrast the educational approach of cyber education and traditional face-to-face education.
Title: Fractal Dimensions in the Paintings of Jackson Pollock
Student Researcher: David Witte
Faculty Mentor: Michael Schutz
Department of Math/Information and Digital Systems

Abstract:
The true nature of beauty is, perhaps, one of the most elusive concepts that the human mind can ponder. The development of methods to quantify beauty, or aesthetic appeal, might at first blush seem to be a futile errand. Such a quantification of these qualities is, however, according to physicist and art historian, Richard Taylor, eminently possible using the mathematics of fractal geometry, and modern computational techniques. Using the famous and controversial “drip paintings” created by renowned American artist, Jackson Pollock, Taylor set out to uncover the extent of Pollock’s use of fractals in his paintings. Using computational methods to quantify the extent of Pollock’s use of fractals then allowed Taylor to compare the extent of fractalization of Pollock’s paintings to fractal patterns found in nature, and even fractal patterns – or absence of such – found in the works of painters who imitated or forged the great artist’s work.

Title: Tracking Satellites with Calculus
Student Researcher(s): Gabe Dwyer
Faculty Mentor: Michael Schutz
Department of Math/Information and Digital Systems

Abstract:
Satellites are one of the most prominent types of technology in today’s society. They are a key component in communication, meteorology, air traffic, and military intelligence. Satellites orbit around the earth in an elliptical pattern, and scientists can program satellites so that they each have a unique flight pattern to avoid collisions. We are able to track the path of a satellite using equations and measurements of an ellipse that are found in calculus. The key pieces we need for tracking the satellite’s distance from earth are the angle between earth and the satellite, the maximum and minimum distance of the satellite to earth, and the equation \( r = \frac{ed}{1 - ec\cos\Theta} \). In this equation ‘\( r \)’ is our distance from earth, ‘\( e \)’ is the eccentricity of the ellipse (measure of circularity), ‘\( d \)’ is the distance between the focus and the pole of the ellipse, and ‘\( \Theta \)’ is the measurement of the angle between earth and the satellite. Using these pieces and some given information we can then find how far away the satellite is from our planet.
Title: Net Neutrality  
Student Researcher: Georgiy Nikomenko  
Faculty Mentor: M.E. Jones, Ph.D.  
Department of Math/Information and Digital Systems

Abstract:  
The internet is accessed by more and more people each day. Internet Service Providers (ISPs) are observing network congestion or "traffic jams"; thus slowing network performance. Whether using a phone, tablet, laptop, TV, blu-ray player, video game console, smart watch, or glasses, the need for a fast, consistent, reliable, and available connection is increasing. With so many devices requiring access to massive amounts of data, sites like Netflix, Hulu, Pandora, YouTube, and Amazon Instant Video are overwhelming networks and processing speeds, thus reducing network speeds to a crawl. This brings up the issue at hand: Net Neutrality. This research will be focusing on the basics and history of net neutrality, particularly: 1) what it is, 2) when it was started, and 3) who is impacted by this issue. Both sides of the debate will be researched and documented. Since Net Neutrality impacts consumers and shapes the future of the internet, the effect on consumers and the potential future outlook will be discussed as well.

Title: Certificate or Degree  
Student Researcher: William DeSantis  
Faculty Mentor: M.E. Jones, Ph.D.  
Department of Math/Information and Digital Systems

Abstract:  
Perhaps the most widely growing and most constantly changing professional environment in the world today is Information Technology. Technology has proven to provide ample opportunities to new professionals joining the field, but what exactly is the best way to get that first job? The most obvious answer would be earning an undergraduate degree. However, there is another path – earning a certification. Within the past decade, attaining a certification can provide entrance into the technology field. This research compares and contrasts undergraduate degrees and certifications. Given an undergraduate degree and/or a certification, it presents the strategies for obtaining job opportunities in the technology field. For example, it shows how an undergraduate degree may be better suited for a person looking to achieve a manager or administrative position or how a certification may be more beneficial for someone looking to become a networking or security analyst. This research also explores how an undergraduate degree or a certification is perceived by a recruiter, hiring manager, or technology expert when reviewing an individual's credentials.
Title: Use of Statistical Analysis in Industry
Student Researcher: Bing Zhuang
Faculty Mentor: M.E. Jones, Ph.D.
Department of Math/Information and Digital Systems

Abstract:
Statistical analysis applies statistical methods to data which is collected and organized in order to support the decision making process. In order to make judicious business or scientific decisions, statistical methods are used to analyze large amounts of data. This research introduces the basic concepts of statistical methods and its application in a variety of industries – in aviation, in pharmaceutical companies, in computer programming, and at a farmer’s market. It explores how and why enterprises apply statistics to reduce risk, improve productivity, make prudent decisions, and analyze business processes.

Title: The Sounds of Bach are in the Air
Student Researcher: Megan Aslanian
Faculty Mentor: Sr. Kathleen Doutt, IHM, D.M.A.
Department of Music

Abstract:
The purpose of this study is to inform the public on the history and importance of Bach’s most famous cantata, Cantata No. 80. Knowing the history behind the piece helps musicians and non-musicians displays a new understanding of this cantata. This insight also relates to an understanding of Bach’s musical style. The original title of the piece is called, “Ein’ feste Burg ist unser Gott,” which translates to “A Mighty Fortress is Our God.” Bach wrote this cantata specifically for Lutheran church services in 1730. Even though this cantata originated in the Lutheran church, it is used in many other secular performances as well. This piece is extremely popular because it displays strong emotion and meaning through the text and melody. The piece consists of eight movements. Each movement displays an array of different musical styles. Within each style, the original choral melody is featured. Learning about the history of Cantata No. 80 brings out the deeper meaning behind this sacred work.
**Title:** Synthetic Growth Hormone on Cow’s Milk and Milk Products  
**Student Researcher:** Nelia De Guzman  
**Faculty Mentor:** Mary Zamulinksy, RN, BSN  
**Department of Nursing**

**Abstract:**
On November 5, 1993, the U.S. Food and Drug Administration (FDA) approved the commercial sale of recombinant bovine growth hormone (rbGH), also known as recombinant bovine somatotropin (rbST) amidst the many controversies surrounding the animal drug. The synthetic growth hormone designed to be injected into lactating cows to increase milk production from 10-20% was banned in Canada, Australia, New Zealand, Japan and several European countries. Primarily, the biggest fear is that the artificial growth hormone is linked to possible increased risk to breast, prostate and colorectal cancers. Also, the result of the short-term toxicology study and the antibody response to oral absorption findings were not convincing to prove that the drug was safe to use. There were claims that rbGH/rbST may increase the risks of incidence of diseases in cows, most importantly mastitis (inflammation of the udder). Mastitis requires the use of antibiotics and its prolonged treatment may cause the emergence of antibiotic-resistant organisms whose residue may affect humans. Aside from these, there were also economic, environmental and political issues concerning the animal drug.

**Title:** The Confidence of Energy Intake and Expenditure Balance among College Students  
**Student Researcher:** Katherine Nunez  
**Faculty Mentor:** Tracy Oliver, Ph.D., RD, LDN  
**Department of Nutrition and Dietetics**

**Abstract:**
The purpose of this study is to measure the level of confidence of Immaculata University’s student on calorie consumption and expenditure. Based on a 13 question survey completed by students in the main cafeteria, students will be asked questions to designate their confidence in the way they balance their caloric consumption and expenditure. The survey is designed to measure the confidence set forth by asking questions on calorie consumption and exercise routine. The main research question is to see if a pattern exists between increased BMI and low confidence on caloric intake and expenditure among college students. Commuter status, age, gender, and the amount of physical activity the students are engaging in, will all be taken in consideration while conducting categories. The significance of this study is to promote confidence in learning about energy balance and see how many students would benefit from some nutritional information session.
Title: Cost Analysis of Convenience Foods Available at Immaculata University
Student Researcher: Heather Colket
Faculty Mentor: Tracy Oliver, Ph.D., RD, LDN
Department of Nutrition and Dietetics

Abstract:
The purpose of this study is to analyze the cost of convenience food items available at Immaculata University compared to their nutritional value. The research for this study will be conducted by collecting data from the P. O. D. on the terrace level of Loyola Hall. This will be achieved through assessing the nutritional value of each item, based on calories, fat content, protein, fiber, added sugar, whole grain content, and vitamin and mineral content, compared to its cost. Both snack foods and entrées will be assessed. It is my hypothesis that food options with higher nutritional values would cost more compared to options with lesser nutritional values. The results are currently being processed.

Title: Food Choice: Which Has the Biggest Influence the Psychological Factors of Mood & Stress or the Biological Factor of Taste?
Student Researcher: Kareemah Parker
Faculty Mentor: Tracy L. Oliver PhD, RD, LDN
Department of Nutrition and Dietetics

Abstract:
Taste is the biological factor that was observed and mood and stress are the two psychological factors that were researched. Research was conducted at Immaculata University on campus at the POD (Provisions on Demand). The POD was visited once Thursday March 19th, 2015 for one hour. Participants were both male and female students studying at undergraduate and graduate levels, over age 18. A survey was issued to students who wish to participate. The survey was created to gather information about the student, mood, stress, the effects of mood or stress on food choices, and if choices were affected positively or negatively. This research aims to explore if psychological determinants are more important in food choice than the biological factor of taste among college students. The research study results were based on a sample size of twelve students (n=12). Nine students that completed the survey reported that yes mood or stress level usually affects their food choice. Six students reported that mood or stress level had the strongest influence on their food choices and ten students that took the survey reported that being in a good mood and having a low level of stress improved their healthy food choices.
Title: How Computer Criteria of Beauty: Different Nutcracker Ballet Renditions and Their Success Based Upon the Collaboration of the Choreographer and Dancer
Student Researcher: Stephanie Olzinski
Faculty Mentor: Sr. Judith Parsons, IHM. Ph.D.
Department of Philosophy

Abstract:
Dance is an expression of art and can be defined as such by referring to a criteria of beauty. Dance is art and has beauty when the dancer and choreographer work in sync with each other to create a whole, aesthetically pleasing performance. Comparing different renditions of The Nutcracker Ballet reveals the beauty of dance in this manner. Two renditions where choreographer and dancer work well together were choreographed by Balanchine and Baryshnikov. Two renditions where choreographer and dancer did not work well together were choreographed by Nureyev and Bourne. In terms of their categorization as art, beliefs of prominent philosophers such as G. W. F. Hegel and Clive Bell either prove or disprove this research paper. The collaboration of each element of The Nutcracker Ballets constitute aesthetically appealing performances.

Title: Schizophrenia & Creativity
Student Researcher: Tague Wilkins
Faculty Mentor: Sr. Agnes Hughes, IHM, Ph.D.
Department of Psychology

Abstract:
This study assesses the supposed link between schizophrenia and creative potential. Among the specific focuses in the paradigm is whether or not schizophrenia enhances divergent thinking; which contributes to creativity, and if divergent thinking is strengthened by dopamine (DA) densities in the neural pathways. Despite popular notions, research shows that schizophrenia and creativity are negatively correlated. Results contradict the belief that schizophrenics bear exceptional creative potential. Schizophrenia empirically inhibits divergent thinking in schizophrenics, which in turn impairs divergent thinking. Dopamine is shown to be slightly correlated to divergent thinking, however not significantly to the elements that enhance creative functioning. Despite the disappointing results, studies did show a much stronger relationship between divergent thinking and schizotypal disorder, a sub-threshold of schizophrenia. It opens up the question of whether schizotypal patients are more likely to be creative than either schizophrenics or healthy individuals.
**Title: Genetic Predispositions of Addiction**

**Student Researcher:** Megan Wilson  
**Faculty Mentor:** Kimberly Levan, Psy.D.  
**Department of Psychology**

**Abstract:**  
The topic of addiction is a taboo topic; not many people have addressed it over the years. Those who are not considered addicts seem to look down on those who do have an addiction. The controversy that surrounds addiction is whether or not it is classified as a social or an actual health concern, a disease. Recent studies have shown that addiction can be given at birth in one’s DNA. With the latter hypothesis becoming fairly new, there are few studies that have proved this. Unfortunately millions of people suffer from this debilitating disease, and most of them potentially cannot help it. Diagnosing an addict that was born with the genetic predisposition for disease can theoretically improve the treatment process in a positive manner.

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**Title: The Challenges of Paradigm Shift on Multicultural Leadership**

**Student Researcher:** Katherine Cartagena  
**Faculty Mentor:** Sr. Agnes Hughes, IHM. Ph.D.  
**Department of Psychology**

**Abstract:**  
Leadership, at present, is a quickly evolving concept. People all over the world are in constant connection with one another, not only brought about by, but also affecting how phenomena of transportation and telecommunication bring us together. These globalization processes challenge our usual understanding of the meaning of effective leadership; while this has always been important in multinational corporations, in today’s business world we see a universal need to address cultural diversity in the workplace. This presentation will explain the dynamics of the global paradigm shift and argue that the new generation of business leaders will need to be more open and capable of dealing with growing diversity.

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**Title: Positive Psychology: A New Era Beyond Pathology**

**Student Researcher:** Kyle Beideman  
**Faculty Mentor:** Peter Rondinaro, Ph.D.  
**Department of Psychology**

**Abstract:**  
Martin Seligman established the field of positive psychology during his presidential address to the American Psychological Association in 1998. He argued that psychology before that point had succumbed to an exclusive focus on pathology, which is what goes wrong in one’s life, and how that damage can be repaired, instead of aptiology, which is what goes right in one’s life, and how positive qualities and experiences can be enhanced. Positive psychology aims to counter the trend associated with pathology, and increase our knowledge of what makes life worth living. This approach is necessary in order to help people achieve their full potential.