Welcome to the 25th Annual Marywood University Graduate Research Symposium

The 25th Annual Graduate Research Symposium is a product of the hard work of Graduate students and Faculty members of Marywood University. The posters presented at this symposium include both cutting edge scholarly work and projects required in satisfaction of their course or major. Since last year, we have expanded the scope of the Symposium to include professional contributions as well as experimental approaches to research projects. This booklet contains the abstracts of participants in this year’s Symposium. Abstracts are organized by college, department, sponsor, and then finally alphabetized by first author’s last name. In this way similar projects should be located near each other.

Marywood University continues its tradition of encouraging scholarship by celebrating the accomplishments of student-faculty collaborations of the past year. Throughout their graduate studies, students have been challenged to develop and test theories by examining and building upon the current practices within their respective disciplines. The Graduate Research Symposium is an opportunity for graduate students to translate these complex relationships into a format that can be understood and used by the wider community.

The Research Symposium would not be possible without the help and support of many people throughout the University. We would like to particularly thank members of Marywood University’s Maintenance Department, Media Services, and Print Shop. We also extend a special thanks to Kristie Congdon for creating a multimedia accessible program for the Symposium.

We are grateful to Deans Frances Zauhar, Mark Rodgers, Terri Peters, James Sullivan and Collier Parker for their continued support of this endeavor. We also thank President Anne Munley, IHM, Vice President for Academic Affairs Alan Levine, and Vice President of Research, Office of Research and Sponsored Programs Laura A.C. Houser, who furthers collaborative scholarship between our faculty and graduate students.

Most importantly we thank the faculty who encourage the spark of imagination in our students and the students themselves whose intelligence, creativity, and enthusiasm make this event possible.

Robin P. Ertl, Chair GRS, MCLAS
Barbara Lynn Hutchings, CHHS
Joan E McCusker, IHM, ICCPA
Bruce A. Wisenburn, RCEHD

Building Schools as Communities with a Social Emotional Foundation

Natalie N. Lucas
Faculty Sponsor: Patricia Arter, Ed.D.
Dept. of Education
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What children need as much as books and ABCs, is a strong relationship with caring and supportive adults. The emphasis on the importance of early childhood programs to lay the foundation for children’s future success has never been more important. Schools can no longer afford to focus solely on academics; they must also help students to learn essential social and emotional skills from a young age in a joined interrelationship. The purpose of this professional contribution was to determine how to effectively integrate social emotional learning into an early childhood curriculum to improve the overall learning environment through the use of Positive Behavior Interventions and Supports (PBIS). This professional contribution investigated teachers’ knowledge of social emotional development and implementation of strategies into classroom instruction. Following the implementation of strategies, data was collected to determine if the strategies improved social and emotional skills in young children.
Study of Ribosome Recycling in Eukaryotic Organisms by Using CRISPR/Cas9

Quintin Klenchik
Faculty Sponsor: Dr. Michael C. Kiel, Ph.D.
Dept. of Science
Munley College of Liberal Arts and Sciences

Numerous research studies have defined the processes of translation in both eukaryotic and prokaryotic organisms. The components involved in the post-termination process of ribosome recycling, which accounts for the post-termination breakdown of ribosomal complexes, has not been completely evaluated in eukaryotic organisms. For prokaryotic organisms, loss of ribosome recycling allows ribosomal complexes to reinitiate translation downstream of a stop codon. In order to study the process of ribosome recycling in the model eukaryotic organism *Saccharomyces cerevisiae* (yeast), CRISPR/Cas9 was used in an attempt to affect the expression of genes believed to be involved in the ribosome recycling process. Using a novel fluorescent protein expression system, reduced expression of these genes will hopefully allow for the detection of ribosome recycling errors in eukaryotic organisms, mimicking the process found in prokaryotic organisms.

Research Project Titles

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**Tele-psychiatry: Investigating Consumer and Employee Perceptions at a Child-Focused Mental Health Agency**
Synthesis and Antimicrobial Activity of Fullerol and Fulleremalonic Acid

Alisha Pitchford, M.S.
Faculty Sponsor: Deanne Dulik Garver, Ph.D.
Dept. of Science
Munley College of Liberal Arts and Sciences

The absence of water solubility of pristine fullerenes hinders its biological applications and thus addition of polar functional groups can enhance their potential for study. Previous studies against *Escherichia coli* and *Bacillus subtilis* have shown potential for these classes of compounds. It is with this in mind that two compounds were synthesized: a polyhydroxylated fullerene (fullerenol) and a mixture of mono-, bis- and tris- malonate derivatives, fulleremalonic acid. Synthesis of the fullerenol was accomplished through hydroxylation using hydrogen peroxide, while the fulleremalonic acid was synthesized by carboxylation from diethyl malonate. Each compound was evaluated for antimicrobial and bactericidal activity against four bacteria comprising the biofilm harvested from the water reservoir of a hydroponic lettuce grower. The isolated bacteria included *Bacillus thuringiensis*, *Pseudomonas aeruginosa*, *Bacillus amyloliquefaciens*, and *Pigmentiphaga daeguensis*. Three concentration ranges were prepared and assessed on Mueller-Hinton agar for its diffusion quality to measure zones of inhibition for antimicrobial and bactericidal activity. Positive controls were also performed using a 1.5% benzalkonium chloride solution. Results of these studies provide evidence for the further study of novel polar fullerene compounds as antimicrobial and bactericidal agents against pathogenic bacteria.
Adaptation of phytoplankton to ocean acidification

Leigha Dolcemascolo, Justin Liu, Bridgette Sisson
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Increasing levels of CO$_2$ have a significant impact on the world's oceans by lowering their pH. The overall effects of ocean acidification (OA) are unknown. Phytoplanktons are ideal research organisms, as they're on one of the lower tiers of the food chain, and cannot defend against changes in pH. Conveniently, Nannochloropsis gaditana (NG) has been cryopreserved from the Great South Bay (GSB) since the 1950s allowing comparison of changes over time. Much like the ever-decreasing ocean’s pH levels from 8.23 to the 8.01, the GSB’s levels have also been decreasing down to a pH of 7.46. This is used as a model for how algae in the ocean may adapt continuously decreasing ocean pH. This work demonstrates that NG from 1952 will not grow at a pH of 7.69, yet the same algae from 2015 will continue to grow at pH 7.46. This demonstrates that NG has adapted to the ever-changing ocean pH. This is consistent with the concept that at least some organisms will be able to adapt to the ocean’s decreasing pH.

Alisha Pitchford, M.S
Synthesis and Antimicrobial Activity of Fullerenol and Fullerene Malonic Acid

Quintin Klenchik
Study of Ribosome Recycling in Eukaryotic Organisms by Using CRISPR/Cas9

Special Education (page 23)

Natalie N. Lucas
Building Schools as Communities with a Social Emotional Foundation
Influence of Hydration Status on Cognitive Function and Skill Performance in Division III Collegiate Female Basketball Players

Lindsay Howard
Faculty Sponsor: Angela Hillman, PhD. ECP
Dept. of Sports Nutrition and Exercise Science
College of Health and Human Services

Proper hydration has been documented as an important component in optimum athletic performance. The current body of research lacks sports specific analysis of effects of hydration on athletic performance, and rather generalizes to a classification of exercise, whether anaerobic or aerobic. **PURPOSE:** To compare two hydration interventions (Gatorade vs. placebo) on various skills needed to successfully perform in a collegiate basketball game in order to gain an accurate understanding of fluid requirements for the sport. **METHODS:** Participants were 8 females (Age: 20 ± 2 yrs, Ht: 166.68 ± 4.06 cm, Wt: 76.91 ±10.74 kg) current members of the women’s basketball team. Participation consisted of two testing days completing a NCAA regulation first half of basketball followed by a series of skills tests including maximal vertical jump, T-test, lay-up shooting, jump shooting, and a 300-yard shuttle run. Participants also completed a computerized test of memory and reaction time pre-game and post-skills. Fingerstick blood samples were taken pre-game, post-game and post-skills tests to assess hydration status and to calculated plasma volume change. Intake of fluid throughout testing was continuously monitored and measured. **RESULTS:** Plasma volume was decreased by 1.3 ± 4.0% vs. 3.2 ± 5.0% in Gatorade vs. placebo despite similar volumes of fluid consumed (402 ± 344 ml vs. 313 ±214 ml in Gatorade vs. placebo) and the same distance covered during the game (2.9 km). There was a negative correlation between reaction time and total fluid consumed (r = -0.71, p = .048). Similarly, lower plasma volume change resulted in higher scores on the memory test when consuming Gatorade (r = -0.90, p = 0.005), suggesting fluid intake is important to cognitive performance. Increased Gatorade ingestion resulted in lower blood lactate concentrations (r = -0.90, p=0.003), potentially due to glycogen sparing from carbohydrate intake. There were no further statistically significant differences in outcome variables. **CONCLUSION:** The current study suggests fluid intake is important to cognitive performance. This may play a role during team sports games when decision making under pressure is likely to occur.

Molecular Characterization of Krüppel-like Transcription Factor, klf2, Expression in Caenorhabditis elegans

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Kruppel-Like Transcription Factors (KLFs) act as regulators for many important metabolic processes in mammals, such as fat storage and transportation. For example, Klf-14 in humans has been linked to the onset of type-2 diabetes and obesity, implicating this gene family in several prominent metabolic disorders. *Caenorhabditis elegans* have three KLF genes analogous to human KLFs, and both *klf*-1 and *klf*-3 have been shown to express in the intestine of the worm. We are currently working on the characterization of the less studied *klf*-2 gene and expect to find similar results for the localization of expression. We have designed a plasmid construct to test this expression that includes the promoter of *klf*-2 and several exons of the protein encoding sequence. The localization of *klf*-2 expression can then be observed by attaching this fragment into a GFP expression vector and microinjecting the construct into the distal gonad of adult *C. elegans* along with the selectable marker plasmid pRF4. The worm’s progeny are analyzed for the marker phenotype and several generations of transformants must be established before checking for GFP expression under a fluorescence microscope. In addition to the aforementioned construct, another plasmid with the full protein coding sequence will be tested and the results will be posted at the meeting.
A characterization of *Caenorhabditis elegans* hda-3, a homolog of the *hd-1* of humans: A gene linked to Huntington’s Disease

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*Caenorhabditis elegans* hda-3 gene (Ce-hda-3) is a member of histone deacetylase family, which is homologous to histone deacetylase (*hd-1*), the gene reported to be involved in the onset of Huntington’s disease in humans. The function of histone deacetylase enzymes is to remove excess acetyl groups from histones. Towards the 5’ end of the human *hd-1* gene are lengthy “CAG,” which encode for polyglutamine repeats. This unstable sequence causes an expansion in polyglutamine tract and lead to a neurodegenerative disease known as the Huntington’s disease. *Caenorhabditis elegans* is an ideal model organism to study hda-3 gene because it is easily managed in a laboratory environment, and it shares 40% homology to human genome. The goal of this project is to isolate Ce-hda-3 gene and characterize it function through in vivo expression localization assays (overexpression of the gene) and mutant analysis to learn how other genes may interact with had-3 during the worm’s development. Currently, we have amplified a portion of the had-3 gene. Our next step is to identify the deletion sequence in a had-3 mutant worm supplied by CGC a *C. elegans* repository and characterize its function through a series of biochemical and molecular tests.

Determining Dietary Habits and Nutritional Deficits of Guatemalan Mothers of the Child Health and Nutrition Program of San Lucas, Toliman, Guatemala: Pilot Study

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Guatemala faces infant, child and maternal malnutrition issues, each of which is linked to its ongoing poverty. Although significant progress has been made toward improving the nutritional status of Guatemalan children through their well-established nutrition focused programs, little attention has been given to the nutritional status of their mothers. Recognizing this deficit, a customized Food Frequency Questionnaire (FFQ) was designed to gather quantitative and qualitative data on the dietary habits of the mothers so nutritional deficits could be identified and addressed. The purpose of this study was to test the feasibility of this questionnaire in that population. Five community volunteers, known as Health Promoters (HP) from San Lucas Toliman, Guatemala, serving as central consultants for the mothers of undernourished children enrolled in the Child Health and Nutrition program, were trained on how to administer the FFQ to mothers. A convenience sample of mothers from the program was selected to complete the FFQ with a HP. Both feedback from the HP’s and response trends in data will provide input for changes that will be used to improve and finalize the customized FFQ for upcoming research.
Barriers to Participation in a Weight Management Program for College Freshman

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The prevalence of overweight and obesity in college-aged adults (18 to 24 y) is 36.7%. It is important to determine barriers college freshman may encounter in participating in a weight management program. Upon arrival at Marywood University, incoming freshman were recruited to attend an initial weigh-in (N=20 total, n=18 females, n=2 males). The mean age was 18.2 y, mean BW was 149.9 lbs, and mean BMI was 25.3 kg/m² (N=8 overweight/obese). A post-completion survey was created and administered at the final weigh-in to identify barriers to participation. Participants identified time and day of the week as barriers to attending the initial weigh-in (n=13 participants, n=3 time, n=2 day of the week). Participants, 61.54%, indicated that multiple weigh-ins would have alleviated these barriers. Participants who stated that multiple weigh-ins would have alleviated barriers to attendance were more likely to want to receive a scale to self-report weight, \( \chi^2(1, n=13) = 5.08, p<0.05 \). In addition, 53.85% of participants indicated a booth at orientation would have improved participant recruitment. Participants also suggested an increase in the incentive amount would have made the program more appealing (n=4). The post-completion survey provided valuable information regarding ways to improve college freshman participation in future weight management programs.

Phosphorylation of Mps3 and Elg1 by Cdc5 and the Role of Htz1 in Telomere clustering in Saccharomyces cerevisiae

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Mps3 is a nuclear envelope protein involved in multiple functions within yeast cells, including spindle pole body insertion and duplication, sister chromatid cohesion, DNA damage repair, and telomere clustering. Mps3 also physically interacts with the three large subunits of the Replication Factor C (RFC) complexes, of which one of the subunits, Elg1, functions in sister chromatid cohesion and telomere homeostasis. We identified a physical interaction between Mps3 and the polo-like kinase Cdc5 as well as an interaction between Elg1 and Cdc5. Cdc5 is important for cell cycle regulation and is involved in DNA damage repair during mitosis. We also identified both Mps3 and Elg1 as potential targets for Cdc5 kinase activity. In the current study we further characterized the kinase activity identifying which residues on Mps3 and Elg1 were being phosphorylated by Cdc5 and at which time in the cell cycle. Mps3 also interacts with the histone variant Htz1 (H2A.Z). Like Mps3 and Elg1, Htz1 functions near the telomeres and is also involved in DNA repair. Based on this data, we hypothesize a function for Htz1 in telomere clustering.
It is perhaps not the case anymore that high art deliberately excludes craft-based art, such as fibers, from its ivory tower. Still, familiar household objects in cloth transformed into art challenge curators, collectors, art historians, enthusiasts and viewers alike. Paintings, prints, sculptures by far outweigh art works in other media in most gallery exhibits and museum collections. A quick search through calls for entries to juried shows or proposals for grants to artists would yield the same results. What is keeping fiber arts out of the spotlight? This paper examines what drives fiber artists to create and investigates closely why fiber arts should earn a place in high art even if it is not in a frame or on a pedestal. The paper focuses on the slow stitch-based quilts of Gee’s Bend as well as Louise Bourgeois’ fiber works. It will help discover why there is a lack of understanding of art that evokes the visceral sense of human existence just as much as paintings and sculptures do.

The purpose of this study was to analyze how education level, maturation, and other demographic characteristics related to Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, and Intersex (LGBTQQI) acceptance at a small eastern Pennsylvania university. A convenience sample of 204 undergraduate and graduate students (72.1% Female, 13.2% Male, .5% Questioning, .5% Transfemale) ranging in age from 18 to 71 (M=27.05, SD=9.782) were recruited as participants. The indexes utilized in this study aimed to contextualize students’ perceptions and philosophies about acceptance, disregard, overt oppression, and degradation of the LGBTQQI community through the lenses of their day-to-day activities. This study evaluated influences including: gender, race, political affiliation, socioeconomic status, marital status, community type, household income, location of origin, current residence, religion, number of children, and association with members of the LGBTQQI community. Participants utilized Survey Monkey to complete The Homophobia Scale and The Miville-Guzman Universality-Diversity Scale Short-Form (UDO). Results from these two scales employed in this study showed a significant negative correlation. These findings show that lower levels of homophobia correlate with higher levels on the UDO. A multiple linear regression was also calculated to predict scores on The Homophobia Scale based on age and gender. These results suggest that both age and gender are significant predictors of scores on The Homophobia Scale for this population.
College Students’ Perceptions of Healthy Relationships Following the PACT Program

Megan Brosky, Elizabeth Bruinix, Alexa Glenn, Lyndi Roberts
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The purpose of the study is to explore students’ perceptions about healthy relationships after experiencing the Promoting Awareness of the College Transition [PACT] Program. Forke, Myers, Catallozzi, and Schwarz (2008) found that in a sample of 910 undergraduate students, 44.7% had experienced relationship violence. Similarly, the US Department of Education (2013) found that 43% of college women have experienced dating violence. In response to these statistics, the PACT program teaches freshmen how to identify a healthy relationship. PACT’s effectiveness has not yet been evaluated. The goal of the current study is to start the evaluative process by exploring student perceptions of healthy relationships after experiencing PACT. Existing quantitative and qualitative data from student surveys after they experienced the PACT program were analyzed (N = 385). The findings from this study will assist Marywood University in evaluating the PACT program’s effectiveness. The results of this study may influence whether any changes are made to improve the PACT program’s curriculum.

The Impact of Independent Living Programs on the Acquisition of Life Skills

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The purpose of this study was to explore the relationship between the number of years that foster youth spent in psychoeducational groups and the acquisition of life skills. Researchers have found that placing foster youth into independent living programs improves life skills and increases their ability to live independently after care (Greeson et al., 2015). In addition, foster youth who spend a longer amount of time in professionally-led groups show an increased repertoire of life skills (Onukwube, 2011). The participants in the study were clients that have been enrolled in the Independent Living Program at the Lackawanna County Office of Youth and Family Services (LCOYFS). The Casey Life Skills Assessment was administered to clients between the ages of 16 to 21 in September of 2015 and again in April of 2016. The results of the study will help to elucidate the relationship between participation in independent living psychoeducational groups and the acquisition of life skills among foster youth.
An Investigation of Social Media’s Relationship with Self-Esteem among Undergraduate Students

Matt Mangosh, Dawn DiMariam, Chelsea Collins, Natalie Angst
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This study investigates social media and its relationship to self-esteem. Previous researcher have observed that differing relationships between social media usage and levels of self-esteem. While Kraut et al. (1998) found a link between high social media site usage and depression. Steinfeld, Ellison and Lampe (2008) found that individuals with initial low-self-esteem increased their levels with increased social media usage. A survey was distributed to Marywood University undergraduate students to examine their self-reported levels of social media usage and self-esteem. The current researchers hypothesize that an increase in social media usage will result in lower self-reported self-esteem. Social workers and other health-related practitioners may benefit from increased knowledge about links that may exist between social media use and self-esteem.

A Comparative Study on Career Goals among Graduate Students (Marywood University, USA & Tangaza University College, Kenya)

Alexandria Carl, Samantha Jones, Sr. Kevin Karimi
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The purpose of this study was to compare how past job experience influences career goals among social work graduate students at Marywood University (USA) and Social Ministry graduate students at Tangaza University (Kenya). This study investigated factors influencing long term career engagement in social work/ministry in the two universities. The study also examined perceptions of social work/ministry careers among the participants. The researchers hypothesized that students at both universities who had past job experience would be more focused on career goals than their counterparts without past job experience. Results will help to elucidate similarities and differences between the two groups and the relationship between past job experience and current career goals.
Tele-psychiatry: Investigating Consumer and Employee Perceptions at a Child-Focused Mental Health Agency

Erica Chaplin, Bethany Coons, Kristen McAndrew
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The purpose of this study is to compare rates of satisfaction and perceptions of the tele-psychiatry service at Friendship House. This mixed methods study compares perceptions of clients, employees, and guardians. Research indicates that tele-psychiatry has been shown to be an effective service that provides similar results to face-to-face consultations (Monnier, Knapp & Frueh, 2003; O’Reilly, Bishop, and Madox, 2007). As the field expands, assessment of patient and provider satisfaction becomes increasingly important as rapid advances in the availability of technology are made (Hilty et al., 2002). The researchers hypothesize that at Friendship House, an individual’s role will have a direct impact on their level of satisfaction with the tele-psychiatry service offered within the outpatient department. This study will utilize a descriptive, pre-experimental research design to describe the satisfaction levels with the pilot tele-psychiatry program. The results from this study will enable this agency, and others, to examine their practices, enhance quality improvement practices, and further evaluate satisfaction rates of consumers and employees. The implications for social work practice will be discussed.

Sexualized Television Commercials: The Relationship of Media to Body Dissatisfaction

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The purpose of this research was to investigate the relationship between television viewers who were exposed to commercials with sexualized themes and the arousal of thoughts or feelings that impact body image. Body dissatisfaction and preoccupation with food, shape, and weight are at the center of the diagnostic criteria for eating disorders in the DSM-V. In a 2007 report of the APA task force on the sexualization of girls, negative self-image was linked directly to media exposure: television, film, commercial advertising. More recent studies attributed the development of body dissatisfaction to peer and intersex interactions. To augment these findings the current cross-sectional study investigated responses from Marywood University students to the 30-item Sociocultural Attitudes toward Appearance Questionnaire (SATAQ). The results may help social workers understand body image issues relevant to university students and may inform intervention-prevention strategies in the areas of education and advertising.