**Student Poster Presentations**

**Biology**

**Teobaldo Arrunategui**  
Faculty Advisor: Mohamed El-Sherbeini  
*Mouth Bacteria as a Risk Factor for Heart Attacks*

Mouth bacteria associated with periodontal diseases have been linked to heart diseases and heart attacks. Different mouthwashes are claimed to exhibit broad antibacterial activities. We screened several commercial mouthwashes in an effort to determine their anti-bacterial efficacy against mouth bacteria. Bacterial isolates representing mouth microflora were isolated and characterized based on their morphological and Gram-staining properties. Subsequently, zone of inhibition assays were utilized to determine anti-bacterial effects of several mouthwashes. This work revealed that Chlorhexidine Gluconate 0.12% oral rinse, USP, inhibits a greater range of mouth bacteria than Alcohol Containing ACT Mouthwash and Alcohol Free ACT Mouthwash. Both the alcohol containing ACT and Alcohol Free ACT Mouthwashes exhibited comparable anti-bacterial profiles. Future plans include extending this work to identify mouth bacterial species using PCR techniques in an effort to develop this project into a community-based initiative.

*Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education*

**Nicole Bischoff**  
Faculty Advisor: Jeffry Fasick  
*Deep-Sea and Pelagic Rod Visual Pigments Identified in the Mysticete Whales*

Our current understanding of the spectral sensitivities of the mysticete whale rod-based visual pigments is based on two species, the gray whale (*Eschrichtius robustus*) and the humpback whale (*Megaptera novaeangliae*) possessing absorbance maxima determined from difference spectra to be 492nm and 497 nm, respectively. These absorbance maxima values are blueshifted relative to those from typical terrestrial mammals (≈500 nm), but are red-shifted when compared to those identified in the odontocetes (479-484 nm). Although these mysticete species represent two of the four mysticete families, they do not fully represent the mysticete whales in terms of foraging strategy and underwater photic environments where foraging occurs. In order to better understand the spectral sensitivities of the mysticete whale rod visual pigments, we have examined the rod opsin genes from 11 mysticete species and their associated amino acid substitutions. Based on the amino acids occurring at positions 83, 292 and 299 along with the directly determined dark spectra from expressed odontocete and mysticete rod visual pigments, we have determined that the majority of mysticete whales possess deep-sea and pelagic like rod visual pigments with absorbance maxima between 479-484 nm. Finally, we have defined the five amino acid substitution events that determine the resulting absorbance spectra and associated absorbance maxima for the mysticete whale rod visual pigments examined here. This research was published in the March, 2012 issue of the journal *Visual Neuroscience*.
Elizabeth Bosque and Edward Enners  
Faculty Advisor: Angela R. Porta  
*Downregulation of Cadherin-17 by Vitamin D*

The primary source of calcium in the body is through the diet. However, the mechanism by which calcium enters into the blood from the intestinal lumen is poorly understood. Two mechanisms are thought to regulate this process. The transcellular pathway involves calcium entry through calcium channels on the apical surface of the intestinal cells, transport of calcium across the cell by calbindin-D9K and extrusion of calcium by active transport pumps on the basal surface of the intestinal cell. The paracellular pathway is thought to involve changes in cell junction proteins that connect intestinal cells to allow calcium to move in between cells from the apical surface to the basal surface. For many years, the transcellular pathway was thought to regulate calcium transport in the intestine via the actions of vitamin D. More recently, however, studies show that the paracellular pathway may also be regulated by vitamin D. The purpose of this study is to test the effect of vitamin D on cadherin-17, a component of adhesion junctions that are located closer to the intestinal basal surface. We examined cadherin-17 levels by Western analysis in mice fed a normal diet, mice injected with vitamin D, VDR knockout (KO) mice, and Klotho knockout (KO) mice. Compared to normal mice, cadherin-17 decreased in +D mice and in Klotho KO mice. Klotho KO mice have increased blood levels of vitamin D and so would resemble the +D state. Cadherin-17 levels remained similar to normal in VDR KO mice. VDR KO mice do not have the vitamin D receptor (VDR), so vitamin D cannot act because vitamin D acts through a steroid hormone mechanism of action. Without vitamin D being able to act, the VDR KO mice cannot downregulate cadherin-17. These results suggest that cadherin-17 is downregulated by vitamin D and supports a role for vitamin D in the paracellular pathway of intestinal calcium transport.

*Research supported by: National Institutes of Health Academic Research Enhancement Award (AREA) grant 1R15DK088052 to Angela R. Porta and Students Partnering with Faculty Summer Research Program, Kean University.*

Alejandrina Canelo, Kate Niemiera Dan Rockefeller, and Elana Youssef  
Faculty Advisor: Daniela Shebitz  
*Successional Changes in Above and Below-Ground Diversity of a White Cedar Swamp*

Atlantic white-cedar (*Chamaecyparis thyoides*) is a wetland tree whose populations have declined over the past few centuries in the eastern United States. We investigated changes in plant and microbial biodiversity occurring in various stages of succession in a large-scale white cedar swamp restoration. We compared biodiversity in sites planted with cedar in 2005 and those planted in 2008 to undeveloped swamps with 100 year old cedar. The aim of this study is to investigate the changes in ecological structure, function, and mycorrhizal associations that occur in the swamp restoration sites, in comparison to intact cedar swamps. The methodologies include a field survey and a series of DNA analysis of the soil to observe the abundance and diversity of mycorrhizal fungi. We found the restoration sites were higher in cedar tree density (p=0.06) and plant species richness than the older site (p=0.05), yet were significantly lower in shrub density (p=0.00). Cedar tree height was highest in the old-growth stands (p=0.00), the density of hummock mounds was greater (p=0.03) and the light reaching the forest floor was much lower (p=0.00) since the cedar canopy was much more dense (p=0.00). The DNA from soil microbes is currently being analyzed but we did find evidence of both endo- and ecto-mycorrhizae in each site. We anticipate the greatest diversity of mycorrhizae will be in 100-year old stands. Information gained can be used to inform restoration ecologists about links between above- and below-ground diversity during swamp succession.
Calcium Regulation of Intestinal Cell Junction Proteins Claudin-2 and Cadherin-17

Calcium is essential for such biochemical and physiological processes as nerve impulse transmission, neuromuscular excitability, hormone secretion, and cell to cell adhesion. Thus, extracellular and intracellular calcium levels are tightly regulated. The primary source of calcium is dietary. Vitamin D, a steroid hormone, is the primary regulator of calcium absorption in the intestine. Calcium is thought to be absorbed in the intestines through two mechanisms, the transcellular pathway and the paracellular pathway. The transcellular pathway involves calcium entry through calcium channels on the apical surface of the intestinal cells, transport of calcium across the cell by calbindin-D9K and extrusion of calcium by active transport pumps on the basal surface of the intestinal cell. The paracellular pathway is thought to involve changes in cell junction proteins that connect intestinal cells to allow calcium to move in between cells from the apical surface to the basal surface. The purpose of this study is to test the effect of calcium on two cell junction proteins, claudin-2 and cadherin-17. Claudin-2 is a component of tight junctions that are located close to the apical surface of the intestine, and cadherin-17 is a component of adhesion junctions that are located closer to the basal surface. During dietary calcium deficiency, the body adapts by increasing vitamin D to allow for increased intestinal calcium transport. This study shows that mice on low calcium diets have an increase in claudin-2 compared to mice on high calcium diets. The greatest increase is seen in the duodenum, jejunum, ileum and cecum (4.75, 5.23, 3.63 and 2.60 fold increase, respectively). No increase was seen in the colon. Cadherin-17 was decreased in the intestine of mice on low calcium diets compared to high calcium diets, particularly in the ileum, cecum and colon. These results suggest that calcium absorption by the paracellular transport pathway is regulated by calcium levels in the intestinal lumen. Future studies will focus on the mechanism by which calcium regulates claudin-2 and cadherin-17.

Modulating the Anti-Neurogenic Effects of Activated Microglia by NSAIDs and DHA

Microglia are considered the “resident macrophages” of the brain. When in their resting state, microglia perform routine maintenance and immune surveillance. Once activated, either by injury or an immune stimulus, microglia secrete a variety of pro-inflammatory molecules, such as nitric oxide, superoxide, and inflammatory cytokines. Up-regulation of pro-inflammatory molecules is transient, and does not lead to neuronal death. However, if up-regulation lasts for an extended period of time, neuronal cell death occurs. Many neurodegenerative diseases are characterized by excessive inflammation as a result of microglial activation. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) have been proposed as possible preventative treatments for neurodegenerative diseases, due to their anti-inflammatory properties. Docosahexaenoic Acid (DHA) is an omega-3 polyunsaturated fatty acid (PUFA) that has potent anti-inflammatory properties. This research project seeks to elucidate if microglial activation can be modulated by combining Aspirin, a classical NSAID, with Docosahexaenoic Acid, a natural anti-inflammatory agent. The combined ability of Aspirin and DHA to modulate activated microglia will be determined in the context of pro-inflammatory cytokines, reduction in Nitric Oxide, as well as an increase in total Glutathione.
Chemistry/Physics

Samantha Weber
Faculty Advisor: Dale E. Vitale

Swelling Pressures of Commercial Hydrogels

Water-swellable polymers are used extensively in pharmaceutical formulations where they serve as excipients for controlled release or tablet disintegration. They have also found application in controlled release of agrochemicals. The present work is aimed at producing high precision, timed-release systems for agricultural applications based on the mechanical force of an expanding hydrogel. The preliminary experiments described here were conducted to quantify the expansion force and energy imparted by some commercial gels in contact with aqueous solutions. Our measurements included expansion pressures and volume ratios for three commercial hydrogels including croscarmellose sodium (Ac-Di-Sol), crospovidone (Kollidon 30), and ethylcellulose. The results and the methods used to obtain them are described.

Communication Disorders & Deafness

Monica Acosta
Faculty Advisor: JoAnne Cascia

Bilingual Students & the SLP Profession

Research Questions: 1) Are bilingual and/or multilingual undergraduate students from Kean University aware of the speech language pathology profession and knowledgeable of its field of scope? 2) Would providing bilingual and/or multilingual undergraduate students from Kean University with education regarding speech language pathology profession increase their awareness of the field’s scope of practice? Results: This study resulted in two main findings: (1) bilingual undergraduate students from Kean University were not aware of the SLP profession and/or knowledgeable of the field’s scope of practice, and (2) there was no significant difference between providing the students with educational literature regarding the SLP profession and increasing their awareness of the field's scope of practice. Conclusions: The results of this study determined that lack of knowledge of the profession's scope of practice is a potential reason for underrepresentation of the bilingual population in the SLP field. Providing face-to-face information sessions, as opposed to having the participants read the literature at their convenience, could have produced more favorable results for increasing their awareness of the field's scope of practice. Therefore, future research should take into account the manner in which the educational component is presented to further evaluate the hypothesis of this study. Clinical Implications: The mentioned results provide evidence that lack of knowledge of the profession's field of scope is a potential reason for underrepresentation of the bilingual population in the SLP field. This information is significant and clinically relevant because it suggests the use of exposure to increase recruitment of bilingual students.

Beth Adler
Faculty Advisor: Jeannine Carlucci

Representational Gesture Use and Second Language Acquisition in Adults
This study set out to determine if the use of representational gestures will help improve the acquisition of verbs and nouns in a second language being learned by adults acquiring this second language. In addition, the study examined the effects of representational gestures on the acquisition of verbs versus nouns and if there was a significant difference between the acquisition of the two. A pre-test/post-test quasi experimental design was used to compare two groups of graduate students' abilities to learn 7 new Hebrew nouns and 7 new Hebrew verbs. The control group was taught using verbal and visual aids alone and the experimental was taught in the same with the addition of representational gestures as well. The results of this study showed that representational gestures were significantly beneficial when teaching verbs to adults learning a second language. No statistical significance was seen between the groups in regards to their overall acquisition of the new words and their acquisition of the nouns. Gesture use may be beneficial in teaching verbs to those acquiring a second language, such as ESL students, whose presence is rising in our society. In addition, gesture use may benefit language learners in general, particularly when learning verbs. Use of gestures may benefit all ages and could benefit young children with language delay as well as adults with aphasia, or other language losses.

Florence Arking
Faculty Advisor: Barbara Glazewski

The Aspects of Communication Required of Adults with Autism to Succeed in the Workforce

Research Question: What are the communicative qualities that businesses require of adults with autism to obtain and remain employed? Results: Analysis of variance showed significance within the four sections of the questionnaire, F (3,66) = 24.95, p <.01. A follow up paired sample t-test determined that there was significance between five of the six groups. Further qualitative analysis analyzed the individual questions of the questionnaire and demonstrated that employers believed that the qualities under listening and understanding as well as the qualities under the Other section were the most important when they hire someone. Conclusion(s): The research provides evidence that there are certain communication qualities that all employers deem more important than others. Qualitative analysis indicated that the ability to listen to instruction, to follow simple directions, to work cooperatively, to answer when asked a question and to interact pleasantly and appropriately with others are the five most important communicative qualities for success in the workforce. Clinical Implication(s): Currently there are services available that are designed to prepare adolescents and adults with autism with the necessary skills to transition from school into adulthood. These include transition services in the school, training programs, early in school therapy curricula as well as vocational rehabilitation programs. The findings of this research study suggest that these services should incorporate these five communication qualities into their curricula to best help this population to succeed at gaining and retain an employment position.

Melissa Bengal
Faculty Advisor: Alice Chiarello

The Effects of Service Delivery Schedules on Accent Modification Therapy

The impact of differing treatment delivery schedules on accent modification therapy was examined. Group A, consisting of five participants containing a “New York City accent,” was designated to receive accent modification therapy two times a week for 15-minute sessions. Group B, consisting of four participants also containing a “New York City accent,” was designated to receive accent modification therapy one time a week for 30-minute sessions. Each group received the intervention for a period of six weeks. To measure progress, a pre-test and post-test was provided to each group. The test consisted of ten words containing the target vowel sound, aas in “talk.” Participants spoke each word into a computer microphone. Using the software program, Praat, sound waves were generated for each word to provide quantitative data on the formants of the vowel sound. The same test was provided for the pre and post-tests. There were no statistical difference in the progress made by Group A and
Group B. The participants in Group A, who met twice weekly, reported more consciously trying to change their accent to approximate Standard American English productions of the target sound outside therapy sessions. This may indicate that more frequent sessions of shorter duration may be more effective than less frequent sessions of longer duration.

Luydmila Bergelson  
Faculty Advisor: Alice Chiarello  
*The Effects of Audio Recordings on Accent Self-Awareness in English as a Second Language Speakers*

Purpose: To investigate if audio recordings, applied for the purpose of accent modification, influence self-awareness of the degree of accent in individuals with foreign accents. Procedures: Participants were asked to self-rate their degree of accent prior to and post intervention of audio recordings. Results: The speakers’ self-rating scores increased post intervention. However, this change was not of statistical significance. Conclusions: For the purpose of accent modification, audio recordings did not significantly influence ESL speakers’ self-awareness of accent. Further research is warranted to determine the effectiveness of using audio recordings to increase self-awareness of accented speech.

Gina Bisogna  
Faculty Advisor: Alice Chiarello  
*Training First Responders to Communicate With Individuals Who Are Communicatively Impaired*

The main question analyzed in this study was how will first responders benefit from a training or an informational handout involving teaching techniques to facilitate communication with individuals who have been diagnosed with autism and Asperger’s Syndrome? It is necessary as Speech Language Pathologists to provide in-service training and/or promote awareness of communication disorders. One group of six participants received an informational handout and another group of six participants attended a PowerPoint training. Both groups completed pretests and postests which were later analyzed and compared by the primary researcher. There are benefits to informing first responders to communicate effectively with individuals diagnosed with communication impairments and an informational handout or PowerPoint Presentation is sufficient to train first responders. As long as the first responders read and understand the information presented in the informational handout, this is an efficient way to train first responders.

Kimberly Crespo  
Faculty Advisor: Mahchid Namazi  
*Semantic and Phonological Development in Spanish-English Bilinguals*

The purpose of this study was to explore the relationship between phonological memory and semantic diversity in Spanish-English bilingual 5-year olds. This project is important because it sheds light on the assessment of language disorder in bilingual children. Phonological memory tasks are processing based measures whereas semantic diversity tasks are more knowledge dependent. The participants were eight sequential Spanish-English bilingual children (who participated in a larger bilingual study being carried out at Kean University) from Spanish-speaking homes in New Jersey. They were between 5;0 -5;6 years of age and were from low to middle socioeconomic status as measured by parent level of education. Spanish was the native language for both parents as well as for the participant. The test of phonological memory was the Spanish nonword repetition test created by Guiterrez-Clellen and Simon-Cereijido (2010). Each child was presented with a digital recording of the 20 non-words and asked to repeat the word. The semantic diversity measure was the number of different words as measured by narrative samples. These stories were elicited using Mercer Mayer’s *Frog Where Are You?* in Spanish. Participants were played a recording provided by the SALT software. Participant productions of the Spanish
nonword repetition test will be transcribed phonetically and analyzed for the type and number of errors. Statistical analyses will be performed to investigate the relationship between the nonword repetition test and number of different words. There exists a positive correlation between expressive vocabulary and non-word repetition abilities in younger monolingual children with typical language development. However, the research on Spanish-English children remains inconclusive. Girbau and Schwartz (2007) found that phonological working memory abilities measured by non-word repetition were strongly related to comprehension and production skills in Spanish, the participants primary language. However, Kohnert, Windsor, and Yim (2006) found that the performance on language-based processing measures, such as nonword repetition, are dependent on previous language experience, and that poor performance on linguistic measures can occur for different reasons other than a weak phonological working memory. Because children who perform better on non-word repetition skills have broader vocabularies and speak in longer, more complex sentences than children who perform poorly on non-word repetition tasks, it is anticipated that non-word repetition skills will be highly correlated with the number of different words in the narrative samples. The results of this study will add to the limited but growing body of research findings about language development in Spanish-English bilingual children.

Research supported by: Students Partnering with Faculty Summer Research Program, Kean University

Alison Del Duca
Faculty Advisor: Mary Jo Santo Pietro

Social Judgments of Various Disabilities by Typical School-Aged and Adolescent Children in the 21st

A child’s social interaction is an important factor in the acquisition of language. In most cases, the first social interactions occur with a parent or the primary caretaker; however, as a child grows and matures interactions with peers become important. Before any peer interaction begins, social judgments are made by children based upon physical appearance and facial attractiveness (Dion, 1973). When considering peer socialization, we must consider how the preconceived peer judgments made on the basis of attractiveness affect peers who exhibit physical appearances that differ from the norm. More specifically, are children with disabilities affected by peer social judgment? Richardson (1970) studied the “values” associated with various physical disabilities by a range of age groups. He showed school-aged children drawings of five children—one appearing “typical” and the others exhibiting various disabilities and obesity. He asked them which child of five they would most like to be friends with; then asked the same question about the remaining four, etc. The results of his 1970 study suggested that the obese child was judged most negatively, followed by the child with facial deformities. Since Richardson’s study, education laws and societal health trends have changed. There is increased integration of children with disabilities into general education classroom. Also, the number of people who are obese has increased nationally. Have these changes affected the judgments made by children towards their peers with disabilities?

Zena Fermano
Faculty Advisor: Barbara Glazewski

Prevalence of Familial Language and Communication Disorders in a Variety of Clinical Populations

Research Question/Background: Is there an increased rate of language and communication disorders in families of an individual diagnosed with an Autism Spectrum Disorder (ASD)? Converging evidence suggests that in a number of families, relatives of individuals with Autism exhibit behavioral characteristics that are milder but qualitatively similar to the defining features of Autism. The Broad Autism Phenotype (BAP) examines family members who may exhibit elevated scores on ratings of (1) language deficits, (2) rigid personality traits, and (3) social aloofness; however, do not have an Autism diagnosis. The BAP motivated the collection of a family sample ascertained through (at least) one proband with Autism to measure the prevalence of language impairments in other family
members. Results: Data analyses revealed an increased rate of language and communication disorders as well as a significant language delay in families who have a relative with an ASD. Autistic-like qualities of speech such as inappropriate social comments, understanding rules, difficulty engaging in conversation, and ability to communicate thoughts and needs were present at increased rates in siblings of an individual with an ASD.

Conclusion(s): The results of this study support the existence of the BAP and offer some promise in linking clinically defined personality and behavioral features to underlying neuropsychological functioning. Clinical Implication(s): Therapeutic programs and interventions targeted at increasing social skills, pragmatics, turn-taking skills, and conversation maintenance may serve beneficial for relatives of individuals with an ASD that present with weaknesses specifically in these areas.

Laura Fiorino
Faculty Advisor: Barbara Glazewski

*Electronic Books via iPad versus Story Books: "Wh" Questions and Attending Time*

Do children with language impairments attend longer to a therapy activity and perform better on "wh" questions after a story is delivered via the iPad or traditionally? Incorporating new technology into an educational setting may not always be appropriate for every child. Each participant in this study was read two stories, one via iPad and one via storybook. Their attending time to each story and their ability to accurately answer "wh" questions were measured. It was found that the correlation between correct responses of the storybook questions and iPad questions was moderate however, not significant. It also revealed that attention to an activity may not necessarily increase success rate.

Alison Gabel
Faculty Advisor: Jeannine Carlucci

*Aphasia Awareness and Knowledge of Professional and Volunteer Firefighters*

Do professional or volunteer firefighters have more knowledge of aphasia than the other? Is aphasia training effective in the firefighter population? To the public, people with aphasia, and their families, aphasia is an unknown disorder; firefighters receive limited, if any, training in the area of communication disorders. Because of the lack of awareness and knowledge of aphasia, people with aphasia and firefighters may not be able to communicate in an emergency and the results of the mis/non-communication can be serious. A likert scale survey was distributed to assess firefighters’ awareness and basic knowledge of how to communicate with people with aphasia. The firefighters received training via a PowerPoint presentation and a video. At the conclusion of the meeting, the likert scale survey was re-distributed to assess the post-training awareness and knowledge. Volunteer firefighters presented with greater initial awareness; however, both groups presented with limited knowledge. Following the training, the professional firefighters improved their knowledge significantly more than the volunteers. Previous research is supported in that aphasia is a widely unknown communication disorder. Aphasia awareness efforts need to continue and first responders can benefit from regular training in the area of communication disorders.

Brianna Grasso
Faculty Advisor: Jeannine Carlucci

*Will increasing awareness of vocal hygiene techniques decrease the number of abusive voice habits?*

I investigated whether or not "CDD" and "Other" (Education, Psychology, the Sciences) students would be willing to change their voice habits if presented with voice knowledge and care techniques. This would impact my field of study because it may demonstrate the need for a preventative voice program early in the education of those who use their voices for their career. I used a Qualtrics-based survey to gather data from undergraduate students.
Questions were adapted from published voice questionnaires, as well as originally created questions. Results indicate that all students were willing to change their habits to some degree, and this type of program would be especially beneficial for CDD students.

Emily Green
Faculty Advisor: Barbara Glazewski

Knowledge and Use of Evidence-based Practice in the Field of Speech-Language Pathology

This study researched the following questions: What is the relationship between time out of school and Speech-Language Pathologists’ knowledge of evidence-based clinical practice?, What is the relationship between time out of school and Speech-Language Pathologists’ use of evidence-based clinical practice?, What is the relationship between work setting and Speech-Language Pathologists’ knowledge of evidence-based clinical practice?, What is the relationship between work setting and Speech-Language Pathologists’ use of evidence-based clinical practice? Results: Across employment settings, the data indicated that college/university setting employees had the highest knowledge of EBP. Knowledge of EBP when compared against years since participants obtained their highest degree found, between 0-5 years and 21-30 years, as time post-graduation increased, knowledge decreased. The results indicated the longer participants were out of school, the less knowledge they had about EBP; however, individuals who graduate 31+ years ago had the second highest knowledge of EBP. The results also indicated that all employees who work in the college and medical setting agree EBP should be incorporated with every client. The use of EBP across years post-graduation was variable. From 0-5 years and 11-20 years post-graduation, the use of EBP decreased as years’ post-graduation increased; however, there was an increase of use between 21-30 and 31+ years. Conclusions: The results of the study indicate there is a discrepancy between the knowledge and use of evidence-based practice among participants. Further research in this area could provide greater insight into the knowledge and use of EBP in the field of speech-language pathology.

Megan Jablin
Faculty Advisor: Alice Chiarello

The Effectiveness of Color Overlays in Retaining an Object’s Identity

The purpose of this study was to examine the effectiveness of color overlays in enhancing an individual with ASD’s receptive vocabulary. Four individuals with ASD were taught 12 target words during three intervention sessions. Six of the words were taught using the color overlay of the participant’s choice, and six of the words were taught without an overlay. Using a paired sample t-test, findings showed that the color overlays did not have a significant impact on increasing the individual’s receptive vocabulary.

Melissa Jablin
Faculty Advisor: Alice Chiarello

The Effects of Visual Illustrations on the Presentation of Social Stories

The purpose of this study was to determine what affect an illustration will have on the presentation of Social Stories to adolescents with autism. Four participants were randomly assigned to one of two groups. Participants in the experimental group received two Social Stories accompanied by visual illustrations. Participants in the control group received two Social Stories that were not accompanied by visual illustrations. Participants read the stories twice a day over a two week period. Findings from this study revealed that a visual illustration does not have an impact on the presentation of a Social Story to adolescents with autism.
Guiliana Kay  
Faculty Advisor: Jeannine Carlucci  
**The Effects of Bias on the Acquisition of Adjectives in Typically Developing Preschoolers**

Data from twelve participants, seven boys and five girls was included in this study. The study examined the effects of bias on adjective learning in preschoolers. Male and female preschoolers were tested to determine difference of opinion when presented with girl, boy, and neutral toys. This aided in finding out whether bias affects the acquisition of adjectives among male and female preschoolers. Participants first went through a screening process to determine adjectives that were unknown to them. A pre/post test was given to the participants which included nine question to elicit a descriptive adjective and potential bias. The instruction phase tested to see if and what adjectives they used to describe a girl, boy, and neutral toy. Results will showed whether girls or boys used more adjectives when describing a certain toy. Findings revealed that there is bias among preschoolers concerning the toys used to teach adjectives.

Nicole LaDuca  
Faculty Advisor: JoAnne Cascia  
**The Performance of Adults Ages 18-45 on Portions of Standardized Aphasia Assessments**

Since stroke and aphasia are becoming more prevalent with younger adults at the Kean University Center for Communication Disorders is it valid to test younger adults on their ability to label vocabulary and famous faces on these current aphasia assessments? Does one age range perform better on these two subtests than others? A one-way ANOVA and a one-tailed paired sample t-test were completed. The one-way ANOVA showed no statistical difference between the three age groups. The Famous Faces Subtest was .056, which was close to significant. The t-test showed there was significance between Groups 1 and group 3 on the Famous Faces subtest. Group 3 performed better than group 1 on the Famous Face Subtests. A longitudinal study would be recommended to assess a larger representation of the population, and to have the aphasia assessments to have different subtest based on age. Since stroke and aphasia are happening in people at an younger age it would be interesting to examine if all populations would have problems labeling vocabulary and faces corresponding with these assessments. In conclusion, the outcomes of this study were not statistical between groups. Although it showed how young healthy adults would perform on these assessments, it was not a good representation of the findings. A longitudinal study would improve and explain the questions associated with this study. The implications of this study are that the longitudinal study would focus on improving the representation of all young adults who could acquire aphasia. By improving this study would be more valid and bring attention to the aphasia tests that have not been revised in 22 years.

Keely Lavelle  
Faculty Advisor: JoAnne Cascia  
**Vocal Quality Among Singers and Athletic Coaches**

The purpose of this study was to determine if singers or athletic coaches exhibit greater vocal dysfunction after a week of work and if vocal dysfunction among singers or athletic coaches correlates with formal vocal training. A role of the speech-language pathologist is in the prevention of voice disorders. Eleven singers and six athletic coaches served as participants. Participants’ vocal quality was assessed before and after a week of work utilizing the s/z ratio. Participants were asked if they had a history of formal vocal training. Results of individual samples T-test revealed no significant difference in vocal quality between singers and coaches after a week of work.
Hingkui John Lee and Jeannine Carlucci  
Faculty Advisor: Jeannine Carlucci  

**Broca’s Aphasics Recognition of New Vocabulary in Popular Media**

Numerous aphasia language therapy focus on rehabilitating existing words (nouns and verbs), conversely, research literature on new vocabulary acquisition or usage of adjectives in aphasia treatment is scarce. This exploratory pilot study’s aim is to evaluate the effects of parts of speech (adjectives, nouns, verbs), on the participants’ recognition of neologic copulative compound words (e.g. “brain attack”). While the control group demonstrated recall ability and provided their own definitions to the test items, the aphasia participants’ recognition ability was at par with the control participants who participated in the forced completion recognition task. In both control and people with aphasia (PWA) groups, results indicated that Verb-Noun combinations showed most favorable influence in participant recognition, followed by Adjective-Noun and Noun-Noun compounds. It was hypothesized that media type and quantitative access time will not assist participants in recognizing new vocabulary. The null hypothesis was accepted with statistical significance.

Jessica Lewis  
Faculty Advisor: Barbara Glazewski  

**Functional Communication Abilities of Individuals with Aphasia: Caregiver vs. Clinician Perceptions**

How do clinicians perceptions of functional communication of individuals with aphasia compare to those of the caregivers? Measures of functional communication are often completed by the individual’s clinician or information can be solicited from the caregiver. This makes the assumption that each can provide similar information, and it therefore was clinically significant to determine how the clinicians’ and caregivers’ perceptions of functional communication truly compared. 10 clinicians and 10 caregivers of the same clients with aphasia were administered the American Speech Language Hearing Association Functional Assessment of Communication Skills (ASHA FACS) and each test domain was compared using a paired-sample t-test. Although statistical analysis did not reveal a significant difference, clinically significant trends were noted, which warrant further research. 90% of the time, clinicians rated the domains of Communication of Basic Needs and Daily Planning higher, which measured communicative abilities frequently observed outside of the therapy room (i.e., using the phone). Furthermore, the clinicians utilized the “N” “no basis for rating” score much more frequently as compared to the caregivers, indicating that the caregivers observed more of the communication behaviors in questions, supporting the importance of caregiver involvement in assessing functional communication in individuals with aphasia.

Alison Lupinacci  
Faculty Advisor: JoAnne Cascia  

**Perception of Language Impairment in Individuals with Aphasia Following Group and Individual Therapy**

The purpose of the study was to determine whether the type of therapy setting has an impact on the way individuals with aphasia view their language impairment. Results of the study indicated that there was no significant difference, or no significant change in the way individuals with aphasia view their language impairment based on the therapy setting. Although no statistically significant difference was present, through collection and analysis of the data, the principal investigator observed differences in the way nine of the participants answered the same questions differently after different sessions. Although not enough to indicate a significant difference, this trend was evident throughout the results of the study. The results of this study indicate that individuals with aphasia are relatively consistent in answering questions pertaining to their language impairment, and the type of therapy setting does not change this perception. Differences in the way participants answered some of the questions differently after different therapy settings may be indicative of natural changes in mood and self concept.
that individuals experience. It would be beneficial for a future researcher to explore the factors contributing to the changes in self concept experienced by individuals with aphasia.

Olivia Melendez  
Faculty Advisor: Barbara Glazewski  

**Stimulus Presentation Format in Individuals With Right Hemisphere Brain Damage**

The purpose of this study was to evaluate the overall functional quality of communication in individuals with right hemisphere brain damage (RHD) in relation to sequencing and discourse when retelling a narrative. The goal was to examine the most effective and functional communicative approach for improving sequencing and discourse in individuals with RHD, while producing a narrative when presented with tangible photos versus photos presented electronically. The method of delivery and number of cards presented were evaluated. The participants performed two separate tasks involving sequencing narratives that were comprised of viewing black and white pictures from a Peanuts comic strip and subsequently telling the story. Each delivery method consisted of two trials consisting of five and ten photos each. A significant difference was noted when comparing ten electronically presented images to ten tangible photos. The participants had greater success when organizing groups of ten tangible photos opposed to sequencing ten electronically presented images. The clinical relevance of these findings imply that when providing speech and language therapy for sequencing to individuals with RHD, one should present activities that are tangible when ten or more photos are being shown.

Megan Mills  
Faculty Advisor: JoAnne Cascia  

**Word Memory within the Aphasic Population: In Coordination with Eye Movements**

Research Question: Do bilateral eye movements increase recognition memory for the aphasic population? Results: There were no significant results, which may be secondary to a ceiling effect being achieved by each participant. However, this study demonstrated a trend supporting prior research (displayed in Figure 1) that bilateral eye movements increase recognition in comparison to vertical eye movements and no eye movements. Conclusion(s): Due to the lack of significant results, it is concluded that bilateral eye movements do not increase recognition memory in the aphasic population. Future research should increase the amount of words used during the study to account for the ceiling effect demonstrated. Future research should also look to incorporate other populations, such as: dementia, traumatic brain injuries, and right brain injuries. In addition, research could look to incorporate a placebo effect. If brain injured participants knew bilateral eye movements have the potential to increase memory for recognition, consequently their motivation may be biased during testing, as opposed to participants who did not know the effects of bilateral eye movement. This can be carried over to the clinical implications of motivation during therapy sessions. Clinical Implication(s): The study included four participants; therefore the reliability and validity are questionable. More participants are needed in order to distinguish if the results are not significant. Also, the amount of words used should have been increased in order to reduce the likelihood of a ceiling effect. Participants achieved perfect or almost perfect results for each condition, therefore discrepancy between the conditions was not evident if it existed.

Jessica Mustoj  
Faculty Advisor: JoAnne Cascia  

**Does Text Messaging Affect the Writing Skills and Social Communication of Teenagers?**

Research Questions: (a) Are text abbreviations used by teenagers when completing a writing assignment? (b) Is there a correlation between the use of text abbreviations and the frequency of text messaging of a teenager? Results: Text abbreviations were found to be used in the writing assignments of teenagers. Teenagers used text
abbreviations more frequently in the informal writing assignments when compared to the formal writing assignments. A Pearson correlation indicated that there was no significant relationship between the use of text abbreviations and the frequency of text messaging of the teenagers who participated in this study. Conclusion: Text messaging does affect the writing skills and social communication of teenagers. The increased use of text messaging and text abbreviations is causing teens to participate in less face-to-face interactions with individuals in academic, business and social settings. It is recommended that further research include the comparison of teenagers with writing and/or pragmatic disorders and their typically developing peers to observe if the use of text messaging has an effect on their formal writing abilities and ability to communicate appropriately in social situations. Clinical Implications: Speech-language pathologists are the professionals with the broadest knowledge about the connections between reading, writing and oral language. Many of the same language structures are needed in the understanding of both written and oral language such as semantics, syntax, phonology, morphology and pragmatics. Speech-language pathologists should consider teenagers' use of texting when assessing and working with teens with difficulties in reading, writing and/or pragmatics due to teenagers' preference of communicating through text messaging and increased use of text language.

Lia Pazuelo
Faculty Advisor: Mahchid Namazi

Comparison of Lexical Diversity in Narrative and Conversation of Bilingual to Monolingual Children.

Vocabulary is an important part of language development. It has a direct influence on reading and academic success. Hence, vocabulary has an important role in assessing language proficiency and diagnosing progress in language development. There are different methods to evaluate and measure vocabulary. Two commonly used measures are conversational samples and narrative elicitation tasks. Studies with monolingual children demonstrate that spontaneous communication has not always proven as useful as narratives in comparing children’s lexical diversity. However, not much is known about the efficiency of these methods with bilingual children in English. This study compares English lexical diversity of bilingual children in a narrative task storytelling condition to a conversational condition and examines how comparable it is to the monolingual sample of the SALT database. 16 4-5 year-old Spanish/English bilingual children produced a spontaneous conversation during a 15 minutes play and oral narratives that corresponded with the wordless picture book, *Frog, Where Are You?* (Mayer, 1969). Their conversations and narratives were analyzed for productivity (total number of words, total number of different words and Type-token ratio). There is an interesting correlation in vocabulary use in the narratives and conversations between bilingual and monolingual children. This supports prior literature suggesting that considering English only, the monolingual group performs better than the bilingual group and young bilinguals lag behind their monolingual peers in the size of their English receptive vocabulary.

Justin Rafferty
Faculty Advisor: Karen Kushla

Social Skills Facilitation Program: Group Therapy and Individual Progress

Research Question: Social skills facilitation programs (SSFP) are used frequently to teach social skills to children with autism or Asperger’s disorder. It has been difficult to determine whether this sort of program is effective in teaching social and pragmatic skills to this population. Methodology: The SSFP utilized in this study is offered at Kean University's Center for Communication Disorders and Deafness for children with high-functioning autism or Asperger’s disorder. The group used in this study consisted of four children between the ages of 8 and 11 years. This study uses a single-case study design with multiple baselines for two participants (n=2). Data for each participant are treated independently and are compared to data from the other participant. Each baseline consists of a different component skill of social skills. Results: It is predicted that statistically significant improvement of
specific behaviors across baselines will be shown using one-tailed t-tests. An inter-rater reliability measure is likely to indicate that the social skills investigated can be precisely quantified by separate individuals using shared criteria based on objectively measurable behaviors. Clinical Implication: Further research is required to quantify the overall inter-participant variability.

Maria L. Rodriguez  
Faculty Advisor: Jeannine Carlucci  
**A Comparative Study of Articulation Across Spanish Dialects**

For speech language pathologists (SLPs), it is important to be knowledgeable in the dialectal differences that exist within languages because there may be clients whose primary language is another from Standard American English. The population of Hispanics, specifically Spanish-speaking individuals, has grown substantially as illustrated in the most recent Census findings, creating a greater need for SLPs to be knowledgeable of the potential articulation variations within the published phonetic inventories for the Spanish language. The present study examined phonetic inventories for dialects of the Spanish language to see if the current publications are accurate with the dialects currently spoke by Spanish speakers in predominant Hispanic areas. Data from twenty-four participants, eight participants in each Spanish-dialect group (Colombian-Spanish, Cuban-Spanish, and Puerto Rican-Spanish), was included in this study. Preliminary results from qualitative analysis of speech samples across three Spanish dialects indicated distinctive sound differences in articulation. The findings from this study can help SLPs in the assessment and intervention of bilingual Spanish-speaking children and adults who have speech and language impairments. To provide ethical services to culturally and linguistically diverse individuals, it is important to consider dialectal differences for proper assessment and treatment.

Stephanie Rodriguez  
Faculty Advisor: Jeannine Carlucci  
**Is the iPad Technology a More Effective Method to Teach Vocabulary than Picture Flash Cards in Preschoolers**

Data collected from six participants, aged 3 to 5 years were included in this study. This study compared the effectiveness of teaching new vocabulary words through an iPad and paper flash cards. Preliminary results concluded that the participants learned more vocabulary when they were taught using the iPad as a visual and auditory stimulus.

Stella Rozenfeld  
Faculty Advisor: JoAnne Cascia  
**Comparison of Memory in Typically Developing Russian-Speaking Children to Typically Developing English-Speaking Children**

Research Question(s): Do typically developing bilingual Russian-speaking children score higher on the recalling sentences subtest of the Clinical Evaluation of Language Fundamentals Fourth Edition (CELF-4) test than typical developing monolingual English-speaking children? Results: An independent t-test was used to determine if there was a significant difference between the memory scores in typically developing Russian-speaking participants to typically developing English-speaking participants between the ages of 5-10 years. The Levene Test was used to assess variance equality between the two group samples. The results of this test suggested that variances equal to .341 > 0.05, suggesting that there was no significant difference between the typically developing Russian-speaking bilingual group and the typically developing English-speaking monolingual group. Further results suggested that p-values for memory scores .341 and .342 were also greater than 0.05, indicating the research study concluded no significant difference between memory scores of typically developing bilingual Russian-speaking participants to typically developing English-speaking participants. Conclusion(s) (including future research): The results of this
study are consistent with Conway et al. 2010’s findings demonstrating that typically developing bilingual children do not outperform typically developing monolingual children in terms of memory. The findings from the current study also concur with Carlson and Melzoff (2008) that memory raw scores between bilingual and monolingual children are equivalent. Since there are limited standardized assessments normed for this population, it is crucial for professionals to understand working memory in bilingual children prior to assuming the presence of a language disorder or delay. Clinical Implication(s): It is recommended that professionals understand language difference in bilingual children prior to diagnosing them with a language delay or disorder. The professional can talk to the family to see how the child is functioning at home and if they report any issues. The professional can get a better understanding of the languages spoke at home and how proficient the child is in those languages. In addition to that, the professional can observe the child in the classroom setting and obtain a teacher checklist to better understand his/her academic performance. The results of this study support children who speak more than one language. As the trends in the United States increase in the number of multilingual children, it is our role as professionals to provide valuable services to bilingual and multilingual individuals.

Carmel Ryan
Faculty Advisor: Barbara Glazewski

Can Orthonasal Presentation of Odors Impact the Swallow in Normal Adults

Swallowing difficulties impact many clinical populations. Delayed triggering of the pharyngeal swallow is the most common problem. Current therapies manipulate taste, temperature, texture and size of the bolus, but are limited in effectiveness, and may be invasive. This study explores the potential of odors to stimulate the swallow, as a non-invasive method that is independent of patient’s abilities. Participants were 33 adults with normal swallowing in three age groups. They were randomly presented orthonasally with three odor conditions: vanillin (an olfactory stimulant), citrus (a trigeminal stimulant) and no-odor (a neutral condition). Time for triggering of the pharyngeal stage of the swallow was calculated. No significant effects were found for the olfactory or trigeminal stimulant, both within-subjects, and when comparing subjects by age. Current research into treatment for dysphagia is discussed, including use of electrical stimulation and carbonation. Stimulation of the olfactory and gustatory systems, with probable involvement of the trigeminal system, is emerging as promising in the treatment of dysphagia.

Caitlin Salerno and Karen J. Kushla
Faculty Advisor: Karen Kushla

Carryover of Reinforcement Provided to Children with Autism from School to Home Settings

Research Question: This study intended to identify the relationship of the type and frequency of reinforcement provided to children with autism at school in comparison with home. A survey was distributed to parents and speech–language pathologists of elementary-aged children with autism. Data were analyzed with Chi-squared analyses. Results: Results revealed a lack of carryover of reinforcement between groups. Conclusion: Effective communication between speech–language pathologists and parents of children with autism on reinforcement may be insufficient. Clinical Implication: Improving the quality and quantity of communication, education, and training of reinforcement between speech–language pathologists and parents of children with autism will facilitate carryover.

Annaruth Sarcone
Faculty Advisor: Alice Chiarello

Aphasia and Therapy Dogs: Facilitating Communication and Socialization
Aphasia negatively affects an individual’s ability to communicate and comprehend language, and can often lead these individuals to becoming socially withdrawn and depressed, and having a decreased quality of life. Research has shown the need for interventions that promote social participation, functional communication, and emotional well-being in this population. In recent literature, animal-assisted therapy (AAT) has been supported as an intervention that has therapeutic and rehabilitative benefits that include promoting relaxation, providing comfort and companionship, decreasing agitation, and increasing socialization. This study sought to investigate the effects of AAT on the communication of seven adults with aphasia during a group therapy session. The study took place over three sessions (typical session, AAT session, and typical session discussing pets and animals) and analyzed participants’ spontaneous communication attempts (SCA) and social behaviors (SB). SCAs were recorded as any participant-initiated communication, and SBs included smiling, laughter, and clapping. The results indicated a strong increase in SBs during the AAT session, and the highest amount of SCAs during the pets and animals session. The lowest amount of SCAs was recorded during the AAT session. It is hypothesized that the high amount of SCAs during the pets and animals session was due to participants’ eagerness to discuss the dog visit, and the low amount of SCAs during AAT was due to the addition of the dog handler as another speaker in the group. Based on the results, AAT was indicated to have a positive effect on participants’ number of SBs, while discussing AAT in session three has a positive effect on participants’ number of SCAs. Although further research is warranted to determine the effects of AAT, this study supported current research on AAT and adults with aphasia.

Alyssa Saunders
Faculty Advisor: Jeannine Carlucci

The Effect of Showing Pictures of Vocal Fold Pathologies on a Vocal Hygiene Lecture

Research Question(s): The purpose of this study is to determine if a vocal hygiene program that includes lecturing on vocal anatomy, functions and care will be more effective in changing vocal behaviors and participants’ reporting of vocal quality is enhanced by pictures and videos of vocal fold pathologies. Questions include: 1) What information is needed for singers to understand the impact of their daily behaviors on their singing voices and 2) If such knowledge will engender change in these habits. Methods: One group of high school choir students (n=34) was given a vocal hygiene PowerPoint presentation and the treatment group (n=28) received the same lecture supplemented with pictures of vocal fold pathologies. Baseline, pre and post treatment surveys were used to collect data. Results: Indicate no significant difference between control and treatment groups for vocal self-perception of vocal quality and change in negative vocal habits. Conclusion(s) (including future research): The content of a vocal hygiene program as well as the frequency of lectures is addressed. Targeting a younger population, such as middle school choir students, is also recommended. Clinical Implication(s): Based on reports of singers who reported that suspect having a voice disorder as well as the great amount of vocally abusive behaviors, vocal hygiene programs are warranted for high school choir singers. In addition, it is important for speech-language-pathologists to supply both prevention and awareness programs for at-risk populations.

Deena Sturm
Faculty Advisor: Jeannine Carlucci

The Influence of Personally Relevant Photographs on Conversational Discourse in Persons with Aphasia

The purpose of this study was to examine conversational discourse under the influence of personally-relevant contextualized photographs in individuals with aphasia. The present study explored what communication patterns will result when personally relevant photographs are used as a supported communication attempt and will word finding abilities increase with the presence of personally relevant photographs? Individuals with aphasia have shown preference to and performed with greater accuracy on therapy tasks utilizing personally relevant photographs. Little evidence based research, however, has documented the effects of personally relevant
photographs across varying language tasks. Six adults diagnosed with Broca’s aphasia participated in two individual therapy sessions. Ten personally relevant photographs were compiled by the participant and/or his caregiver. One session consisted of the personally relevant photographs while the second excluded its presence. A 14 day lapse was timed in between the two sessions. Transcriptions of the verbal output were measured with the Measure of Lexical Retrieval (Herbert, Hickin, Howard, Osborne & Best, 2008). Results revealed no statistical significance in conversational discourse between control and experimental tasks. Individual measures of turns and substantive turns did prove to be statistically significant. A larger sample size of the current study design may definitively document efficacy of personally relevant photographs as a conversational tool. Clinical implication issues are discussed.

Jena Terranova  
Faculty Advisor: JoAnne Cascia

Verbal Praise in the Clinical Setting

Research Question(s): 1. Does the manipulation of telling participants what behavior is being observed (i.e., frequency of verbal praise) increase the behavior? 2. Will participants generalize the behavior and continue to implement the behavior (i.e., increased frequency of verbal praise) a month later? Results: The control group’s behavior varied from the first observation to the second observation. When the experimental group was informed of the behavior that was being observed all of the clinicians demonstrated an increased amount of verbal praise. A one-tailed t-test with alpha set at .05 was conducted to test the significance between the two groups, which resulted in no statistical significance (p=0.060325). Clinicians in the control group demonstrated a varied amount of verbal praise during the third observation. The clinicians in the experimental group also demonstrated a varied amount of verbal praise during the third observation. A one-tailed t-test with alpha set at .05 was conducted to test the significance between the second observation and the third observation of the experimental group, which showed statistical significance (p=0.000785). Conclusion(s) (including future research): The first hypothesis was accepted. All of the clinicians in the experimental group demonstrated an increased amount of verbal praise used in the second session compared to the first session. This shows that clinicians’ behaviors can be manipulated when they know what behavior is being observed. This translates to not only verbal praise, but also other behaviors that supervisors may want clinicians to increase. Clinicians can also use this information in therapy sessions to increase a desired target response from clients. As for the second research question, the null hypothesis was accepted. Most of the clinicians demonstrated a decreased amount of verbal praise from the second observation to the third observation. Clinical Implication(s): The results of this study may indicate that supervisors have the ability to manipulate the behaviors of clinicians by simply communicating what it is they are observing. The results may also indicate that clinicians can use this same model in therapy to increase the wanted behaviors of clients.

Computer Science

Marvin Andujar, Lauren Aguilera, Luis Jimenez, Farah Zabe, Jugal Shah, and Yerika Jimenez
Faculty Advisor: Patricia Morreale

Innovative Programming Environments: A Comparative Study of Alice and Android App Inventor with High School Students

The research project presents a study of two programming environments, Alice and Android App Inventor, which were used to introduce high school students to computer science. The interfaces were used to teach the students computing fundamentals and provide them with exposure to computer science. The objective of the research
study was to determine if student interest in majoring in computer science at the college and university level increased. The research results demonstrate that, even with a limited amount of instructional time, student interest in computing can be positively influenced, particularly as measured by gender groups.

Research supported by: Computing Research Association (CRA), Collaborative Research Experience for Undergraduates (CREU) Program

Rosangela Arlequin
Faculty Advisor: Patricia Morreale

Analysis of the Real-time Performance of an Android Application

This research presents an analysis of the real-time performance of an Android application. The application provides an interface for users to report information about the local environment on a university campus to a relational database system which can then be accessed by others for real-time information about current events. The application is a real-time alert system with data input from users. The data provided is then shared with users who request the information. For example, information which might be provided and shared with others could be details about the size of lines in cafeteria. The system analysis presented here is used to identify best case and worst case operating conditions. One of the benefits of this system is the identification of true real-time operating system performance and real-time response. The purpose of this analysis is to identify the optimal design approach for faster real-time response and high reliability in Android applications.

Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education

Steven Holtz, Guillermo Valle and Jessica Howard
Faculty Advisor: Patricia Morreale

Visualization and Pattern Identification in Large Scale Time Series Data

Visualization of massively large datasets presents two significant problems. First, the dataset must be prepared for visualization, and traditional dataset manipulation methods fail due to lack of temporary storage or memory. The second problem is the presentation of the data in the visual media, particularly real-time visualization of streaming time series data. An ongoing research project addresses both these problems, using data from two national repositories. This work is presented here, with the results of the current effort summarized and future plans, including 3D visualization, outlined.

Research supported by: Students Partnering with Faculty Summer Research Program, Kean University

Javier Olaya
Faculty Advisor: Tiffany Barnes (Univ of North Carolina)

Teaching Computer Science Concepts through Educational Games Using Social Aspects Within Peers

The demand of computer science in the work force is growing and unfortunately newer college students avoid pursuing this degree. The number of students pursuing Computer Science majors is declining and the consequences are lower participation of under-represented groups in the work force. The students admitted to the university with no experience in programming have difficulty accomplishing computer science assignments. We have created a puzzle game called BOTS to help these students learn basic programming concepts. The game also has social networking aspects where students can share, and rate and comment on, puzzles students make. This allows the student to practice programming, using the social aspects of the real world to help their programing abilities. We studied our game at a summer 2011 camp for middle school children at the University of
North Carolina at Charlotte. We found the game promoted the desired student competition and curiosity, students developed a small network of peers, the students learned basic computer science concepts and they kept playing BOTS after the summer camp finished.

*Research supported by: National Science Foundation. Research Experiences for Undergraduate (REU) Program*

**Criminal Justice**

**Karim Fox**  
Faculty Advisor: Constance Hassett-Walker

*Risk Factors Leading to Intimate Partner Violence (IPV)*

What are the risk factors leading to Intimate Partner Violence (IPV) perpetration and victimization? Approximately 25.5% of U.S. women reported IPV at least once in their lifetime, according to the National Violence against Women Survey (Walton-Moss, Manganello, Frye, & Campbell, 2005). About 20% of the violent crime committed against women between 1993 and 2001 was attributed to IPV (Walton-Moss et al., 2005). I used an anonymous letter to the editor content analysis with a short survey. My sample was drawn from the Kean University campus. 80 Kean University students over the age of 18 were surveyed. The sample was drawn using a convenience sampling approach. The sample was split 50/50 between Criminal Justice and non Criminal Justice students.

**Lauren Spath**  
Faculty Advisor: Constance Hassett-Walker

*Stress Factors Among Correctional Officers*

The research question for this study is: Are stress factors such as gender, role conflicts, input into decision making, length of service, supervisory support, work shift, and dangerousness causal factors that influence correctional officers’ stress levels to rise? Since correctional officers have a major impact on the success or failure of correctional institutions, research to identify stress factors is important to the criminal justice system. The methodology that I utilized was a collection of eighty newspaper articles. As the results show, there are two key independent variables that showed a significant relationship with number of mentions of stress: male and female correctional officers.

**Design**

**Roberto Hernandez and Roger Posso**  
Faculty Advisor: Damon LaCapra

*Out of The Darkness: Creating a solar powered light for the homeless*

The goal of this project is to design and create a solar powered portable light to be used by the homeless. It may also be used in areas damaged by natural disasters. Design is a field that explores options and uses creativity to solve problems. Design is not just about the solution but the process of exploring all required elements and creating something that appeals to our senses. The research included interviews with case workers, designers, psychologists, and people who are currently homeless. By gathering information and analyzing it we were able to focus on a clear goal and retain our design intent. Our research led to a unexpected conclusion that the light is a part of a larger solution. Creating awareness for the homeless situation and engaging people to help others is the real goal of our project.
Chung Gin Pao  
Faculty Advisor: O'Shea, Linda  
**Sustainable Residential Design: For Aging-in-Place and Asthma**

Using sustainable design and modular design as criteria, this project is to create a residential environment that can accommodate a 45-year-old writer, who wishes to "age in place", and her 14-year-old son, who has asthma condition. The project highlights a number of common design challenges an interior designers faces in the environmental-centric and aging society that we live in today. Using evidence based design approach, research is conducted according to sustainable products, weather condition, asthma causation and treatment, age effect on mobility and sensory, ADA requirements, as well as day lighting. Decisions on space planning, material selection, and dimension specifications are then made based on the research and demonstrated in the floor plan, elevation, 3D model, Materials and Finishes board, and client book.

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**Early Childhood & Family Studies**

LeeAnne Defazio and Valerie Schunk  
Faculty Advisor: Jennifer Chen  
**Investigating the Effectiveness of Professional Development Models for Early Childhood Teachers**

How can the teaching practice of early childhood teachers be enhanced? Much discussion has centered on professional development as key to enhancing teaching competence. It has been reported that ongoing professional development efforts can contribute to the practitioners’ acquisition of knowledge, skills, and dispositions needed to engage in developmentally appropriate practice. This research project investigated the effectiveness of various professional development models for promoting the teaching effectiveness of early childhood teachers. To achieve this goal, we reviewed the professional development literature in early childhood journals over the last two decades. Our research results reveal that effective professional development models encompass important features, including providing mentoring to early childhood teachers to encourage and sustain their professional growth, focusing on the practice of developmentally appropriate practice to advance children’s learning and development, promoting home-school partnership, incorporating technology in teaching, and addressing diversity in the classroom. In this poster presentation, we will discuss our research results and their implications for practice.

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Nicole Gangemi  
Faculty Advisor: Marjorie Kelly  
**Character Ed: Teaching Social-Emotional Skills to Reduce Bullying and Improve Peer Relationships**

Anti-bullying initiatives are currently being state mandated due to the present rise of young people committing suicide over peer pressure and bullying. Children’s school experiences and peer relationships play a crucial role in their ability to become healthy, competent adults. Therefore, it is essential for educators to model and teach children good citizenship and conflict resolution skills to help build their characters and to improve peer relationships. In this action research project the researcher implemented weekly anti-bullying and character education lessons in an effort to reduce bullying by helping children develop conflict resolution skills and build
positive peer relationships. Data was gathered using various collection tools including surveys, checklists, social circles, and anecdotal notes to provide evidence for any changes in the participants' character, improved peer relationships, and a reduction in bullying.

Kathleen Reilly  
Faculty Advisor: Marjorie Kelly  
**Computer-Based Adaptive Tests vs. Authentic Assessments in Early Childhood Education**

This action research project investigates a current issue in early childhood education—assessment of young children. The researcher wanted to determine if a specific computer-based adaptive test used in her district yielded accurate and/or valuable information about children's abilities. The researcher administered The Children's Progress Academic Assessment by Pearson Learning to six preschoolers all learning on different levels. The researcher then administered authentic assessments with hands-on materials to the same six children. The researcher analyzed the data and compared results noting any similarities and differences in data. This information was then shared with colleagues in grades Pre-K to 2 to improve their assessment techniques.

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**Earth Science**

Laura Camp and Laurie Marsh  
Faculty Advisor: Carrie Manfrino  
**Pathways and Distribution of Marine Debris Around a Remote Caribbean Island, Little Cayman**

Marine Debris is a major environmental concern that affects all levels of marine life. On remote beaches in the Caribbean, where human populations are minimal, marine debris is largely deposited by ocean currents. The ocean is estimated to be littered with over 6 million metric tons of trash per year with 90% coming from land sources, but little is known about the exact sources and pathways for the debris. In 2006, on Little Cayman Island, coastal debris was collected at two coastal areas where removal of debris had not occurred in at least 9 years and along 2000m². One site was located on the north side, while the other site was located on the south side of the island. Both sites were located in reef-protected coastal zones. These two sites were revisited in 2007, 2010, and 2011 to determine the volume, weight, and type of debris arriving annually and to assess the importance of different coastal processes in deposition. In 2011, eight turtle nesting beaches were added to the study and a total of 11,186 liters of debris was collected from 1600 meters of coastline. The island lies in a northeast southwest orientation. The south-side of the island is influenced largely by prevailing trade winds, currents and tropical storms, traveling across the Caribbean from the east. Currents, eddies, and Norwesters would presumably deposit debris on the north side of the island. Approximately five times the amount of debris is deposited on the south side of the island than on the north side of the island. From the total debris collected, 72.45% was plastic, 8.23% shoes, 6.37% ropes & nets, 5.13% glass, 4.37% styrofoam, and 3.44% contained other debris. The marine debris originated in 8 different countries, and it is estimated that there is collectively 223,721 liters (11,635 kg) covering the shores of the entire island. Remarkably, debris found on Little Cayman in 2011 was traced to the 2010 Haitian earthquake relief effort.

Alejandrina Canelo  
Faculty Advisor: Feng Qi  
**Exploratory Analysis of Students Space-time behavior with Regard to Flu Infection**
This study attempts to investigate the relationship between space-time behavior and chance of catching the seasonal flu on a college campus during outbreaks. Micro-scale behaviors were taken into consideration in order to increase knowledge about prevention strategies during the flu season. This study was performed at Kean University, NJ. The sample population studied was undergraduate students. They were observed in a 9 weeks period with GPS tracking for data collection. The tracking data was processed through spatiotemporal analysis. Exploratory analysis was then conducted to investigate behavior patterns in students that have been infected with the flu with students who have not. Variables examined include commuter and resident’s status, indoor time, total activity radius, and number of stays in particular campus buildings, together with race, ethnicity and gender. These variables were correlated with flu status and the severity of symptoms recorded in relation to flu infection. According to the results obtained, it was found that students who commute are more susceptible to the flu infections compared to those students who not. Significant relationship was not found between spatiotemporal behaviors such as indoor time spent by students, total activity radius etc. with severity of symptoms.

Research supported by: National Institutes of Health grant AI090465 to Feng Qi

Roberto Gomez
Faculty Advisor: Feng Qi

Impacts of Weather on Individual Human Space-Time Behavior

Space-time behavior of an individual is one’s whereabouts in time at a micro scale. Patterns in such behavior have long been studied in human ecology. It is inevitable that such behavior can be greatly affected by weather conditions through the modification of the physical space and environment as well as by affecting one’s psychological state. One ultimate outcome of weather forecast is to alter human activity planning through bringing awareness of forthcoming weather and providing alert of sub-comfortable conditions. This study employs novel methods to capture individuals’ space-time activities on a university campus for a consecutive 10 week period from January to April 2011. Analytical as well as visual methods are used to examine the spatiotemporal patterns of on-campus activities. By analyzing the change of activity patterns in response to weather conditions during this period of time, we develop findings on the impacts of weather on micro-scale human space-time behavior and provide insights for not only research in human ecology, but also broadcasting that connects to individual’s life (esp. activity planning).

Research supported by: National Institutes of Health grant AI090465 to Feng Qi

Anthony Ingato
Faculty Advisor: Feng Qi

Mapping the NY MSA in Time-Space

When traveling in today’s world it’s all about time, and how long it takes to get “there”. Current maps are based on spatial distances, which have become obsolete when traveling, as physical distance is no longer the main factor that determines traveling time anymore. This is due to the new modes of modern transportation with automobiles in a dense road network and public transportations. This study uses distance cartograms to visualize and analyze the space-time in the New York Metropolitan Area with different transportation methods. Using Bing maps we calculated the travel times from the most populated cities in this area to New York City. We considered driving time with or without traffic and time using public transportation (bus, train, subway, etc.). Cartogram maps show traveling time in a straightforward way and the maps provide insights on how modern transportation has altered the traditional sense of ‘space’. The results show that with a faster-paced society it is important to have effective visual tools that depict traveling time instead of the physical distance, and that distance cartograms are such a tool.
Emergency Response: Thunderstorm Hazards Responses, Emergency Activities and Threats

In New Jersey, outdoor summer activities lead to a high volume of traffic at the Jersey Shore and it is apparent that beach activity responds to both the weather conditions and to the daily forecasts. Archived daily weather observations and severe storm reports were examined to consider the impacts of significant weather conditions on beach traffic as a measure of public response to present weather. A sample five year period of local traffic data was obtained to determine the relationships between traffic activities and severe storms near the New Jersey shoreline. Both allow examination of the potential impacts of severe weather conditions from a risk management perspective. These were used to develop empirical models of impacts and risks in order to provide emergency managers with a better understanding of the beach population involved in the short term hazards.

Examination of Risk: Thunderstorm Activity at the Beach

Thunderstorms contain a variety of hazardous threats. These threats include lightning, strong winds, heavy rains, hail, and even tornados. When thunderstorms impact the large summer time’s crowds visiting the beaches of the South Jersey Shore; thousands of people face potentially life-threatening conditions. It was found that about 70% of the shore municipalities selected for this study did not have a severe weather policy or protocols in place as of the summer of 2011. Following this it was decide to measure the risk that thunderstorms have of the study area and the amount and people exposed to these threats.

Operational Convective Diagnosis: Patterns and Attributes of Non-Severe and Severe Storms.

An online archival database of summer season convective initiation for the PHI CWA of the NWS was further examined with regard to the development and distribution of severe storm reports. Local storm reports were examined with regard to type (i.e. damaging wind, large hail, and tornado) as a function of convective day (event versus contaminate), 500 mb flow, and the prevailing surface synoptic weather regime. These were mapped using GIS in order to relate the occurrence, frequency, and patterns (in space and time) associated with convection that included severe storm reports. Further analysis of those days reporting severe storms included the use of composite re-analysis data so as to distinguish those atmospheric fields and/or characteristics that were associated with severe versus non-severe convective activity. Results indicated that several operational clues are clearly evident that would allow real-time forecasts to specify more clearly the spatial and temporal expectations of severe convection while reducing false alarms.

The Rocky Mountains: Seasonal Precipitation's Affect on Groundwater
This project examines short-term hydrologic responses to orographic precipitation in mountainous regions. Specifically, we study the change of groundwater level in relation to precipitation on both sides of the Rocky Mountains. Monthly data on precipitation and groundwater levels through the years 2006-2010 from Portland, Oregon and Sioux Falls, South Dakota are correlated to establish relationships from the perspective of synoptic scale meteorology, hydrology and geology. Through visual explorations, processes such as air mass motion, air saturation, orographic uplifting, seasonal snow/ice melting, runoff and aquifer permeability are examined to reveal seasonal patterns of the air-water-geo interactions, as well as spatial variations at the geo-hydro interfaces.

*Research supported by: National Science Foundation, Louis Stokes Alliance for Minority Participation (LSAMP) Program*

**English**

**Angela Castillo**  
Faculty Advisor: Maria Zamora

*Oral History Narratives of Filipino American Women Born Before WWII*

The goals for this project is explore what factors influence the formation of ethnic and racial identities of three Filipino/Filipino-American women who were born prior to world World War II. This research is the first step in a planned larger project which will focus on the values and literacy practices of Filipino/Filipino American women. In this project, qualitative research was conducted through the use of in depth interviews using open ended questions, audio recordings and transcription of data. This will contribute to the fields of research which focuses on Filipino American identity formation, values and literacy practices. Although this is an ongoing project, some of the main outcomes of project focuses on are the values of education, religion, and family in the lives of Filipino Americans born prior to WWII.

**Kelly Johnson, Gabriella Basile, Meggan McGuire and Joseph Purpuri**  
Faculty Advisor: Donald Moores

*Touched With Fire: An Anthology of Poems on Human Flourishing*

What are the defining qualities of a life well-lived? This question highlights a major concept of the eudaimonic turn, a relatively new area of study that focuses primarily on well-being. As this positive discipline gathers momentum, we have joined its ranks in the search for evidence of human flourishing throughout all mediums. As English majors, it was our goal to seek out poems that illustrate the many features of what it means to live well. In order to do this, we delved into the literary canon and continued our exploration beyond its borders so that we might foreground as many different types of positive human experience as possible. More than simply an anthology designed to capture a mood or convey a particular message, Touched With Fire celebrates often-overlooked aspects of well-being such as reason, character virtues, savoring, and synchronicity, to name just a few of our more than 35 categorical headings. As a result, we have compiled a manuscript of some of the most exceptional poetry the world has to offer, spanning thousands of years and reaching across the globe.

*Research supported by: Students Partnering with Faculty Summer Research Program, Kean University*
General Studies

Lauren Aguilera, Michael Rizzo and Ersi Bice
Faculty Advisor: John Dobosiewicz

Understanding First Year Students: A Preliminary Investigation of College Success Factors

Kean University serves a diverse population of students, many of whom are first generation college students. We use survey data from the College Success Factors Index (CSFI) from the freshman seminar course, Transition to Kean, to create a profile of first year students, correlate specific risk factors often associated with first year-first generation students, and assess the role of the course in addressing risk factors. The CSFI analyzes student responses for eight critical factors to college success; Responsibility versus Control, Competition, Task Precision, Expectations, Wellness, College Involvement, Family Involvement, and Time Management. The results of this research will be used to develop a more comprehensive first year experience for Kean University students.

Preliminary findings indicate that mean scores for Kean University students in the Transition to Kean course are below the national averages, with lower scores indicative of college success. Each factor is examined in more detail to determine specific areas of higher risk. Approximately 25% of students scored above the national average in the pre-course survey in Competition and Task Precision. Post course survey data indicates that only 16% score above the national average in these two factors, evidence that students are improving significantly during the semester.

History

William Barbieri
Faculty Advisor: Elizabeth Hyde

The Alchemist's Book Collection

The purpose of this research is to explore the importance of the book collection in the 16th, 17th, and 18th century societies; in particular, how common practical literature such as the instructional manual was in the inventories of William and Robert Livingston and their contemporaries. By examining the personal book collections of the Livingstons and other influential persons of their time, we may be able to gain valuable insight into their lifestyles, beliefs, values, and the society in which they lived. More importantly, it may shed light on how book-ownership and dissemination has effected the development of today's culture. My own personal research will focus on how common books and texts on alchemy were to the average book-owner in these earlier centuries. The research will center around Miles Blomefield, an alchemist, book owner, and writer and editor of alchemical manuscripts and literature. Using Blomefield as a jumping-off point, I want to try and develop an idea of what sorts of texts an alchemist's book collection would contain and paint a detailed picture of the alchemist's personal library. This poster will present the findings from my research on Blomefield's book collection and the book collections of other alchemists, and it will serve as an illustration of the importance of practical literature centered on the practice of alchemy to the likes of Blomefield and his peers. Ultimately, my research will suggest that instructional texts on the craft and practice of alchemy were an important aspect of the alchemist's private collection.

Research supported by: Students Partnering with Faculty Summer Research Program, Kean University
Dara Berkey
Faculty Advisor: Elizabeth Hyde

*Erasmus and In Praise of Folly Ownership and Print History*

The basis of this research project is the advent of print culture and the publication of “How to” guides that explain once carefully guarded secrets by the artisans. The “How to” book genres range from: how to achieve salvation, how to properly look after horses, the proper way to cultivate a specific flower, and there are many more in a variety of areas of expertise in the “How to” books genres. Over the course of our research, we have analyzed and examined the catalogues of early modern private libraries, and the works of a particular author came up in a variety of different libraries—Desiderius Erasmus and more specifically his book, In Praise of Folly. Erasmus was a sixteenth century humanist concerned with how to save one’s soul, thereby fitting perfectly in the “How to” genre. Through the analysis of book lists, biographical accounts, letters to friends and printers as research, I argue that Erasmus showed ambiguity about the mass printing of books, especially his own famed work In Praise of Folly. This poster will communicate the print history of Erasmus’ In Praise of Folly and demonstrate the type of people that kept In Praise of Folly in their private libraries in the context of the controversy of printing such a critique of the Catholic Church in the time before the Protestant Reformation.

*Research supported by: Students Partnering with Faculty Summer Research Program, Kean University*

Mathematics

Girardo Elie
Faculty Advisor: Wolde Woubneh

*The Effect of Entertainment on Academic Achievement*

There is an underlying belief that exposure or overexposure, in some cases, to various forms of media and entertainment has adverse effects on children’s lives in a multitude of ways. For example, many believe playing violent video games or listening to particular genres of music foster greater aggressive behavior in children and adolescents than those who are not exposed to the aforementioned forms of entertainment. The objective of this study was to examine entertainment’s impact on academic achievement. Extracurricular activities such intramural athletics and student-group activities (e.g. clubs, organizations, Greek life) were excluded from this research. For the purposes of this study, forms of entertainment included television viewing, video games, web surfing, social networking, blogging and podcasting. A random sample of respondents throughout Kean University completed a self-administered questionnaire for data collection. Based on the findings of the data, the preconceived notion that exposure to entertainment hinders academic achievement is not necessarily valid, for there are other factors that contribute to achievement.

*Research supported by: National Science Foundation, Louis Stokes Alliance for Minority Participation (LSAMP) Program*

Nechama Florans
Faculty Advisor: Louis Beaugris

*Young Tableaux and Power-Associativity*
In this project, we define Young Tableaux and discuss some of their properties. We give algorithms for standard operations such as row insertion and row bumping. We found that the row insertion operation is associative and that Young Tableaux form a monoid. We study the power-associativity of the Schensted operation with tableaux.

Research supported by: National Science Foundation, Louis Stokes Alliance for Minority Participation (LSAMP) Program

Matthew Jakubowski
Faculty Advisor: Raymond Viglione

On Generating Snarks Using Cayley Digraphs

Although snarks have been studied in graph theory since the late 1800’s, it is still unknown whether or not the Cayley digraph of a finite group can ever be a snark. In this investigation, we will show that no Cayley snark, if it exists, can possess a Hamiltonian cycle. Based on this, we identify some groups whose Cayley digraphs cannot be snarks.

Nasreen Khan
Faculty Advisor: Pablo Zafra

History of Counting Methods

I am interested in finding out of how people from ages ago use to count. I will find how many different methods were used and how long it took until people adapted today’s counting methods.

Research supported by: National Science Foundation, Louis Stokes Alliance for Minority Participation (LSAMP) Program

Purna Patel
Faculty Advisor: Raymond Viglione

A Variation on Thébault’s First Problem

The first of Thébault’s celebrated three “problems” asks for the figure formed by the centers of squares constructed outwardly on the sides of a parallelogram. Here, we investigate what happens in the case where the squares are instead constructed on the parallelogram’s diagonals.

Research supported by: National Science Foundation, Louis Stokes Alliance for Minority Participation (LSAMP) Program

Theodore Woubneh
Faculty Advisor: Wolde Woubneh

CG Contrasting Renders

In a computer generated image or animation, is it possible to have contrasting graphical aesthetics together in the same scenes? It’s interesting to see how far contrasting elements can beautifully complement each other, especially in the appeal of a product like a video game. I would like to see if different methods in compositing an image in animation can make this possible. I expect to see the outcome of a cel shaded, cartoonish object or character in a photo realistic environment.

Research supported by: National Science Foundation, Louis Stokes Alliance for Minority Participation (LSAMP) Program
Dan Zaremba and Doris Fakeh Nakhla
Faculty Advisor: Mahmoud Affouf

Monte Carlo Simulation

Using Monte Carlo Method to compute higher dimensional integrals with complex domains and modeling games of chance (blackjack).

Or → Application to Complex Integration and Games of Chance

Research supported by: National Science Foundation, Louis Stokes Alliance for Minority Participation (LSAMP) Program

NJ Center for Science, Technology and Mathematics

Kelly Bachovchin and Joe-Louis Yarfi
Faculty Advisor: James Merritt

Synthesis of Chlorobenzyltriazoles for Evaluation as Inhibitors of Multiple Myeloma Cells

Multiple myeloma is an incurable cancer of plasma cells in the bone marrow. Responsible for about 2% of cancer related deaths, it progresses by stimulating the release of chemokines in bone marrow which in turn promotes osteoclast activity in the bone. More specifically the chemokine CCL3 promotes growth and survival of osteoclasts. Expressed in myeloma cells, CCR1 and CCR5 are the primary chemokine receptors for CCL3. This study focused on synthesis of potential CCR1 and CCR5 dual antagonists for testing in multiple myeloma cellular assays. The compounds were based on a known selective CCR1 antagonist with a novel 4-chlorobenzyltriazole-pyrrolidine motif. Various structural changes were incorporated into this motif resulting in more than twenty new compounds which have been submitted for evaluation in a multiple myeloma cell-based assay.

Research supported by: Students Partnering with Faculty Summer Research Program, Kean University

Ramanpreet Kaur, Christine Chen and Khushbu Solanki
Faculty Advisor: Sonia Arora

Standardization of Multidrug Resistance (MDR) Reversal in MCF-7 Breast Cancer Cells

This study involves the identification of new uses for previously approved FDA drugs from the Johns Hopkins Clinical Compound Library (JHCCCL). The target under investigation is P-glycoprotein (P-gp): a protein pump that transports drugs out of a cell, causing multidrug resistance (MDR) in cancer cells. The primary objective of this study is to identify a new modulator of P-gp that binds and inhibits its activity, thereby reversing MDR and causing successful drug accumulation to kill the cancer cells. The integrated techniques made use of the following fields: computational chemistry, structural bioinformatics, and cell biology. Using computational chemistry and biological tools, a virtual database of 1600 FDA approved compounds was constructed. The database was then screened for ligand binding to P-gp using GOLD, a virtual docking software. The docked orientation of each compound was then analyzed to predict the binding affinity and interactions with the P-gp binding pocket. Finally, cell culture and in-vitro techniques are applied in the wet laboratory to further verify results.

Research supported by: Merck/AAAS Undergraduate Science Research Program and Ronald E. McNair Post- baccalaureate Achievement Program, U.S. Dept. of Education
Sara Maass and Rebeca Pinhancos  
Faculty Advisor: Dil Ramanathan  
Detection and Characterization of Pharmaceuticals in NJ Drinking Water using UHPLC-HRMS

Recent studies involving many of New Jersey different water supplies found a variety of pharmaceuticals in the state’s drinking water supplies. Pharmaceuticals end up in the wastewater systems due to flushing of unused drugs into public wastewater systems and through excreta (urine, feces, etc.) of patients. Incomplete removal during clean-up results in pharmaceuticals and/or associated derivatives entering the drinking water supply. Before clean and pharmaceutical free drinking water can be possible, efficient and accurate methods need to be developed to help scientist detect pharmaceuticals at the environmental level. Technological advances make it possible to identify more compounds in less time due to the capabilities of high resolution and mass accuracy that newer mass spectrometers possess. Using these advances a method with a five minute run time was developed to detect and quantify fifteen pharmaceuticals and their metabolites that are commonly present in New Jersey tap water. In this study different counties throughout New Jersey were tested. Water samples were collected near places containing or near hospitals, pharmaceutical companies, fifty-five and older communities and nursing homes, were the main targets. The locations tested would have a high probability of containing a large portion of the population that uses the target compounds of this research and most likely where there is improper disposal of pharmaceuticals. These results depicted how much a role improper disposal of pharmaceuticals play in our drinking water, and how there is a need for these communities to begin developing programs for the proper disposal of pharmaceuticals.

Research supported by: Students Partnering with Faculty Summer Research Program, Kean University

Samantha Mahmoud  
Faculty Advisor: Dil Ramanathan  
UHPLC-HRMS Characterization of Primaquine Metabolites that Inhibit Cancer Cell Growth

Repurposing the food and drug administration (FDA) approved drugs reduces the time and cost in the drug discovery process. High-throughput screening of 1,639 previously approved FDA drugs, obtained from John Hopkins University, allowed screening of the drugs that best inhibited cancer cell growth in various cancer cell lines. The drug, Primaquine, an antimalarial, showed significant inhibition of growth in cancer cells and a lack in inhibition in normal cells was further investigated using UHPLC-HRMS to determine the inhibitory contribution resulting from the metabolites of the drugs. These FDA approved drug were incubated (1-10 µM) with cancer cells to determine the lowest inhibitory concentration for sample preparation using clonogenic formation and IC50 assay. The LC-MS analysis involved, a LTQ-Orbitrap Discovery mass spectrometer coupled with an ESI source, and an UHPLC (ThermoFisher, San Jose, Ca). To establish the LC-MS method, drugs were incubated in rat liver microsomes and extracts were analyzed. The developed method was then used to analyze the drug metabolite activity of the cancer cell-lysis samples. Extracts of cell-lysis were analyzed to detect the drug’s metabolite present in cancer cells but absent in normal cells.

Regina Nardi  
Faculty Advisor: James Merritt  
Synthesis of 3,4-Dichlorobenzyltriazoles for Evaluation as Potential CCR1/5 Dual Antagonists

Multiples myeloma, a cancer of plasma cells within bone marrow, is an incurable disease responsible for 1% to 2% of cancer-related deaths. Chemokines released from the microenvironment of the bone marrow cause an increase in osteoclast activity, which promotes myeloma progression. More specifically the chemokine CCL3 promotes the growth and survival of osteoclasts. CCL3 acts primarily on chemokine receptors CCR1 and CCR5, which are expressed by myeloma cells. In this study potential CCR1 and CCR5 dual antagonists were synthesized for
evaluation in multiple myeloma cellular assays. These compounds are based on known, selective CCR5 antagonists but contain a novel 3,4-dichlorobenzyl substituent which in combination with other simultaneous structural changes may afford dual activity for CCR1 and CCR5.

**Occupational Therapy**

Joanna Albright, Kelly Sullivan, Dave O'Brien, Lisa Mannino and Emily Warren  
Faculty Advisor: Mariann Moran  

*Factors Affecting Length of Treatment of Distal Radius Fractures in a Specialized Hand Clinic*

The goal of this study was to identify factors that affect the client’s length of treatment, following a distal radius fracture, in specialized hand clinics. This common injury has the potential to impact overall functioning, comprise emotional well-being; impose limitations on household activities, work productivity, participation in social activities, and the ability to meet one’s own self-care needs. A review of existing literature generated an abundance of information regarding the prevalence, causes, and treatments for distal radius fractures but not much evidence identifying the factors that affect a client’s length of treatment. A retrospective chart review will access medical records of individuals diagnosed distal radius fracture to determine patient demographics, insurance coverage, information related to the injury, outcome measurements and length of stay. By identifying factors that influence total treatment time, therapeutic interventions can be adjusted and the length of treatment can be decrease and outcomes improve.

Amanda Maddox, Ashley Caprio, Lisa Budinic, and Miri Krause  
Faculty Advisor: Mary Falzarano  

*The Meaning of Play for Siblings of Children with Disabilities*

Little is known about what the siblings of children with disability feel about playing with their brother or sister who had a disability. Siblings can have an immense role in the play experiences of their sibling with a disability by being a teacher or model of how to play and in facilitating the development of gross, fine motor, and socialization skills, and development of self-concept. Given play is the primary occupation of children, it is important to understand the meaning of play within a sibling relationship. As we gain a deeper understanding from the lived experience of the children through semi-structured interviews and a draw-and-tell method, we as occupational therapists can provide focused intervention for the siblings of children with disabilities, the children with disabilities and their families surrounding the occupation of play.

Kelli Mulvihill, Galo Aguayo, Melissa Cruz, Neil Davé and Sarah Fishman  
Faculty Advisor: Mariann Moran  

*What Occupation-Based Activities are Used in Hand Therapy?*

The purpose of this study is to discover how therapists are defining occupational based activities and what activities are being used for clients in hand therapy clinics. A review of literature reveals the benefits of the use of occupational based activities to reach goals of our clients. Past research indicates the much of the interventions seen in hand therapy clinics are based on the medical model and are preparatory or purposeful activities. This quantitative non-experimental study will survey occupational therapists and certified hand therapists who are currently working in hand therapy clinics across the United States. We will explore their beliefs on the use of occupational based intervention and what are the most common intervention done in
these clinics. By analyzing the results of this survey, we can develop strategies to promote occupation-based practice in keeping with the philosophy of the profession and facilitate efficacy research.

**Ashley Otte, Alexandra Scordilis, Chana Hellman, Kelly Jackson, and Aviva Kirshenbaum**

Faculty Advisor: Mary Falzarano

**Perceptions of Other Healthcare Profession Students of Occupational Therapy During the YAP**

Our study aims to look at other health care student perceptions of the role of occupational therapy when working with children with intellectual disabilities in the Young Athletes Program. This research will contribute to the field of occupational therapy by promoting the profession's role and better identifying inter-professional challenges that may occur when working with an interdisciplinary team. We will be using a non-probability purposive sampling method to recruit at least 102 Speech Language Pathology (SLP) and Special Education students. We will use a pretest-posttest control group design (Portney & Watkins) with a survey composed of closed-ended and open-ended questions administered before the intervention, and after the YAP event. Our intervention will consist of an education module about the role of OT when working with children with intellectual disabilities. We hypothesize that there will be a positive difference between the survey responses of the experimental group, which will receive the intervention, and control group.

**Rebecca Soltan, Stephanie Dejesus, Reva Mehl, Gabrielle Laflesh and Shana Hanfling**

Faculty Advisor: Mariann Moran

**Play Preferences of Children with Cerebral Palsy and Their Typically Developing Sibling**

The purpose of this proposed phenomenological study is to explore the play preferences of typically developing children and their sibling with Cerebral Palsy (CP). Due to the motoric and/or cognitive impairments CP children exhibit, their ability to initiate and engage in play with other siblings may be impaired. Previous research has found that sibling play relationships serve as the foundation for future social interactions children share between peers. It was also found that typically developing children assume a caregiver role, rather than a playmate role when interacting with their sibling with CP and the children with CP assumed the passive role in play. Through semi-structured interviews along with observations, the researchers would be able to obtain the data from the parents, the typically developing child, and when appropriate the child with CP, to better understand the play preferences and patterns between the sibling dyads. Information from this study will help OTs better understand what activities CP and TD children prefer to play in, and how as therapists, we can facilitate physical skills children with CP need to interact with their peers, facilitate relationships, and the development of social skills to be used in all play behaviors.

**Ruchika Walia, Tatiana Barros, Miri Goldberg, Jane Wang and Karolyn Ward**

Faculty Advisor: Mariann Moran

**Effects of Sub-maximal Exercise on Grip Strength in Normal College Students**

The goal of this research project is to determine whether sub-maximal resistive warm-up exercise (using a hand gripper) affects grip strength in normal college students. Grip strength has been widely studied and used by health professionals because of its benefits as an outcome measure for intervention in a clinical setting and it is an indicator of hand performance, upper extremity (UE) function, and the ability to perform occupational tasks in patients who suffer from various musculoskeletal conditions. Accuracy in grip strength measurement is crucial, since relatively small differences in grip strength measurement (5 – 7 lbs) may have significant impact on a client’s occupational performance and predicting functional limitations and risks. Prior research has yielded mixed results about the effects of exercise on grip strength. If exercise increases the grip strength of participants, then the use of warm-up exercise may be incorporated into clinics as a standard protocol before administering a grip strength
Physical Education, Recreation & Health

Steven Barandica and Denise Wujciak  
Faculty Advisor: Gwen Cleaves

*Collegiate Men's Lacrosse Player With An Adductor Avulsion Fracture*

This presentation is reflective of a case study conducted on a Division III lacrosse player who suffered an adductor avulsion fracture. As a future health care professional it is imperative to be able to manage and learn about rare injuries such as this one. This case study presentation includes background information of the injury, signs and symptoms, anatomical pictures and rehabilitation procedures necessary to treat this injury. This presentation also includes a differential diagnoses of similar injuries and the initial findings which helped determine what kind of injury this athlete had. It is concluded through this study that these injuries are rare, but proper assessment and rehabilitation are key to a quick and safe return to play.

Sal Fiorilli, Walter Andzel and Kim Spaccarotella  
Faculty Advisor: Walter Andzel

*Comparison of Heavy-to-Light Versus Light-to-Heavy Resistance Training Methods*

Since the early 1940’s, two resistance training protocols, light-to-heavy (LTH or ascending pyramid) and heavy-to-light (HTL or descending pyramid) have been investigated and used to improve muscular strength, power and endurance. Previous studies (Henry, 1949 as cited by Berger, 1962; McGovern and Luscombe, 1953; McMorris and Elkins, 1954; Leighton et al., 1967; Fish et al., 2003) which compared heavy-to-light and light-to-heavy protocols based their training loads on a 10RM pre-test. However, this study utilized a 1RM pre-test for prescribing training loads. Therefore, the purpose of this study is to evaluate differences in muscular strength and endurance by performing either an ascending or descending 3 set protocol based on pre-tested 1RM. Eleven male high school wrestlers, ages 14-17 years, participated in a resistance training program twice-per-week on non-consecutive days for 8 weeks. An ANCOVA analysis was used to examine pre-test and post-test differences in 1RM muscular strength and endurance test on both the vertical bench press and leg press machines. The level of significance was set at (p > 0.05). It was found that 1RM strength on the vertical bench press and leg press increased more significantly in the HTL group than the LTH group or Control groups. The LTH group increased more significantly on the vertical bench press than the Control group, but the Control group increased more significantly in 1RM leg press strength compared to the LTH group. When comparing both treatment groups muscular endurance by using 90% of pre-tested 1RM on the vertical bench press and leg press, it was found that the HTL group increased more significantly than the LTH group and control groups. The findings of this study seem to suggest that performing a 3 set HTL or descending resistance training protocol based upon 1RM pre-test can increase muscular strength and endurance more significantly than a LTH or ascending resistance training protocol.

Stephanie Godwin  
Faculty Advisor: Consuelo Bonillas

*Juntas: Creating a Healthy New Beginning Together*

Studies have demonstrated that gestational weight gain within a woman’s body mass index (BMI) category is associated with healthy pregnancy outcomes. Overweight and obese women are more likely to gain excessive
weight during their pregnancy and are less likely to lose it after delivery. Even though an estimated 33% of women in the U.S. are classified as obese, 55% of Hispanic women are believed to have a BMI of 30 or more. This three-year (2011-2014) study is developing educational, social, and lifestyle interventions that are culturally appropriate on helping 150 Hispanic obese/overweight women gain a healthy weight throughout the pregnancy. Also, during the 12-month postpartum period the participants will be offered support for gradual weight loss, breastfeeding and pregnancy spacing. In order to accomplish these goals our participants will be attending prenatal and postpartum workshops to increase knowledge on perinatal health. Our supportive interventions will consist of social support from project staff through monthly nutrition counseling sessions and encouragement from the community health educator to improve attitudes toward performing targeted behaviors. Our lifestyle interventions will consist of completing food diaries and exercise trackers to increase intentions to participate in targeted behaviors. This study will help understand how we can support women during pregnancy to improve maternal/infant outcomes, as well as to determine how to continue to support women during the 12-month postpartum period.

Research supported by: U.S. Dept. of Health and Human Services, Health Resources and Services Administration grant IH59MC22657-01-0 to Consuelo Bonillas

Elissa Hyer, Rebecca Bowe and Mario DaCosta
Faculty Advisor: Norma Bowe

**Be the Change: The Impact on Human Health in the Gulf Following the BP Oil Spill**

Be the Change Kean University has been an active presence in the Mississippi Gulf since the BP Oil Spill in 2010. A total of 120 samples of soil, sand, plants, fish, jelly fish and other tissues have been collected. A cohort of fishermen directly impacted by the spill have been interviewed. The human health effects of the oil spill and the corexit dispersant chemicals appear profound and long lasting. Examples of these issues will be discussed.

Tara Kolbe
Faculty Advisor: Walter Andzel

**Comparison of Structured Physical Education and Free Play in Elementary Schools**

Today approximately 9 million young people are considered overweight. Obesity in children increases their risk for becoming obese adults (Veitch, Sliom & Ball, 2007). Physical activity is a well documented and important component of a healthy lifestyle, childhood experiences with physical activity hold an important impact to lifelong wellness (Hands, Parker & Larkin, 2006). The purpose of the study was to measure physical fitness in children 7-8 years old comparing a structured physical education class to a free play class. Both classes were investigated over a 12-week duration. Pre and post tests were given to all participants comparing their physiological measurements. A mixed-between-within ANOVA was used to examine both the between-subject variable (treatment group: structured or free play) and the within-subject variable (time from pre to post test), at the same time. Analysis showed there was a significant change in scores over the study time period in heart rate (HR), height, pedometer steps, curl ups, the shuttle run, push ups, and v-sit reach. There was a significant interaction between the two treatment groups; structured physical education and free play in curl ups and the v-sit reach. Finally, there was a significant difference between the structured physical education class and free play class in terms of their effectiveness in HR, weight, and the v-sit reach. In conclusion, both classes did see an improvement in movement.

Nicollette Maggio, Christopher Smith and Agustin Gonzalez
Faculty Advisor: Norma Bowe

**Be the Change: Community Service as a Peace and Non Violence Project**
Community service and activism serves as tool for peace non-violence activities and change. The Isaiah House Teen Homeless Shelter Project was the vehicle for mentoring, tutoring and college prep activities leading to 11 homeless teenagers enrolling in college.

Tim Marshall  
Faculty Advisor: Walter Andzel

*The Effects of Exercise on Perceived Barriers and Benefits of Exercise in Cancer Survivors*

Research suggests that exercise may be an effective intervention for improving quality of life for cancer survivors (Courneya & Friedenreich, 1999; Courneya, 2003; Mock, 2001). Despite the documented benefits cancer survivors may gain from participating in a regular exercise program, at least one third of cancer survivors decrease their levels of physical activity following a cancer diagnoses, and up to 70% of cancer survivors are not meeting the US national recommendations for exercises (Blanchard et al., 2003; Blanchard et al., 2008). The purpose of this study was to investigate the effects that a 12-week structured exercise program have on the perceived benefits and perceived barriers cancer survivors have towards participating in exercises. In addition to fitness testing, The Exercise Benefits/Barriers Scale questionnaire was given pre- and post-intervention to evaluate perceptions held towards exercise benefits and barriers. Twenty-four participants were randomly selected into one of two groups: the exercise group or control group (non-exercise). The exercise group met two times per week for a total of 12-weeks. The structured exercise intervention consisted of 10 to 12 resistance exercises that addressed all the major muscle groups in addition to various aerobic exercises. A mixed-between-within ANOVA analysis was used to examine both the between-subject variable (treatment group: exercise or control) and the within-subjects variable (time: pre – and post – study) at the same time. Analysis showed that at the conclusion of the exercise program, exercise was no longer perceived as taking too much of the participants’ time, especially from family responsibilities. Additionally, exercise was no longer perceived as causing fatigue. The exercise program also addressed the perception of exercise in regards to being fun, in that by the conclusion of the exercise intervention, exercise was perceived as being good entertainment.

Neha Reyes  
Faculty Advisor: Walter Andzel

*Acute Effects of Self Myofascial Release and Static and Dynamic Stretching on Hamstring Flexibility*

The purpose of this study was to investigate whether acute self myofascial release (SMR) using a foam roller was an effective method for improving hamstring flexibility, as well as to compare SMR to acute static and dynamic hamstring stretches. Participants were asked to meet with the researcher a total of four times. The first meeting included taking baseline measures (height, weight, BMI, and baseline hamstring flexibility) and meetings two through four consisted of each stretch protocol (static, dynamic, and SMR) in a randomized order, followed by a measure of hamstring flexibility. Thirty-one participants completed the study. The results showed that acute static and dynamic stretching, and SMR all increased hamstring flexibility above baseline measures significantly. When all three protocols were compared with each other, no significant differences were found suggesting that static stretching, dynamic stretching, and SMR may all acutely improve hamstring flexibility in a similar manner.

Catharine Rudio  
Faculty Advisor: Gwen Cleaves

*A High School Football Player with a Morel Lavallee Lesion*

This is a case study conducted on a 17-year-old male football player who suffered an injury called a Morel-Lavallee Lesion. The findings will educate health care professionals on how to recognize and care for such a unique injury. The case study includes background information, mechanism of injury, treatment and pictures related to sign and
symptom progression. Differential diagnosis was investigated and diagnostic tests used were documented. Morel-Lavallee Lesion is a rare injury that has symptoms of more common injuries. If this injury is not cared for properly the outcome can be necrosis and edema which will remain in the injured area.

William Tevlin  
Faculty Advisor: Walter Andzel

*The Effect of Compound Sets on Maximal Workload in Upper Body Resistance Exercise*

The purpose of this study was to determine whether the use of compound sets would significantly affect the total volume of work performed during a resistance training session for resistance-trained male college students. Of the 22 students recruited for the study, 20 competed all testing protocols. The first testing protocol was a 1RM test for the bench press (BP) and seated row (SR) exercises. For the second testing protocol, participants were randomly assigned to the tradition set (TS) protocol or compound set (CS) protocol, followed by a reversal of assignment for the third testing protocol. The TS protocol consisted of three sets of BP performed to fatigue, followed by three sets of SR performed to fatigue. The CS protocol consisted of three sets of each exercise performed in alternation, with each set performed to fatigue. Total time remained constant, with each protocol lasting 11 minutes. Both protocols utilized 70% of the previously determined 1RM for all sets. A statistical analysis was performed by one-way ANOVA and Scheffe post-hoc analysis. No significant difference was observed between protocols for the first set of either exercise. For the second and third set, total work performed was greater for BP and SR exercises in the CS protocol. Total work for both exercises combined was significantly greater in the CS protocol. The findings indicate that the CS format is more effective than a TS format for maximizing volume of work performed within a similar timeframe. Further research is needed to examine and compare the physiological variations that may occur between such training protocols, as well as the chronic adaptations that may occur with such training.

Psychology

Alyssa Bergman  
Faculty Advisor: Verneda P. Hamm Baugh

*Exploring the Connection Between Literature and Mood*

Learning more about the connection between literature and mood could lead to several benefits for society. If reading particular genres can increase an individual’s mood, literature could be used as a form of treatment for mood disorders. This information could also help assist teachers and professors select books for their courses. While reading literature, people might react with emotions because of human empathy and imagination. Readers may connect to the story by imagining they are the character in the story or they project themselves as an additional character. The present study was created to explore how particular genres of literature can impact mood as well as the differences between males and females. It is hypothesized that one’s mood will change positively after reading the romance passage and negatively after reading the horror passage. The total sample will be 60 participants, including 30 males and 30 females from a convenience sample of central New Jersey. They will be between the ages of 18 and 64. The study involves reading two passages, a romance passage from *The Great Gatsby* by F. Scott Fitzgerald and a horror passage from H.P Lovecraft’s *The Lurking Fear*. The participants will rate their mood on a scale before reading both passages. They will then rate and describe their moods after reading the passages. A Paired Samples T test will be used to compare pre and post mood scores.
Ashley Bonilla  
Faculty Advisor: Verneda P. Hamm Baugh  
*The Effects of Colored Paper on Recall*

The purpose of this study is to determine whether colored paper will yield better recall than plain white sheets of paper. In order to do this, participants will receive a list of twenty concrete words on either a white sheet of paper or colored sheet of paper (green, yellow or blue). They will then be given a minute and a half to study the words, then recall as many of them as they can. It is hypothesized that the colored paper will yield more recall than the white sheet of paper.

Stephanie Bussiere  
Faculty Advisor: Verneda P. Hamm Baugh  
*The Effects of Music on Perception*

Music influences the essence of our emotional and social existence (Krueger, 2011). Individuals use music as a tool in daily life to regulate emotions, communicate, express oneself, and to form an identity. This research project will examine the effects of music on perception. Sixty adults (ages 18-64) will be randomly assigned to two groups. Both groups will be asked to rate the mood of four neutral photographs. While viewing the photographs, group 1 will listen to a positive, upbeat song (The Beatles, "Here Comes the Sun"). Group 2 will view the photographs without the accompaniment of music. It is hypothesized that those who listen to positive, upbeat music while viewing the photographs will rate the mood of the photographs more positively than those who viewed the photographs without the accompaniment of music. A one way ANOVA will be conducted to determine the differences between the groups. The results from this study will be used to improve cognitive and physical health as well as mental stability and well-being.

Diana Calle  
Faculty Advisor: Jacqueline Massa  
*The Effectiveness of Stillness Meditation, Mindfulness Meditation, and Video Games in Decreasing Stress*

The present study attempted to investigate if different meditation techniques (e.g., stillness meditation, mindfulness meditation) are effective in reducing stress. We also compared whether video games were as effective as meditation in reducing stress. Data were collected from thirty undergraduate students at Kean University. Students were randomly assigned to one of three conditions: stillness meditation, mindfulness meditation and video gaming. Each participant was given the State-Trait Anxiety questionnaire and taught how to implement the meditation practice (stillness or mindfulness) or how to play the video game while being monitored with the MindBand. Participants were asked to practice their meditation skills or video game and return in one week to complete the State-Trait Anxiety questionnaire again while monitored with MindBand. It is anticipated that an ANOVA will reveal significant group differences in stress reduction and that individuals who practiced mindfulness meditation would display the greatest stress reduction.

*Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education*

Devon Caposello  
Faculty Advisor: Verneda P. Hamm Baugh  
*Influence of Visual Stimuli on Memory*

The purpose of the current study is to examine the effects of stress on an individual's memory, by studying the influence of visual stimuli on memory recall. It is hypothesized that the participants who are primed with a stress
manipulation first, will have a more difficult time recalling words. Primed participants are also expected to recall more words with a negative connotation, as opposed to positive or neutral words. The focus of this study is to highlight the importance of mental well-being. Stress has been identified as causing impairment in individuals.

Milira Cox  
Faculty Advisor: Jacqueline Massa  
**Gender Differences in Emotion Recognition and Non-Verbal Communication**

To determine if traditional gender stereotypes have an effect on men and women's ability to recognize non-verbal displays of emotion, college students were surveyed at Kean University. The sample consisted of 60 students (30 males and 30 females) ages 18-40. Each participant was asked to give a self-report in the form of a gender questionnaire to determine if they matched the traditional stereotypes of gender. Participants were then asked to complete a computer based test showing 96 still images of evoked facial expressions of emotion, called the Penn Emotion Recognition Test, in order to determine their ability to recognize facial expressions of basic emotions. As a result of the study it is anticipated that: (a) women who matched the traditional gender role stereotypes recognize facial expressions of emotions that indicate mood changes better than men; (b) Men who matched the traditional gender role stereotypes recognize facial expressions of emotions that indicate physiological changes better than women; and (c) both men and women recognize facial expressions of happiness at similar rates. Based on the anticipated results, it can be concluded that social stereotypes of gender has a significant effect on men and women's ability to recognize non-verbal displays of emotion.

Christine Mahler  
Faculty Advisor: Verneda P. Hamm Baugh  
**Physiological Response to Violent and Nonviolent Video Games in Habitual Players**

The present study will examine the physiological reactions of young adults, both male and female, to different types of video games. Forty young adults who identify themselves as frequent video game players ("gamers") will be asked to play a game for fifteen minutes. Half of the participants will play a violent game, and the other half will play a nonviolent game. The participants will each have their pulse measured before playing the game, immediately after playing stops, and five minutes after playing has stopped. It is hypothesized that the participants who play the violent game will have higher pulse levels after playing compared with those who play the nonviolent game.

Lisamari Mauro  
Faculty Advisor: Verneda P. Hamm Baugh  
**The Effects of Categorizing on Word Recall**

Many factors can influence a person's ability to recall or remember certain information. How data is categorized can determine how much an individual can remember. This present study was designed to study the effect of categorizing on word recall. It is hypothesized that the participants who study the categorized word list will recall more words than the participants who study the randomly organized word list. Participants will be randomly assigned either a random word list or a categorized word list. A one way ANOVA will be used to determine whether or not word lists that are categorized lead to higher recall than word lists which are not categorized. The information that is gained from this study will help determine if word categorization is beneficial and useful in an academic setting and everyday life as well.
James Quine  
Faculty Advisor: Verneda P. Hamm Baugh  
*Inter Social Influence in a Testing Environment and its Effects on Completion Time and Performance*

The purpose of this study is to determine if there is a relationship between time of completion and score on a given exam. The experiment will utilize three classes of Kean undergraduate students taking psychology courses. A basic psychology exam will be distributed to the three classes and they will be given 20-25 minutes to complete the test. Two of the three classes will have a confederate that will “finish” early at varying times and act as a possible anxiety inducer. One of the three classes will have no confederate and will act as a control group. It is hypothesized that inter-student influence will have an effect of students’ performance and amount of time taken to complete the provided exam.

Stefanie Santiago  
Faculty Advisor: Jacqueline Massa  
*Can Mindfulness Meditation Training Improve Performance on Tasks of Sustained Attention?*

The present study attempted to provide evidence to support the use of mindfulness mediation to improve attention. It was hypothesized that the meditation group would have improved attentional focus. It was also anticipated that participants in the meditation group would show EEG patterns to support increased attentional focus. Research is still in progress.

*Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education*

Stephanie Santos  
Faculty Advisor: Joanne Walsh  
*The Effects of Media on Body Image*

The media can have a negative effect on one’s body satisfaction if it is constantly exposing individuals to ideal images that are difficult to attain. This current study hypothesized that both males and females would be more dissatisfied with their bodies when exposed to images that are considered ideal in today’s society in comparison to individuals that are exposed to images of average people. The researcher also hypothesized that the females overall, would be more dissatisfied with their bodies in comparison to the male participants. Undergraduate male and female students were exposed to media images and average images of their gender. Afterwards they were asked to complete a survey about their perception of their own self-image. Comparisons were reported between the media and normal image effects as well as the gender differences within these two groups.

Advancement Studies in Psychology  
Janice Autera  
Faculty Advisor: David Brandwein  
*Assessing the Role of Play in Early Childhood Education*

It is proposed that play is necessary in learning environments as play promotes optimal brain stimulation in young children (Rushton, Juola-Rushton, and Larken, 2010). Literature suggests that while a movement towards standardized testing to ensure that “no child is left behind” has good intentions, there are a number of downsides such as the exclusion of play. This study assessed early childhood educators’ attitudes towards play in preschool
and elementary classrooms. A survey was developed to assess the attitudes of teachers toward the Standards Movement and the effect of this movement on play in early education. Development of a survey to assess these attitudes was distributed to 489 preschool and kindergarten teachers across the United States. Results indicate that 88% of early childhood educators surveyed feel more play is needed in school curriculum and only 16% feel early childhood education should be geared toward standardized test material. Implications of these findings are important as 62% of participants state at some to most of their day is geared toward teaching standardized academics. are minimizing the role of play in their classrooms due to the need to incorporate academics-based curricula. How play-based methods can complement academics-based material in early childhood education settings will be discussed.

Janice C. Autera, Michael Gross, Karolina Kowarz, Zella E. Moore, and Karen Surowiec
Faculty Advisor: Frank Gardner

*Role of Mood Intolerance & Perfectionism in the Relationship Between Self-Esteem & Eating Disorders*

Recent research has suggested a relationship between eating disorder severity, self-esteem, and perfectionism. Within an undergraduate population, an increase in severity of eating disorder pathology has been related to a decrease in self-esteem and increase in perfectionism. Furthermore, self-oriented perfectionism has been found to be unique to eating disorder pathology. Fairburn, Cooper, and Shafran (2003) have proposed a transdiagnostic cognitive-behavioral model of eating disorders which suggests a core psychopathological process underlying bulimia nervosa, anorexia nervosa, and eating disorder not otherwise specified. The four processes included in this model are clinical perfectionism, low self-esteem, mood intolerance, and interpersonal difficulties. The theoretical model is increasingly being disseminated as evidence based psychological treatment. The present study investigated the empirical basis of the transdiagnostic cognitive-behavioral model of eating disorders in a college student sample. Based upon the model, it is proposed that perfectionism and mood intolerance are the core processes underlying the relationship between self-esteem and disordered eating. As such, it is hypothesized that perfectionism will mediate the relationship between core low self-esteem and body esteem. Additionally, it is hypothesized that mood intolerance will mediate the relationship between body esteem and disordered eating behavior. Following the Institutional Review Board approval, self-report measures were administered to a sample of 684 undergraduate students recruited from one urban college and one suburban university in the northeastern United States. Measures included the Body Esteem Scale, the Rosenberg Self Esteem Scale, the Acceptance and Action Questionaire-2, Multidimensional Perfectionism Scale, and the Questionnaire for Eating Disorders. A series of multiple regression analyses suggest that core low self-esteem partially mediates the relationship between body esteem and perfectionism while mood intolerance mediates the relationship between perfectionism and disordered eating behavior. Implications for treatment development and dissemination, and suggestions for future research will be discussed.

Christina Barrasso, Karolina Kowarz and Dasa Jendrusakova
Faculty Advisor: Jennifer Block-Lerner

*Awareness And Acceptance Components Of Mindfulness As Predictors Of Sleep Quality*

Mindfulness interventions have received support for improving sleep quality in a range of populations. This has implications for undergraduate students. The present study is unique in its examination of the two facets of mindfulness (i.e., acceptance and awareness) and their relationship to sleep quality. Forty-nine participants (42 female) completed questionnaires that assessed mindfulness and sleep behaviors. Regression analyses were conducted to examine the separate capacities of acceptance and awareness to predict sleep quality. The findings demonstrate that awareness and acceptance were significantly associated with sleep quality in opposite directions, suggesting that increasing awareness without increasing acceptance may result in poorer sleep quality.
These results have implications for the implementation of practices aimed at improving sleep quality in the college population.

**Christina Barrasso and Barbara Prempeh**  
Faculty Advisors: Adrienne Garro and David Brandwein  
**Aggressive Song Lyrics and Accessibility to Hostile Thoughts in Students with Emotional Disorders**

The effects of aggressive media, including the effects of aggressive song lyrics, have been studied extensively in the current literature. In addition, some research has demonstrated that the impact of aggressive media on children with emotional disorders differs from children who do not have these disorders, particularly in terms of accessibility and the tendency to attend to hostile thoughts. This presentation focuses on current research examining if aggressive song lyrics elicit aggressive thought patterns in adolescents. Participants include students ages 12-16 from a specialized school for children with a variety of emotional and behavioral difficulties. The potential mediating role of emotional regulation will also be explored. Results from the study and related research will be discussed, including implications for consultation and intervention with teachers, families, and students.

**Erin Lee and Lindsay Liotta**  
Faculty Advisor: David Brandwein  
**Discrepancy Between Experiential Avoidance and Personality Traits in Academic Problem Behaviors**

Problematic behaviors, such as increased illicit drug use, unsafe sexual practices, binge-drinking, drunk-driving, and aggressive/illegal actions, are highly prevalent within our society (Mitka, 2009) and these risky behaviors tend to serve avoidant functions. Recent research has found that experiential avoidance is significantly related to engaging in a broad range of maladaptive behaviors (Kingston, Clarke, & Remington, 2010). Furthermore, this line of research has demonstrated that experiential avoidance mediates the relationship between risk factors and problematic behaviors. Personality is another construct that has been found to be related to risky behaviors. For example, previous research has found that individuals who exhibited impulsive, aggressive, narcissistic personality traits engaged in more frequent risk taking behaviors (Hartzler & Fromme, 2003). Taken together, the research findings suggest that experiential avoidance and personality traits are significantly linked to a myriad of problem behaviors. One area of problem behaviors that has yet to be investigated is academic misconduct (i.e. cheating, plagiarizing, tampering with grades, and copying work). Recent research indicates that academic misconduct commonly occurs within our educational system with prevalence rates as high as 90% (Wiseley & Hoggatt, 2009). Additionally, illicit use of stimulant medication and consumption of energy drinks have academic motives (Judson & Langdon, 2009; Miller, 2008) indicating that these constructs can be encompassed in contemporary definitions of academic misconduct. The purpose of the study is to identify factors that will discriminate between individuals who are at-risk and those who are not likely to engage in academic problem behaviors. Researchers hypothesize that individuals who engage in problem behaviors will endorse greater efforts to avoid their experiences and higher rates of narcissistic and impulsive personality traits. A sample of approximately 100 undergraduate students from an urban university in the Northeastern United States will be included in this study. Participants will be administered the following measures: Acceptance and Action Questionnaire-II (Bond et al., under review), Psychopathic Personality Inventory-Revised (Lillienfeld & Widows, 2005) and self-created measure of problem behaviors related to academic misconduct. Statistical analysis will include independent t-tests to examine the differences in levels of experiential avoidance and personality factors between low risk and high risk groups. While data collection is ongoing, to date 42% of the participants partake in high levels of problematic behaviors, while 58% are in the low risk group. Preliminary results indicate significant differences between the groups. Implications will be discussed as to how experiential avoidance and personality traits may be used to identify individuals who
are likely to participate in academic misconduct. Additionally, the results will be used to guide the development of a prevention program for problem behaviors related to academic misconduct.

Lindsay Liotta, Magdalena Ostrowski and Nicolette Rittenhouse  
Faculty Advisor: Jennifer Lerner, David Brandwein, and Adrienne Garro  
*Mindfulness, Psychopathology, and Life Satisfaction in Parents of Children with Special Needs*

Current research suggests that there is a significant level of parental stress associated with raising a child with special needs. In general, research has also highlighted the positive effects of mental health services on parental well-being and overall family functioning (e.g., Rao & Beidel, 2009; Soresi, Nota, and Farrari, 2007). One set of approaches that has recently received preliminary empirical support in addressing the mental health needs of this population is mindfulness and acceptance-based interventions (e.g., Blackledge & Hayes, 2006; Minor, Carlson, Mackenzie, Zernicke & Jones, 2006). Therefore, it is also important to examine the processes of mindfulness and acceptance more generally within this population. This study aimed to examine the relationship between mindfulness and psychopathology, as well as life satisfaction, in parents of children with special needs. The sample consisted of six parents (5 female, 1 male) of children with disabilities recruited from the university-based speech clinic. Parents of children were asked to complete a battery of measures, including the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985); the Outcome Questionnaire-45 (Lambert et al., 1996) and the Philadelphia Mindfulness Scale (PHLMS; Cardaciotto, et al., 2008). Correlation analyses were run to determine the extent to which parental symptomology, child symptomology, life satisfaction and mindfulness were related. Results suggest that there is a strong negative relationship between life satisfaction and child and parent symptomology. Additionally there are strong relationships between acceptance and parental life satisfaction; parental symptomology and awareness; and awareness and child symptomology. The implications of this research and proposed areas for future research will be discussed.

Magdalena Ostrowski and Erin Lee  
Faculty Advisor: David Brandwein  
*Examining the Dissemination of Evidenced-based Interventions in Schools*

This study investigated the practices of school-based mental health professionals. 65 school-based mental health professionals were asked to indicate what assessments and/or interventions they would employ for children presenting with symptoms of depression, anxiety or anger and aggression. Qualitative content analysis was employed to determine what methods are used across professional groups and symptoms patterns. Results will be discussed in terms of implications for the effective dissemination of evidence-based practices in schools.

Magdalena Ostrowski, Brad Fechter, Lindsay Liotta, Nicolette Rittenhouse, and Karen Surowiec  
Faculty Advisor: Jennifer Block-Lerner, David Brandwein, and Adrienne Garro  
*Serving the Psychological Needs of Parents of Children with Disabilities: A Preliminary Investigation of Treatment Receptivity*

Studies have established that parents of children with intellectual and developmental disabilities generally endorse higher levels of stress, depression and anxiety (Gallagher et al., 2008; Gupta, 2007). Mindfulness and acceptance-based interventions have gained research support in the treatment of a range of disorders and among various populations (Hayes et al., 2006) including the attenuation of stress and mood disturbance among parents of children diagnosed with autism and chronic illnesses (Blackledge & Hayes, 2006; Minor, et al., 2006). Research examining factors that predict receptivity toward and acceptability of such interventions across interdisciplinary settings will inform dissemination to this population. The purpose of the current study is to predict interest in treatment to inform the processes of developing, disseminating and implementing an intervention for parents.
served by several university-based health service clinics. As data collection is underway, data from a small number of participants were used to gauge treatment receptivity of our initial sample. Parents of children served by university-based communication disorders and psychology clinics were asked to complete self-report measures. The sample consisted of six parents of children served by the communication disorders clinic. Findings indicate that there was a pronounced interest in both parent and sibling mindfulness groups. Results will be discussed in terms of potential predictors of treatment receptivity which are deserving of further examination.

Jessica Perez
Faculty Advisors: David Brandwein and Adrienne Garro

Factors in the Comorbidity of ADHD and Depressive Disorders

The purpose of this study is to investigate the role of psychoeducation and parental and environmental risk factors on comorbid ADHD and Depressive Disorders. Correlational and logistic regression analyses were used to examine the relationships between these variables. Participants were recruited from a suburban school district, a local counseling center, and an alternative school that serves children diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD). The primary investigator developed a survey to assess relevant demographic data and to obtain information on key study variables. Results indicate that although parent/guardians have perceived adequate psychoeducation about ADHD, frustration, stress, and familial conflict were reported. School psychologists will be able to use the results of this study to better assess for the comorbidity of these disorders and provide school-based interventions for students at-risk for developing comorbid behavioral and mood disorders.

Barbara Prempeh and Heather Trachta
Faculty Advisors: David Brandwein and Adrienne Garro

Variation in Special Education: A Closer Look at Classification Biases

The purpose of this research is to examine biases that are contributing factors to the misclassification of students as Emotionally Disturbed. Participants included students from a northeastern university in EducationSchool based master’s programs. Participants were provided with a vignette and asked to classify each child and indicate the determining factors that led to their classification. The results of this study will inform educators and psychologists on biases that may lead to the over-classification of students as Emotionally Disturbed.