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SEVENTH ANNUAL RESEARCH WEEK

EVENT PROCEEDINGS



University of the Incarnate Word
4301 Broadway San Antonio TX 78209

SEVENTH ANNUAL UIW RESEARCH WEEK

February 17 – February 21, 2014

EVENT PROCEEDINGS



**University of the Incarnate Word
4301 Broadway San Antonio TX 78209**



Dear Colleagues,

It is with great pleasure I welcome you to the University of the Incarnate Word's Seventh Annual Research Week Celebration. This year marks a tangible change in the Research Week tradition. Our previous expansions have included the addition of graduate and undergraduate student projects, and the development of a week-long celebration. Now, it is with great joy that we welcome and incorporate two new formats: podium presentation and combined poster and visual arts display. It is my hope that with the inclusion of these new possibilities for presentation, we continue the tradition of past efforts to build a more comprehensive and representative event.

As you attend events and experience the work of our community, allow yourself to become immersed in the incredible variety of expertise represented: the discovery of new knowledge, the synthesis of multidisciplinary collaboration, the development of innovative practice and technique, and the application of teaching and learning that deepens a classroom experience. The projects presented here are not merely a reflection of singular work, but of our entire community of faculty, students, and staff committed to the scholarly pursuit of creating, developing, and disseminating knowledge. This variety gives life to the research mission of the university and illustrates our commitment to academic excellence.

This annual celebration of our collective research would not be possible without the support and effort of many individuals: the members of the Faculty Research Advisory Committee, the administrators and staff of the Office of Instructional Technology, the Office of Research Development, and many others. To those who contributed to the planning, implementation, and success of this week's events, I offer my sincere gratitude. To all presenters and attendees, please accept my best wishes and thanks for your contributions and engagement with our exceptional community of scholars.

Sincerely,

Kevin B. Vichcales

Kevin B. Vichcales, Ph.D., Dean
School of Graduate Studies and Research

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Event Schedule

Tuesday, February 18, 2014

Podium Presentations

Marian Hall Ballroom

12:00pm – 4:15pm

Wednesday, February 19, 2014

Formal Poster and Visual Arts Presentations

Marian Hall Ballroom

2:00pm – 5:00pm

Graduate and Professional Student Session

Marian Hall Ballroom

6:00pm – 7:00pm

Thursday, February 20, 2014

Podium Presentations

Marian Hall Ballroom

12:00pm – 4:15pm

Thursday Night Live: Fine and Performing Arts

Palestrina Hall

5:00pm – 7:00pm

Poster and Visual Arts Exhibits

Poster and Visual Arts Exhibits will be available for viewing by individuals or groups.

Monday, February 17, 2014

12:00pm – 7:00pm

Tuesday, February 18, 2014

8:00am – 7:00pm

Wednesday, February 19, 2014

8:00am – 7:00pm

Thursday, February 20, 2014

8:00am – 5:00pm

Friday, February 21, 2014

8:00am – 12:00pm

Podium Presentation Schedule

Tuesday, February 18, 2014

- | | |
|----------|---|
| 12:00 PM | Welcome
<i>Kevin B. Vichcales, Ph.D., Dean, School of Graduate Studies and Research</i> |
| 12:10 PM | Rating of High Definition Vision through Soft Contact Lenses
<i>Aitsebaomo</i> |
| 12:35 PM | Updates on Corneal Dystrophies
<i>Kasraie</i> |
| 1:00 PM | Human-Created Drought in Texas: The End of Life as we Know It
<i>Cywinski</i> |
| 1:25 PM | An In-Depth Study of Crisis Intervention Team (CIT) Effectiveness: The Bexar County Model
<i>Hill, Felix-Ortiz, DeGuzman</i> |
| 1:50 PM | Blest Is She Who Dances for Justice and Peace!
<i>Kirk</i> |
| 2:15 PM | Bullying in American Society: Who is Really the Cause?
<i>Ortiz, Henrich</i> |
| 2:40 PM | Associations Between The Tutorial Group Process and Academic Success In A Problem-Based Learning Program
<i>Wagner, Hughes</i> |
| 3:05 PM | Domesticating the Desert: Edith Maude Hull and Edith Wharton Performing Gender in North Africa
<i>Stampfl</i> |
| 3:30 PM | Development of the Lumbricolid Central Nervous System as a Novel Model System for the Study of Wound Healing and Regeneration
<i>Miranda, Martinez Acosta</i> |
| 3:55 PM | Synthesis and Optical Characterization of Er³⁺: Y₂O₃ Nanoparticles
<i>Nair</i> |

Thursday, February 20, 2014

- 12:00 PM **Welcome**
Kevin B. Vichcales, Ph.D., Dean, School of Graduate Studies and Research
- 12:10 PM **Characterization of Prevalent Ophthalmic Microorganisms Isolated At An Optical Clinic Serving Economically Disadvantaged and Transient Populations**
Garcia, Mata, Romero, Gonzalez, Hover, Vallor
- 12:35 PM **Black Currant Nectar Reduces Muscle Damage and Inflammation Following a Bout of High-Intensity Eccentric Exercise**
Flieller, Dillon, Hutchison
- 1:00 PM **An Econometric Analysis of the Effect of Progressive Taxation on Inclusive Development in Latin America: Could the World Bank Be Wrong?**
McGuire
- 1:25 PM **Planning and Implementing Youth Leadership Training Program: An Interpretive Study of the CCL Experience**
Udomah, Sanchez
- 1:50 PM **Validation of a Case-Based, Annual Student Assessment and Progression Exam in a College of Pharmacy**
Brady, Coker, Copeland, Gottlieb, Horlen, Smith, Urteaga, Maize
- 2:15 PM **Made in the USA: Marian Holy Cards in Hollywood's Golden Age**
Ambrose
- 2:40 PM **Assessment of a Wellness Initiative to Engage Healthy Behaviors in an Academic Environment**
Urteaga, Copeland, Urteaga
- 3:05 PM **The Path to Platinum-LEED Certification for the UIW Solar House**
Whittemore, Potter
- 3:30 PM **The Effects of "Hands-Free" Verbal Communication on Target Recognition**
Rabin, Bradshaw, Chacon, Johnston, Yu
- 3:55 PM **Impact of Early-Exposure Environmental Education on a Child's Selection of Words**
Fisher

PERFORMING ARTS ABSTRACTS

Performance of the Song Cycle “I Hate Music” by Leonard Bernstein

Orit A. Eylon, DMA
William Gokelman, MM on piano

Performance and lecture on Leonard Bernstein’s song cycle “I hate Music”, a song cycle which is only seven minutes long, I Hate Music is a charming and easy-going cycle, examining childhood curiosities and mysteries, as well as exploring the word "music" and its associated experiences and meanings. Bernstein wrote the short poems for the cycle himself, and their diversity of expression is paralleled in his musical settings. Although they share a number of characteristics including disjointed melodic contours and sudden changes of mood and tempo, each seems to occupy its own expressive world; some are very genuine in expression, while others have a melody that reveals a more sophisticated viewpoint than that of their supposed child protagonist.

Slippery Slopes for Clarinet and Piano

Ken Metz, Ph.D.
Kathleen Jones on clarinet and Ara Koh, DMA on piano

This piece was composed in 2013. It reflects on the musical and metaphorical connection between gesture and meaning as reflected in the title and the musical material that arises from it. I have written two pieces for clarinet and in doing so I have learned much about what works for this instrument. I am especially attracted to the chalameau register which is the lowest one for this instrument. As well, it is the wonderful ability of the clarinet to perform glissandi that motivated me to select it for Slippery Slopes. Writing for the piano has been a life-long learning process. Learning how to combine the sonorities of the two instruments is always a delightful challenge. This piece is more like a duet than a clarinet solo with accompaniment.

Costume Designs for *Yerma*

Margaret Mitchell, MFA

Yerma, a play by Federico Garcia Lorca, was performed at Texas State University in Nov, 2014 and the costumes were designed by Margaret Mitchell; regional theatre director Deb Alley directed. Professor Mitchell will present her costume sketches and discuss the research for creating the designs. The clothing expressions of the time reflected the changing roles of women in 1930's pre-Franco Spain. Lorca wrote the play to challenge the backlash (supported by Franco's government) against a recent women's civil rights movement of the 1920's. *Yerma*'s popularity put a spotlight on the social injustices of the Franco regime and ultimately contributed to Lorca's execution.

Sonata for Cello and Piano, Movement I. The World Inside

Kevin M. Salfen, Ph.D.

Basel Sarweh on cello and Ara Koh, DMA on piano

The Sonata for Cello and Piano is cast in two movements: "The World Inside" and "The World Outside." This is a performance of the first movement only, which is meant to have the quality of sustained meditation. The opening gesture in the piano is the thread that runs through the whole movement, uniting it in the way that practiced breathing might sustain an actual meditation. This static "breathing" gesture goes through a series of four different contextualizations, like a series of four paintings on the same subject. The different contexts are accomplished through harmonic alterations and the "breathing" gesture's fusion with melody. The cello provides forward impetus in the movement, leading the listener through the four different "panels" with its lyrical line. At the end of the movement, lyricism is abandoned. In the final meditative state, all that is left is breathing.

PODIUM PRESENTATION ABSTRACTS

Made in the USA: Marian Holy Cards in Hollywood's Golden Age

Adrienne N. Ambrose, Ph.D.

This presentation will feature research on the first Marian holy cards to be printed in the US. Although American Catholics had been collecting and displaying holy cards for decades, it was not until the 1930s that domestic printers first began producing them for the US market. The relatively late entry of US companies to this niche of the printing industry is curious, given the robust participation of American companies in closely related fields like picture postcard printing. This presentation will suggest that the effort to produce holy cards here rather than import them from European printers must be understood in the context of new concerns facing American Catholics in the 1930s. Although the economic challenges posed by the Great Depression featured prominently in that context, contemporary developments in Marian visual representation suggests additional influences are also worth considering.

Despite the apparent discomfort of historians of American Catholicism with the fact, one of the most significant ways in which Catholics made a mark on American culture in the 1930s was through their influence on the Hollywood film industry. Catholics, both lay and clerical, were at the forefront of the effort to rein in what was widely considered Hollywood's corrupting influence. Not surprisingly, one of their main concerns focused on the potential formative influence of film on young women and girls. Among the strategies used by censors was to insist that "compensating moral values" were represented in any film that featured decadence or debauchery. This approach was based on the assumption that any "unseemly" display of immorality could be counteracted by images that were considered more edifying and wholesome.

This presentation will argue that Marian holy cards produced by American printers at this time were motivated by a similar vision and were intended to function in a similar way. Catholic business owners could reassure themselves that although young girls might be exposed to the exploits of Mae West at the movie house, they would return home to visual reminders of the Virgin's purity in the holy cards tucked into the corner of their bedroom mirror. The iconographical patterns identified following recent research in the holy card collection of the Marian Library at the University of Dayton will offer visual support for this argument, which in turn provides important context for understanding the direction that Marian imagery took in mid-century America. Among the first holy cards printed in the US are images of Mary that reflect Catholics' concern with preserving the purity of impressionable females. This presentation will demonstrate that these Marian images along with attempts to influence Hollywood were part of a larger effort to protect young Catholics, especially girls, from the perceived threats of American society.

An In-Depth Study of Crisis Intervention Team (CIT) Effectiveness: The Bexar County Model

Catherine Hill, Honors Student, Psychology, Maria Felix-Ortiz, Ph.D., and Marisa Deguzman, Biology and Psychology

The Crisis Intervention Team (CIT) model for police departments is an increasingly popular adjunct to police training in the U.S., and is implemented to direct people with mental illness away from jail and into mental health treatment and ensure the safety of all persons at the scene. However, there are many different CIT models, and they differ in the components they include, the length of time in training, and how the CIT-trained officers are deployed in the field. The present study investigates the effectiveness of one model of CIT training through a survey and ride along observations.

We describe the Bexar County model of CIT training and deployment, and present preliminary findings regarding its effectiveness. During 13 citizen ride alongs, research team members determined what skills the CIT officers used in the field by observing them during their regular law enforcement calls.

A survey was administered to police sergeants and lieutenants about positive and negative outcomes associated with the increase in the number of CIT training sessions offered each year. Survey data from the commanding officers were used to validate the ride-along observation data collected. Preliminary evidence from descriptive analyses suggests that many of the commanding officers perceive the CIT training to have positive outcomes in the community, such as reduced complaints and improved community relations. Through a grounded analysis, we found that the CIT officers use some of Rogerian interviewing skills, which are part of CIT training, and complete a thorough mental health screening to determine the best disposition for the call, rather than taking individuals straight to jail.

The effectiveness of the CIT program as evidenced through these studies indicates that implementation of a similar program can improve the handling of people with mental illness by the police.

Blest Is She Who Dances for Justice and Peace!

Sister Martha Ann Kirk, Th.D.

Carla De Sola is one of the foremost dancers, choreographers, teachers, and authors in the field of religious dance in the United States. When *Modern Liturgy Magazine* recognized her with the prestigious Bene Award, they wrote, "With an eye not only on ecumenical, but interfaith dialogue, her art embraces peace and justice. She dances on holy ground, always seeking to awaken people to the needs of planet Earth. Such a caring artistry, combined with a deep concern for liturgy, makes Carla DeSola the most influential performing artist of the last 20 years." In 2008 at the Sacred Dance Guild Golden Anniversary Festival, De Sola was acclaimed as a "Living Legacy." While there are some articles on her, there is no in-depth study of her.

I studied sacred dance with her in 1975 and 1976 and have worked with her at various times. At De Sola's request, during June and July, 2013, I began reviewing over 900 pieces of primary source material (videos, programs of her dances, letters, and publications by and about her) which she has donated as the Carla De Sola Collection to the Graduate Theological Union Archives, Berkeley, CA. Also, at her request, I began an oral history of her to go with the collection. I interviewed and videotaped De Sola and persons who know her work.

In 1960 De Sola earned a Diploma in Dance from Juilliard School of Music in New York City and danced professionally. A few years after the Second Vatican Council, an exciting time in the Catholic Church, she who grew up in a non-observant Jewish family, became a devout Catholic. Her godmother encouraged her to worship with the Catholic Worker Community started by Dorothy Day. This significant social movement led De Sola to connect compassion for the vulnerable, justice, and faith. De Sola's first dance in worship was at the Catholic Worker. The door opened to her lifetime vocation of sacred dance. As God's love took bodily form in Jesus Christ, her bodily prayer has invited compassion, justice, and peace. Her dance has not been an elitist pursuit, but a work of service. She incarnates many of the ideas of the Second Vatican Council: the universal call to holiness, reading the signs of the times then connecting ancient faith with the modern world, and engaging in the pursuit of justice and peace.

In 1975 De Sola started Omega Liturgical Dance Company at the Cathedral of St. John the Divine. The company continues though it is now at Middle Collegiate Church. In 1990 she moved, founded Omega West Liturgical Dance Company in San Francisco, and began her current position, teaching at the Graduate Theological Union, Berkeley. Her work has taken her to Hawaii, Ireland, Israel, France, Guam, Sweden, Canada, Australia, and Belize.

From favorable reviews in the *New York Times* and *Dance* magazine in the 1960's, through choreography for major religious groups, De Sola's significance will be considered through text, photos, film clips and interviews.

Domesticating the Desert: Edith Maude Hull and Edith Wharton Performing Gender in North Africa

Tanja Stampfl, Ph.D.

This paper discusses two texts from the early 1920s by two Western women imagining North Africa: one is Edith Wharton's travelogue *In Morocco* (1916), and the second one is E. M. Hull's romantic novel *The Sheik* (1921). I aim to demonstrate how these texts, and works like them, have shaped the discourse of encounters between Westerners and Arabs in the twentieth century in the way they navigate gender roles.

Both texts and authors bridge the gap between Orientalist Othering and a new fascination with Arab North Africa during and after World War II. By writing about Morocco and Algeria respectively, Hull and Wharton expose the British and American reader to this continent, culture, and its people but do so through studied gender performance, as they in their own way domesticate the desert, specifically the Arab men. Hull's novel begins with the kidnapping and rape of a young independent British woman by a savage sheik. During the course of the novel, Lady Diana falls in her love with her captor and through their love for each other their initial savage sexual encounter turns into an acceptable romantic liaison: marriage. Wharton's text is a travelogue that mostly refrains from any romantic notions, but also she argues how only the French imperial mission in Morocco has tamed, civilized, and modernized that country and its people. Wharton's particular emphasis on the arts, religion, and education, moreover, speak to a female sphere that elevates the supposed local indifference, ignorance, and laziness.

The significant popularity and fame of both authors has also aided in the influence their discourse and representation of the Arab Other has shown throughout the last century. Hull's novel was made into the eponymous film *The Sheik* and has initiated the desert romance genre, which still exists today and enjoys great popularity. Wharton also was at the peak of her fame both as an American novelist and a philanthropist in France. Only a few years after the publication of *In Morocco* would she win the Pulitzer Prize for Fiction in 1921 for her novel *Age of Innocence* (1920) and in the same year was awarded officer of the Legion of Honor by the French government in recognition of her relief work during World War II. Both authors, therefore, enjoyed significant influence and reached a wide audience with their writings.

Lastly, the genres of travel writing and romance novels taken together comprise the discourse of Western-Arab encounters since the Orient has been Othered through sexualization, which been discussed by postcolonial critics like Edward Said and propagated by writers like Gustave Flaubert. Even though Wharton and Hull's texts squarely belong into different genres, they both employ tropes and central symbols from the other. Only by travelling abroad can we encounter the new, and for single women often the only choice rests between rape and marriage. Hull and Wharton both acknowledge the savage side of North Africa but in the end domesticate the desert for the reader to make it accessible and desirable.

Human-Created Drought in Texas: The End of Life as we Know It

Rachel Cywinski, Doctoral Student

This analysis was conducted to determine whether current human water consumption patterns and water supply in Texas are compatible.

Texas Water Development Board (TWDB) Chairman Edward G. Vaughan said, “In serious drought conditions,

Texas does not and will not have enough water to meet the needs of its people, its businesses, and its agricultural enterprises” (Texas Water Development Board, 2012, p. 3). TWDB found no “economically feasible strategies to meet over 2 million acre-feet of annual needs” (Texas Water Development Board, p. 174). TWDB projects economic losses of “\$115.7 billion annually by 2060, with over a million lost job” (Texas Water Development Board, p. 174). In Texas today, “water...is the quintessential limiting factor for human development of the state” (Ward, 2011, p. 1). Using water reclamation as a water supply strategy is inadequate to meet demand without changes in human water consumption patterns (Rogers & Leal, 2010).

A descriptive summary and analysis of Texas water supply, demand and use drew upon multiple sources—historical data, scientific studies of trends in the hydrological cycle and human impacts upon it, projections of water supply and demand in Texas, and reports of projects that use conservation and sustainable use of water.

Changes in human consumption patterns of water are necessary to prevent catastrophic economic losses to Texas.

Impact of Early-Exposure Environmental Education on a Child's Selection of Words

Reid A. Fisher, EdD, ATC

Environmental education researchers have long identified a connection between formative play experiences in nature settings and pro-environmental behaviors (i.e., career paths) of their subjects later in life. Most studies have been post-hoc retrospective looks that have not had the ability to assess causation. As more children are removed from free-play wilderness opportunities, some schools are seeking means to create those formative experiences within the educational setting, but research has not been done to address the impact that this approach has on developing particular environmental behaviors.

To address that gap in the literature, this study seeks to identify the impacts that a forest-immersion pre-kindergarten has on the connection of the child with the natural world. Twenty-seven pre-kindergarten students from two academic programs participated in a quasi-experimental study in which they responded to age-appropriate divergent-thinking tasks. Measures of fluency, flexibility, originality, and creativity were compared. Parents completed a survey containing open-ended questions and a 5-point Likert-scaled instrument on ecological perceptions.

A significant difference was found between the two groups. The forest-immersion group used more nature-based words in their ideations, which reflects a cognitive impact stemming from their educational environment. Despite both programs employing a Reggio Emilia-inspired teaching philosophy, the students in the forest-immersion program expressed greater numbers of ideations and higher creativity scores as well.

Forest-immersion programs used in early-childhood education have the potential to impact the cognition of the child as reflected in language use. Subsequent studies need to be done to follow these children as they progress through their education to identify lasting impacts that may arise in the form of pro-environmental behaviors.

Planning and Implementing Youth Leadership Training Program: An Interpretive Study of the CCL Experience

Fr. Justin M. Udomah, Doctoral Student and Rolando Sanchez, Doctoral Student

In the Summer of 2013, the Center for Civic Leadership (CCL) at the University of the Incarnate Word organized a weeklong leadership training program for selected members of the freshmen class in order to prepare them for community service and civic leadership. We carried out a study on the planning and implementation of that program from the perspective of the team members who designed and implemented the program. Our purpose was to understand what planning and implementing a leadership training program for youths entails.

We adopted an interpretive qualitative study approach with the aim of constructing meanings from their experiences. We used semi-structured interview as our qualitative approach for data collection. We used domain and taxonomic analyses to identify semantic relationships among ideas expressed by the research participants. We then classified these ideas into thematic categories. Through a five-level analysis of the data that involved description, reduction, and interpretation, we identified five overarching themes in our interpretation which we considered as the logistic elements that characterized the planning process.

Our findings showed that the planning of the training program involved proper conceptualization of goals and strategic means to meet those goals. The planning team maintained positive attitude, dexterity, and resilience in the face of the challenges they encountered. They designed the curriculum to be more experiential and practical than theoretical and instructional. The rationale behind this learning strategy was to make the experience personal to the students as well as retain their attention. Additionally, technology was considered an asset in the training. Their efforts were based on prior experiences in the areas of social justice and community service. Finally, the experience was perceived as a learning process.

From these findings, we concluded that planning a leadership training program for youths is a responsibility that requires a set of logistical elements which include: Informational empowerment, social and emotional intelligence, skillsets, intellectual alertness, and experience. More generally, we surmise that the activities that occur at trainings and workshops are outcomes of intensive efforts with focus and diligence.

A future study in this area could be focused on the evaluation of the training program in an attempt to find out whether their approach was effective and whether the result did justify the efforts. Another area of interest would be studying two planning and implementation processes to compare the experiences. Our view is that such process of triangulation would provide greater basis for generalizability of the findings.

Validation of a Case-Based, Annual Student Assessment and Progression Exam in a College of Pharmacy

Rebecca L. Brady, PharmD, BCPS, Adeola O. Coker, Ph.D., Jeffrey T. Copeland, PharmD, Helmut B. Gottlieb, Ph.D., Cheryl Horlen, PharmD, BCPS, Helen E. Smith, RPh, MS, Ph.D., Elizabeth M. Urteaga, RPh, Ph.D., and David F. Maize, RPh, Ph.D.

The Accreditation Council for Pharmacy Education (ACPE) requires colleges of pharmacy to assess student learning and curricular effectiveness. To assess the mastering of the outcomes at The Feik School of Pharmacy (FSOP), students take a comprehensive Annual Student Assessment and Progression (ASAP) exam at the end of each professional didactic year. The third (P3 ASAP) exam integrates courses taught in the FSOP curriculum in a case-based format.

Ensuring the validity of the ASAP exam was an important component in developing our internal assessment tool. FSOP focused on two types of validity, content and criterion. Content validity ensures the full scope of the topic, or content, is assessed by the exam. Criterion validity ensures that the performance on the exam is consistent with the performance on another, well-validated exam.

The content validity of the ASAP exam is evaluated by 1) faculty members in their specialty areas writing cases and questions based upon the FSOP curricular outcomes, 2) multi-disciplinary teams of FSOP faculty reviewing each case and question for relevance and difficulty, and 3) performing item-analyses on each question after exam administration to identify questions for revision. The criterion validity, however, had yet to be assessed prior to this study.

Students from the P4 class of 2012 were invited to participate in this prospective, self-controlled study. Participants took the 2012 PCOA exam followed 2 weeks later by the P3 ASAP exam that had been administered to the graduating class of 2011. The P3 ASAP and PCOA raw scores were compared to determine the criterion validity of the P3 ASAP exam using regression and correlation analyses.

Forty-seven P4 students participated. The least squares method gave the estimated regression equation, $Y = 0.2163X + 16.5$, which could predict the ASAP score using the PCOA score. A strong positive correlation between the PCOA and ASAP performance was shown by the linear regression analysis including a Pearson Correlation Coefficient of 0.8106 ($p < 0.001$) and an r^2 of 0.6571 ($p < 0.001$).

Statistically, the student performance was significantly similar on both the PCOA and ASAP exam supporting the criterion validity of the FSOP P3 ASAP exam. Strengths of this study demonstrate 1) schools can develop internal, curricular-outcome assessment exams that are valid; 2) along with criterion validity, success of the exam depends on having strong content validity, which requires extensive faculty participation and dedicated, continued analysis to ensure quality improvement. Limitations include that only one version of the P3 ASAP exam was compared to the PCOA and the assessment was based on students willing to participate.

Assessment of a Wellness Initiative to Engage Healthy Behaviors in an Academic Environment

Elizabeth M. Urteaga, RPh, Ph.D., Jeffrey T. Copeland, PharmD, and Rene Urteaga, MS, MBA

In order to enhance quality and continuity of care, wellness programs are being implemented in the workplace specifically designed to assess health risks, improve knowledge and encourage adherence. Benefits at the University of the Incarnate Word do not currently include a wellness program. Therefore, this study will provide insight into the cardiovascular and metabolic risks of employees and provide data to assess the proposed benefits of incorporating a wellness program in an insured population.

Fifty benefit eligible employees, their spouses and dependents, age 18 years of age or older were eligible to participate in this study. Each participant completed a biometric screening, including a full lipid panel (Total Cholesterol, HDL, LDL, LDL/HDL ratio, VLDL, Triglycerides), glucose, blood pressure, height, weight, and waist circumference. Each participant was provided a personal health coach to help set specific measureable goals.

A total of 50 employees or spouses (18% male, 82% female; mean age 45.9 years; range 22-67 years) completed the biometric screening. Seventy-eight percent were noted to have one or more unhealthy biometric measures. Twenty-eight percent had three or more risk factors and met the AHA definition for metabolic syndrome. Sixteen percent had at least one critical health reading. Eighty-six percent were overweight or obese based on body mass index. Seventy-two percent had abdominal obesity based on waist circumference. Fourteen percent had a blood pressure of 140/90 mmHg or greater. Thirty-two percent had a fasting glucose level in the impaired fasting glucose or diabetes range. All 50 participants completed at least one health coach session and 39 attended at least four out of the five sessions. Eight months after the initial biometric screen the number of participants noted to have one or more unhealthy biometric measures declined to 69%. Ninety-four percent made healthy lifestyle changes during the trial. Ninety-seven percent of participants noted benefit from completing the program and 90% would continue to participate in the program.

The prevalence of cardiovascular and metabolic risk factors in our study are congruent with the United States as a whole, with the exception of the prevalence of obesity. The prevalence of obesity was higher in our population as compared to the United States, 46% vs 35.7% respectively. Interventions are needed to address the high prevalence of risk factors in this population. This study allowed us to assess the willingness of participations to justify the addition of a wellness component to our current benefits package in hopes of lowering healthcare costs for the employer and employee.

An Econometric Analysis of the Effect of Progressive Taxation on Inclusive Development in Latin America: Could the World Bank Be Wrong?

J. Michael McGuire, Ph.D.

Approximately one in five Latin Americans live on less than \$2 per day, and Latin America is the most unequal region of the world. The solution to this poverty and inequality is an inclusive development process in which the poor participate according to their potential and earn the income necessary to live a full life.

The basic needs approach to development generates inclusive development through providing basic goods and services to the poor that increase productivity, employment and earnings.

Progressive taxation that falls relatively heavily on the rich plays a crucial role in satisfying basic needs. It generates revenue that governments can use to satisfy basic needs, and it leaves more disposable income in the pockets of the poor that can be used to purchase productivity-enhancing goods and services.

In the 1980s, the World Bank (WB) began giving “tax advice” to Latin America and making that advice a condition for receiving development loans. The WB had despaired of imposing progressive taxes in Latin America because previous attempts to do so had failed. Instead, the Bank recommended raising revenues through regressive tax systems and focusing on spending the revenues in a way that generates inclusive development. All Latin American countries have followed the broad outlines of the WB’s tax advice.

The WB tax advice defies logic. For example, regressive taxes tend to lock into place the very inequality that undermines social welfare. If Latin American governments cannot or will not tax progressively, how will they spend progressively? What if every inventor whose initial trials had failed gave up? Thomas Edison wrote: “After 20,000 trials, we were optimistic.” Has the pressure to implement progressive taxes made tax systems more progressive than they otherwise would have been?

Despite the lack of logic, empirical evidence is needed to test WB tax advice. No Latin American tax system is progressive, but some systems are less regressive than others. This presentation is an econometric exploration of the effect of relative tax progressivity in Latin America on the satisfaction of basic needs. Panel data on 14 Latin American countries is collected for the years 1990-2005. A series of tests leads to a Random Effects Generalized Least Squares estimation that shows that relative tax progressivity has contributed significantly to the satisfaction of basic needs, the first step toward instituting an inclusive development process.

Future research will include strengthening the econometric analysis (are the results robust?), identifying the specific causes of improvements in basic needs satisfaction (is it due to expenditures on basic goods and services by governments or by the poor whose disposable income is increased?), and exploring the effect of basic needs satisfaction on country growth rates (is the increase in the productivity of the poor offset by countervailing effects such as reduced saving and investment in physical capital?).

Bullying in American Society: Who is Really the Cause?

Gabriela Ortiz, Honors Student, Biochemistry and Timothy Henrich, Ph.D.

Bullying has become a national pariah and seems to be growing in incidences as well as intensity. The issue has been addressed by the American Sociological Society, American Psychological Society, the National Association for Sport and Physical Education, the Texas Education Agency and associated education laws in Texas.

After surveying these organizations we evaluated the causes of bullying described by the agencies and looked at some special cases that have been documented in the literature. The presentation will challenge the audience look inward at ourselves and our society and examine whether more subtle forms of bullying exist in society but are not recognized as such. Several scholarly articles have been published that include results from more than 500 respondents about the nature of and remedies for bullying.

The final portion will include a brief discussion about collective (Gemeinschaft) societies and the seemingly repressive rules that bully the citizens into conformity.

Rating of High Definition Vision through Soft Contact Lenses

A. Philip Aitsebaomo, OD, Ph.D.

The goal of spectacles and contact lenses is to correct all of the optical abnormalities or errors of the eye. As an Optometrist, contact lenses have allowed my profession to correct patients for errors such as near-sightedness, far-sightedness, and astigmatism. These errors are collectively referred to as low order refractive error. Occasionally, we find patients whose contact lenses do not provide acceptable vision, even when their low order refractive error is fully corrected. With the advent of new technology, manufacturers are now able to design contact lenses aimed at mitigating other components of the error, referred to as high order aberration (HOA).

Because HOA is relatively difficult to measure, its value is currently not included in eye glasses or contact lens prescription. The absolute value of the HOA of an eye is really not of much value. What we need to know is how much HOA is left uncorrected with the contact lens in the eye. Presumably, a patient will have poor corrected visual acuity if the left over or residual HOA (rHOA) is significant. The aim of this study is to determine if there is a significant difference in rHOA between four brands of commercially available contact lenses. We know that significant rHOA will result in compromised vision in demanding conditions such as night driving and driving in the rain, to name a few. This is obviously a significant safety issue for some patients and the community at large.

Patients were required to wear four brands of commercially available contact lenses in succession. rHOA was measured through each pair, and patients were required to perform a variety of other visual tasks.

Preliminary data from this study on a small sample suggests a small but consistent difference in rHOA between contact lens designs. More data needs to be collected to validate this finding. Additional studies are needed to determine if this difference translates to differences in visual performance in dim and bright illumination. It is also important to determine if the difference in rHOA is a function of the power of a contact lens prescription or contact lens design. It is certainly possible that soft contact lenses will be classified as a function of rHOA in the near future.

Updates on Corneal Dystrophies

Narges Kasraie, OD

Diagnosing some of the corneal dystrophies can become a challenge due to the dystrophies having multiple names, a variety of subtypes, and clinical variations. Technological advances including genetic analysis and improved histopathological studies have allowed the emergence of a more updated classification of the known corneal dystrophies.

The International Committee for Classification of Corneal Dystrophies (IC3D) has devised a new flexible classification which incorporates some aspects of the traditional nomenclature with new genetic, clinical and pathologic information that is currently known regarding various corneal dystrophies. The IC3D classification organizes the corneal dystrophies into four categories (Category 1-4) based on the level of evidence that is currently available to support the existence of a given dystrophy as a distinct entity.

The flexibility of this classification system allows for possible updates in the future as new information become available. As technology and our current knowledge expands over time, based on the available evidence, each dystrophy that is not a category 1 will either be moved up and become part of the category 1 classification or if shown not to be a distinct entity, may be removed as a standalone distinct corneal dystrophy.

The Effects of “Hands-Free” Verbal Communication on Target Recognition

Jeff Rabin, OD, MS, Ph.D., Timothy Bradshaw, BS, Optometry Student, Alicia Chacon, BS, Optometry Student, Shawn Johnston, BS, Optometry Student, and Dennis Yu, BS, Optometry Student

The use of manually operated cell phones during driving has been regulated in numerous states to maximize safety. While hands-free systems of communication during driving are desired and common in many automobiles updated in recent years, the impact of hands-free communication on basic visual performance is lacking. Our purpose was to determine whether hands-free cell phone communication impacts black-white and color low contrast visual performance, both essential for optimal target detection and recognition.

Large (20/300) and small letter (20/50) luminance (black-white) and cone-specific color contrast sensitivity (CS; red and green cone 20/300 letters; blue cone 20/400) were measured with a Netbook computer using a response-driven staircase program which measured the lowest visible contrast and mean response time for each of the five CS tests (Innova Systems, Inc.).

Sixteen color vision normal (CVN) subjects and 12 color vision deficient (CVD) were tested binocularly in a dark room at a distance of 3 ft. under two conditions:

- (1) Verbal Communication (VC) in which each subject was required to respond verbally (“hands free”) to a simulated phone call broadcast on a Motorola Roadster Bluetooth device suspended immediately above the subject. The verbal communication lasted for the duration of each of the five CS tests and required that the subject answer scripted questions requiring cognition and decision making.
- (2) No Verbal Communication (NVC) in which the subject was required to perform the same CS tests without verbal communication. Repeated-measures ANOVA and post-hoc paired t-tests were used to compare performance under VC and NVC conditions.

There was a significant increase in response time for all subjects on all CS tests to respond to a “hands-free phone call” compared to the control condition ($F=27.8$, $p<0.00001$; mean increase = 300 msec or 1/3 second). CS was also decreased in some subjects on some tests but overall performance was comparable in the two conditions.

Hands-free phone communication significantly increases response time for target recognition, with this effect transcending color and luminance (black-white) domains. Despite universal allowance of hands-free communication during daily driving, low contrast target recognition may be delayed and performance compromised in some individuals.

Black Currant Nectar Reduces Muscle Damage and Inflammation Following a Bout of High-Intensity Eccentric Exercise

Emily Flieller, Honors Student, Rehabilitative Sciences and Athletic Training, Kimber Dillon, MPH, CHES, Alexander Hutchison, Ph.D.

Eccentric induced muscle damage (EIMD) can rupture the sarcolemma resulting in release of reactive oxygen species (ROS), and subsequent inflammation and soreness that can last up to 60 hours after exercise. Circulating ROS act as chemottractants, recruiting leukocytes to the site of damage. Newly arriving neutrophils and macrophages produce more ROS during tissue repair. Persistent release of ROS can have detrimental effects on cell integrity; attacking the cell membrane and disrupting the hydrogen bonds between nucleotides.

Antioxidants can neutralize the harmful effects of ROS. Black currants contain high levels of polyphenolic compounds including anthocyanins that possess antioxidant and anti-inflammatory properties. The purpose of this study was to determine the effectiveness of black currant nectar in reducing soreness and inflammation resulting from EIMD in a group of untrained college students.

This was a randomized, placebo controlled design. Sixteen untrained college students (three male and 13 female) were randomly assigned to drink two, 16 oz bottles of either black currant nectar (CurrC) or an isocaloric placebo (PLA) twice a day for eight days. Concentric (upward only) one-repetition maximum (1RM), and baseline measures of leg muscle soreness, circulating biomarkers of antioxidant capacity (ORAC), muscle damage (CK activity), and inflammation (IL-6) were assessed on day 0 before supplementation began. On day five, subjects performed a bout of three sets of ten repetitions of eccentric squatting (downward only) at 115% of their respective 1RM. Absolute measures of muscle soreness were assessed on all days post-exercise. ORAC, CK, and IL-6 (% change) were assessed at 24, 48, and 96 hours post-exercise.

Consumption of black currant nectar resulted in significantly lower levels of creatine kinase activity relative to baseline at both 48 (PLA = 82.13% vs. CurrC = -6.71%, $p = 0.042$) and 96 hours post exercise (PLA = 74.96% vs. CurrC = -12.11%, $p = 0.030$). The relative change in IL-6 was higher in the placebo group (PLA = 8.84% vs. CurrC = -6.54%, $p = 0.023$) at 24 hours post exercise. The relative change in ORAC levels was higher in the treatment group (CurrC = 2.68% vs. PLA = -6.02%, $p = 0.039$) at 48 hours post exercise. Although the placebo group reported more soreness at each time point post exercise, these differences did not reach the level of significance.

Our results demonstrate that consumption of black currant nectar prior to and after a bout of high intensity eccentric exercise attenuates muscle damage and inflammation.

Characterization of Prevalent Ophthalmic Microorganisms Isolated At An Optical Clinic Serving Economically Disadvantaged and Transient Populations

Roquita C. Garcia, Vision Science Student, Ricardo Mata, Biology Student, Mireya A. Romero, Biology Student, Martha A. Gonzalez, Biology Student, Timothy R. Hover, Biology Student, and Ana C. Vallor, Ph.D.

This study seeks to investigate the prevalence of opportunistic microbial species on eyewear.

Eyeglasses, when infrequently cleaned or sterilized, may serve as ecological niches for ophthalmic pathogens as compared to eyeglasses which are routinely maintained. If colonization of opportunistic microbes occurs, eyeglasses would serve as a continuous source of re-inoculation giving rise to recurrent ocular infections and development of drug resistance. In addition, eyeglasses may serve as a point of transmission between individuals who share eyeglasses or health care providers handling them during routine exams in an optical setting.

A total of 60 subjects were recruited: 20 from each of the following populations: patients and healthcare workers recruited from I Care San Antonio optical clinic serving economically disadvantaged and transient populations and control subjects with no clinical association. Surveys were administered addressing hygiene habits and recent episodes of infection and treatment. Samples were taken from subjects and their eyeglasses. Initial microbial characterization entailed identification by microscopy, isolation on differential media and biochemical tests.

Currently of 56 subjects recruited, 281 microbial samples have been collected and 54 have been isolated from eyeglasses. Out of the 281 microbial samples 261 have come back with a positive catalase test. Preliminary identification of species include: *Serratia* sp., gram negative and positive rods, *Micrococcus luteus*, and *Staphylococcus* spp.

Assessment of resistance to antibiotics and germicides routinely used in the clinic is currently being conducted. We predict that there will be a unique microbial population demonstrating germicide resistance colonizing poorly maintained eyeglasses and transmission from patient to health care worker of these organisms will be shown to have occurred.

Development of the Lumbricolid Central Nervous System as a Novel Model System for the Study of Wound Healing and Regeneration

Robert A. Miranda, Ph.D. and Veronica G. Martinez Acosta, Ph.D.

Wound healing responses are documented in all multicellular organisms; however, there is diversity in the injury response outcome. While the adult mammalian CNS is capable of regeneration, traumatic injury often leads to the formation of scar tissue that releases inhibitory cues, creating physical and biochemical barriers to regenerating neurites. Wound healing and repair in adult humans commonly leads to the formation of non-functional scar tissue which can result in deterioration and subsequent organ failure as seen with myocardial infarction, spinal cord injury, and burn patients. The ensuing life-long disability places significant stress upon the individual and our public health care system.

We utilize a unique invertebrate model system, *Lumbriculus variegatus*, to study the cellular and molecular mechanisms that regulate wound healing and regeneration within the central nervous system (CNS). *Lumbriculus* is capable of regenerating an entirely new worm from a fragment that is 1/50th the size of the original animal. Unlike other regenerating model systems, *Lumbriculus* possesses the ability to recover structure and function along any portion of the anterior-posterior body axis.

Using confocal imaging, immunohistological, electrophysiological, and genomic approaches, we characterize changes in cellular architecture and molecular signaling within the wound blastema, regenerating heads, ventral nerve cord (VNC), and potential sites of synaptic input along the Giant Fiber pathway. We believe these changes underlie re-specification of neural function along the anterior-posterior body axis of the worm.

Studying wound repair and regenerative mechanisms in *Lumbriculus* could thus identify specific cellular and molecular targets that could lead to improved regenerative capacity in humans, ultimately improving quality of life.

Synthesis and Optical Characterization of Er³⁺: Y₂O₃ Nanoparticles

Sreerenjini Nair, Ph.D.

Trivalent rare-earth (RE³⁺) ions of 4f^{*n*} electronic configurations are found to possess potential applications in the field of optoelectronic and biophotonic technologies owing to their unique optical properties. They have been used as optical activators in a large number of solid-state laser host materials due to their rich energy level structure. This presentation focuses on the synthesis and spectroscopic characterization of a RE³⁺ ion, namely, trivalent erbium (Er³⁺), embedded nanocrystalline host material yttrium oxide (Y₂O₃).

In recent years, Er³⁺ doped Y₂O₃ laser materials are found to have tremendous photonic applications. The RE³⁺ doped nanocrystalline Y₂O₃ has attracted considerable attention due to its high chemical durability, thermal stability, and success as phosphors in fluorescent lamps, projection TV systems, and field emission systems. Due to their ability to fluoresce at both the infrared and visible wavelengths, Er³⁺ ions doped in Y₂O₃ (Er³⁺: Y₂O₃) possess interesting photonic applications. In addition, as an efficient laser host material, Y₂O₃ can act in a better way than the popular YAG when its material and optical properties are critically evaluates for certain characteristic applications.

Hydrothermal precipitation methodology has been used for synthesizing nanocrystalline trivalent erbium (Er³⁺) doped in yttrium oxide (Y₂O₃). An in-depth morphology analysis shows that the diameter of the individual nanoparticles is approximately 20-30 nm.

To optically characterize the nanocrystalline material, the room-temperature absorption spectrum has been obtained between 400 and 900 nm. The spectrum consists of eight absorption bands, including ²G(1)_{9/2}, ⁴F_{3/2} + ⁴F_{5/2}, ⁴F_{7/2}, ²H(2)_{11/2} + ⁴S_{3/2}, ⁴F_{9/2}, and ⁴I_{9/2}. The room-temperature fluorescence spectra for transitions Er³⁺ (4f¹¹) ²H(2)_{11/2} + ⁴S_{3/2} → ⁴I_{15/2} and ⁴F_{9/2} → ⁴I_{15/2} were analyzed for the detailed crystal-field splitting of the energy levels of (Er³⁺).

The spectroscopic structure observed in the manifold-to-manifold transitions was used to identify the Stark splitting of the corresponding manifolds. The experimental energy values of the Stark levels agree well within the experimental error to the theoretical values reported earlier for bulk single-crystalline (Er³⁺:Y₂O₃). The lifetimes have also been measured for the ²H(2)_{11/2} + ⁴S_{3/2} and ⁴F_{9/2} metastable states and have investigated the effect of Er³⁺ concentrations and particle size on the emission intensity and decay times.

The Path to Platinum-LEED Certification for the UIW Solar House

Alison F. Whittemore, Ph.D. and Daniel J. Potter

This descriptive study details the work of UIW Engineering Management students as they designed a solar powered house to qualify for the highest level of LEED (Leadership in Energy and Environmental Design) certification from the USGBC (US Green Building Council). LEED is a rigorous accreditation process for measuring building sustainability at the highest level of industry standards. The Solar House was developed to educate UIW students and the public about the environmental benefits and cost savings of sustainable building design. The House is a public showcase for energy-efficient construction and renewable energy systems.

The Solar House site is on a tiny sliver of land in the middle of a parking lot between the Natatorium and the Convocation Center. Students formed small groups to design each individual component of the house (foundation, plumbing, wiring, photovoltaics, materials, etc.). The groups came together each week to integrate their progress across the multiple systems. Dr. Alison Whittemore, chair of the engineering department, and Mr. Daniel Potter, project manager, oversaw all aspects of the design and mediated any technical conflicts.

Student projects are often based on theoretical practices where they get little true sense of the work involved in bringing things to fruition. For this research, however, the students designed the Solar House literally from the ground up and assisted in the construction at every stage. The LEED parameters required extensive research and planning for each component of the building, but the students also had to figure out a way to combine these modern building techniques with the old infrastructure found in that area of the campus. We used many new construction methods (such as deep-drilled foundation support piers and photovoltaic panels) that had not been used on this campus before. Each phase of the building process required frequent on-the-spot assessments and nimble solutions to construction issues.

Even with all those engineering challenges, it is likely that the most valuable lesson for the students was the experience of navigating the labyrinth of paperwork that is part of any construction project. The students learned how to deal with overlapping legal jurisdictions, zoning restrictions, departmental conflicts, construction scheduling, weather delays, on-campus events, equipment failure, and dozens of other issues. Students came out of the project with a healthy respect for the complicated bridge between technical knowledge and real world applications.

The Solar House was successfully completed and certified as LEED Platinum. The building is used as a research lab for senior Capstone students and will be the testing lab and storage facility for our robotics research beginning in summer of 2014. The House is currently open for tours for students and the public from across San Antonio and Bexar County. This research provided engineering students with valuable training that will allow them to enter the growing sector of clean-energy industries. It is hoped that the green systems developed during this project will be used as templates for future sustainable projects on the UIW campus.

Associations between the Tutorial Group Process and Academic Success in a Problem-Based Learning Program

Amy Wagner, PT, DPT, GCS and Lynne Hughes, PT, Ph.D., OCS

Cooperative learning, where individuals are dependent on group members to achieve their goals, is an integral part of the problem-based learning (PBL) process. PBL is a student-centered approach to teaching and learning that contends that knowledge is best gained and retained when discovered. At UIW SoPT, this process begins with student tutorial groups examining a patient case and coming to consensus on what they know, what they need know, and formulation of learning objectives. The case is the stimulus for learning. The tutorial group provides peer-to-peer cooperative learning guided by a tutor to explore learning issues through the pooling of ideas related to the case. In Tuckman's Group Development Model groups go through stages of forming, storming, norming, and performing. The purpose of this study was and is to investigate the associations between the tutorial group process in a PBL program and academic success of the individuals in the group.

At the end of the first semester of an entry-level PBL DPT program, measures of tutorial group function (independent variables) and the sum of individual integrated exam scores (dependent variable) across courses (PT Reasoning, Professional Topics, Foundational Sciences, and Patient/Client Management) were collected for 51 DPT students in the first year as well as 52 students in the second year of the UIW DPT program. Measures of group function included Tuckman's Group Development Model, ("forming, storming, norming, performing") which had 6 subcomponents.

High scores on subcomponent 4 Decision Making by Consensus correlated with high test scores of individual students [Pearson $r = .292$, $p = .019$, one tailed]. Associations will also be investigated in the second year of students at the end of the Fall semester.

Group subcomponent of Decision Making by Consensus appears to have a positive relationship to individual academic student performance. Better scores on group functioning for Decision Making predicted better individual student performance on academic assessment of skills. Strengths: Good sample size, ($n=51$) and return rate (100%).

This study may not be generalizable to all entry level DPT programs, and was specific to a model of problem based learning. This is a developing program whose methods of academic success are also developing. It is of note that variables such as a narrow range of grades and reduced inter-rater reliability of graders may influence the results of this study. Future study will be needed to verify the results.

Cooperative learning, particularly the subgroup Decision Making by Consensus, correlates with greater individual student academic success. This data suggests the importance of the group process in enhancing the individual student learning process. It is also important for faculty to trust that a PBL tutorial group learning process is valuable when allowing group development to evolve through the stages of forming, storming, norming, and performing. The study will continue with current and future students.

**COLLEGE OF HUMANITIES, ARTS AND
SOCIAL SCIENCES
POSTER ABSTRACTS**

Correlates of Research Self-Efficacy in Undergraduate Students

Stefanie S. Boswell, Ph.D., Lisa K. Lockhart, Ph.D., and Danielle R. DeLuna, Psychology Student

Purpose of Study

Given the potential importance of research self-efficacy (RSE) to undergraduate research activity, the current study explored RSE's relationships with attitudes toward research and statistics. It also explored RSE's relationship with intention to pursue graduate studies.

Rationale and Significance

RSE is individuals' confidence in their ability to effectively complete research-related activities. It is associated with interest in performing research and future research output (Bishop & Bieschke, 1998; Lambie & Vaccaro, 2011). Although much research has explored RSE's correlates in graduate students, little research has investigated RSE in undergraduates. As a form of self-efficacy, RSE may be influenced by individuals' beliefs about research and its related field, statistics.

Description of Methodology

Participants (N=113, 74% female, 34% senior, 63% Latino/a) enrolled in undergraduate psychology courses completed the RSE Scale-Revised (Bieschke, et al. 1996), which measures confidence in one's ability to successfully execute tasks related to the research process. It has four subscales (Conceptualization, Early Tasks, Presenting the Results, Implementation) and sums to a total score. They completed the Research and Statistics Scale (Sizemore & Lewandowski, 2009), a measure of attitudes toward research and statistics with six subscales (attitudes about research, attitudes about statistics, perceived utility of research, perceived utility of statistics, perceived ability in research, and perceived ability in statistics). They also rated their interest in pursuing graduate school on a 7-point, Likert-type scale.

Findings and Conclusions

Stepwise multiple regression yielded a significant model for RSE after three steps, $R^2=.17$, adjusted $R^2=.15$, $F(3,103)=7.12$, $p<.001$. Plans to pursue graduate school ($\beta=.21$, $p=.02$), perceived ability in statistics ($\beta=.26$, $p<.01$), and perceived ability in research ($\beta=.19$, $p=.04$) significantly predicted RSE. Students who aspire to pursue graduate education and who are confident in their ability to complete research-related tasks are more likely to feel competent to do so. Others have found that developing undergraduates' competence in research is an important way to increase their future involvement in research and scholarship (Love, Bahner, Jones, & Nilsson, 2007). Thus, a practical implication of these findings is that those who teach research and methodology skills in undergraduate programs should be mindful that it is important not only to teach methodological skills, but to attempt to make students' cognizant that they are indeed developing useful abilities that not all students possess. This increased perceived competence could indeed propel them to further their education at the graduate level and become involved in meaningful scholarship.

I Can Do Research! Change in Undergraduates' Research Self-Efficacy: A Pilot Study

Stefanie S. Boswell, Ph.D. and Kiana Cox, Psychology Student

Purpose of Study

Given the importance of early research training experiences on research self-efficacy (RSE) (and indirectly, later scholarly interests), the purpose of the current pilot study was to investigate the effect of a semester-long active-learning, course-based approach to the instruction of social science research methodology on undergraduates' research self-efficacy. It was hypothesized that all facets of participants' RSE (conceptualization, early tasks, implementation, and presentation) would significantly improve following this semester-long research methodology course.

Rationale and Significance

RSE is defined as confidence in one's ability to successfully execute research-related tasks. RSE is predictive of interest in doing research (Lambie & Vaccaro, 2011) and research productivity (Szymanski et al., 2007). Moreover, early research training experiences enhance research self-efficacy (Love et al., 2007).

Description of Methodology

Undergraduates (N = 32; 72% female, 63% Latino/a, 38% junior) completed the semester-long social science research methods course involving didactic and experiential components including a 10-step process for the development of an original research project. They completed the RSE Scale (Bieschke et al., 1996), a measure with five subscales (conceptualization, early tasks, implementation, and presenting the results), on the first and last day of the semester.

Findings and Conclusions

A RMANOVA analyzed change in the RSE subscales. As predicted, participants' self-efficacy for conceptualization (Mpre=71.18;Mpost=88.75,p<.001), early tasks (Mpre=75.55;Mpost=92.41,p<.001), implementation (Mpre=66.26;Mpost=80.73,p=.001), and presentation of results (Mpre=39.42;Mpost=52.64,p<.001) significantly increased over time, all with moderate effect sizes.

As hypothesized, participants' confidence for executing research-related behaviors increased. Participants reported greater confidence in their abilities to generate research ideas, alone or in collaboration with others (conceptualization), locate scholarly resources related to the research topic and plan for potential ethical concerns (early tasks), operationalize variables, design the study's methodology, and conduct data analyses (implementation), and organize results for presentation and publication (presenting the results). Students seemed to benefit from an approach that allowed them to experience research "in action" while concurrently learning about methodology in class and through readings. Improving undergraduates' research confidence and potentially skill may have implications for these students' future job search. The majority of individuals who earn a bachelor's degree will directly enter the workforce (versus enter graduate school); this underscores the importance of marketable job skills in a competitive job market (Landrum & Harrold, 2003). Although employers seek a diverse range of skills in their new hires, research skills are commonly sought after (Aubrecht, 2001; Casner-Lotto, Barrington, & Wright, 2006). With a heightened sense of efficacy for research, new graduates may feel more comfortable discussing their preparedness and fit for positions involving research skills.

The self-report nature of the study is a limitation. Confidence in one's ability to do an activity does not equate with competence; participants may have overestimated their ability to perform these tasks.

Creating Communities with Blogs: A Study of the Effects of Blog Writing on University Level Students

Jennifer L. Caldwell, Honors Student, English

Purpose of Study

The purpose of this study was to determine how blogging can help university level students create a sense of community and belonging in the classroom in order for them to be successful in their academics.

Rationale and Significance

Higher education theorist Vincent Tinto's research concludes that students who belong to a community of learners in the classroom will be successful. Abraham Maslow proposed that humans seek to fit in a group to fulfill a need for affiliation to be successful. Higher education faculty need to find ways to create a sense of community in the classroom to promote success and retention. Research suggests that blogging helps students form classroom communities and promote engagement. This study investigated how well blogging in a university setting can help students experience community.

Description of Methodology

Three undergraduate Composition 1 classes taught by the same professor were used for this study. One class was required to blog in a whole class setting. The students were expected to post a blog each week for nine weeks of the Spring 2013 semester and to comment on other students' blogs per week. The students were told that the blogs would not be graded, but would be checked by the professor. In the second class, the students followed the same procedures as in the first. However, they were split into small groups of 3-4 students. These students only had access to the blogs of their group members. The third class acted as the control group and did not blog. After the blogging ended, the students from all three classes filled out a questionnaire that measured their sense of engagement, community, and belonging in the classroom. The responses to the questions used a 5 point Likert scale that included "strongly agree," "agree," "neither agree nor disagree," "disagree," and "strongly disagree." The questionnaire also included open-ended questions. I also interviewed the class professor about the blogging as a tool to engage students.

Findings and Conclusions

The group bloggers tended to only communicate with their group members and showed signs of creating communities but were less likely to participate in class discussions. The whole class blogging students were more likely to communicate with each other inside of the classroom and show signs of active participation in the classroom. These students formed their own groups and communicated through their blogs within the self-formed groups. The control group class was the least likely to show signs of forming a community in the classroom and class participation, but this may be due to outside reasons according to the professor. Both classes showed evidence of students forming their own groups in the blogs. The study shows that blogging can increase community in the classroom by improving peer communication in small groups, but does not increase classroom participation. If repeated, it is suggested that the students blog in pairs instead of small groups in order to further increase community and participation in the classroom.

Differences in Ratemyprofessors.com Ratings by Professorial Sex, Rank, and Discipline

Michelle Chong-Macias, Psychology Student and Stefanie S. Boswell, Ph.D.

Purpose of Study

This study investigated differences in Ratemyprofessors.com ratings of quality, easiness, and hotness between the sex, rank, and college/school of instructors at UIW.

Rationale and Significance

Ratemyprofessor.com is a popular site where students review instructor ratings while selecting courses. Studies have indicated that students demonstrate a higher interest in quality, helpfulness, and clarity ratings instead of easiness; additionally, while hotness is considered when rating a current instructor, it is not as important when making decisions about courses and future instructors (Poitier, Landry, & Kurkul, 2010). Moreover, Felton, Koper, Mitchell and Stinson (2008) concluded that academic discipline area did have an effect on ratings. Some disciplines were preferred over others; for example, languages were rated higher than engineering.

Description of Methodology

Information about 196 full-time faculty members was gathered on the authors' university's website. Faculty were coded by sex, college/school, and professorial rank (instructor, assistant, associate, full professor). Of these 196, 142 (54.2% male, 31% associate, 34.5% humanities/arts/social sciences) had a Ratemyprofessor.com profile.

Findings and Conclusions

A multivariate analysis of variance (MANOVA) analyzed differences in quality, easiness, and hotness ratings by group (sex, rank, and college/school). The overall model was significant, $F(42,99)=1.95, p<.01$; however, quality, easiness, and hotness ratings did not differ based on sex and rank. There was a main effect of college/school on quality, $F(5,99)=3.60, p<.01$; post hoc analysis revealed that instructors teaching in the college of humanities, arts, and social sciences ($M=4.22$) received significantly higher quality scores than those teaching in the school of nursing and allied health ($M=3.18$).

The ratings for quality, easiness, and hotness were analyzed to investigate differences by sex, rank, and college/school. The analyses indicated that only quality scores varied significantly and they varied only by college/school. Follow-up analyses found that the greatest difference lied between the college of humanities, arts, and social sciences and the school of nursing and allied health. This difference may be attributable to the class level and difficulty level of the courses being taught in these schools. In the college of humanities, art, and social sciences, the courses range from lower level to upper level courses and include core education class such as introductory composition, philosophy, religion, and art classes. These core education classes may be perceived as more enjoyable by students, thus possibly affecting their quality ratings. In the case of the school of nursing and allied health, most if not all courses are upper level, major-specific courses that may be viewed as more difficult for students. Moreover, it also suggests that they do not perceive quality to vary significantly based upon the professor's biological sex. Because there was no difference in quality rating by rank, this suggests that students do not necessarily perceive a more experienced professor as higher quality.

Ratemyprofessors.com Student Evaluations: Relationship between Quality, Easiness and Hotness Ratings

Michelle Chong-Macias, Psychology Student and Stefanie S. Boswell, Ph.D.

Purpose of Study

This study investigated the relationship between quality and easiness ratings in professors at UIW; it also investigated if quality and easiness ratings significantly differed by hotness status.

Rationale and Significance

Ratemyprofessors.com enables students to rate instructors on quality, easiness, and “hotness”; students use the site to determine instructors’ quality and as a source to select professors. While some may question the validity of the site’s ratings; Otto, Sanford, Jr. and Ross (2008) found that ratings are representative of student learning. Previous research indicates that there is a positive correlation between quality and easiness and between quality and hotness (Felton, Koper Mitchell, & Stinson, 2008).

Description of Methodology

Full-time faculty (N=196, 51% male, 49% female) were identified using the authors’ university’s website. Of the 196, 142 (54.2% male, 45.8% female) had a Ratemyprofessors.com profile; quality, easiness, and hotness ratings were recorded from each profile. Quality is rated on a scale from 1 (poor) to 5 (good) and easiness is rated on a scale from 1 (hard) to 5 (easy). Hotness ratings are represented by a chili pepper on the website; this was coded as either 0 (not hot) or 1 (hot); 47 professors (33.1%) were rated as hot.

Findings and Conclusions

Quality ratings were significantly higher for professors with hotness ($M=4.54$) compared to those without ($M=3.64$), $F(1,140)=34.04, p<.001$; however, there was no significant difference in easiness ratings between professors with ($M=3.48$) and without ($M=3.17$) hotness, $F(1,140)=3.04, p=.08$. There was a relationship between quality and easiness. As quality rating increased, - easiness ratings also increased; professors rated as easy were more likely to be rated as high quality. Students may prefer easier instructors and therefore rate them as having higher quality than instructors who deliver a more difficult class. However, students may also have greater liking or satisfaction for courses offered by quality professors and be more likely to perceive these enjoyable classes as less difficult. Hotness is also related to the quality rating. Instructors with a hot chili pepper received a higher score for quality compared to those without a chili pepper. It is possible that instructors who are perceived as “hot” are viewed more favorably and have more positive characteristics attributed to them (Lorenzo, Biesanz, & Human, 2010). However, this conclusion is not supported by the non-significant relationship between easiness and hotness. A limitation to the study is the lack of a clear operational definition for hotness. Hotness can refer to physical attractiveness; however, there is no clear definition of hotness on the site. If hotness is not determined to be physical attractiveness by a specific rater, then physical attractiveness might not be what is influencing a higher quality score.

The Power of Images in Global Climate Change Discourse: A Critical Visual Rhetorical Analysis of *Our Changing Planet*

Letitia Harding, Ph.D.

Purpose of Study

Global climate change is a highly controversial issue that draws strong emotional and conflicting responses, ranging from total denial to doomsday scenarios. The aim of this study was to examine the United States Global Change Research Program's annual report series, *Our Changing Planet* (an initiative founded by President Reagan in 1989), and to analyze governmental rhetoric on the subject and specifically the way in which each administration used its power to control the dissemination of global climate change knowledge to the general public, to promote its own environmental ideology, and to corral the power of climate change scientists. While the specific content of *Our Changing Planet* differs from year to year, each report comprises an overview of the year's climate research accomplishments, highlights of current developments, and climate scientists' assessment of future challenges.

Rationale and Significance

This study focused on the types of messages conveyed through the reports' visual images, and the way they changed over time, the altering relationships between images and text, and the correlation between those changes and the always volatile political landscape surrounding the global climate change debate. This area of study is of vital importance to technical communicators who are in a prime position to bridge the communication gap between scientists, politicians, and the general public.

Description of Methodology

Utilizing an application of social semiotic theory, I analyzed the visual images in the annual reports, ranging from 1990 until 2013, not only to ascertain their ability to influence the intended audience, but also to examine the potential relationships between producer and viewer. This, combined with critical discourse analysis, allowed both a study of the visual images and of the ideologies surrounding their use.

Findings and Conclusions

The results of the study demonstrated that each of the four presidential administrations used its power to a greater or lesser extent to control the content of *Our Changing Planet*, and thus to influence the global climate change debate in line with its own ideology and political motives. These documents are particularly adaptable to this type of usage, because much of their impact lies within the rhetoric, especially the pathos, exerted through their visual images. The study also, however, revealed the power wielded by the upper echelon of climate change scientists (a so-called scientific elite) and the lengths to which they are prepared to go to safeguard research funding and control over scientific knowledge.

Needs and Resources Available to the Mental Health Care Consumer Re-Entering the Community

Jordan T. Jung, Psychology and Criminal Justice Student and Maria Felix-Ortiz, Ph.D.

Purpose of Study

The purpose of this study was to assess mental health consumers' needs and resources available to them after they are discharged from an inpatient stay.

Rationale and Significance

The study was conducted in a large Southwestern metropolitan area and is the first phase for creating a wellness partner program (like peer support) to aid mental health consumers with their transition from a hospital setting back into the community through the local clubhouse and other local resources.

Description of Methodology

A pair of research team members conducted twelve 30-90 minute interviews with people who were in contact with consumers of mental illness (e.g., such as family members and staff of mental health facilities). Qualitative data obtained through a brief series of open-ended questions will be analyzed using Grounded Theory (Glaser & Strauss, 1967) and NVIVO, and descriptive analyses of common themes will be identified.

Findings and Conclusions

Some of the most common responses from the participants regarding needs that mental health consumers have include the lack of a steady income, lack of adequate case management, no appropriate outpatient partial hospitalization programs, and no type of regular day program to assist them. The resources available to mental health consumers, according to our participants are very few; The National Alliance on Mental Illness (NAMI) and local clubhouses are the only main resources available to help mental health consumers and their families through the transition process from the hospital back into the community.

Visualizing Text, Constructing Meaning

Patricia P. Lonchar, Ph.D.

Purpose of Study

This study examines the marriage of image and text in Children's Picture Books to demonstrate the power of the visual in the construction of meaning beyond mere decoding of language.

Rationale and Significance

For Visual Rhetoricians, the image precedes the text; yet, over years of critical commentary, literary scholars have emphasized text as the primary source of meaning and ignored the power of the image. Rhetorical analysis incorporating the protocols of visual literacy situates readers completely 'within' a work, resulting in critical, nuanced understanding and expanding meaning beyond facile observation and routine recollection. Children's Picture Books provide ideal tools for introducing readers to the process of critical thinking and constructed knowledge—essential tasks of scholarship.

Description of Methodology

Informed by Bloom's Taxonomy, this study establishes theoretical foundations for textual analysis, applies those theories to selected award-winning Picture Books, identifies significant visual elements and links them to the analysis of text, examines the connection between image and text, articulates the resulting 'meaning,' and then demonstrates how such a process may be transferred to more "sophisticated" study and reading.

Findings and Conclusions

This study establishes that meaning may be more clearly discovered when text and image are combined—whether in a concrete combination of words and visuals or in the careful use of word pictures. Imagery—rhetoric's treasure chest of strategy and communication—serves as the most effective tool in the creation and articulation of meaning. Sensory detail—visual or verbal or both—expands our capacity to draw inference and to construct meaning. Thus, knowledge of the basics of Children's Picture books results in a student's capacity to develop competence in moving from basic recall and comprehension to analysis, synthesis, and evaluation.

Using Irony as Rhetorical Mask: Poetic Protest of Phillis Wheatley

Patricia P. Lonchar, Ph.D.

Purpose of Study

This study explores Wheatley's successful rhetorical strategy of "submission" as a clever tool of protest against the dehumanization of slavery.

Rationale and Significance

Phillis Wheatley has been included in American Literary History primarily because she is not only the first woman of color to publish but also the first writer of color to publish in the US. Seldom do literary critics examine her work as poetry worthy of careful reading and sustained analysis. The reason given for this oversight is that one is unable to discern any argument against slavery in Wheatley's verse. However, when a reader explores Wheatley's poems through the lens of rhetoric, that reader discovers a remarkable accomplishment in irony and protest veiled as Christian piety and humble gratitude for being "saved" from Africa.

Description of Methodology

This study applies the tools of rhetorical criticism to uncover the strident tone underlying Wheatley's overlooked poetry. Informed by classical rhetorical theory and the primary approaches of feminism, this poster focuses on four key Wheatley poems and details how her work is grounded in basic rhetorical techniques used throughout history by writers suffering from oppression.

Findings and Conclusions

Careful rhetorical analysis of Wheatley's poetry reveals a writer completely aware of her audience and her tenuous situation as a slave. Such an analysis demonstrates that Wheatley was aware of her audience and its expectations and this awareness enabled her to produce work that communicates without compromising her values or placing herself at risk for holding those values.

The Effect of Written Descriptions on Students' Perceptions of Professors

Lemira D. Vela, Psychology Student and Stefanie S. Boswell, Ph.D.

Purpose of Study

The purpose of this study is to explore the effect of written teacher evaluations on students' perceptions of teachers and their courses.

Rationale and Significance

University professors play a significant role in students' educational experiences (Glass, 2012). Because of this, students tend to select professors they perceive will fit their needs (Glass, 2012). To do so, many students utilize websites like RateMyProfessor where they informally evaluate instructor qualities such as helpfulness and difficulty (Silva et. al., 2008). Given that use of these informal rating sites is rising, it is important to study their effect on students' perceptions of the professor.

Description of Methodology

Fifty undergraduates completed a demographic questionnaire and read vignettes describing different teachers. The researcher provided the participants with the packets that contained the written descriptions. The teachers varied by difficulty (unknown difficulty, easy teacher, difficult teacher) and coursework assigned (unknown coursework, little work, much work). Difficulty and coursework were fully crossed in a 3x3 design, producing nine scenarios. Using a 7-point scale ranging from 1(strongly disagree) to 7(strongly agree), participants rated each teacher's 1) perceived effectiveness and 2) likability; they also rated their intention to 3) enroll in and 4) invest effort into the teacher's course.

Findings and Conclusions

Analyses were conducted by repeated-measures analysis of variance. All variables had a significant difficulty by workload interaction; post-hoc analyses were conducted with t-tests using Bonferroni corrections. Regarding effectiveness, the teacher of unknown difficulty was rated more effective when assigning little coursework compared to much coursework. The difficult teacher who assigns much coursework was rated more effective than one who assigns little. Regarding likability, the teachers of unknown difficulty and unknown coursework and little coursework were more liked than the teacher of unknown difficulty and much coursework. Also, both the easy teachers of unknown coursework and little coursework were more liked the easy teacher with much coursework. Regarding intention to enroll in the course, the teachers of unknown difficulty and unknown coursework and little coursework were rated higher than the teacher of unknown difficulty and much coursework. Also, both the easy teachers of unknown coursework and little coursework were preferred over the easy teacher with much coursework. Regarding intention to invest effort in the teacher's course, the teacher of unknown difficulty was rated higher when assigning little coursework compared to much coursework. The statistical analyses' results will be present in a chart on the conference poster.

Content of informal teacher evaluations did affect students' perceptions of the instructor and course. With the exception of difficult teacher's effectiveness, students perceive the teacher with little work higher on the likeability scale, are more likely to enroll in the class, and are willing to invest more into the class than the teacher with much work. Moreover, compared to difficult teachers and ones who assign much work, students may prefer a teacher for which they have no information about difficulty or coursework. Students can be affected by the content of informal teacher evaluations (Glass, 2012); they should be taken seriously.

**DREEBEN SCHOOL OF EDUCATION
POSTER ABSTRACTS**

Success in Developmental Mathematics: Reducing or Controlling Mathematics Anxiety?

Rachel Cywinski, Doctoral Student

Purpose of Study

The intent of this two-phase, sequential mixed methods study was to explore specific factors affecting mathematics anxiety and success in developmental mathematics among students at community college, and particularly how receiving information about mathematics anxiety and success strategies affects students in developmental mathematics.

Questions answered through quantitative analysis included:

1. What factors among participation in intervention or control group contribute to predicting the change in level of mathematics anxiety as measured by RMARS pre-test and post-test for each student?
2. What factors among participation in intervention or control group as measured by RMARS pre-test and post-test for each student contribute to predict the final course grade?
3. How does information about mathematics anxiety and success strategies affect students?

Rationale and Significance

Failure to address mathematics anxiety limits the income potential, and negatively impacts ability to achieve personal and professional goals. This study fills a gap in the literature by identifying the potential of one specific element associated with relief of mathematics anxiety, and more clearly identifying its impact and effect on students with the most limited mathematics skills.

Description of Methodology

In the first phase, ten basic mathematics classes were assigned to control (n=5) or treatment (n=5) groups based upon instructor characteristics, at an historically Black community college that has a majority of Hispanic students. All students in the classes were asked to participate by completing the Revised Mathematics Anxiety Rating Scale (RMARS) (Plake & Parker, 1982) at the beginning and end of the semester. A total of 167 students consented and provided accurate student identification information on consent forms and RMARS. During the 16-week semester, the instructors in the treatment group added to the curriculum a 10-minute script about mathematics anxiety, developed by the researcher from excerpts of Cynthia Arem's *Conquering math anxiety: A self-help workbook* (2nd ed.) and Richard Manning Smith's *Mastering mathematics: How to become a great math student* (3rd ed.), both books used with permission of the publisher. Students who completed the semester and the second administration of the RMARS (n=80) were compared by control (n=44) and treatment (n=36) results. Appropriate regression methods and models were used to answer the quantitative research questions. Four instructors and four students from the treatment group were interviewed to gain understanding of the experience.

Findings and Conclusions

The program of treatment had no significant effect on either reduction in mathematics anxiety or grade. However, students who completed the course in the control group and students who completed the course in the treatment group had significant reductions in mathematics anxiety within group. These finding, informed by the qualitative results, indicate that success in developmental mathematics may be affected by learning to control anxiety, not necessarily reducing it; and success reduces anxiety. The results indicate that students who do not learn to control anxiety in developmental mathematics courses may simply withdraw from those courses rather than complete them.

Critical Thinking Skills: A Predictor of Teacher Education Student Success

Renea Fike, Ed.D., David S. Fike, Ph.D., and Ashley Johnson, MAT Student

Purpose of Study

The purpose of this study was to determine if critical thinking skills (as measured by a Critical Thinking test) are a predictor of Teacher Education students' performance on the TExES Pedagogy and Professional Responsibilities (PPR) exam.

Rationale and Significance

Teacher Education programs are facing increasing accountability for retention and performance of their candidates (Darling-Hammond, 2004; Education Commission of the States, 1999; Nelson, 2010; Texas American Federation of Teachers, 2007). Consequently, it benefits both teacher candidates and their Teacher Education programs when pre-service teachers are supported through all requirements leading to certification. Successful performance on the PPR exam is a requirement of candidates for teacher certification in Texas. Administration of this exam typically occurs toward the end of a preparation program or, in some cases; after all other requirements have been met. In essence, the PPR is a high stakes exam that serves as a gatekeeper for students pursuing a career as teachers.

Teacher Education programs can gain an increased understanding of candidates' developmental needs by identifying predictors of success and potential challenges. Understanding student needs will allow programs to examine established and needed supports throughout the program, allow for early identification of at-risk students, and provide an opportunity for assessment-informed program design. Teacher Education programs should identify tools that can be used to assess student's needs and their prospects for success in pre-service programs and ultimately in teaching careers. One specific need is to identify potential barriers for students pursuing successful completion of the PPR. This study was initiated to determine if formally assessing critical thinking skills will be useful in identifying students who are at risk of unsuccessful completion of the PPR (and therefore precluded from teacher certification).

Description of Methodology

Students admitted to UIW's Teacher Certification Program will be given both the Critical Thinking test and the practice PPR exam. Correlational analysis (correlation and multiple regression) using SPSS will be used to determine the association between critical thinking scores and scores on the PPR exam. The sample will consist of all students accepted into the Teacher Certification Program (n = 60-70 students). The instruments used include the PPR (a criterion-referenced, validated exam) and a validated Critical Thinking test.

Findings and Conclusions

Teacher Education student's Critical Thinking test scores correlate significantly ($p < 0.05$) and positively with Nelson Denny, THEA Math (first attempt and best scores), THEA Reading (first attempt and best scores), THEA Writing (best score), first PPR Practice Test, and Official PPR Test scores. Critical Thinking scores correlate negatively with the number of PPR practice attempts. These findings suggest that a student's critical thinking skills may serve as a predictor of performance on the required PPR exam. A critical thinking test can be used as a tool to screen applicants for admission to the Teacher Education program, and to identify "at risk" students within the program who need targeted interventions for successful program completion.

What is Social Justice? Perceptions of Undergraduate Students Participating in a Civic Leadership Program

Trinidad Macias, Doctoral Student and Joules Webb, Doctoral Student

Purpose of Study

The purpose of this study is to develop an understanding of UIW Cardinal Community Leader's perspectives of social justice.

Rationale and Significance

The Center for Civic Leadership's Mission is to develop leaders who promote *social justice* in partnership with diverse local and global communities. The Cardinal Community Leaders is a pilot program focused on creating leaders that promote social justice. Catholic social teaching describes social justice in terms of the common good and it is noted by Nitsch (2005) that the two terms are "inextricably connected" (p. 556). Therefore, social justice for our purposes is described in terms of the common good. Social Justice implies everyone's right to share in or partake of the common good in accordance with their needs and, concurrently, their obligation to contribute to the common good in accordance with their ability (Nitsch, 1998).

In light of the Program's desire to develop leaders who promote social justice, it is worthy to understand the Program participants' concepts of social justice. The perceptions gleaned from the study will provide understandings of undergraduate student's concept of social justice based on their personal experiences and their involvement in the Program.

Description of Methodology

For the purpose of this study a qualitative approach was used because the main goal of the study was to find out the perceptions of the Cardinal Community Leaders on the topic of social justice. A phenomenological study based on semi-structured individual interviews was conducted. A purposeful sampling approach was used in which four participants were selected to partake in an individual interview. Selection was from the Cardinal Community Leaders 2013-2014 cohort of 16 undergraduate sophomore students. Criteria for selection included: (1) active Cardinal Community Leader, (2) available to meet for an hour on the designated date, time, and location, and (3) willingness to participate in the study. The researchers proceeded with thematic analysis using Spradley's (1979) semantic relationships and domain analysis model to create themes and categories based on participant's interviews relating to the purposes of the study.

Findings and Conclusions

The research found that the participants viewed social justice in terms of actions that promote equality and access to positive role models. Another main theme generated was the motivational factors that encourage the students to participate in service opportunities.

Emotional Intelligence as an Attribute of Followers

Evgenia V. Prilipko, Doctoral Student, Judith E. Beauford, Ph.D., and Absael Antelo, Ph.D.

Purpose of Study

Our purpose is to investigate the relationship between emotional intelligence and the other attributes of followership in Belarus and Russia. How does *emotional intelligence* correlate with the other attributes of followers?

Rationale and Significance

Studies have addressed emotional intelligence within organizational and leadership contexts, but little is known about emotional intelligence as a trait of followers. In order to gain a better understanding of the leader-follower dichotomy, “in-depth research needs to be conducted to assess the most common characteristics that followers possess” (Burns, 1978). The investigation of correlations among the attributes of followership will clarify and validate the theory. Therefore, emotional intelligence, as one of the follower characteristics, is examined in correlation with the other follower attributes. The perception of emotional intelligence of the ‘other’ was measured by means of the Follower's Assessment Survey. The nature of this survey on followership is that the perceptions of the follower's characteristics are reported by another person, either a fellow follower or a leader. Suggestions for future research could be that the characteristics be measured by more direct measure of the individual follower. A thorough search of the literature has revealed no discussion of emotional intelligence among followers in Russia and Belarus. Therefore, our study aims to cover this gap.

Description of Methodology

The basic quantitative inquiry method for this study followed a correlation design. The instrumentation designed to measure the perceived level of advancement in each follower attribute was administered to 104 participants from Russia and Belarus who were asked to think of a subordinate at work and evaluate his/her follower skills from a leader perspective. Descriptive and correlational statistics were used for the data analysis in an attempt to provide answers to the research question. Principal components analysis was used to create factor scores to measure levels of each attribute. Relationships between emotional intelligence and other follower attributes were analyzed using correlation procedures: Pearson and related correlation coefficients. Principal Component Analysis is a facet of Factor Analysis. Hofstede's model of national culture was used to interpret the results of the study.

Findings and Conclusions

This research does not overturn or challenge existing research; rather it validates the instrument through Principal Component Analysis and expands the research on followership to a culture not yet investigated. For the first time, a strong correlation between emotional intelligence and flexibility, tolerance of differing views, and facility for supporting others was demonstrated. A previously reported connection between emotional intelligence and facility for contribution to the group was confirmed. Correlations of emotional intelligence to effective communication, interpersonal relations, and group relations were found to be weaker, and a correlation to conceptual understanding was the weakest.

Graduate Students' Views of Service Learning and Community Involvement

Roy Rodriguez, Doctoral Student and Tina J. Siller, Doctoral Student

Purpose of Study

The purpose of this study is to gain an understanding of UIW graduate students' view on service learning. This study aims at obtaining insight into students' perspectives of service learning while being involved in the community.

Rationale and Significance

The University of the Incarnate Word's mission is to support faculty in educating and developing students into enlightened citizens who will effectively serve the spiritual and material needs of people within the community. To better promote the University's mission, the Center for Civic Leadership (CCL) was created to further build on the tradition of serving local and global communities. The CCL has partnered with CHRISTUS Health to assist in developing student's sense of service leadership engagement. This study aims to understand the graduate students' view of service learning as it pertains to being more involved in the San Antonio community. The potential of this study includes providing insights that may help the Center in their efforts of educating and contributing to the development of community leaders among graduate students. The findings may contribute in creating a possible program for graduate students to be more engaged in the community. Service learning is an experiential based learning model that pairs academic experience with experiential learning. These tie in with the CCL'S goal of assisting in educating enlightened and concerned leaders committed to learning and service. With most graduate students already being part of the Workforce, service learning is essential in linking academic learning with their professional experience. Leadership and service are two key components of UIW's mission of developing enlightened citizens and civic participation.

Description of Methodology

This study will implement a qualitative research design in which semi-structured interviews will be used to collect data. Subject participation will be on a voluntary basis interviews will be allotted one hour time frames per interview. Interviews will be completed on the University of the incarnate Word campus in a room. Both researchers will individually interview two participants. Data collection will be conducted using voice recorders. The researchers following each interview session will then transcribe data. Each researcher will work with the other member of the research team to conduct a taxonomy and domain analysis relating to the research purpose. The goal is to identify graduate students' experiences in relation to service learning.

Findings and Conclusions

Findings indicated that graduate students were transformed through their community involvement, promoted diversity, and developed both personal and professional values. Students started thinking about becoming more involved within the community based on the experiences of their professors and personal reflection. Students were more open to different cultures and giving back to the community after experiencing service learning in their graduate classes. Students effectively created community unity through service learning through their ability to share personal experiences. And students that performed classroom activities were transformed, prepared, and willing to conduct service learning in support of the university and after graduation.

What's in it for Me? Benefits of Participating in Community Service

Rolando Sanchez, Doctoral Student, Trinidad Macias, Doctoral Student, Audra Skukauskaite, Ph.D., Martha Alonso, Doctoral Student, Miguel Conchas, Doctoral Student, Sr. Eucharía Gomba, Doctoral Student, Leo Pereira, Doctoral Student, Jessica Rangel, Doctoral Student, Lisa Rodriguez, Doctoral Student, Roy Rodriguez, Doctoral Student, Tina J. Siller, Doctoral Student, Fr. Justin Udomah, Doctoral Student, and Joules Webb, Doctoral Student

Purpose of Study

The purpose of this study is to examine the benefits of participating in community service from the perspectives of student leaders, program developers, and community participants.

Rationale and Significance

UIW has recently formed a Center of Civic Leadership (CCL) to service local, national, and international communities. Partnered with CHRISTUS Health, its goal is to promote service leadership involving undergraduate students to help the community. The center seeks to contribute to student development as enlightened citizens who leave the university as leaders in their communities. By exploring the various perspectives about benefits of participating in community service, we expect to gain a better understanding of the motivations and incentives that influence the level of commitment from the various stakeholders.

Description of Methodology

The design for this study is participatory qualitative research, which draws on experiences and research artifacts produced by 12 doctoral students taking a Qualitative Research Design class. In the course, six teams of students of two members per team, designed and conducted qualitative interview-based studies focusing on different aspects relating to the newly developed Center for Civic Leadership at UIW. Each student team designed a study, received IRB approval, and conducted four semi-structured interviews (two per student within the team) with UIW students, faculty or administrators, or with members of the community where UIW students volunteer. Each student team produced a research paper and on the Blackboard posted their findings.

We analyzed student research papers to identify the benefits of participating in community service for the perspective of students, program developers, and community members. Analyses were conducted using Spradley's (1979) Developmental Research Sequence in which semantic relationships were used to identify domains that represented various stakeholders' views about benefits of community service. The domains were then analyzed to construct taxonomies that represented interrelationships.

Findings and Conclusions

The study identified benefits, challenges and opportunities as it relates to performing community service. Benefits for the students include personal gratification, contributing to the greater community, and professional development. Benefits for the program developers are learning along the process, incorporating technology in the training, and goal-setting visualization. Benefits for community participants are more engaged citizens, reduced financial costs, and building networks. A challenge included deciphering a common definition of such topics as "community involvement" or "social justice" which could be misconstrued among the groups (students, program developers, and community members). An opportunity that was identified was the ability to use this experience as a way to make the students feel more connected to the community via collaboration and reflection.

Designing Qualitative Research: Methodological Considerations

Audra Skukauskaitė, Ph.D., Martha Alonso, Doctoral Student, Miguel Conchas, Doctoral Student, Sr. Eucharia Gomba, Doctoral Student, Trinidad Macias, Doctoral Student, Leo Pereira, Doctoral Student, Jessica Rangel, Doctoral Student, Lisa Rodriguez, Doctoral Student, Roy Rodriguez, Doctoral Student, Rolando Sanchez, Doctoral Student, Tina J. Siller, Doctoral Student, Fr. Justin Udomah, Doctoral Student, and Joules Webb, Doctoral Student

Purpose of Study

The purpose of this study is to examine methodological challenges and opportunities for learning doctoral students encountered in designing and conducting a qualitative study within a Qualitative Research Design class.

Rationale and Significance

Research training is an integral component of Ph.D. programs (Eisenhart & DeHaan, 2005; Walker, Golde, Jones, Bueschel, & Hutchins, 2008), yet there is limited research about how the learning of research takes place within doctoral programs (Roulston, deMarrais, & Lewis, 2003). Given that most of the literature on doctoral education focuses on student experiences rather than learning (e.g., Buchanan, 2012; Hopwood, 2010), this study will contribute to the nascent literature on teaching and learning of research. It has the potential to provide insights for faculty seeking to design courses that involve research projects as well as help students understand the challenges and opportunities they may face in conducting qualitative research.

Description of Methodology

The design for this study is participatory qualitative research, which draws on experiences and research artifacts produced by 12 doctoral students taking a Qualitative Research Design class. In the course, six teams of students of two members per team, designed and conducted qualitative interview-based studies focusing on different aspects relating to the newly developed Center for Civic Leadership (CCL) at UIW. Each team designed a study, received IRB approval, and conducted four semi-structured interviews (two per student within the team) with UIW students, faculty or administrators, or with members of the community where UIW students volunteer. Each student team produced a research paper and posted reflections on the Blackboard about their learning process. The papers and reflections included not only findings from the interviews, but also information about methodological challenges and learnings they encountered during the project.

In this paper, we analyzed student research papers and reflections to identify what and how students learned about the qualitative research design. Analyses were conducted using Spradley's (1979) Developmental Research Sequence in which semantic relationships were used to identify domains that represented students' perspectives on learning by doing qualitative research within the parameters of the course. The domains were then analyzed to construct taxonomies that represented interrelationships among the domains. The taxonomic analyses demonstrated methodological challenges and opportunities for learning that students and professor co-constructed by doing and sharing research studies within the class.

Findings and Conclusions

Through the analysis we constructed two taxonomies that represented 1) opportunities for learning co-constructed within the class, and 2) challenges encountered in designing and conducting qualitative

interview studies within the time limit of a 16-week course. Learning opportunities included understanding design through doing a study; experiencing interviewing; learning about transcribing; and presenting research. The challenges included time limitations; gaining access and scheduling interviews; reflexivity of the researcher needed for bracketing assumptions; decisions to be made in transcribing and analyzing; and collaborating within and across research teams.

This participatory study demonstrates the challenges students and the professor face in designing and conducting a research study within time limits of a 16-week course. We argue that despite the challenges faced, learning by doing provides opportunities for understanding the complexity and possibilities of qualitative design that may not be possible without the real-project experience.

**FEIK SCHOOL OF PHARMACY
POSTER ABSTRACTS**

Validation of a Case-Based, Annual Student Assessment and Progression Exam in a College of Pharmacy

Rebecca L. Brady, PharmD, BCPS, Adeola O. Coker, Ph.D., Jeffrey T. Copeland, PharmD, Helmut B. Gottlieb, Ph.D., Cheryl Horlen, PharmD, BCPS, Helen E. Smith, RPh, MS, Ph.D., Elizabeth M. Urteaga, RPh, Ph.D., and David F. Maize, RPh, Ph.D.

Purpose of Study

Analyze the criterion validity of the P3 Annual Student Assessment and Progression (ASAP) exam using the well-validated Pharmacy Curriculum Outcomes Assessment (PCOA) exam.

Rationale and Significance

The Accreditation Council for Pharmacy Education (ACPE) requires colleges of pharmacy to assess student learning and curricular effectiveness. To assess the mastering of the outcomes at The Feik School of Pharmacy (FSOP), students take a comprehensive Annual Student Assessment and Progression (ASAP) exam at the end of each professional didactic year. The third (P3 ASAP) exam integrates courses taught in the FSOP curriculum in a case-based format.

Ensuring the validity of the ASAP exam was an important component in developing our internal assessment tool. FSOP focused on two types of validity, content and criterion. Content validity ensures the full scope of the topic, or content, is assessed by the exam. Criterion validity ensures that the performance on the exam is consistent with the performance on another, well-validated exam.

The content validity of the ASAP exam is evaluated by 1) faculty members in their specialty areas writing cases and questions based upon the FSOP curricular outcomes, 2) multi-disciplinary teams of FSOP faculty reviewing each case and question for relevance and difficulty, and 3) performing item-analyses on each question after exam administration to identify questions for revision. The criterion validity, however, had yet to be assessed prior to this study.

Description of Methodology

Students from the P4 class of 2012 were invited to participate in this prospective, self-controlled study. Participants took the 2012 PCOA exam followed 2 weeks later by the P3 ASAP exam that had been administered to the graduating class of 2011. The P3 ASAP and PCOA raw scores were compared to determine the criterion validity of the P3 ASAP exam using regression and correlation analyses.

Findings and Conclusions

Forty-seven P4 students participated. The least squares method gave the estimated regression equation, $Y = 0.2163X + 16.5$, which could predict the ASAP score using the PCOA score. A strong positive correlation between the PCOA and ASAP performance was shown by the linear regression analysis including a Pearson Correlation Coefficient of 0.8106 ($p < 0.001$) and an r^2 of 0.6571 ($p < 0.001$). Statistically, the student performance was significantly similar on both the PCOA and ASAP exam supporting the criterion validity of the FSOP P3 ASAP exam. Strengths of this study demonstrate 1) schools can develop internal, curricular-outcome assessment exams that are valid; 2) along with criterion validity, success of the exam depends on having strong content validity, which requires extensive faculty participation and dedicated, continued analysis to ensure quality improvement. Limitations include that only one version of the P3 ASAP exam was compared to the PCOA and the assessment was based on students willing to participate.

Impact of Geriatric Education on Second-Year Pharmacy Students

Tina C. Lee, PharmD, Merlyn L. Joseph, PharmD, Blair Sarbacker, PharmD,
and Cheryl Horlen, PharmD, BCPS

Purpose of Study

A single-center prospective quality improvement project designed to improve second-year pharmacy students' (P2's) knowledge on geriatrics. Specifically, this project is designed to educate P2 students at University of the Incarnate Word - Feik School of Pharmacy (UIW-FSOP) about geriatric PK-PD, certain drugs on the Beers Criteria, and polypharmacy.

Rationale and Significance

Currently, the UIW Feik School of Pharmacy provides limited opportunities to learn about the geriatric population outside of the geriatrics elective course. This quality improvement project is designed to bridge a gap between fundamental geriatric and core pharmacy knowledge.

Description of Methodology

Provide a 1.5 hour interactive lecture specifically geared at changes in geriatric PK-PD, Beers Criteria, and polypharmacy. There will a survey administered to students prior to the lecture. This survey will be repeated subsequent to the lecture to assess the difference in student's knowledge of geriatrics topics and perceptions of a pharmacist's role in geriatric management.

Findings and Conclusions

At the completion of our study, students showed improvement in regards to their perception about the importance of understanding geriatric issues, as well as, the significant role a pharmacist can play in the managing of these issues. More importantly, we were able to increase the students' confidence in their ability to help solve these geriatric issues. All of the students now recognize the Beer's Criteria as a source for use in geriatric patient. We were able to show a 22% increase in the number of students able to correctly identify short-acting benzodiazepine as the most appropriate for the use in the elderly. Students already displayed good understanding of decline in renal function as patients age and poly pharmacy as a risk factor for serious adverse effects, as we did not see a difference in the pre to post survey data. Interestingly, 20% more of the students were able to identify 2 out of the 3 listed components of polypharmacy in the post survey, however, 90% of the students were still not able to identify all three components. In conclusion, through this educational intervention, we able to 1) show improvement in student perception regarding the significance of the role of pharmacists in geriatric care, 2)improve student confidence in managing geriatric issues, and 3) increase student awareness and utility of Beer's Criteria and understanding of polypharmacy.

Evaluating the Utility of Mobile Devices and Medical Applications during Advanced Pharmacy Practice Experiences

Gary Legarda, Pharmacy Student, Erin Moore, Pharmacy Student, and Tina Lopez, PharmD, MS

Purpose of Study

To determine the opinions of fourth year pharmacy students in the utility of smart devices and their applications while on their Advanced Pharmacy Practice Experience rotations.

Rationale and Significance

Previous literature has examined the use these mobile devices and applications among healthcare students. However, these studies did not specifically survey pharmacy students on device preference or application use during experiential rotations. We aim to evaluate the worth of owning a mobile device and evaluate which medical applications offer the most benefit in pharmacy practice for pharmacy students completing advanced practice pharmacy experience (APPE) rotations.

Description of Methodology

An eight question, online survey was developed to assess the value of mobile devices and medical applications that were used by fourth year pharmacy students during APPE rotations. Survey items included type of device used most often throughout rotation, knowledge of available drug information applications for mobile devices, usefulness of the applications used during clinical/hospital and community APPE rotations, and type of mobile device recommended for APPE rotations. Response options for the usefulness of the mobile applications used a Likert scale, with options of most useful, somewhat useful, not useful, and no opinion. The medical applications reviewed in this survey were free of download and subscription fees and involved drug information, medical calculators, and productivity. The following medical applications were included in the survey: Micromedex, Epocrates, Medscape, SkyScape, Calculate by QxMD, WebMD, RH Med Labs, AHRQ ePSS, IDdx, and CDC Vaccine Schedule. The productivity applications Dropbox, Evernote, and Google Drive were also reviewed in this survey. This study was approved by the Institutional Review Board prior to sending out the survey. In the spring of 2013, an invitation to complete the anonymous survey was emailed to students who were in their last year of the Doctor of Pharmacy.

Findings and Conclusions

94 APPE students were eligible to complete the survey and 64 (73.6%) responded. Almost all the students (96.8%) recommended owning a mobile device for use during rotations. Ownership of smartphones was recommended by 82.8% of the students, while only 14.1% of students who owned mobile tablets recommended purchasing one for use during APPE rotations. Of the 64 students, 54.6% were somewhat knowledgeable of available drug information applications, while 42.2% were very knowledgeable. In evaluating the drug information applications, Micromedex and Epocrates were rated as the top two most useful applications in both clinical/hospital and community pharmacy settings. Overall, Micromedex was ranked as the most useful application. Additionally, Medscape and productivity applications were considered more useful in a clinical setting. Dropbox was preferred, as 50.0% students favored it over the other productivity applications. The CDC Immunization Schedule application was deemed useful within a community setting.

Case Report of Hypoprothrombinemia Secondary to Cefazolin Therapy

Erin Moore, Pharmacy Student, John Vizuite, MD, MPH, George Crawford, MD, MACP, and
Russell Attridge, PharmD, MS

Purpose of Study

This report describes a probable case of hypoprothrombinemia secondary to cefazolin therapy in a 68 year old Caucasian male initially admitted to the hospital for acute renal failure and sepsis.

Rationale and Significance

Knowledge of serious side effects associated with cephalosporins may help clinicians prevent their patients from developing life-threatening complications. Major bleeding from cephalosporin-induced hypoprothrombinemia is one such serious side effect of cephalosporins. By identifying patients at high risk of developing hypoprothrombinemia and appropriately monitoring coagulation during therapy with cefazolin and other cephalosporins, clinicians can reduce the likelihood of their patients developing potentially fatal bleeds.

Description of Methodology

On admission, the patient was treated empirically with intravenous (IV) vancomycin and piperacillin/tazobactam. On hospital day 3, blood cultures came back positive for methicillin-susceptible staphylococcus aureus, and the patient was diagnosed with pacemaker lead endocarditis after a transesophageal echocardiogram demonstrated vegetations on both pacemaker leads. Empiric therapy was narrowed to renally dosed IV cefazolin (2 gm every 12 hours), which was subsequently increased to a 6 gm continuous infusion as renal function improved. The patient was scheduled to undergo pacemaker lead extraction on admission day 15 (day 12 of cefazolin therapy); however, the extraction was postponed due to his preprocedure INR of 5.9. His baseline INR on hospital day 3 was 1.2. His prothrombin time (PT) and activated partial thromboplastin time (aPTT) were also elevated (73.2 and 41.3 seconds, respectively). Two hours later, a repeat INR was 5.0 (PT and aPTT were 61.7 and 41.1 seconds, respectively), indicating that the previous coagulation tests had not been reported erroneously. Cefazolin was continued and 10 mg of subcutaneous phytonadione was administered. Laboratory tests performed at this time revealed normal values for alanine transaminase, aspartate transaminase, alkaline phosphatase, and fibrinogen. The patient's complete blood count was normal, with a white blood cell count of 5,100 cells per cubic millimeter, a hemoglobin concentration of 8.7 g/dL, a hematocrit volume of 27.2 percent, and a platelet count of 238,000 per microliter of blood. His serum creatinine (SCr) and blood urea nitrogen were reported at 1.48 and 21 mg/dL, respectively, but had been elevated on hospital day 1 at 3.22 and 76 mg/dL (baseline SCr was 1 mg/dL). His albumin level was low (2.4 g/dL). His INR was rechecked 24 hours later and had decreased to 1.8; the patient then received an additional 10 mg of subcutaneous phytonadione. The patient had his pacemaker leads removed and continued to receive cefazolin for the duration of his treatment without any further episodes of coagulation abnormalities. In the assessment of the etiology of this patient's hypoprothrombinemia, cefazolin was deemed to be the most likely cause.

Findings and Conclusions

As this case suggests, clinicians should be aware of the possibility of hypoprothrombinemia after cefazolin or other cephalosporin administration, especially in patients with risk factors that predispose them to this adverse reaction. Patients at risk for developing hypoprothrombinemia should be carefully monitored for any changes in coagulation from baseline.

**H-E-B SCHOOL OF BUSINESS AND
ADMINISTRATION
POSTER ABSTRACTS**

Investor Preference for Skewness and the Growth and Survival of Actively Managed Mutual Funds

Philip S. Gibson, Ph.D.

Purpose of Study

Many studies provide empirical evidence which demonstrate that actively managed mutual funds, on average, are unable to outperform the market on a consistent basis. Yet, actively managed mutual funds continue to grow and attract investor cash flow. This study extends the literature by examining how investor preference for skewness affects the demand for actively managed mutual funds.

Rationale and Significance

This study extends the body of knowledge by examining investor preference for skewness when investing in mutual funds. A normal distribution is symmetric, meaning there is a balance between negative and positive outcomes. However, this study focuses on positive skewness which means an abnormal number of large positive returns. Understanding investor inclination for skewness and their belief in a mutual fund manager's ability to outperform a passively managed benchmark provides insight into the growth of actively managed mutual funds. Although, empirical evidence shows that actively managed funds fail to outperform passively managed funds overtime, as well as, the inability to identify to managers to superior stock picking ability.

Description of Methodology

The mutual fund data used in this study is obtained from the Morningstar Direct database. The final sample consists of 1,441 funds and the information is gathered from January 1991 to December 2010. In addition to using total skewness as a measure of skewness, I employ two additional variables to capture investor expectation for an upside potential or a lottery-like return. First, I look at funds that generated returns that are in the top quintile furthest away from their peers. Second, I look at a mutual fund manager's ability to outperform a passively managed portfolio.

Findings and Conclusions

The result of this study shows that although mutual funds are a diversified financial instrument, mutual fund investors exhibit an affinity for skewness. This provides a possible explanation for the continuous growth of actively managed mutual funds. Although mutual funds generally consist of a diversified portfolio, it is evident that investors do have a preference for funds that post positively skewed returns.

Using Fink's Taxonomy of Significant Learning to Assess UIW Undergraduate Business Students' Learning Outcomes in a Short-Term Study Abroad Experience in London

Michael Guiry, Ph.D. and Angelina Kiser, Ph.D.

Purpose of Study

The purpose of this study was to measure UIW undergraduate business student learning outcomes during a short-term study abroad experience, and to ascertain how those outcomes translate to necessary and useful business skills.

Rationale and Significance

The increasingly global face of business highlights the importance of providing U.S. business students with a global perspective as part of their education. Curricular initiatives around the country have resulted in substantially greater emphasis on incorporating an international experience into business undergraduate education (Toncar et al., 2006). From 2002/03 to 2011/12 the number of U.S. business and management students studying abroad increased 88% (Institute of International Education, 2013). However, despite the growth in business students studying abroad there is a lack of consistent research on the outcomes of business school study abroad programs on student learning and growth (Tucker et al., 2011). To address this concern, our research utilized Fink's (2003) taxonomy of significant learning to assess business students' learning in a short-term study abroad course. We have not identified any previous studies that have used this approach to measure learning outcomes in this context.

Description of Methodology

Twenty-one UIW undergraduate business students, and the two UIW faculty authors of this study, traveled to London during Spring Break 2013 as part of the second author's Spring 13 International Business Perspectives course. The one-week study abroad experience included visits to four U.K. businesses and the U.S. Embassy as well as opportunities for students to navigate and explore London and its surrounding environs. After returning home, students submitted reflection papers, organized around Fink's (2003) taxonomy of significant learning, about their study abroad experience. The reflection papers were content analyzed to identify common themes associated with Fink's six areas of significant learning.

Findings and Conclusions

Due to space limitations, the findings reported here concern three of the six areas of significant learning: Foundational Knowledge, Application, and Learning How to Learn. With respect to Foundational Knowledge, four themes emerged from the content analysis: 1) culture and history, 2) business practices in England, 3) transportation, and 4) London's fast-paced lifestyle. For Application, three themes were uncovered: 1) navigating the transportation system, 2) communicating with strangers, and 3) planning ahead. Lastly, the analysis revealed the following Learning How to Learn themes: 1) gaining a different cultural and business perspective, 2) realization of important learning processes, and 3) personal growth. The researchers then applied these themes to business in order to ascertain how they would benefit the students in their future endeavors in the workplace. Regarding Foundational Knowledge, students became more aware of cultural diversity and non-U.S. business practices, critical components to working in a today's business environment. For Application, the importance of being able to navigate through a very different transportation system shows that students are obtaining the skills necessary to navigate through new environments such as those they will encounter in the workplace.

Thailand's Medical Tourism Destination Brand Personality: A Preliminary Investigation

Michael Guiry, Ph.D. and Lu Jiang, MBA Student

Purpose of Study

The purpose of this in progress study is to investigate Thailand's perceived medical tourism (MT) destination brand personality.

Rationale and Significance

Asia is the largest and fastest growing region for MT, with Thailand, India, Singapore, and Malaysia being the top four destination countries (Connell, 2011). Due to the growing industry revenues and positive outlook, these countries are facing increased competition as other Asian countries, are investing in, supporting, and promoting their MT industries (Connell, 2011, KPMG International, 2011). In this competitive environment, the challenge for Asian MT destinations is to establish a strong, defensible market position by clearly differentiating their MT products and services through an effective positioning strategy. A key component of this positioning process is the creation and management of a distinctive and appealing destination brand personality (DBP) (Ekinci, 2003). Research has shown that DBP is positively associated with perceived destination image and positive word-of-mouth (Ekinci & Hosany, 2006), influences consumers' destination preferences, behavioral intentions, and evaluations, and can be strategically used to achieve brand differentiation (Murphy et al., 2007). The present research will extend the conceptualization and measurement of DBP to the MT industry by investigating consumers' perceptions of Thailand's MT DBP. To date, we have not identified any studies that have investigated this research topic.

Description of Methodology

Data are being collected via an online survey using SurveyMonkey's Audience feature. The reported results are based on a pilot test of 114 U.S. respondents, age 21 and older. Thailand's MT DBP was measured using Aaker's (1997) Brand Personality Scale (BPS), which is the most widely used framework for brand personality studies (Hosany et al., 2006). Other measures included MT experience, past experience traveling to Thailand, and demographic characteristics. Data were analyzed using descriptive statistics, factor analysis, reliability analysis, independent samples *t*-tests, and one-way ANOVA.

Findings and Conclusions

Ten percent of the sample is experienced medical tourists while four percent has traveled to Thailand. Factor analysis revealed that consumers' perceptions of Thailand's MT DBP comprise three dimensions: excitement (seven items; $\alpha=.93$), sophistication (seven items; $\alpha=.93$), and sincerity (four items; $\alpha=.81$). All three are part of Aaker's five-dimension BPS. Independent samples *t*-tests found experienced medical tourists had significantly higher sophistication and sincerity perceptions than non-experienced medical tourists ($t>1.96$, $p<.05$ for both comparisons). Respondents with experience traveling to Thailand had significantly higher sincerity perceptions than those who have never been there ($t>1.96$, $p<.05$). One-way ANOVA results showed perceptions of the sophistication dimension significantly differed between age groups ($F=3.29$, $p=.01$). Post hoc comparison, using Duncan's multiple range test ($\alpha=.05$), indicated that age groups 50-59 and 60-69 had significantly lower sophistication perceptions than those 30-39 years old. Difference tests for the other demographic variables revealed no significant differences between groups' DBP perceptions. Our preliminary results suggest that MT experience and past experience traveling to Thailand influence MT DBP perceptions. Furthermore, we recommend Thailand communicate its three prominent DBP dimensions when promoting MT services.

The Effects of Organizational, Website, and Applicant Characteristics on Perceptions of Person-Organization Fit, Organizational Attraction, and Job Application Intentions

Teresa L. Johnson, Ph.D.

Purpose of Study

The primary purpose of this study was to examine the effects of specific (a) organizational values displayed on a website (relationship versus achievement orientation), (b) website characteristics (contact versus no contact information), and (c) applicant cultural values (individualism and collectivism) on perceptions of person-organization (P-O) fit, organizational attraction, and job application intentions.

Rationale and Significance

There has been a rise in the use of electronic recruiting (e-recruiting) methods in organizations (Capelli, 2001). These methods reach a wide array of applicants, and decrease the costs associated with attracting qualified candidates (Stone, Lukaszewski, & Isenhour, 2005). However, relatively few studies have examined organizational, website, and applicant factors that affect the effectiveness of these systems. Most research on e-recruiting is fragmented and atheoretical (Stone & Dulebohn, 2013). Therefore, this study applied the P-O fit framework (Chatman, 1989) and the Model of the Influence of Cultural Values on Job Application Intentions and Behaviors (Stone et al., 2008). Additionally, no research has examined the degree to which applicant cultural values moderated the previously mentioned relations. Finally, few studies have examined minority group members' reactions to e-recruiting (e.g., Johnson et al., 2011; McManus & Ferguson, 2003).

Description of Methodology

The hypotheses were tested using a 2 X 2 between subjects randomized experimental design. Participants consisted of 312 job applicants (51% male and 49% female) enrolled in undergraduate business courses at a large Southwestern university. The mean age was 23.33 years old with 6.12 years of work experience. There were 31% Anglo Americans, 46% Hispanic Americans, 9% African Americans, 5% Asian Americans, .6% Native Americans, and 9% Mixed/Other ethnicity. After the informed consent procedures, participants were given a website screenshot of a fictitious organization to view and questionnaires to complete. Multiple regression and correlation analyses were used to analyze the data.

Findings and Conclusions

The primary conclusion from this research is that congruence between individual cultural values and organizational values (displayed on a website) matters. Results suggest that the higher the individualism of the job applicant, the stronger the relation between achievement values and perceived person-organization fit ($p < .01$). Furthermore, applicant collectivism moderated the relation between organizational relationship values and organizational attraction ($p < .10$). Results also indicate that applicant perceptions of P-O fit was positively related to organizational attraction ($p < .01$). The data also reveal a positive relation between P-O fit and job application intentions ($p < .01$). These findings suggests that when a job applicant perceived that they fit with the organization, they were more likely to (a) be attracted to the organization and (b) intend to apply for a job with the organization.

This study not only provides a unique framework for understanding e-recruitment practices, but also explains how cultural values serve as moderators between these practices and criterion variables. The findings have important implications for increasing the inclusion of individuals with diverse cultural backgrounds in organizations.

Using the Deferred Tax Expense to Examine the Association between Auditor Switches and Earnings Quality

April R. Poe, Ph.D., MPA, CPA and Carlos E. Jiménez-Angueira, Ph.D., CPA

Purpose of Study

We explore the usefulness of the deferred tax expense (DTE) as a proxy for financial reporting quality on the relation between earnings quality and auditor switches. There have long been policy arguments whether companies should change auditors periodically to prevent the auditors from becoming too entrenched with management instead of remaining independent. The debate has become stronger since all the accounting scandals such as Enron and WorldCom in the early 2000's and the passage of the Sarbanes-Oxley Act in 2002. We investigate financial reporting relationships for evidence whether an auditor switch has an impact on the quality (reliability and accuracy) of the financial reporting or results in a market reaction. We argue that DTE has the advantage of being readily available from financial statements and does not suffer the measurement error issues associated with the estimation of discretionary accruals, a commonly used proxy for earnings quality. In the second part of the study we focus on analyzing how investors value earnings quality improvements after an auditor switch. We propose that an improvement in earnings quality resulting from an auditor switch is valued positively by investors because it helps reducing the uncertainty about the financial reporting quality.

Rationale and Significance

We contribute to the ongoing policy debate as to whether auditor switches affect earnings quality. Our first contribution to the audit literature is to provide an alternative measure of earnings quality that is readily available from financial statements, the deferred tax expense, and does not suffer the measurement error issues associated with the estimation of discretionary accruals (a commonly used proxy for earnings quality). Our second contribution to audit literature is to provide evidence about how investors value earnings quality improvements after an auditor switch.

Description of Methodology

Our sample spans years 1993–2008 and includes all auditor changes for that period except for those triggered by Arthur Andersen's demise. We model the auditor change event using a logit regression of ex post auditor change on DTE, discretionary accruals and other controls. We identify firms' auditors using the COMPUSTAT Company Auditor (co_audit) file. COMPUSTAT is a large database containing information typically included in annual reports and other filings with the SEC as well as other company information. This includes financial information, footnote information, auditor of record, and notification of a change in auditor. We use the COMPUSTAT Fundamental Annual (funda) file to obtain the deferred expense data. We compute the total DTE by adding federal and foreign deferred income tax expense (txdfed and txdfo, respectively) We use the archival method of research.

Findings and Conclusions

Our results suggest, consistent with prior evidence, that lower financial statement quality increases the probability of a change in auditor, which in our context, shows a positive relation between auditor change and the magnitude of DTE in the year prior to the change. Thus, we validate the incremental usefulness of DTE on predicting auditor switches. Results also indicate that the valuation effect of a reduction in DTE for firms with extreme positive and negative DTE that are associated with an auditor switch is positively priced.

Service Quality Dimensions Conveyed in Medical Tourists' Online Testimonials

Theresa Ann Vega, MBA and Michael Guiry, Ph.D.

Purpose of Study

The purpose of this study is to determine the service quality (SQ) dimensions conveyed in medical tourists' testimonials posted on ThailandMedtourism.com, the Tourism Authority of Thailand's official medical tourism (MT) website.

Rationale and Significance

Research on MT has focused more attention on the growing supply side of the market than the demand side (Gan & Frederick, 2013). Hence, there is a need for more research to better understand the demand aspects of this growing industry. Most of the research on MT consumers focuses on two main factors for deciding to travel abroad for medical care: cost and quality of the service (Gan & Frederick, 2013; Lunt et al., 2011). Since both outcome and process healthcare SQ remain a concern for medical tourists (Gan & Frederick, 2013; Lunt et al., 2011; Turner, 2011), there is a need for MT providers to understand medical tourists' expectations and perceptions of their international patient experience (Cook, 2012; Guiry & Vequist, 2011). By analyzing medical tourists' testimonials through a SQ lens, our research provides a first-person perspective of Thailand's MT SQ. We have not identified any studies in the MT literature that have used this approach to investigate MT SQ.

Description of Methodology

Content analysis of 125 medical tourist testimonials posted on ThailandMedtourism.com was used to determine the SQ dimensions (see Parasuraman et al., 1988) communicated in the testimonials. Testimonials from Thailand's MT website served as the study's data since Thailand is often cited as a leading MT destination (Connell, 2011), and the Thai government has made a concerted effort to promote its MT industry (Pocock and Phua, 2011). Frequency distributions were calculated to determine the most common SQ dimensions communicated in the testimonials. Chi-square tests were used to investigate the relationship between the SQ dimensions cited and medical tourists' characteristics.

Findings and Conclusions

Of Parasuraman et al.'s (1988) five SQ dimensions, assurance and reliability were most frequently mentioned by medical tourists with 62% and 61% of the testimonials, respectively, conveying these facets. The other three dimensions, i.e., tangibles (13%), empathy (10%), and responsiveness (5%), were referred to less often. Chi-square tests revealed a higher percentage of assurance dimension remarks occurred in testimonials: 1) made by dental patients ($X^2 = 16.61$, $p = .000$), 2) referring to healthcare personnel (e.g., doctor) who provided the healthcare treatment ($X^2 = 26.08$, $p = .000$), 3) not containing a patient's photo ($X^2 = 17.46$, $p = .000$), or 4) not including a word-of-mouth recommendation by the patient about the healthcare provider ($X^2 = 7.05$, $p = .008$). Additionally, Chi-square analysis indicated a higher percentage of reliability dimension comments were in testimonials: 1) made by dental patients ($X^2 = 15.79$, $p = .000$), 2) referring to healthcare personnel who provided the healthcare service ($X^2 = 6.87$, $p = .009$), or 3) from medical tourists from European countries ($X^2 = 8.36$, $p = .039$). Our results show MT consumers primarily praise the assurance and reliability dimensions of Thai MT SQ. Hence, we suggest the Thai government focus on communicating these particular dimensions when marketing its MT services.

Students' Education Expenditures and After-school Activities in Rural China

Shishu Zhang, Ph.D. and Pei Hsun Chin, Doctoral Student

Purpose of Study

This study analyzes the learning environment and education expenses of students in rural China. The proposed research contributes to the existing literature by using recent survey data to analyze the students' burden and education expenditures in rural China. The paper aims to analyze the major problems of education in rural areas of China such as the decrease of school attendance rate, the high dropout rates, and the poor education quality.

Rationale and Significance

A large number of universities have reported that only about 10 percent of their students are now from rural areas, down from 30 percent during the 1970s and early 1990s. The percentage of students from China's rural areas attending the key universities has falling significantly since the 1990s. Entering into universities is becoming more and more difficult for students from the rural areas. Fewer education resources and opportunities are now available in rural China. In addition, many rural families are now ending their children's education earlier and sending them to work in order to alleviate the families' economic burden. Both the students and their family members hold the idea that "Education is useless in China" since even after graduating from university, it is still hard for them to find a good job. Besides, the dowdy buildings and small student body also contributed to the shutdown of rural schools. The rationale for the paper is to use reliable data demonstrate the education situation in rural China and to explore ways to solve those problems.

Description of Methodology

This study is using quantitative methodology to analyze a national survey data. The data includes 8122 individuals who were the students in rural areas of China at the time. The dataset is taken from Chinese Household Income Project (CHIP) and is openly available. The research will conducted two major analyses using the SPSS. The first analysis summarizes and present information about students' learning expenses in rural China. The second analysis explores the reasons why students dropped out of school. Various econometric methods were applied including t-test, chi-square test, multiple regression analysis.

Findings and Conclusions

The descriptive statistics shows that most of students dropped off school because of economic burden (46.85%). With the increase in tuition and miscellaneous expenses, a number of rural families could not afford to send their children to primary schools or junior middle school. Students would rather choose to go to earn money rather than staying at schools. School activities also account for students' dropping out of school, the students could not finish homework or study for the test because they spent a lot of time watching television (47.43%), doing the housework (21.37), and participating in agriculture activities (13.92%). After the children dropping out of school, 37.63% of them were conducting household agriculture activities, 12.89% of them were working in non- agriculture, and the other 12.37% were looking for a job. Besides, the results showed that the teaching quality of rural areas was low; some students could barely write down their names after years spent in school. Also, there were not enough teachers due to the harsh environment and low payment in rural China.

**ILA FAYE MILLER SCHOOL OF
NURSING AND HEALTH PROFESSIONS
POSTER ABSTRACTS**

Relationships between Self-Regulating Behaviors and Predictor Exam Scores for Senior Nursing Students

Maria D. Gillespie, Ed.D. RN

Purpose of Study

The purpose of this study was to explore relationships between nonacademic factors of perceived benefits of action, perceived barriers to action, and perceived self-efficacy and outcomes (scores) on predictor exam scores.

Rationale and Significance

Low pass rates on the National Council Licensure Exam for Registered Nurses (NCLEX-RN) has directed nursing faculty to examine how to predict the readiness of the nursing student. Exit exam testing that predicts readiness has become one way to assess the nursing student's readiness. Nursing students are performing poorly on these predictor exams. A key question for study is: How do self-regulating behaviors of senior nursing students' affect exit exams scores? A high percentage of senior nursing students are failing the final predictor exit exam. There is a disparity between the progression of nursing students through the nursing program and the low predictor exit exam scores in the final capstone course. Students who pass all courses in the nursing program should be more than ready and expected to perform better on the predictor exam.

Description of Methodology

A quantitative non-experimental correlational design was used with a convenience sample of approximately 20 senior nursing students who were drawn from the registration rolls. The site of study is a private Catholic four year university located in South Texas. Instruments used were Likert scale questionnaires that measured perceived benefits of action, perceived barriers to action, and perceived self-efficacy. Data analysis included descriptive analysis with scatterplots, and correlation of 26 variables (questions). Approval was received from the study site's Institutional Review Board.

Findings and Conclusions

Results found that students studied only to retain knowledge. A correlation for the data revealed that predictor exit exam scores and the benefit of studying to retain knowledge longer were significantly related. Retaining current knowledge longer was the only nonacademic factor, of 26 found to benefit these students. The other 25 questions were not found to correlate with the predictor exit exam scores.

Motivation plays a significant role in student performance. Weak students who are externally motivated have difficulty maintaining that motivation when confronted with challenging tasks which require a great deal of effort. Stronger students are internally motivated. They learn to cope with their learning tasks by using their capacities and control of those tasks. With internal motivation, it is much easier to stay academically motivated. Trying to find some internal value in everything the student does academically can improve their overall motivation.

Improving Cultural Knowledge, Skills and Attitudes through a Study Abroad Experience

Irene Gilliland, Ph.D., RN, CNS, ACHPN, Russell Attridge, PharmD, MSc, Rebecca Attridge, PharmD, MSc, and David Maize, Ph.D., RPh

Purpose of Study

The purpose of this study was to examine cultural knowledge, awareness, and skills of a group of primarily nursing and pharmacy students enrolled in a hybrid elective course which culminated in a 2 week trip to India in May 2013.

Rationale and Significance

Quality of care and patient outcomes can be enhanced when patients' cultural belief systems are included in their plans of care. Although there is widespread agreement that all health care professionals need to be culturally competent, how to teach and how to measure this competence is an evolving process.

Description of Methodology

The study used a mixed methods design, using a quasi-experimental approach with pre and post testing. Twenty students (4 nursing, 14 pharmacy, 2 health administration) were enrolled in the class. Two quantitative instruments were used to collect data on the first day of class and on departure from India. The first was a measure of cultural competence which has been adapted with permissions from the Clinical Cultural Competency Questionnaire (CCCCQ) which measures knowledge, awareness and skills. The second instrument was a researcher designed demographic questionnaire which includes questions related to age, ethnicity, marital status, health professions major, previous travel experience and previous experience with health care professional roles.

Findings and Conclusions

Paired t-test was used to evaluate the impact of the course and the trip on students' knowledge, skills and awareness of Indian culture. There was a statistically significant increase in knowledge from pre-class ($M=17.55$, $SD=4.82$) to post trip ($M=37.10$, $SD=6.4$), $t(19) = 13.48$, $p < .0005$ (two-tailed) and an increase in skill from pre-class ($M=12.35$, $SD=3.6$), to post trip ($M=20.8$, $SD=4.8$), $t(19) = 5.62$, $p < .0005$. Although there was an increase in cultural awareness from pre-class ($M=21.1$, $SD=3.12$) to post trip ($M=22.25$, $SD=2.67$), $t(19) = 1.57$, this increase was not statistically significant, $p < .134$. Reliability ranged from .88 to .92 for each of the subscales used. Students' increased cultural knowledge, skills and awareness supports the value of this type of learning activity.

More research is needed to determine the best way to teach cultural competency and whether these results can be sustained over time.

Interaction in Online Graduate Nursing Education: A Qualitative Analysis

Irene Gilliland, Ph.D., RN, CNS, ACHPN, Sarah Williams, Ph.D., RN, and Jeanette McNeill, DrPH, RN

Purpose of Study

The purpose of this study was to examine quality of teacher-student and peer interaction in online graduate nursing courses using a social constructivist approach.

Rationale and Significance

Online course delivery in graduate nursing education is increasing in popularity as it provides a strategy for recruiting students and increasing the numbers of graduates in practice. Most studies of online course delivery note that faculty to student and student to student interaction is an essential feature of online education. However, few studies have specifically examined the characteristics and influences on online interaction, and more importantly, the ways knowledge acquisition develops in an online course environment.

Description of Methodology

In a faith based university in the Southwest, graduate students in online and hybrid nursing courses were invited to participate in the IRB approved study. For this analysis, the approach developed by Cragg, et al. (2008) was used to examine both quality and frequency of communication among the faculty and students. Three representative weeks of discussion were selected for analysis—early, mid-course and course end. Transcripts of participating student and faculty posts were prepared and used to analyze content and frequency of posts using the categorization proposed by Gunawardena, Lowe and Anderson (1997) related to the social constructivism continuum:

1. Sharing/comparing information
2. Discovery/exploring dissonance
3. Negotiating meaning/co-construction of knowledge
4. Testing the proposed synthesis
5. Agreement/application of newly constructed meaning

No identifiers were recorded. Data was analyzed using content analysis. Transcripts of online graduate nursing courses with 52 enrolled students, offered from Fall, 2010 through 2012, were analyzed.

Findings and Conclusions

Posts' word counts varied, but were >100 words. Representative transcripts from the first data point in the course (Week 3) and the last data point (course end) were analyzed and student posts (299) categorized into one of the five categories. Overall, the majority of posts were categorized into the first three Categories, at Week 3 of the course (sharing information, exploring dissonance and negotiating meaning/constructing new knowledge), while towards course end Categories 4 and 5 were increasingly noted indicating that students were testing the proposed synthesis and applying the newly constructed meaning to clinical examples. Of interest was the fact that irrespective of the placement in the course, the type of discussion question posed influenced the depth of the students' responses. The use of online courses in graduate nursing education is effective in promoting interaction and increasing depth of social constructivism is noted as the course progresses—further analysis of the discussion transcripts is needed to examine the predictors of these changes over time. Further understanding of the development of deeper knowledge in online courses will enable enhanced design of online courses to promote higher level learning.

A Longitudinal Analysis of the Significant Impact of the University Dimensions of Wellness Classes on Students

Timothy Henrich, Ph.D., Heather Barton-Weston, MA, Gregory Soukup, Ed.D., Bill Carleton, Ed.D., Karen Boleska, MA, Doctoral Student, and Randall Griffiths, Ph.D.

Purpose of Study

To summarize studies and data from the University of the Incarnate Word's undergraduate Dimensions of Wellness Classes.

Rationale and Significance

This course was implemented in 1989 and there have been several analyses of the efficacy of this class. We will summarize these findings and put them into contact with the outcome of aerobic fitness assessments.

Description of Methodology

We will review the published findings of the classes in the context of control of motivation to exercise, exercise identity, and analysis of the aerobic fitness performance measure of the 1.5 mile run used to predict maximum oxygen consumption.

Findings and Conclusions

Henrich and Carleton (1999) surveyed 5 senior university capstone courses to perform a qualitative analysis of the student wellness class experience. This study showed a general satisfaction with the in class and exercise period activities. There was an 86% retrospective satisfaction rating for the class; however, only 36% of the students surveyed continued to exercise after completion of the class. Studies by Soukup (2009), Soukup, Fike & Liu (2010), Soukup, Barton-Weston & Henrich (2011), Soukup & Henrich (2012), and Soukup (2012) have found significant positive increases in exercise identity in students at the end of instruction in the Dimensions of Wellness classes. A study by Barton-Weston, Henrich, Soukup, Carleton, & Fike (2012) that used the BREQ scale for analysis found significant positive improvement of 3 different internal motivation factors related to exercise motivation and identity among students at the end of a semester of instruction. Studies have also found significant positive improvement in body composition of students (Soukup, 2009) and overall fitness levels of students (Barton-Weston, Henrich, Soukup, Carleton, & Fike, 2012).

Several studies by kinesiology faculty members Soukup (2011), Soukup (2012) and Soukup (2014) have documented up to 8% improvement in 1 ½ mile run times and 8.14% increases in cardiovascular fitness levels in students at the end of the semester. These differences were significant at the .0001 level. Three other classes did not improve to a statistically significant level because of little or no effort on the posttest by small numbers of students. Pre and posttest examples include Class 1 which improved overall 16 (2.1%) seconds but the difference was not significant ($p>.3$) Class 2 improved 1 min 47 sec (11%) but the difference was not significant ($p>.08$) Class 3 improved 2 min 4 sec (13.2%) but the difference was also not significant ($p>.08$) Class 4 declined 51 seconds (5.41%) but the decline was not significant ($p>.23$). Most classes had a higher overall average regardless of the low performers. It is possible that in these cases a few students were not feeling well or were not motivated for the posttest. It is also possible that a small number of students developed the Wellness Lifestyle Rejection Identity during the class and that future research should include a validated survey on this topic.

A Project to Improve Pain Management at a Rural Hospice

Steve Jaubert, RN, MN, FNP-BC and Irene Gilliland, Ph.D., RN, CNS, ACHPN

Purpose of Study

The aim of this project was to improve pain management of patients at a small, rural hospice.

Rationale and Significance

Pain management is a major goal of the hospice mission, terminally ill patients seek hospice for its expertise of pain management, pain management charted in only 51% of patient admissions deficient by Medicare (CMS) standards.

Description of Methodology

A quasi-experimental design study was conducted at a hospice with an average daily census of 32 using the Knowledge and Attitudes Survey Regarding Pain (KASRP) tool. Content validity was established by pain expert review. Eleven staff members participated: 1 medical director, 1 clinical director, 2 nurses, 1 social worker, 2 marketers, 1 chaplain, 2 home health aides, and 1 secretary. The group was predominantly female (64%) with a mean age of 42 years (range 27-62). A pretest was taken followed by eight half-hour teaching sessions and a posttest. Patient chart reviews were done pre- and post-intervention to evaluate admission changes in pain management. A paired *t*-test evaluated pre/post data from the KASRP tool.

Findings and Conclusions

There was a statistically significant improvement in staff knowledge from pretest ($M=60.68$, $SD=11.13$) to posttest ($M=68.90$, $SD=12.60$), $t(10)=-2.657$, $p<0.05$. A patient chart review showed pain management documentation of admission improvement from 49 % (13/27) to 100%.

An educational intervention was effective in improving patient outcomes of hospice pain management. More research and larger samples are needed to determine sustainability and generalizability of results.

Predicting HESI Exit Exam Success: A Retrospective Study

Julie Nadeau, Ed.D., RN and Maria D. Gillespie, Ed.D., RN

Purpose of Study

The purpose of this study was to determine relationships between standardized nursing exam scores (Kaplan integrated tests and the Health Education Services, Inc. [HESI] exit exam). Research question: What specialized Kaplan integrated exam(s), given during the nursing program, best predict(s) student success on the first attempt of the HESI exit exam?

Rationale and Significance

Many nursing programs integrate standardized testing to prepare students for National Council Licensure Exam (NCLEX-RN) success and to predict NCLEX readiness. There is a disparity between the progression of students through the nursing program and their HESI exit exam scores at the given institution. Students who pass all courses in the nursing program should experience exit exam success, yet many struggle. Students who don't pass the exit exam require remediation, which can delay graduation, licensure, and professional employment.

Description of Methodology

The study used a descriptive correlational design. Researchers retrospectively analyzed Kaplan integrated and HESI exit test scores of 131 nursing students to determine correlations between Kaplan integrated and HESI exit exam scores. Data Analysis included simple bivariate correlation of continuous data (exam scores). Chi-square correlations were performed between groups of students who scored high, midrange, or low on the Kaplan exams and their HESI exit exam performance. Exam scores were assigned to categories for cross tabulation of percentile ranges.

Findings and Conclusions

Six of seven Kaplan integrated exams administered in levels 1 through 4 of the nursing program predicted success on the HESI exit test in level 5 ($p < \text{or} = \text{to } 0.05$). Two Kaplan integrated exams administered in level 5 predicted HESI exit exam success at the 0.01 level of significance. Faculty members should offer feedback and recommend remediation beginning in level 1 to enhance success on the HESI exit exam in level 5.

An Advance Directive Quality Improvement Initiative in a Primary Care Practice

Kelly A. Schiro, RN, MSN, FNP-C

Purpose of Study

To determine the effect of a 12-week advance directive quality improvement project on advance directive completion, advance directive documentation, and staff advance directive knowledge in a primary care clinic.

Rationale and Significance

Completing an advance directive in primary care is important, allowing the patient to exercise their right to make determinations about medical care prior to becoming incapable of healthcare decisions (AMA, 2013). The optimal time to initiate an advance directive is between the ages of 50 and 65 during a routine checkup in the primary care provider's office (Spoelhof & Elliot, 2012). In a San Antonio primary care clinic, a need to provide advance directive staff education and introduce an advance directive process for documentation and completion was identified.

Description of Methodology

Patients over 50 years were targeted in an advance directive quality improvement project by providing two staff education sessions, registry cards, handouts, and access to an advance directive website. Two staff education sessions were performed using the Texaslivingwill.org site in addition to an audit of 973 charts.

Findings and Conclusions

Pretest/Posttest scores: The One-Sample Kolmogorov-Smirnov Test was used for to test distribution: The pretest and posttest scores were evenly distributed. A positive learning trajectory was observed post intervention. Pretest scores improved from 52.73 to 83.64. The objective of an 80% aggregate score for WH staff was achieved with 100% participation. AD status documentation: Pearson's uncorrected Chi-square test was used, AD documentation improved from 19% to an aggregate of 24%, $P > .05$, The objective for 80% of patient AD status documentation was unmet AD completion: 95% Confidence Interval (0.0050 to 0.0192), 10/956 (1.04%) patients post intervention brought in a completed AD. Staffs AD knowledge increased, AD status documentation improved moderately and ADs completed in the EMR improved modestly.

Psychological Factors that Influence Fan Attendance at Taiwanese Professional Baseball Games

Gregory J. Soukup, Ed.D., Stephen Chen, Ed.D., and Timothy Henrich, Ph.D.

Purpose of Study

This study wanted to determine the psychological motivations of Taiwanese baseball fans and how they affect attendance at games.

Rationale and Significance

This study wanted to identify demographic groups currently attending Taiwanese professional baseball games and groups that could be targeted as potential new consumers by the CPBL. The study also wanted to identify psychological motivations of different demographic groups currently attending games and to determine what types of psychological motivators could be utilized to attract potential new consumers to the CPBL.

Description of Methodology

Data were collected from 1,221 participants (577 females and 644 males) one hour prior to six different baseball games from fans waiting in line to purchase tickets for the games. The study utilized a convenience sample and no data were collected or analyzed from non-attendees. Demographic information regarding gender, age, marital status, education, employment, attendance, and income were collected and a modified questionnaire based on the Baseball Fans Questionnaire (Lee, 2002) was used to collect data on psychomotivational aspects of fan attendance. The psychomotivational part of the questionnaire contains 14 questions. A seven-point Likert scale was used with scores ranging from Strongly Disagree (1) to Strongly Agree (7) to quantify fan motivation. Correlational analyses examined relationships among demographic and psychological motivational factors. An ANOVA was executed for each variable to examine respective effects of demographic factors and psychological motivational factors. The level for significance for this study was .05.

Findings and Conclusions

Significant differences were found between males and females. Females attended games because they enjoyed the excitement and action of games, cheering for their teams, and to show loyalty to their favorite team. Males attended because of self-identification with teams, past experience with sports, and the opportunity to view games with family and friends. Loyal fans expressed willingness to continue to attend games regardless of team success and increased ticket prices regardless of age, education, employment, or marital status.

ROSENBERG SCHOOL OF OPTOMETRY
POSTER ABSTRACTS

Evidence of Decreased Dopamine Receptor-Mediated Control of Gap Junction Coupling in the Inner Nuclear Layer of the Diabetic Ins2Akita Mouse Retina

Maria L. Alcaron Fortepiani, MD, Ph.D., Monika Pyarali, Nikolai P. Akimov, MS, Zhijing Zhang, Christophe P. Ribelayga, Ph.D., and Rene C. Rentería, Ph.D.

Purpose of Study

The purpose of this study was to evaluate gap junction coupling in the diabetic Ins2Akita mouse retina compared to its non-diabetic counterpart. We hypothesize that gap junction coupling would be altered in diabetic retina.

Rationale and Significance

Dopamine (DA) is a light-adaptive factor that plays an important role in daytime vision. DA controls the gain of retinal signal transmission partly by controlling gap junction coupling of retinal neurons. Because preliminary data suggests that DA levels are lower in the diabetic Ins2Akita mouse retina, we hypothesized that gap junction coupling would be altered in diabetic retina.

Description of Methodology

We assayed coupling using a “cut-loading” technique, in which whole-mounted retinas are cut with a razor dipped in gap junction-permeable tracer Neurobiotin (NB) and quantified NB-labeled cells in the inner nuclear layer (INL) using fluorescence microscopy. Experiments were performed under dark-adapted conditions. The extent of coupling in control (C57Bl6) and diabetic Ins2Akita mouse retinas was tested. Control animals coupling was evaluated in the presence of the D2-like receptor (D2R) agonist quinpirole, the D2R antagonist sulpiride, or the gap junction antagonist beta-glycyrrhizic acid (BGA).

Findings and Conclusions

As expected, D2R activation and BGA reduced gap junction coupling of the NB-labeled cells in the INL, while D2R antagonism increased tracer coupling. In the diabetic Ins2Akita mice, we found that neurons in the INL showed increased tracer coupling compared to non-diabetic littermates. We propose that this increase in gap junction coupling between retinal neurons reflects a decrease in DA levels. Decreased DA levels and an altered coupling state of retinal neurons may be hallmarks of diabetic retinas.

Validation of the Neuro-Vision Card

Timothy Bradshaw, BS, Optometry Student, Alicia Chacon, BS, Optometry Student, Shawn Johnston, BS, Optometry Student, Dennis Yu, BS, Optometry Student, and Jeff Rabin, OD, MS, Ph.D.

Purpose of Study

To describe the design and clinical validation of the Neuro-Vision Card (NVC) for measuring multiple aspects of visual function.

Rationale and Significance

Early detection of ocular conditions and disease demands sensitive tests which probe beyond high contrast VA. One challenge is to ensure access and portability of such tests.

Description of Methodology

The NVC (VA) is a 5x7" two-sided near card developed for use in normal room illumination. The NVC includes: (1) ETDRS near VA (2) Cone Contrast Test (CCT) to diagnose type and severity of color deficiency (3) Black-white Letter Contrast Sensitivity (4) Blind Spot Quantification Test (5) Low Luminance Amsler Grid (6) Fixation Disparity Test to detect slight ocular misalignment (7) Aniseikonia Test to measure inter-ocular differences in perceived size. PD rule and pupil size scales are also included. The NVC was evaluated in 23 normal observers and in 12 with color vision deficiency. Each NVC test was compared to performance on standard tests.

Findings and Conclusions

There was no significant difference between performance on the NVC compared to standard measures of: Near VA ($p>0.32$), CCT Color Vision in normals ($p>0.33$), Contrast Sensitivity (all scored 100% and were normal on Pelli-Robson test), Blind Spot quantification ($p>0.08$), Low Luminance Amsler Grid (all within normal limits) and Fixation Disparity ($p>0.13$). Compared to the CCT, the NVC correctly identified green (deutan) deficiency in 6/7 subjects and red (protan) deficiency in 5/5 subjects with color deficiency severity ratings comparable to the CCT. Performance on the NVC compares favorably to standard clinical tests. The abbreviated NVC CCT detects color deficiency, while the letter CS test reveals low contrast vision loss. The Blind Spot test rapidly quantifies blind spot size, important for diagnosing papilledema. The low luminance Amsler Grid has potential for early detection of macular edema, AMD and laser injury. Fixation Disparity and Aniseikonia tests provide sensitive metrics of binocular function. The NVC shows potential for widespread application in multiple settings for detection of various conditions and diseases.

Color Contrast Reaction Time: A New Metric of Visual Performance

Michael Castro, BS, Optometry Student, Daniel Ewing, BS, Optometry Student, Hayley George, BS, Optometry Student, Paul Lau, BS, Optometry Student, Shannon Leon, BS, Optometry Student, Andrew Yoder, BS, Optometry Student, and Jeff Rabin, OD, MS, Ph.D.

Purpose of Study

To compare reactions times in color vision normals (CVN) & CVD under monocular & binocular viewing.

Rationale and Significance

Normal color vision requires three cones sensitive to long (L), middle (M) & short (S) wavelength light. Hereditary color deficiency (CVD; 8% males, 0.5% females) results from a sensitivity shift or lack of L or M cones. S cone CVD is rare but can be acquired as an early sign of disease. CVD limits performance on color-specific tasks making it critical to quantify type (L,M,S) & severity of CVD. The cone contrast test (CCT) quantifies type & severity of CVD & reaction time. Our purpose was to compare reactions times in color vision normals (CVN) & CVD under monocular & binocular viewing.

Description of Methodology

The Netbook CCT (Innova Systems, Inc.) uses a response-driven staircase to present colored letters visible only to L, M or S cones to measure cone-specific contrast thresholds as well as mean reaction time (MRT) & threshold reaction time (TRT). The CCT was administered to 16 CVN & 15 CVD confirmed CVD or CVN on a battery of color tests.

Findings and Conclusions

The CCT showed 100% sensitivity for diagnosis of CVD & 100% specificity for confirming CVN ($p < 0.0001$). MRTs were increased in CVD (mean L=2.19 sec, M=2.07 s, S=1.65 s) compared to CVN (mean L= 1.22 sec, M=1.35 s, S=1.20 s; mean increase in CVD=0.71 sec; $p < 0.0001$). TRTs were also increased in CVD (mean L= 2.38 sec, M=2.28 s, S=2.5 s) compared to CVN (L= 1.38 s, M=1.42 s, S=1.28 s; mean TRT increase in CVD =1.03 sec, $p < 0.0001$). MRT & TRT showed 93% & 73% sensitivity for detection of hereditary CVD, but neither consistently identified type of CVD, readily afforded by CCT scores. Binocular MRT & TRT were lower than monocular RTs in CVN ($p < 0.001$) with a similar trend in CVD ($p = 0.07$). Color contrast RT is a useful adjunctive metric for clinical assessment. Though less specific than L, M & S contrast scores, RT can be used in equivocal cases of hereditary CVD & in acquired CVD to aid diagnosis. The faster binocular RTs may have application in binocular vision testing.

Measurement of Contrast Sensitivity on Portable Tablet Displays

Daniel Ewing, BS, Optometry Student, Michael Castro, BS, Optometry Student, Hayley George, BS, Optometry Student, Paul Lau, BS, Optometry Student, Shannon Leon, BS, Optometry Student, Andrew Yoder, BS, Optometry Student, and Jeff Rabin, OD, MS, Ph.D.

Purpose of Study

To conduct a proof-of-principle study to determine if low contrast vision (contrast sensitivity; CS) can be accurately quantified on portable displays.

Rationale and Significance

Visual acuity (VA) remains the cornerstone of clinical vision care. Yet low contrast vision is often decreased before high contrast VA, exemplifying the diagnostic value of low contrast testing. The movement toward home medical monitoring demands sensitive tests on portable displays.

Description of Methodology

Monocular and binocular CS was measured in 16 visually normal subjects with standard letter charts (Pelli-Robson CS at 1m which uses large ~20/700 letters; Precision Vision 20/50 small letter CS chart at 4 m) and on calibrated Netbook computer, iPad 2, and iPad 3 displays using a response-driven rapid staircase to measure large and small letter CS thresholds (Innova Systems, Inc.; viewing distance 60-90 cm).

Findings and Conclusions

There was no difference between small letter CS measured with the letter chart compared to Netbook, iPad2 and iPad3 displays ($F=1.79$, $p>0.15$) and binocular exceeded monocular CS (mean enhancement=1.5X; $F=19.57$, $p<0.0001$). Monocular CS was higher with the Pelli-Robson chart compared to each tablet display ($F=3.71$, $p<0.05$), while binocular Pelli-Robson CS was not significantly different compared to binocular CS with tablet displays ($p>0.17$). For tablet displays mean enhancement with binocular viewing was 1.5X ($p<0.002$) but only 1.1X for the Pelli-Robson with 10/16 subjects showing a “ceiling” effect wherein monocular= binocular log CS=1.9. Large and small letter CS can be rapidly measured on portable tablet displays with accuracy comparable to that of standard letter charts. These results for black-white luminance CS complement recent findings demonstrating the efficacy of tablet displays for measuring color CS to diagnose type and severity of color deficiency (Rabin et al, Aviat Space Environ Med. 2013 Apr;84(4):379).

Quantification of Color Vision on Windows 8 Tablet Displays

Shawn Johnston, BS, Optometry Student, Timothy Bradshaw, BS, Optometry Student, Alicia Chacon, BS, Optometry Student, Dennis Yu, BS, Optometry Student, and Jeff Rabin, OD, MS, Ph.D.

Purpose of Study

Our purpose was to conduct a proof-of-principle study to determine if cone-specific contrast sensitivity (CS) can be accurately measured on Windows 8 tablet displays.

Rationale and Significance

Rapid improvements in tablet displays, coupled with increasing need for home medical monitoring and clinical evaluation in austere and under-served settings, demands development of sensitive tests for portable displays.

Description of Methodology

The Cone Contrast Test (CCT) was used to measure red, green and blue (R, G & B) cone CS in 16 color vision normals (CVN) and 12 color vision deficient (CVD) confirmed to be CVN and CVD on a battery of standard tests. The CCT was administered with a Netbook computer used USAF-wide (10.1" 1024x600) and a Windows 8 ASUS VivoTab Smart Tablet (10.1" 1366x768). Each was calibrated to produce cone contrasts which systematically stimulate one cone type while minimally stimulating the other two. The CCT presents colored letters and the subject selects the letter seen from an adjacent matching display. A rapid staircase determines R, G and B cone CS. A mouse was used to select letters on the Netbook and the touchscreen was used on the Tablet.

Findings and Conclusions

Both Netbook and Tablet displays showed 100% specificity for confirming CVN and 100% sensitivity for diagnosing type of CVD. In CVNs there was no difference between CCT scores on Netbook vs. Tablet displays: R CCT: ($F=0.55$, $p>0.46$), G: ($F=2.42$, $p>0.12$) B: ($F=2.14$, $p>0.15$). CVDs also showed no difference between displays (R: $F=1.50$, $p>0.22$; G: $F=1.92$, $p>0.17$; B: $F=1.37$, $p>0.25$), but G (deutan) CVDs scored lower on the Tablet G CCT vs. Netbook ($p<0.02$) and R (protan) CVDs showed a similar trend scoring lower on the Tablet R CCT ($p=0.09$). Type and severity of CVD can be accurately diagnosed using a Tablet display. Ease-of-use, portability, and complete computer capabilities make this ideal for multiple settings.

Ubiquitin Carboxyl-Terminal Hydrolase-L1 (UCHL1) Expression is Reduced in Retinoblastoma Tumors

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Purpose of Study

Ubiquitin carboxyl-terminal hydrolase-L1 (UCHL1) is a deubiquitinase enzyme within the ubiquitin-proteasome system that seems to either promote or to block cancer progression in a context dependent manner. UCHL1 is highly expressed in nervous tissue including retina, but there is no data regarding UCHL1 expression or function in retinoblastoma. The potential correlation between UCHL1 expression and tumor clinical staging was also evaluated.

Rationale and Significance

In eukaryotic cells, protein degradation and numerous cell functions are regulated through the ubiquitin-proteasome system (UPS). Given their high substrate specificity, E3 ubiquitin ligases and deubiquitinases, such as UCHL1, are emerging as potential targets for anti-cancer drugs. Retinoblastoma is the most common pediatric ocular malignancy and, although more than 90% survival is achieved with treatment, a combination of early diagnosis and novel molecular therapies may further improve patient outcomes and, also very important, their quality of life by increasing eye salvage rates, vision preservation and by lessening the sequelae of the treatments. Data generated from this type of studies might help us finding novel and more efficient drug targets for retinoblastoma.

Description of Methodology

Retinoblastoma tissue arrays were purchased from USBiomax, Inc. Each tissue contained 12 cores of normal ocular tissue (including 4 from retina), and 28 retinoblastoma cores. Clinical stage and TNM information was also provided by USBiomax for all retinoblastomas. UCHL1 expression was measured by immunohistochemistry using a rabbit polyclonal antibody against UCHL1 (Abcam), HRP-polymer (TexGen) and DAB (Sigma) as per manufacturer's guidelines. Then, two independent observers ranked the area of the tissue stained (i.e. UCHL1-positive) from 0-100 (0=no staining; 100=all tumor stained) and the intensity of the staining from 0-3 (0=weak; 3= very strong). The quick-score method (Q=SxI; "S": percentage of positive cells and "I": stain intensity) was used to compare UCHL1 expression across the tissue array. T-test analyses were used to determine statistically significant differences in UCHL1 immunoreactivity ($p < 0.05$).

Findings and Conclusions

Low Q-scores (0-60) were obtained for 75% of the non-retinal ocular tissues and for 53% of the tumor samples. Intermediate Q-scores ($100 < Q < 200$) were obtained for 25% of the non-retinal ocular tissues and for 32% of the retinoblastoma samples. High Q-scores ($Q > 200$) were obtained for all retinal samples and for 11% of the retinoblastomas. So, our data was consistent with a reduced UCHL1 expression in retinoblastoma compared to normal retina. The high levels of UCHL1 protein detected in retinal samples were statistically significant compared both to non-retinal ocular tissues ($p = 0.00043$) and to retinoblastomas ($p = 0.004$). However, we did not find any significant correlation between tumor stage and Q-scores. The observed staining pattern in normal retinal was in agreement with previous reports and concentrated in neuroretinal cells while, in retinoblastoma samples, UCHL1 expression seemed to accumulate in regions of high mitotic index known as Flexner–Wintersteiner rosettes. Ongoing studies using retinoblastoma cell lines as model system to overexpress UCHL1 protein will enable us to elucidate potential roles for UCHL1 in retinoblastoma pathogenesis.

Beyond “20/20” Visual Acuity: The Neuro-Vision Card

Shannon Leon, BS, Optometry Student, Michael Castro, BS, Optometry Student, Daniel Ewing, BS, Optometry Student, Hayley George, BS, Optometry Student, Paul Lau, BS, Optometry Student, Andrew Yoder, BS, Optometry Student, and Jeff Rabin, OD, MS, Ph.D.

Purpose of Study

To describe the theoretical basis, development and clinical application of the Neuro-Vision Card (NVC) for clinical assessment of multiple aspects of visual function.

Rationale and Significance

Early detection of ocular conditions and eye disease demands clinical insight coupled with sensitive techniques which probe beyond mere measurement of high contrast VA. The challenge is to ensure ready access and portability of such tests.

Description of Methodology

The NVC is a 5x7" two-sided near card developed at the Rosenberg School of Optometry for use in normal room illumination. The NVTC includes: (1) Two ETDRS Near VA tests, 20/80 - 20/16 @ 40cm (2) Cone Contrast Color Test which uses variable contrast colored letters to diagnose type and severity of red, green or blue color deficiency (3) Letter Contrast Sensitivity test with variable contrast grey letters comparable to the Pelli-Robson test (4) Blind Spot Quantification Test which uses an intricate alpha-numeric display with appropriate monocular fixation to quantify size and position of each blind spot (5) Low Luminance Amsler Grid for enhanced detection of macular dysfunction (6) Fixation Disparity Test using anaglyphic (red-green) glasses to quantify horizontal and vertical fixation disparity (7) Aniseikonia Test using red-green glasses and line targets to measure up to 6% aniseikonia. PD rule and pupil size scales are also included.

Findings and Conclusions

The NVC offers a highly portable, clinically expedient battery of tests for early detection of ocular, systemic and neurologic disease, as well as binocular vision anomalies and color vision deficiency. It shows vast potential for widespread application in Optometry, Ophthalmology and Neurology for portable, rapid detection, diagnosis and serial monitoring of various conditions. The NVC also shows promise for application in occupational and school screenings and in combat environments for detection of laser eye and traumatic brain injuries.

Is the Effect of Intraductal Meibomian Gland Probing Greater Than Conventional Treatment for Meibomian Gland Dysfunction?

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Purpose of Study

To compare the effect of a novel treatment of meibomian gland dysfunction (MGD), intraductal meibomian gland (MG) probing, to the conventional MGD treatment warm compresses and lid massage. We compared the subjects' symptoms and signs when treated with intraductal MG probing to warm compresses and lid massage.

Rationale and Significance

MGD is a common chronic condition without a cure. This condition commonly characterized by obstruction of the meibomian glands is a leading cause of dry eye and can have a significant impact on quality of life. Conventional therapies are often ineffective and labor intensive for MGD. Intraductal MG probing is a novel technique designed to address this issue. To our knowledge, no study has compared this novel technique to conventional meibomian gland treatment.

Description of Methodology

In a randomized study, 24 subjects with MGD based on the presence of lid margin signs and mild to moderate dry eye symptoms participated in this study. Subjects were randomly assigned to two groups of 12 that received either the intraductal MG probing or conventional MG therapy. The conventional MG therapy of warm compresses and lid massage were performed 2 times per day for 4 weeks by the subjects in the conventional treatment group in a precise manner that optimizes warm compress efficiency. The subjects in the intraductal MG probing group received a single treatment of the probing which was performed in a manner described by Maskin (Cornea 2010; 29(10) 1145-52). A dry eye questionnaire [Ocular Surface Disease Index (OSDI)] and dry eye clinical tests were administered at baseline and 4 weeks post-treatment. The data was analyzed by ANOVA and post-hoc test for significance.

Findings and Conclusions

The baseline OSDI score for the probing group was 33+/- 16 which decreased to 16+/-13 at the 4 weeks post-treatment. This 52% decline in symptoms from baseline to 4 weeks post intraductal MG probing was significant $p=0.01$. A 26% decrease in symptoms for the conventional group was not statistically significant. The baseline OSDI for the conventional group was 31+/-15 and 23 +/-18.5 at 4 weeks. TBUT was significantly improved and doubled from baseline in the probing group ($p=0.05$). The baseline TBUT was 3.12+/-1.9 sec and improved to 7.6+/- 6.21 sec by 4 weeks for this group. The slight improvement of TBUT, 1.83 +/-1.29 at baseline to 3.16+/-2.85 at 4 weeks for the conventional group was not statistically significant. In this study, intraductal MG probing was more effective than the conventional treatment for MGD. Intraductal MG probing appears to be a highly effective MG treatment that can improve patient outcomes.

Contrast Sensitivity (CS): Color CS is Decreased More than Luminance CS at Low Light Levels

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Purpose of Study

Our purpose was to compare the effect of luminance on chromatic (color) & achromatic (luminance) CS.

Rationale and Significance

It is well-known that spatial & temporal vision decrease with decreasing luminance but less is known about the impact of luminance on color vision.

Description of Methodology

Luminance CS was measured with the Pelli-Robson (PR) chart which has large letters which decrease in contrast in 0.15 log steps (0.05/letter). Color CS was measured with the cone contrast test (CCT; Innova Systems, Inc.) which uses a Netbook computer & rapid staircase to present colored letters on a grey background which decrease in cone contrast to measure red (L), green (M) and blue (S) cone contrast thresholds. PR & CCT were measured at photopic (85 cd/m²↑2↑), low photopic (5.4 cd/m²↑2↑) & mesopic (0.7 cd/m²↑2↑) levels by having subjects view monocularly through neutral density filters. 16 color vision normals (CVN) & 14 hereditary color vision deficient (CVD) were tested.

Findings and Conclusions

In CVN color (L & M cone) and luminance log CS were equal at high luminance (1.95 log CS) but decreased linearly with log luminance with color CS decreasing more rapidly (3.5X) vs. luminance CS (2.5X) such that color CS was 0.2 log units (1.6X) lower than luminance CS at the mesopic level ($p < 0.001$). A linear decrease with luminance also prevailed for L & M cone CVD but both luminance & color CS decreased more rapidly in CVD for both affected & unaffected cones (L for protans, M for deuterans). At the lowest light level achromatic luminance CS was 0.2 log units lower for CVD than for CVN ($p < 0.01$). L & M CVD also showed a more rapid decrease in S cone CS with luminance (3.1X) vs. CVN (1.7X; $p < 0.01$). Foveal color CS decreases more rapidly than luminance CS with decreasing light level in CVN & CVD. It is plausible that color-sensitive parvo cells mediate both color & luminance CS. The more rapid decline in color CS with decreasing luminance may reflect the selective nature of cone CS (e.g., red on grey) which stimulates fewer neurons at threshold (in this example mainly R+/G- opponent cells). The lack of redundant stimulation at low luminance yields decreased CS, more pronounced in CVD. These results indicate that cone CS may be more sensitive for detection of acquired CVD early in eye disease. The finding that low luminance achromatic CS can be decreased in hereditary CVD may have occupational significance.

Change in Intraocular Pressure During Scleral Depression

Brandi Stewart, BS, Optometry Student and Richard Trevino, OD

Purpose of Study

The aim of this study is to quantify the change in IOP that occurs when scleral depression is performed on normal eyes of healthy adults.

Rationale and Significance

It is well recognized that scleral depression is associated with acute elevation of intraocular pressure (IOP); however, little information has been published on the magnitude of the change in IOP that occurs during scleral depression. Better understanding of the effects of scleral depression can aid in the development of improved techniques of scleral depression and aid clinicians in identifying patients who may be at risk from adverse effects of the procedure.

Description of Methodology

Twenty-eight eyes (15 right and 13 left) from 28 subjects with best corrected visual acuity of 20/30 or better were included in the study. All IOP measurements were made using the same Reichert Tono-Pen XL tonometer that was calibrated prior to each session. Examiner #1 performed a baseline tonometry reading after the patient was placed in the supine position for 5 minutes. Examiner #1 then measured IOP while Examiner #2 performed BIO with scleral depression in each of two quadrants: superotemporal (ST) and intranasal (IN). A post-procedure IOP measurement was obtained following each scleral depression examination. Both ST and IN quadrants were tested on all eyes, with the quadrant tested first chosen at random (15 ST, 13 IN).

Findings and Conclusions

The mean baseline IOP prior to scleral depression was 15.9 mmHg in the ST quadrant and 15.7 mmHg in the IN quadrant ($p>0.66$). The mean IOP during scleral depression was 65.3mmHg ST and 47.8mmHg IN, with a maximum recorded IOP of 88mmHg and 88mmHg in the ST and IN quadrants, respectively. The mean change from baseline was 49.4mmHg ST ($p<<0.001$) and 32.1mmHg IN ($p<<0.001$).

This study finds that, on average, IOP increases by about 40mmHg from baseline while scleral depression is being performed on normal eyes of healthy adults. We recommend caution when performing scleral depression on patients that may be especially sensitive to acute IOP elevation, such as persons with advanced glaucoma. Additionally, patients with a history of intraocular surgery or penetrating globe trauma should not undergo scleral depression in the immediate recovery period.

Choroidal Morphology Changes in Response to Changes in Body Position

Richard Trevino, OD, Carolyn Majcher, OD, Travis Lehr, Optometry Student, Denisse Lopez, Optometry Student, Susan Ly, Optometry Student, and Jonathan SanRoman-Garcia, STEM Academy

Purpose of Study

The aim of this study is to investigate changes in choroidal morphology as revealed by optical coherence tomography (OCT) that occur following a change in body position from upright to right lateral horizontal in normal healthy adults.

Rationale and Significance

Humans spend a large fraction of each day in a horizontal position while sleeping. It is known that alterations may occur to important parameters of ocular health while recumbent, such as intraocular pressure, and these changes may significantly influence the onset and progression of ocular disease. To date, there has been little information published regarding the influence of changes in body posture on the choroid.

Description of Methodology

Ten healthy subjects with best corrected visual acuity of 20/20 or better were included in the study. Baseline OCT scans of the macular region of each eye were performed with the subject sitting upright in a chair using a Cirrus[®] spectral domain OCT instrument (Carl Zeiss Meditec Inc, Dublin, CA). The subject was then asked to lie horizontally on their right side. A pillow was used to ensure that the subject's neck was neither flexed nor extended. OCT scans were performed every 15 minutes on both eyes while the subject remained in this posture for a period of 1 hour. The registration function of the instrument was employed to ensure that the identical region of the fundus was scanned each time. The resulting OCT scans were analyzed in ImageJ software (NIH, Bethesda) by two independent observers to determine what proportion of the subfoveal choroid is stroma (light area on OCT) and what proportion is vessel lumen (dark area on OCT). This finding is expressed as a light-dark ratio, calculated by dividing the number of white pixels in the region of interest by the number of black pixels. The light-dark ratios determined by each independent observer were combined to produce an average that was used in the subsequent statistical analysis.

Findings and Conclusions

The mean (\pm standard error) baseline light-dark ratio (LDR) was 0.325 ± 0.034 and 0.287 ± 0.030 for the right (OD) and left (OS) eyes, respectively ($p = 0.23$). At no time point did the mean LDR differ significantly between right and left eyes. Over time the LDR of the right eye did not change significantly from baseline and the left eye increased significantly from baseline at 60 min (OD: $\Delta = -0.016$, $p = 0.36$; OS: $\Delta = 0.038$, $p = 0.04$). At every time point the mean change in the LDR of the right eye was downward and the mean change of the left eye was upward. The change in the LDR was significantly different between right and left eyes at 15, 30, and 60 min, but not at 45 min.

This study finds that there is a significant difference in the morphologic response of the choroid between right and left eyes when one changes from an upright to a right lateral horizontal position. The right (lower) eye does not change significantly, but did exhibit a nonsignificant trend toward greater vascular lumen volume. The left (upper) eye demonstrates a significant decrease in vascular lumen volume. These findings indicate that there are significant morphologic changes that occur in the choroid when assuming a body posture typical of normal sleep.

**SCHOOL OF GRADUATE STUDIES AND
RESEARCH
POSTER ABSTRACTS**

Student Perceptions of Physician-Pharmacist Interprofessional Clinical Education (SPICE): Instrument Development and Validation

David S. Fike, Ph.D., Joseph A. Zorek, PharmD, University of Wisconsin, Eric J. MacLaughlin, PharmD, Texas Tech University Health Sciences Center, Anitra A. MacLaughlin, PharmD, Signa LLC, Mohammed Samiuddin, MD, Texas Tech University Health Sciences Center, and Rodney B. Young, MD, Texas Tech University Health Sciences Center

Purpose of Study

The purpose of this study was to develop and validate an instrument to assess student perceptions of physician-pharmacist interprofessional clinical education (SPICE).

Rationale and Significance

Interprofessional education (IPE) and practice have been heavily promoted in recent years, leading to calls among health professions educators for more assessment tools to evaluate IPE experiences. To provide evidence of the impact of IPE within health care disciplines, efforts to produce, validate, and use measurement scales have been pursued. Specific instruments include the Readiness for Interprofessional Learning Scale (RIPLS), the Interdisciplinary Education Perception Scale (IEPS), the Attitudes Toward Health Care Teams Scale (ATHCTS), and the Scale of Attitudes Toward Physician-Pharmacist Collaboration (SATP²C). Since the reliability and validity of these measurement instruments are contextually constrained, further development, refinement, and validation of measurement scales are warranted.

Description of Methodology

Faculty from pharmacy and medical schools developed a 20-item instrument. A sample of 179 medical and pharmacy students completed the scale. Psychometric properties, including reliability and construct validity, were assessed using confirmatory factor analysis (CFA). Items with low reliability or potential bias were removed. The revised instrument was assessed using CFA to demonstrate reliability and validity.

Findings and Conclusions

The final, revised SPICE instrument consists of 10 items with 3 sub-scales: Interprofessional Teamwork and Team-Based Practice, Roles/Responsibilities for Collaborative Practice, and Patient Outcomes from Collaborative Practice. CFA of the SPICE model achieved goodness of fit (Chi-Square/DF=1.220, CFI=.987, RMSEA=.036). Construct validity was demonstrated, with all but 1 standardized regression weight > .6. Pre/Post measurements of 46 students who participated in IPE indicated significant gains on all 3 SPICE sub-scales, demonstrating instrument sensitivity and stability. SPICE demonstrates promise as a valid and reliable tool to measure pharmacy and medical student perceptions of interprofessional clinical education. SPICE may serve as a useful tool for educational researchers assessing the impact of interprofessional educational experiences. Replication of this study with other samples/settings should be pursued to provide supporting evidence of SPICE validity.

Medical and Pharmacy Students' Perceptions of Interprofessional Education and Practice

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Purpose of Study

The purpose of this research study was to assess differences in student perceptions of Interprofessional Education (IPE) and Interprofessional Practice (IPP) before and after participation in an Annual Wellness Visit (AWV) clinic.

Rationale and Significance

Patients participating in Medicare Annual Wellness Visits are provided 100% coverage for preventive care services graded A or B by the United States Preventive Services Task Force. AWV clinic healthcare providers must assess patients for the following (among others): medication regimen, cognitive impairment, and functional ability. AWV clinical practice may benefit when care is provided by interprofessional teams; interprofessional education (IPE) and practice (IPP) have been promoted by the Institute of Medicine for over 40 years. Provisions for IPE/PP are codified in the Affordable Care Act.

Faculty from schools of medicine and pharmacy developed an interprofessional AWV clinic with the goals of delivering benefit to Medicare beneficiaries, and training medical and pharmacy students in an interprofessional environment. Research is needed to determine if medical and pharmacy students become more or less favorable to IPE/PP following participation in an interprofessional AWV clinic.

Description of Methodology

This was a prospective cohort study evaluating medical and pharmacy student's IPE/PP experiences collaborating in providing healthcare services to patients in an AWV clinic. To measure the student's experiences, a 20-item survey was developed which consisted of original questions plus adaptations from 2 existing survey instruments. Third and 4th year medical and pharmacy students (n=49) completed the survey before and after participation in the AWV clinic; student demographics were also collected. Descriptive statistics were developed to characterize the sample of students. Mann Whitney U was used to assess between-group item differences. Wilcoxon Signed-Rank test was used to assess all student pre-post score changes.

Findings and Conclusions

Medical student's perceptions differed significantly from pharmacy students on 9 of the 20 pre-test items and on 12 of the 20 post-test items. Overall, student perceptions were significantly more favorable to IPE/PP on 6 of the 20 items following the interprofessional collaboration on AWV clinics. The AWV clinic appears to improve students' understanding of their and others' roles and perceptions related to teamwork and patient satisfaction.

Impact of an Interprofessional Wellness Clinic on Preventive Care Services

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Purpose of Study

The primary purpose of this study was to determine if differences in Preventive Care Services (PCS) exist between patients who participate in an interprofessional Annual Wellness Visit (AWV) clinic versus those who do not. The secondary purpose was to assess patient perceptions of team-based care and the impact of a comprehensive medication review process.

Rationale and Significance

Patients participating in Medicare Annual Wellness Visits are provided 100% coverage for preventive care services graded A or B by the United States Preventive Services Task Force. AWV clinic healthcare providers must assess patients for the following (among others): medication regimen, cognitive impairment, and functional ability. AWV clinical practice may benefit when care is provided by interprofessional teams. Faculty from schools of medicine and pharmacy developed an interprofessional AWV clinic with the goals of delivering benefit to Medicare beneficiaries, and training medical and pharmacy students in an interprofessional environment. Research is needed to determine if patient outcomes and perspectives are positively impacted by an interprofessional AWV clinic visit.

Description of Methodology

This was a prospective, case-controlled trial with a 1:2 ratio of intervention:control subjects (n=102). Patient inclusion criteria included Medicare beneficiaries aged 66-74 years, primary care provider at a university's Family Medicine Clinic, and AWV-naïve. The intervention was an AWV delivered by an interprofessional team consisting of physician, pharmacist, nurse, and medical and pharmacy students with social work consult if needed. For the intervention group, investigators collected patient demographics; screened patients for PCS status; performed comprehensive medication review; provided PCS, medication, and additional recommendations; surveyed patient satisfaction; and contacted patients 1 month after AWV to determine final PCS status. For the control group, investigators reviewed patient medical charts documenting demographics and PCS status. Descriptive statistics were used to characterize patient satisfaction. Fisher's Exact test was used to determine if intervention and control groups differed on preventive care services.

Findings and Conclusions

The intervention-group patients were generally very favorable of the interprofessional AWV clinic. Perhaps more importantly, the intervention-group of patients were significantly more likely than control-group patients to participate in 10 of the 12 preventive care services provided through the AWV clinic. Interprofessional AWV clinics hold promise as a mechanism to significantly improve preventive care measures for Medicare patients. Contacting control patients directly may yield more accurate final PCS status than relying on electronic medical records; this was a limitation of the study.

Future studies are needed to directly compare traditional patient care models versus care delivered via an interprofessional AWV clinic.

Revolution, Chaos, and Stability: A 25 Year Historical Analysis of a Latino Founded College Fraternity

David A. Ortiz, Ph.D.

Purpose of Study

The purpose of this historical study was to construct and analyze the first 25 year history of Omega Delta Phi, a historically Latino founded college fraternity. Specifically, the study sought to document the impetus for the creation of the fraternity and its emphasis as a Latino Greek-letter organization. Moreover, the investigation aimed to describe the narrative history of the fraternity and the internal/external challenges and opportunities which permitted the organization to evolve into one of the nation's largest Latino founded college fraternities.

Rationale and Significance

While the histories of nearly all historically white collegiate social/service Greek-letter organizations have been researched and published, the literature is nearly nonexistent of published histories related to Latino/a Greek-letter organizations (LGLOs) with a few noted exceptions (Pena, 1994; Balaji & Jones, 2012). To date, only 2 of 63 LGLOs have a written historical account that has been published. This study begins to fill a gap in the literature and denotes a research framework for other scholars conducting historical research on LGLOs by highlighting the use of oral histories and presenting strategies for securing primary/archival documents.

Description of Methodology

This study involved a 24 month oral history investigation utilizing two forms of data collection: interviews and document analysis. The researcher traveled to California, Illinois, Wisconsin, Texas, and Arizona to conduct a total of 55 interviews with fraternity members, university faculty/administrators and community members. Interviews included individual and focus groups. Life history forms were collected from each participant for the purpose of documenting specific events and establishing timelines. Open ended questions guided all interviews. Primary sources were analyzed and in many cases used as primers that were shared with participants during interviews. Primary sources included: photographs, chapter newsletters, non-classified fraternity memos and email communications, official brochures, archived webpages, campus/city newspapers, and personal correspondence among fraternity officers. Data were analyzed immediately upon collection. Constant comparative analysis was used to establish a narrative history.

Findings and Conclusions

The founding of Omega Delta Phi in the late 1980s occurred during a time of heighten political correctness and a resurgence in student cultural activism sparked by events occurring domestically and internationally. During the 1990s, college campuses across the United States witnessed a dramatic increase in Latino founded fraternities and sororities. Omega Delta Phi was one of five fraternities that found significant expansion of its chapters across the country. Despite success in expansion or perhaps because of it, the fraternity's infrastructure remained chaotic and unorganized. Internal conflicts emerged as the fraternity dealt with an identity crisis as a Latino or Multicultural organization. During this time period, a group of charismatic leaders emerged on the national level and guided the fraternity. While the fraternity moved toward better organization, it would be rocked in the early/mid 2000s by the death of a member and an undergraduate uprising. The following years would test the organization's development yet eventually usher in a new era of accountability, strategic partnerships, increased membership, and strong fiscal management.

Innovations in Graduate Education: Increasing Student Participation and Engagement in Academic and Professional Development Programs Through High Impact Practices

David A. Ortiz, Ph.D., Kevin B. Vichcales, Ph.D., Carlos de Leon, BA, and Vanessa Wilson, BA

Purpose of Study

The aim of this study was to evaluate the level of success for a redesigned graduate student workshop delivery format. The researchers hypothesized that reformatting the delivery from weekly workshops to an all-day Saturday format would yield high attendance and satisfaction among participants.

Rationale and Significance

Stewart's (1995) Model of Graduate Student Development suggests that during the "engagement characteristic phase" two main goals must be achieved: self-preservation and achievement. Academic and educational programs can play a significant role in reaching both goals. For example, workshops can demonstrate and teach the academic skill sets needed to succeed in graduate school and provide a greater sense of belonging by establishing a culture of graduate student services. Educational programs for graduate students normally are scheduled in the evenings for two hours during the weekdays in order to meet the demands of working adults. The Academic and Professional Development Workshop Series and Graduate Writing Institute workshops were redesigned to establish an all day Saturday workshop series from 9:00am to 3:30pm. The change in format represented a significant departure from the evening and short time frame of traditional programming efforts for graduate students. Graduate student support services previously had low to moderate attendance at educational programs. The findings of this study can offer insight on developing high impact practices by identifying and confirming effective outreach and programming for graduate students.

Description of Methodology

Descriptive and summary statistics were used to provide a simple overview of the sample participants and observations. The researchers administered a five-point Likert scale survey to each sample group. In addition, each survey included three open-ended questions. The sample group included all graduate students attending the Saturday Series Workshops or SSW (n=673), and the Graduate Writing Institute/Saturday Workshops or GWI (n=210). A total of seven workshops were evaluated. Surveys were distributed in person at the conclusion of each Saturday program. While every effort was made to ensure that the language and grammar was easy to read and interpret, some participants may have had limited English proficiency or had minimal language comprehension. The findings of the program evaluation and overall attendance for the Fall 2013 Saturday workshops were compared to previous semesters.

Findings and Conclusions

Attendance for Fall 2013 SSW and GWI outpaced previous semesters by an overwhelming margin. Total attendance for all FA13 workshops equaled 673 students. The average attendance for all previous semesters (e.g., FA11, SP12, FA12, and SP13) equaled 194 students. The total attendance for all FA13 GWI Saturday workshops equaled 210 students. The average attendance of all previous semesters (e.g., SP12, FA12, SP13, and SU13) equaled 74 students. A snapshot analysis of workshop evaluations comparing Fall 2013 to previous semesters showed rates of student satisfaction equal to or similar to each other across all categories (scores generally ranged between 90% to 94%). Reformatting workshops to an all-day program yielded higher attendance while still maintaining high levels of student satisfaction.

**SCHOOL OF MATHEMATICS, SCIENCE AND
ENGINEERING
POSTER ABSTRACTS**

Beta Catenin, an Early Transcription Factor, Up Regulated in Regeneration of *Lumbriculus Variegatus*

Gicel J. Aguilar, Biology Student, Pompeyo R. Quesada, Biology Student, and
Dr. Veronica G. Martinez Acosta, Ph.D.

Purpose of Study

Morphogenetic gradients are utilized by early developmental paradigms for proper organization of the body axis. Preliminary studies in our lab demonstrate that morphogenic gradients are driven by the development of the newly regenerated head tissue. We seek to characterize the profile of signaling proteins and protein families that are utilized by *Lumbriculus* during early stages of regeneration. Ultimately, our understanding of the key molecular components of this organism's regeneration program will provide insight into development of regenerative therapies in the human nervous system.

Rationale and Significance

The ability to regenerate an animal's nervous system is a mechanism that has been lost by numerous higher order phyla; however many invertebrates as of annelids conserve the capacity of replacing missing cell tissue. The aquatic oligochaete worm *Lumbriculus variegatus* holds the capacity to not only replace missing cell tissue, but to regenerate both head and tail fragments. *L. variegatus* regenerative capacity and its highly organized body structure underlie its potential for the studies of gene regeneration. The unique regenerative properties of *Lumbriculus variegatus* will help our lab identify molecular targets that could aid in the identification of nerve regenerative mechanisms that can be translated into higher order phyla such as humans.

Description of Methodology

Our lab has identified anterior-posterior differences in expression of the early developmental marker β -catenin and its upregulation post-amputation using immunoblot and immunohistochemical analysis. Using two-dimensional gel electrophoresis we will identify proteins that are up and down regulated during different time points of regeneration. In doing so, we will determine the nature of β -catenin involvement in this regenerative process and through which signaling pathway it may be functioning.

Findings and Conclusions

We hypothesize that β -catenin may play a role in regeneration since its expression doubles at 3 hours post-amputation and continues to be upregulated through the 24 hour time point in both immunohistochemical and western blot analysis. Expression patterns demonstrate a gradient of expression with highest expression in regenerating heads. Interestingly, expression of β -catenin precedes that of MP66, a molecular marker of Lumbriculid regeneration, which peaks in expression 3 weeks post-amputation. At this point the role of β -catenin is unclear, however with these studies we will determine if it is functioning through transcriptional activation of head specific genes or through its role as a cell adhesion molecule.

Step-Stress Competing Risks Models with Lagged Effects

Joleen Beltrami, Ph.D.

Purpose of Study

Survival analysis is a branch of statistics concerned with modeling lifetimes of subjects. When the subjects are machinery or other inanimate objects, this field is often referred to as reliability analysis. Survival, or reliability, analysis relies heavily on functions called hazard rates. This work creates two hazard-based models in the context of competing risks where test units were subjected to an increase in stress level at a predetermined time referred to as the changepoint. In addition to this increase, which results in a step-stress format, these models contain a lag period reflecting the real-world scenario where impact of the increase is not immediately realized.

Rationale and Significance

In much of survival analysis, survival periods are lengthy and failure times must be hastened to produce usable results. Known as accelerated failure, this process requires an increased stress level during the experiment. Most published models reflect an immediate reaction to this increase, which is unrealistic; incorporating a lag period provides a more realistic scenario. Additionally, many models, whether or not they incorporate this lag period, assume that the subject can fail from only one cause. This work is done in the context of competing risks, which incorporates a(n) additional source(s) of failure. Currently no published works combine step-stress, competing risks, and lagged effects. Although this work is theoretical, it is very flexible and has many applications to real data.

Description of Methodology

These models were created using maximum likelihood estimation, and evaluated using percentile and bias-corrected accelerated bootstrap techniques. Data, in varying sample sizes of 20, 50, 100, and 200, were simulated in R and optimized values were found using constrained optimization. One model assumes that the underlying survival times follow an exponential distribution, an often-used distribution in survival analysis. The second model assumes an underlying Weibull distribution, a more complex model whose additional parameters allow for a more flexible model. These models can be applied to studies in medicine, manufacturing, recidivism, and education.

Findings and Conclusions

The models were found to perform very well, producing parameter estimates with nice statistical properties. Even small sample sizes produced statistically consistent estimates with little bias and variance. These models contain one pre-determined changepoint, two competing risks, linear lag segment, and no censored observations. They are very flexible and can be easily adapted to include multiple changepoints and several competing risks, as well as complex curved lag segments and/or censored observations.

Behavioral Effects of Diethyl Phthalate on Siamese Fighting Fish, *Betta Splendens*

Marisa DeGuzman, Biology and Psychology Student, Andrea Espinoza, Biology Student, and Sara Tallarovic, Ph.D.

Purpose of Study

This study investigated the possible threat of diethyl phthalate as an endocrine disruptive chemical (EDC), specifically in the endocrine system of *Betta splendens*, the Siamese fighting fish. The main question addressed was whether diethyl phthalate would have an effect on the behavior of *B. splendens* as a result of estrogenic characteristics. We hypothesized that the potential alteration in estrogen levels would produce a decrease in aggressive behavior in *B. splendens* when provoked to defend their territory.

Rationale and Significance

Chemical compounds that can mimic or antagonize existing hormone actions, or EDCs, have appeared in wastewater, surface water, marine water, and drinking water. This has caused great concern regarding the EDCs' potentially damaging effects on the endocrine system and subsequently the development, health, and reproductive systems of the organisms exposed to them. Diethyl phthalate has been included in the EPA's Endocrine Disruptor Screening Program and classified under the High Production Volume category. This chemical is released into the environment by its own production and the disposal of products in which it is contained such as plasticizers, nail polish solvents, insecticides and repellents, medical devices, and cosmetic or personal care products. It has been detected in surface water in the United States.

Description of Methodology

Twenty-five male *Betta splendens* were randomly assigned to either the control treatment or the high concentration group. The experimental group was exposed to a solution of standardized water and 10 µg/L of diethyl phthalate. The aggressive behaviors of all individuals were assessed prior to the chemical exposure and twice a week for 5 weeks after every water change. The fish were video recorded for five minutes after a mirror was placed next to the container to provoke territorial aggression, measured as the frequency of five specific behaviors.

Findings and Conclusions

Preliminary analyses suggest a significant decrease in two of five aggressive behaviors from pre- to post-treatment. In comparing the diethyl phthalate treated fish to control, three of five aggressive behaviors decreased, while one other behavior increased. These results indicate that diethyl phthalate, at existing environmental pollutant levels, may significantly alter behavior in freshwater vertebrates, and could have devastating consequences on wildlife.

Black Currant Nectar Reduces Muscle Damage and Inflammation Following a Bout of High-Intensity Eccentric Exercise

Emily Flieller, Honors Student, Rehabilitative Sciences and Athletic Training, Kimber Dillon, MPH, CHES, Alexander Hutchison, Ph.D.

Purpose of Study

The purpose of this study was to determine the effectiveness of black currant nectar in reducing soreness and inflammation resulting from EIMD in a group of untrained college students.

Rationale and Significance

Eccentric induced muscle damage (EIMD) can rupture the sarcolemma resulting in release of reactive oxygen species (ROS), and subsequent inflammation and soreness that can last up to 60 hours after exercise. Circulating ROS act as chemottractants, recruiting leukocytes to the site of damage. Newly arriving neutrophils and macrophages produce more ROS during tissue repair. Persistent release of ROS can have detrimental effects on cell integrity; attacking the cell membrane and disrupting the hydrogen bonds between nucleotides. Antioxidants can neutralize the harmful effects of ROS. Black currants contain high levels of polyphenolic compounds including anthocyanins that possess antioxidant and anti-inflammatory properties.

Description of Methodology

This was a randomized, placebo controlled design. Sixteen untrained college students (three male and 13 female) were randomly assigned to drink two, 16 oz bottles of either black currant nectar (CurrC) or an isocaloric placebo (PLA) twice a day for eight days. Concentric (upward only) one-repetition maximum (1RM), and baseline measures of leg muscle soreness, circulating biomarkers of antioxidant capacity (ORAC), muscle damage (CK activity), and inflammation (IL-6) were assessed on day 0 before supplementation began. On day five, subjects performed a bout of three sets of ten repetitions of eccentric squatting (downward only) at 115% of their respective 1RM. Absolute measures of muscle soreness were assessed on all days post-exercise. ORAC, CK, and IL-6 (% change) were assessed at 24, 48, and 96 hours post-exercise.

Findings and Conclusions

Consumption of black currant nectar resulted in significantly lower levels of creatine kinase activity relative to baseline at both 48 (PLA = 82.13% vs. CurrC = -6.71%, $p = 0.042$) and 96 hours post exercise (PLA = 74.96% vs. CurrC = -12.11%, $p = 0.030$). The relative change in IL-6 was higher in the placebo group (PLA = 8.84% vs. CurrC = -6.54%, $p = 0.023$) at 24 hours post exercise. The relative change in ORAC levels was higher in the treatment group (CurrC = 2.68% vs. PLA = -6.02%, $p = 0.039$) at 48 hours post exercise. Although the placebo group reported more soreness at each time point post exercise, these differences did not reach the level of significance.

Our results demonstrate that consumption of black currant nectar prior to and after a bout of high intensity eccentric exercise attenuates muscle damage and inflammation.

Synthesis and Characterization of N-benzyl Nipecotate and Isonipecotate Derivatives as Potential Acetylcholine Esterase Inhibitors

Kevin Gonzalez, Biology Student, Celesta Harvey, Chemistry Student, Daniel Hernandez, Biology and Chemistry Student, Lindsey Nicholson, Pharmacy Student, Jasper Reyes, Biology Student, Julian Davis, Ph.D., Donald Sikazwe, Ph.D., and Frank Wood, Ph.D.

Purpose of Study

We present the synthesis of a group of potential AChE inhibitors.

Rationale and Significance

Acetylcholine is an important neurotransmitter in humans, and thus the regulation of acetylcholine levels has many therapeutic applications. The acetylcholine esterase (AChE) enzyme is one key to acetylcholine regulation, and much work has been done to prepare compounds that inhibit this enzyme.

Description of Methodology

Our target compounds were selected to maximize the number of different variants from a relatively small set of precursors. The synthesis is predicated on the coupling of N-benzyl nipecotic and isonipecotic acids with an assortment of amines. Structural variation is also added by reducing the amide that results from the coupling reaction. The N-benzyl precursors were prepared from commercially available materials in two steps. Compounds were purified by column chromatography and characterized primarily by Nuclear Magnetic Resonance Spectroscopy (NMR).

Findings and Conclusions

The synthetic methodology we have developed has yielded several new compounds with several more in progress.

Effects of an Authentic Research Experience on Learning Genetics Concepts

Christy MacKinnon, Ph.D.

Purpose of Study

Do students learn more about genetics concepts after completion of an authentic genomics research project vs. a traditional lab project?

Rationale and Significance

The President's Council of Advisors on Science and Technology (PCAST) says authentic research is important to STEM education, but authentic research is challenging to implement, and the question remains: is it effective for improving student learning? Most studies about an authentic research experience predominantly assess student attitudes about science, self-reported gains in knowledge, and/or the impact on career choices (Brown et al., Buckley, 2012, Lopato, D. 2004, 2007, Senkevitch, et al., 2011). Only a few projects have assessed the impact about genomics research on student knowledge of basic gene annotation (Shaffer et al., 2010, 2014). The data collected in this project (IRB 13-08-006) assessed the impact of an authentic genomics research project on student knowledge of genetics concepts and genomics compared to a traditional lab project.

Description of Methodology

Study participants were enrolled in BIOL 3461 Genetics & Lab; approximately 75 students provided consent to participate in the study. Two experimental treatments were administered in each of three sections, differing by time in the semester of implementation. Treatment "A" consisted of a traditional lab project in which outcomes were known: a gel electrophoresis analysis of normal and mutation hemoglobin proteins, and a database activity using simple navigation tutorials through several genomic databases to obtain information on the genetic disorders, sickle cell anemia and β^0 thalassemia. Treatment "B" consisted of an authentic research project involving the annotation of the genomic structure (i.e., exon and intron numbers and sequences) of genes/isoforms found in a small portion from the genome of *Drosophila biarmipes*, an important species to study the evolution of gene structure and function. All three sections followed the same lecture schedule. Students knowledge was assessed at the beginning, mid-term, and end of the semester using (1) the Genetics Concepts Assessment Test (GCAT), a validated instrument for assessing understanding of genetics concepts for undergraduate students (Smith, Wood, Knight, 2008); and (2) the GEP Annotation Quiz (GAQ) which was used to assess student knowledge of genomics (Shaffer et al., 2012, 2014).

Findings and Conclusions

Data were analyzed within student performance on modified versions of standardized pre-mid-post-tests. Although the sample size was small ($n = 8$ per treatment group), this pilot study showed that 50% (4/8) of students who first experienced an authentic research activity retained an increase of traditional knowledge from pre- to post-tests. This compares to 25% (2/8) students who first experienced a traditional activity that persisted in retaining gain in traditional knowledge from pre- to post-tests. Among students who first experienced an authentic activity, 62% (5/8) retained authentic knowledge from pre- to post-tests, compared to those who first experienced a traditional activity, 75% (6/8) retained knowledge of the authentic activity from pre- to post-tests. These suggest that there is a positive effect of first experiencing an authentic research experience on increasing gain of traditional knowledge. These data suggests that knowledge gained from an authentic research experience is retained longer than knowledge gained from a traditional experience.

The Effect of Contrasting Examples on Transfer in Algebra Problem Solving

Craig S. McCarron, Ph.D.

Purpose of Study

The effectiveness of education depends on the transfer of learning. The instructional method of presenting contrasting examples has been hypothesized to enhance transfer, but previous experimenters have not controlled the variable of student study time. If time is controlled, will contrasting examples improve students' ability to transfer an algebra problem solving method to a novel situation?

Rationale and Significance

Instructional and curriculum design for mathematics normally includes multiple examples for each algorithm to be learned. The number and types of examples for optimum learning has yet to be scientifically determined. This study represents a single test of one aspect of example selection: contrast among examples.

Description of Methodology

Thirty-one student volunteers were given a college algebra pretest to control for pre-existing algebra fluency. Students were randomly assigned to study conditions and used workbooks to study the "substitution method" for solving complex algebra and trigonometry problems. Workbooks for the control condition used only examples in which the substitution was performed for a polynomial, e.g. "let $t = x^3$ ". Workbooks for the contrasting example condition included polynomial substitutions as well as substitutions for trigonometric functions, e.g. "let $t = \sin x$ ". The posttest was used to determine whether transfer could be detected to problems of the same general type, but calling for different substitutions, e.g. "let $t = \log x$ ".

Findings and Conclusions

It has been established in earlier experiments that skill in algebraic manipulation is the primary determinant of transfer in algebra problem solving. The current study confirmed that finding, and controlled for algebraic manipulation skill to determine whether contrasting examples significantly affected transfer as well. In the time-controlled environment of this study, the correlation between the contrasting example condition and the transfer score was nearly zero ($F_{1,27} = 0.006$, $p \approx 0.94$). When earlier transfer researchers attempted to eliminate "contrast" as a nuisance variable, they found that eliminating contrast did not alter their transfer results. It appears that (at least in early phases of acquiring a new schema), learners focus on similarities exclusively, ignoring contrasting subtleties. If contrasting examples offer an advantage for transfer, it must take place in later stages of learning a problem solving method.

Endogenous Kappa Opioid Receptors Play a Role in Angiotensin II High Salt Diet Hypertensive Rats

Tin Nguyen, Honors Student, Biochemistry, Cynthia Franklin, Yolanda Rangel, Bernadette Hollister, Pharmacy Student, Jeffrey Tang, Pharmacy Student, and Helmut Gottlieb, Ph.D.

Purpose of Study

The purpose of this study is to examine changes in cFOS expression in several brain regions of hypertensive rats as compared to normal rats or those microinjected with norbinaltorphimine (Nor-BNI; 1 µg/5µl), a selective KOR antagonist.

Rationale and Significance

Central kappa opioid receptor (KOR) activation produces a marked increase in renal sympathetic nerve activity with a concurrent free water diuresis in conscious rats. Furthermore, activation of opioid receptors have been shown to modulate blood pressure. However, the role of KOR in the angiotensin II high salt diet (AngII) mediated hypertension model is yet to be determined.

Description of Methodology

Urine samples and alternate sets of forebrain sections of hypertensive rats, normal control rats and hypertensive rats treated with KOR antagonist were processed for c-Fos immunohistochemistry using a commercially available antibody. Sections were also double labeled with vasopressin to anatomically define specific brain regions.

Findings and Conclusions

Fos expression was significantly increased in several lamina terminalis and hypothalamic sites. Microinjection of nor-BNI produced significant decreases in cFos staining in the PVN (AngII, 106 ± 12 ; nor-BNI 62 ± 7 ; $P < .01$) and OVLT (AngII, 132 ± 7 ; nor-BNI 73 ± 5 ; $P < .05$). There was no significant change in urine and sodium excretion in all groups. Altogether, this data provides new information concerning the role of KOR in the regulation of blood pressure.

Biodiversity Study of the Headwaters of the San Antonio River

Hannah D. Peterson, Honors Student

Purpose of Study

The purpose of the study is to conduct an Ecological Baseline Survey of the Headwaters of the San Antonio River Watershed. The survey will be used to provide a comparative baseline for future restoration efforts. It will also be compared to other forested/wooded areas along the San Antonio River for consistency.

Rationale and Significance

The Ecological Baseline Survey will provide information on how to continue and improve the existing restoration efforts, and it will also bring more awareness to the general public about how ecosystems work and how easily they can be disturbed. The study will contribute missing and additional information about the riparian habitats of the San Antonio River.

Description of Methodology

This is a quantitative research project because numerical data will be collected in the field and will then be analyzed with statistics. Data was collected on the bird, herpetofauna, mammalian and vegetation species, as well as abiotic factors such as temperature, rainfall and possibly soil characteristics. The headwaters area was divided into seven different areas, each representing a slightly different ecosystem. In these seven areas, a random point was selected which was the reference point for all of the data collection. Point counts were conducted to collect bird data, track plates and motion camera traps were set up to collect mammal data, and line transects and circle plots were executed to record vegetation data. Data was collected in late spring/early summer and also late fall/early winter. All raw data was analyzed in ArcGIS to make multilayered interactive maps. Graphs and charts will be made to visualize different characteristics. These analyses will be compared to different regions along the San Antonio River.

Findings and Conclusions

Preliminary results show similar biodiversity between the Headwaters Sanctuary and other sections of the San Antonio River. Study in progress.

PASS-UIW Leaders' Role in Student Success

Pompeyo R. Quesada, Biology Student and Christina Ariza, MBA

Purpose of Study

A previous study measured the release of student potential by the use of study skills and identified what learning tools the leaders were using and how they implemented them during a session. This previous research also helped identify areas of the PASS-UIW Program that could be improved to maximize student success. In the current study, the focus is on improvements to the PASS-UIW program through leader-led training and modifications to forms to obtain more detailed documentation of session activities. The hypothesis is that more descriptive PASS-UIW Session Planning Rubrics outlining exactly what study skills a PASS-UIW leader utilizes and implements will provide more accurate findings of the tools used to release student potential. The implementation of Leader-led training on the specific use of study skills and the proper recording of them will maximize the analysis of the PASS-UIW Leader role in student success.

Rationale and Significance

Supplemental instruction has been successfully used throughout numerous academic institutions around the country to provide academic support to students. It has been implemented at the University of the Incarnate Word under the name Peer Assisted Study Sessions, PASS-UIW. In a PASS session the leader uses the collaborative learning approach to guide and supplement learning between students to understand difficult course material and improve study skills. The PASS-UIW program has been offered in the subject areas of Chemistry, Biology, Physics, and Business with major positive correlations between student attendance to the sessions and the frequency of improved grades, C or better. The evaluation of this program by identifying the role of a PASS-UIW Leader in the release of student potential will not only contribute to enhance the program's performance, but also to increase awareness in the UIW Community of the numerous activities PASS-UIW Leaders implement to release student potential.

Description of Methodology

Modifications have been made to the PASS-UIW Rubric and the Self Evaluation form to adequately record the PASS-UIW experience from the point of view of the Leader. The new PASS-UIW Session Planning Rubric is designed to provide a specific place for the leader to give details about the study skills that will be utilized during a session. The collection of Leader feedback and self-reflection about the PASS-UIW Session is recorded in the Self Evaluation form. In addition, a Leader-led training workshop was held to guide leaders on the proper recording and use of study skills during a session.

Findings and Conclusions

It is expected that higher frequencies of study skills used per session will be documented along with more feedback about the PASS-UIW Leaders weekly experience. This data will expose strengths and weakness of the PASS-UIW Program that will allow further modification, to ultimately enhance the release of student potential.

Identification and Evaluation of β -catenin mRNA in *Lumbriculus Variegatus* as a Marker during Regeneration

Pompeyo R. Quesada, Biology Student, Robert A. Miranda, Ph.D., and
Veronica G. Martinez Acosta, Ph.D.

Purpose of Study

We aim to identify molecular targets that are involved in *L. variegatus* nerve regeneration with the long-term goal of translating our findings to humans to develop nerve regenerate therapies. Our lab has previously found the protein β -catenin is highly expressed in the ventral nerve cord post amputation, thus suggesting the role of β -catenin in nerve regeneration in *Lumbriculus*. β -catenin is an armadillo protein involved in activating cell specific transcription factors in the canonical Wnt signaling pathway.

Rationale and Significance

Nerve regeneration is a repair mechanism that has been lost in many high order phyla through evolutionary time. However, some invertebrate species, including *Lumbriculus variegatus*, have retained the ability to regenerate. This aquatic annelid oligochaete possesses an organized nervous system which makes it an ideal model system to study wound healing and regeneration.

Description of Methodology

To further understand the role of β -catenin in regeneration, we are developing a quantitative polymerase chain reaction (QPCR) assay to measure mRNA expression of β -catenin in *Lumbriculus*; using the sequence alignment program Clustal Omega, we have identified a highly conserved region within the coding sequence for β -catenin across related annelid species. We are using this conserved region to develop degenerate primers to amplify and identify the *L. variegatus* coding sequence. We will design QPCR primers specific to the *L. variegatus* coding sequence that can be used to analyze transcript levels of β -catenin at different time points during regeneration.

Findings and Conclusions

We predict to see high levels of β -catenin transcripts at key time points during regeneration of *L. variegatus*. We also plan to identify other genes expressed during regeneration by this remarkable regenerative model organism. Other potential regenerative markers for transcript evaluation include proteins involved in the Wnt signaling pathway such as glycogen synthase kinase 3 (GSK3) and transcription factors TCF/LEF. These studies will thus strengthen our understanding of regenerative processes in invertebrates but also in higher order phyla, such as humans.

Prevalence of Antibiotic Resistance of Ophthalmic Microbial Isolates Obtained at a Local Eye Clinic

Mireya A. Romero, BS, Graduate Student, Biology, Roquita C. Garcia, Vision Science Student, Martha A. Gonzalez, Biology Student, Ricardo Mata, Biology Student, Timothy R. Hover, Biology Student, and Ana C. Vallor, Ph.D.

Purpose of Study

The purpose of this study was to assess the prevalence of antibiotic resistance in clinical microbial isolates. Samples were obtained from patients enrolled in a current study assessing the presence and transmission of opportunistic microbial pathogens between patients and clinical employees. The study is being conducted at, I Care San Antonio, a local eye clinic serving transient populations and low income families. In addition, a comparison of the antibiotic resistance patterns of microbial isolates from the eye clinic population with a population at UIW students was also performed. We predict that inanimate objects, in particular eyeglasses worn by individuals may be a source of possible transmission and re-inoculation of antibiotic resistant microorganisms.

Rationale and Significance

By characterizing antibiotic resistance patterns of microbial samples obtained from the selected populations, data obtained will be useful in targeted selection of antibiotics which will resolve current ophthalmic infections, decrease colonization on eyeglasses and effect transmission rates.

Description of Methodology

A total of 298 microbial isolates were isolated from a total of 60 subjects (2 sites per subject in addition to personal eyeglasses) and purified on nutrient agar. Purity was determined by microscopy and isolates were identified to the genus level by selected biochemical tests. Minimal inhibitory concentrations are currently being assessed by plating each isolate on Mueller Hinton Plates and inoculating the samples with a panel of antibiotics including but not limited to Azasite, Tobradex, Blephamide, and Penicillin.

Findings and Conclusions

Eighty-two percent of the isolates have been characterized as Gram positive microorganisms. Preliminary findings of a subset of these isolates suggest a high prevalence of resistance to Penicillin among those tested. However, isolates are demonstrating sensitivity to antibiotics currently being utilized for treatment in the clinic. Sources of the isolates (subjects or eyeglasses) showing resistance are currently being verified. Subsequent studies will assess transmission using PCR to verify common identity between isolates, along with further characterization of virulence factors of opportunistic pathogens.

SCHOOL OF MEDIA AND DESIGN
POSTER ABSTRACTS

Linking Skills in Pattern Making and Apparel Production

Mary Lalon Alexander, MFA and Theresa Alexander, MA

Purpose of Study

A disconnect was noticed between fashion design students' understanding of pattern making and their ability to sew their designs. They could make patterns for their designs and they could sew. However, they often could not determine the sewing order for their work nor could they determine the best techniques to use.

Previously, the pattern classes were self-contained with a focus on the making of the patterns. At the same time, the sewing courses for the university were either structured around commercial patterns or around one specific student-made pattern. While the students were doing well at both pattern making and sewing, they did not link the process well.

Rationale and Significance

This study directly relates to fashion faculty and student bodies in any upper level degree plan. However, the linking of classes and skills is a useful methodology for any educational discipline.

Description of Methodology

The faculty decided to start linking classes in the program to address this and other similar problems. This particular link involved the upper-level pattern making course and the upper-level sewing course. With both courses, the students had experienced two prior courses on each topic, placing them at an advanced level in the learning process.

The process starts with the Pattern Making course in the spring of the students' sophomore year. This course combines advanced flat pattern techniques, advanced draping, and computerized pattern making using the Gerber system. The students start the semester by developing their own sloper patterns for various garment types to form the base for their own design work. Up until this class, they had solely focused on the basic bodice, skirt, and sleeve in an effort concentrate on basic flat pattern and draping techniques. In this advanced course they develop slopers for pants, jeans, jackets, knit tops, and strapless torsos.

Upon successful completion of the Pattern Making course, students enroll for the Apparel 3 course the following fall as juniors. The patterns for their design garments from the Pattern Making course are then utilized in the apparel course in order for students to gain better understanding of how to sew their own designs.

Findings and Conclusions

A marked difference was noted between the work of the students that have completed the series and the work of the previous groups of students. The students are creating higher quality finished goods as well as more accurate and complete patterns. The combination of courses is also affecting the design skills of the students. As the process helps students to think through their designs, they are becoming more aware of garment details and the possibilities open to them in making their patterns. Their entire thinking process appears to be more complete from design conception to garment completion.

Lila Bath: How Her Gifts Keep Giving to UIW Fashion Students

Carla J. Perez, Ph.D.

Purpose of Study

To investigate how the gifts given by Lila Bath to UIW's fashion management program have benefitted the recipients.

Rationale and Significance

The effects of giving gifts of her couture collection and scholarship funds by Lila Bath to UIW's fashion management department deserve investigation. How could her garments be made available to current and former students for in-depth study? What are the scholarship recipients doing today that can be attributed to her gift?

Description of Methodology

Lila Bath Scholarship recipients were invited to participate along with other outstanding fashion graduates. Those who indicated an interest in the project ($n = 16$) selected a Lila Bath garment to serve as their inspiration for an up-dated garment they would make. Each pair (the original Bath garment and the student's design) were presented at a Living Fashion History event. The fashion students/graduates explained their design process and their garment was modelled. Fashion students/graduates who had received scholarships from Ms. Bath were interviewed and the correlations between their fashion education and current employment were noted.

Findings and Conclusions

Lila Bath's gifts (monetary and garment collection) to UIW's Fashion Management Program have resulted in many positive benefits to the program as a whole and to individual students. Graduates who received scholarships are working in the fashion field. Among the positions held are visual merchandiser at Macy's, merchandise manager at Target, and Fashion Designer of her own line. The first scholarship recipient has been teaching Home Economics in an area high school for ten years. Four of her high school students participated in the tribute to Ms. Bath. The study's results far exceeded the researcher's expectations by providing an opportunity to involve additional fashion students in the Living Fashion History event thus expanding Ms. Bath's influence. Students served as photographic and/or runway models, photographers, fashion show production assistants for the event. Over 50 Lila Bath originals were on display at the event that was attended by UIW students, their friends and families; faculty/administrators; as well as people from the San Antonio community at large including a friend of Lila's who read about the event in the newspaper. Most satisfying was to observe how the fashion students/graduates were inspired by Bath's designs. Each spent hours examining their inspiration garment's silhouette, fabric, and construction then interpreted their observations using current fabrics and methodologies into a contemporary ensemble maintaining the essence of Lila Bath.

**SCHOOL OF PHYSICAL THERAPY
POSTER ABSTRACTS**

Using Learning Styles and Personality Types to Predict Success of First Year Students' Didactic Scores from a Problem-Based Learning (PBL) DPT Program

Emily Calk, Physical Therapy Student, Amber Ferrand, Physical Therapy Student, Vanessa Oliva, Physical Therapy Student, Mariska Sanchez, Physical Therapy Student, Susan Klappa, PT, Ph.D., and Julie Thompson, PT, DPT, C/NDT, UTHSCSA

Purpose of Study

The purpose of the study was to examine 52 first-year Doctor of Physical Therapy (DPT) students in a Problem Based Learning (PBL) program and explore the relationship of various classroom assessments by student learning styles and personality types. Students' didactic test results were analyzed to determine if there was a preferred test assessment style for each type of learner. Is it possible to predict which students will perform best or those at risk for failure depending on their personality or learning style in a PBL DPT program?

Rationale and Significance

Students in physical therapy programs strive to be successful in the classroom and the clinical setting. Programs use a variety of methods to assess student success before entering clinical rotations. Do different learning styles and personality types influence success on student assessments?

Description of Methodology

In this study, 52 first-year Doctor of Physical Therapy students (19 males and 33 females) from a fully integrated problem based learning curriculum, signed consent to release their VARK, true colors, and didactic classroom scores for analysis. The VARK is a tool used to assess the learning styles of individuals. It determines if an individual is a visual, auditory, read/write, or kinesthetic learner. The true colors assessment is used to determine the personality type of individuals. Student's personal identifying information was removed by faculty and given a specific number for coding purposes. Student's VARK, true colors, and didactic scores were collected and analyzed.

Findings and Conclusions

A one-way analysis of variance revealed a statistically significant difference between True Colors Orange and Gold personality types and mean scores for the Triple Jump Assessment equal to 7.576 points ($p = .034$). No statistical differences were found between groups on the other two assessments (OSCE and written exams). No statistical differences between VARK learning styles were found on any student assessments (Triple Jump, OSCE, and written exams). These findings suggest that personality type may be more influential in student performance on program assessments than student learning styles. For students new to PBL, we may be able to target those needing different types of strategies for optimal learning. This study suggests that more emphasis should be placed on personality type than learning style to facilitate success.

Effects of Neural Sliding as an Adjunct to Neural Tensioning Treatment for Median & Ulnar Nerves

Stephanie Thurmond, PT, DPT, ScD, CFMT, COMT and Robert J. Friberg, PT, PhD, CFMT

Purpose of Study

The purpose of this study was to investigate whether neurodynamic dysfunction is more effectively treated with combined sliding and tensioning of the nerve than either sliding or tensioning alone. The null hypothesis was tested using a pre-test post-test design, consisting of three groups, those receiving treatment consisting of sliding and tensioning, sliding only, or tensioning only. Comparisons will be made within subjects (pre-test and post-test) and between the three groups (Sliding/Tensioning, Sliding only, Tensioning only) on measures of grip and pinch strength, range of motion at the elbow and shoulder, and the Neck Disability Index (dependent measures).

Rationale and Significance

Current research supports the notion that neurodynamics tests elongate the nerve bed and the elongation is associated with nerve gliding¹¹. Neuromechanical dysfunction should be treated initially with nerve sliding, followed by myofascial release, and concluded with neural tensioning. Cadaver studies and clinical assumptions determined neural sliding to have the largest excursion and were 2x larger than other techniques. Elbow movements resulted in larger excursions when compared to neck movements. Combined elbow and neck movements were found to have the greatest effect. Although research is available and supports our hypothesis, there is a limited amount of supporting evidence.

Description of Methodology

Volunteer subjects were measured for cervical rotation, sidebending, flexion, and extension, followed by grip and pinch strength. A Neural Provocation Test was done for the ulnar and median nerves bilaterally, and the most symptomatic side was measured at the elbow for median nerve, or the shoulder for ulnar nerve. Subjects were then given one of three home exercise programs to perform daily for 2 weeks. The available programs were nerve sliding, nerve tensioning, or both. When the subjects returned two weeks later, the above objective measurements were taken again.

Findings and Conclusions

Intervention for neural tension dysfunction of the median and ulnar nerve has been shown to be effective whether utilizing sliding only, tensioning only, or a combination of sliding and tensioning. Since no difference was found between any of these groups, intervention involving sliding of the nerve only appears, at least in the short-term, to be just as effective in improving strength and mobility as a tensioning technique. Since tensioning by definition applies a greater load to the tissue, it would stand to reason that similar effects could be accomplished by applying less of a load to the tissue through a sliding intervention. Further studies need to be done to determine if the same effects can continue to be sustained using sliding techniques.

Relationships between Athletic Performance and Measurements Related to Core Stability in Young Athletes

Andy Waldhelm, PT, Ph.D., CSCS and Li Li, Ph.D.

Purpose of Study

The purpose of our study was to identify relationships between athletic performance tests and measurements associated with core stability (MACS) amongst young athletes.

Rationale and Significance

Core stability training is a common intervention used to help improve athletic performance. It is hypothesized, a strong and stable core will allow for efficient transfer of power from the ground through the trunk and to the upper extremities which will improve sports performance. Unfortunately, few studies have been performed to investigate the association between athletic performance and core stability.

Description of Methodology

Twenty-one individuals (12 F / 9 M, 13.4 ± 1.2yr) who had not suffered an orthopedic injury in the past year were recruited from a local sports training facility. The participants provided informed consent as approved by the local Institutional Review Board, prior to testing. The nine athletic performance tests included the vertical jump, 20-yd pro shuttle run, DSQ 1234, DSQ 1432, bilateral single leg long jump (SLLJ), 10 and 20-yd dash, and the Cunningham and Faulkner anaerobic capacity test. The 21 MACS were grouped into five different categories related to strength, muscular endurance, flexibility, motor control and function. One-tailed Pearson correlation coefficient (CC) analyses were performed to estimate the relationship between athletic performance tests and MACS.

Findings and Conclusions

Overall, the relationships between the athletic performance tests and the MACS ranged from low, $r = .002$, to high, $r = .761$ correlations. Correlations coefficients between the vertical jump and MACS ranged from $r = -.047$ to $r = .559$, and the strongest relationship observed with right hip abduction strength. CCs ranged from $r = .034$ to $r = -.682$ between the shuttle run and the MACS, and the highest correlation was with the right single leg side plank. CCs between the DSQ 1234 and the MACS ranged from $r = -.014$ to $r = -.418$ with the strongest and only significant correlation occurring with the left stork test. The DSQ 1432 and right hip abduction strength had the strongest relationship amongst the MACS with CCs ranging from $r = -.112$ to $r = -.575$. The right SLLJ and MACS had CCs ranging from $r = .105$ to $r = .728$ with right hip abduction strength having the strongest relationship. CCs ranged from $r = .039$ to $r = .533$ between the left SLLJ and MACS, with right single leg side plank having the strongest relationship. CCs ranging from $r = -.006$ to $r = -.659$ between the 10-yd dash and the MACS, and the strongest relationship was associated with the left isometric single leg press. The 20-yd dash had only one significant relationship, right hip adduction strength, and CCs ranged from $r = .005$ to $r = -.545$. Last, relationships between the Cunningham and Falkner test, which only had 10 participants, and the MACS ranged from $r = .002$ to $r = .761$ with the strongest relationship occurring with trunk extension endurance. The current findings suggest core stability has a significant relationship to athletic performance. Therefore, a sports performance enhancement program should include core stability training.

VISUAL ARTS ABSTRACTS

Threadz

Petrecia F. Arratia, MA Student, Communications

I am a 2010 graduate of the University of the Incarnate Words Fashion Management Program, with a concentration in design I am currently working on my MA in Communications. My artwork covers a broad spectrum of skilled concentrations including fashion design, interior design, mixed medium art, and collage. I have titled this visual arts display “Threadz”.

I am a skilled seamstress, milliner, designer, artist, mother, and woman. Most of what you see is a collaboration of skills and processes learned by means of formal education, apprenticeships, and lifelong learning. As the daughter of a master seamstress, I consequently wore beautiful and well-constructed garments. My mother taught me everything I know about garment construction, quality, and work ethics.

Inspiration for my works usually comes from a historical period, art genre, or creations of mother earth. I am not inspired by other designers or their work. I don’t read fashion magazines or watch much television. I live to be creative. It is my passion to bring beautiful works of art, fashion, and interior to life. Application of the elements of art and design are a common thread in my work.

The Modern Art Collection is an integral part of “Threadz”. It is a collection of 12 garments inspired by modern works of art from the 20th century. The 12 garments in this collection are simple design lines embellished with specific works of modern art from the 20th Century. Artists in this collection include the works by Alexander Rodchenko, Jackson Pollock, Robert Motherwell, Theo Van Doesburg, Georg Baeslitz, Kenneth Noland, and Ad Reinhardt.

Also included in “Threadz” are pieces of hand painted furniture, accessories, and collage works. The multi-faceted aspect of "Threadz" reflects the essence of my being. I am an artist who works with fabric, a fashion designer who incorporates art into her pieces. I design and create with mediums I am comfortable with. I research and self-teach when necessary. My work is serendipitous and a reflection of my life experiences.

Lobster Basque

Mary Lalon Alexander, MFA

Lobster Basque is an ensemble created to explore surface design techniques combined with high-end sewing techniques. Created for the missy bridge market, this separates ensemble uses the Pantone 2013 colors of Linen and Linden Green, merging spring and fall colors for the summer season. The purpose of this garment is to help teach construction techniques, while honing surface design and construction skills at the advanced level.

Multiple garments were sketched out to fill the possibility of teaching lined trousers and fitted bra-like bodices. This design was chosen based on multiple current trends in design. The garment was patterned using a combination of sloper manipulations, and drafting. Following a test muslin fitting, alterations were made to adjust the pattern.

This ensemble uses several advanced construction techniques. Inner construction of the under-bodice utilizes light-weight interlining, twill tape stabilization, and bra cups for support. The under-bodice, blouse, and trousers all feature exposed aluminum zippers with lobster pull tabs to reflect the lobster printed blouse. The extra-long bias-cut sailor bow draws the attention down to the tailored high-waist front panel pants.

The plain white voile fabric was printed and pin-tucked before the blouse was cut. The lobster pattern was created using Adobe Photoshop, and then burned onto a screen using a photo emulsion process. Following this process, the pintucks were marked and stitched.

Technologically Torn, Naturally Ruined

Theresa C. Alexander, MA

The purpose was to design a piece to a given brief. The design was to evoke illusions of desert planets, time-ruined abandoned civilizations, glints of sparkling rocks in sand dunes, and golden hieroglyphics all told in rough and deteriorating textures in colors of whites, deep sunset reds and blacks, and metallic midnight blues. Additionally, I used this project to further my skills in dimensional patternmaking.

The majority of the design elements were met in the embroidery design and execution. The red and black streaks recall linear sand dunes retreating over the horizon while the gold lettering is an adaptation of text found on an ancient Sabeian inscription. Highly textured embroidery was used to echo the idea of rough terrain and fraying jute was utilized to symbolize degradation.

The piece is entirely hand embroidered using needle and tambour techniques. The pattern was constructed three-dimensionally using a combination of traditional flat pattern methods and paper-draping techniques. This helped achieve a non-traditional skirt shape on the jacket. The embroidery design was painted on a paper copy of the jacket. Then the paper copy was disassembled into its component pieces and the paint was transferred into an embroidery pattern. The garment pieces were embroidered before assembly.

Material: Shell 60% wool 40% rayon; Underlining 100% silk; Lining 100% silk; Trim 100% jute; Pockets 55% linen 45% metallic; Embroidery includes wool, silk, rayon, cotton, nylon, glass, plastic, and other miscellaneous materials.

Musique for the Eyes

Carla J. Perez, Ph.D.

This piece combines the worlds of music and fashion. The commonalities are depicted. Both use texture: smooth (legato or satin) to rough (staccato or burlap). Both rhythm: One to move the music along the other to draw the observer's eye over the garment. Harmony occurs in each: Combination of pitches creates a unified sound or arrangements of colors, patterns, and line result in clothing that appears planned). The five parallel lines of silver piping along the hem represent the musical staff used for note placement. The neck and hem edges of the cape are shaped like the brackets used to join the treble and bass clefs. The ensemble has five different pieces (bustier, skirt, belt, crinoline, and cape) each serving a distinctive function but reliant upon each other to create a complete work (like the movements of a concerto).

Design Highway

Carla J. Perez, Ph.D.

This piece of apparel art depicts the similarities between roads/highways and apparel design. The dominant message is that successful design travel around the body, uses the entire space provided by the wearer as a canvas, and is not limited to merely decorating the front. Terms that describe such roadway features as dangerous curves, soft shoulder, and dead end that also reference the human body are applied to the garment with the intent to be humorous.

Millennial Quinceanera

Theresa A. Lopez, MA, MS

To prepare a young woman after a certain birthday, the Aztecs in pre-Columbian Central America sent their daughters to one of two schools; The Talmecac for nobility and the Telpochcalli for commoners. There they learned the importance of the rituals of the day when they became of age at fifteen years old. These coming-of-age rituals took on a different meaning when the Spanish and the Catholic Church arrived in Central America. Influenced by Maximilian and his wife, Carlota, the celebration became a lavish, social event to honor this stage of her life. Hence, the Quinceanera became the celebration of a young woman's coming of age, shared by friends and family at a meal with a large splendid cake.

The typical garment worn in a Quinceanera is a white ball gown to represent purity and the white organza of the garment depicts this image. Creating the two-layered shape garment required four circles of metal boning, with two of equal diameter for the top and two for the bottom. A 2:1 gathering ratio created the appearance of icing. The bodice was draped into a low V-neck in the front and back, resembling the Mexican sarape.

Materials included: fabric covered metal boning; twelve yards silk organza; gathered lace overlaid onto silk georgette; and two-inch white grosgrain ribbon;

Organza was doubled to form a casing to enclose the four circles of boning. The two top circles of boning have a smaller radius to form the upper layer of cake and the two bottom circles of boning have a larger radius to create the lower layer of cake. Monofilament was hand sewn from the highest layer of boning to the third layer of boning to stabilize the boning and create the "cake" shape.

Aligning three rows of gathered lace from center front to center back created the lace top.

