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3rd Annual UIW Research Days

February 2010



University of the Incarnate Word
4301 Broadway San Antonio TX 78209

February 26th

EVENT PROCEEDINGS

Sponsored by:

*UIW EARDA Project [Funded by the National Institute of Health]
UIW School of Graduate Studies and Research Office of Research Development [ORD]
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Dear Colleagues,

With great pleasure I welcome you to the University of the Incarnate Word's Third Annual Research Day. Today we celebrate academic accomplishment by showcasing the UIW faculty and student research and creative scholarship enterprise which contributes so much to our classrooms as well as to the world. We are indeed fortunate to belong to a community of educators and scholars seeking to advance our disciplines and help shape the broader community.

Elements crucial to the pursuit of academic excellence include a central place of reasonable and transparent discussion, where the path forward is determined by a critical examination of the past; a focus on reliable interpretations of the natural and moral world; the application of consistent standards of accomplishment; and the inclusive nature of truth-seeking, where insight is prized from commentators of all backgrounds. The relationship between these elements and the pursuit of knowledge remains even as disciplines change form and degree programs evolve. Today, more than ever, the world community must rededicate itself in support of academic environments which nurture this relationship.

As a result of a broad spectrum of work in higher education and by the significant achievements of faculty and students, University of the Incarnate Word enjoys a special place in the world of academe. The research presented today not only showcases disciplinary accomplishment in the art and practice of discovery, but serves to illustrate UIW's commitment to academic excellence.

Research Day would not be possible without the support and effort of many individuals. The list is too long to recount here in full, so instead I will simply indicate the groups that participated in organizing and sponsoring Research Day. These include the UIW EARDA project (sponsored by the National Institute of Health), the members of the Faculty Research Advisory Committee, the administrators and staff of the Office of Instructional Technology, and the School of Graduate Studies and Research Office of Research Development. To each individual who contributed to the planning and success of today's event I offer my sincere thanks and gratitude. To all presenters and attendees, please accept my best wishes on this special day.

Sincerely,

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

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INTERCULTURAL LEARNING IN A MULTICULTURAL CONTEXT

Absael Antelo, Ph.D., Dorothy Ettling, Ph.D., Sharon Herbers, Ed.D., and Alison Buck, Ph.D.

Purpose of Study

The purpose of the study is to assess how students of a doctoral program in education perceive their intercultural learning experiences as they grow to be more aware of cultural differences and become more competent to act and relate effectively in culturally diverse context.

Rationale and Significance

Multicultural education intends to facilitate the development of student sensitivity and an understanding of the values, norms, customs and traditions of other cultures. Accepting cultural diversity can lead to tolerance in the interactions among people with different cultural backgrounds. If this learning takes place early in one's educational life, it can help people appreciate, understand, respect and promote cultural differences in their social encounters.

Description of Methodology

A basic descriptive and interpretative qualitative design is considered an appropriate when the experiences of the participants are the main focus. A short survey was also employed during the first phase of the study. The second phase was conducted through the use of written reflections and interviews. The sample included 22 doctoral students seeking a Ph.D. in education from a private university located in Southwest Texas.

Findings and Conclusion

Eighteen students responded. The survey results indicated students do agree and strongly agree that engaging or involving teaching strategies are effective means to promote intercultural learning. Results of the second phase of the study included reflections and questions related to (1) How did the experiences of this course affect me?; (2) What new avenues of understanding opened up for me during this course?; and (3) What significant questions remain with me as we complete this course? The preliminary results of this phase produced a list of themes such as: peer interactions, intensity of relationships, teacher/ student interactions, cultural differences, identity.

In conclusion, intercultural learning is seen as a valuable strategy to teaching and learning. Participants felt were exerting control over their learning resources and that planning and delivering team presentations and conducting guided-group discussions in class were significant and meaningful experiences reflected in a sense of belonging, importance, mutual trust and engagement of all members of the group participating in the study.

GETTING SCIENCE STUDENTS TO PASS: A SUCCESSFUL COLLABORATION BETWEEN STUDENTS, STAFF, AND FACULTY

Cristina Ariza, MBA, Julian Davis, Ph.D., and Earl Harmsen, MA

Purpose of Study

The purpose of our study is to evaluate the PASS (Peer Assisted Study Sessions) program and identify opportunities for improvement. A formal evaluation process has become increasingly critical as the program has grown. We are particularly interested in assessing attendance patterns, students' perception of the benefits of the program, effectiveness of our training of our student leaders, and the characteristics of successful leaders.

Rationale and Significance

Students in science courses at the University of the Incarnate Word (UIW) have for many years had low success rates. Many UIW students lack the study skills required to succeed in college-level science courses. In response, we, a team have designed a modified Supplemental Instruction program. In the PASS program, successful undergraduate students, or Leaders, host study sessions in which they not only assist students in understanding course content, but also share study strategies and learning methods.

Description of Methodology

The research methodology employs the administration of an end-of-the-semester survey. The survey instrument was initially piloted in 2008 and has been refined each semester to include other courses and disciplines. In addition, attendance is recorded for each session.

Findings and Conclusions

Overall, student support of the program has been overwhelmingly enthusiastic. While the PASS program remains a work in progress, our initial findings have given us important insights into the success of the program and enabled us to make improvements to better serve the needs of our students. For example, investigation of the attendance patterns revealed that students in physics courses attend sessions much more often right before an exam than students in chemistry courses. We have also found that the leader's personality is very important in the administration of the program. This study has paved the way for additional research to gather data from key stakeholders, such as the peer leaders and course faculty.

THE EFFECT OF AN ERYTHROPOIETIN PROTOCOL ON POST-OPERATIVE TRANSFUSION RATES AND HOSPITAL LENGTH OF STAY

Donna Baldwin, BSN RN and Lafitte Holmes, BSN RN

Purpose of Study

This is a retrospective cross sectional study to investigate the hypothesis that erythropoietin (epoetin alfa) therapy increases the preoperative hematocrit, thus 1) reducing the need for blood transfusions and 2) decreasing the length of hospital stay in the elder Medicare population having unilateral knee arthroplasty (TKA).

Rationale and Significance

Anemic elderly patients about to undergo orthopedic surgery are at substantial risk for significant blood loss that increases their risk for transfusion. Blood management strategies to manage peri-operative blood loss include: allogeneic blood transfusion, normovolemic hemodilution, autologous blood cell salvage with reinfusion and hypotensive anesthesia. However, many of these techniques are contraindicated in elderly patients because of co-morbid conditions such as coronary artery disease, hypertension, and diabetes. Complication of allogeneic transfusion includes infection, fluid overload and an increased number of hospital days. An alternative to these techniques for managing peri-operative blood loss is pre-operative treatment with recombinant human erythropoietin or ProCrit, which is reported to reduce both the mean number of units transfused per patient and the risks associated with blood transfusion during elective orthopedic surgery.

Description of Methodology

Retrospective cross sectional chart review of twenty-five Medicare eligible patients treated for pre-operative anemia with ProCrit and twenty-five Medicare eligible patients without anemia status post unilateral TKA. From June 2008 to June 2009 a random sample was used to select the patients. Data was collected using an Excel spreadsheet for estimated blood loss, hemoglobin /hematocrit statuses, length of hospital stay and transfusion requirements comparing these two populations. The project was approved by the appropriate institutional review board committees before beginning the study.

Findings and Conclusion

ProCrit therapy was confirmed to significantly increase the pre-operative hemoglobin (mean=12.6 g/dl) in the anemic group by 1.2 grams ($t = -6.019$, $df = 23$, $p < .001$), so that 65% of these patients did not require a transfusion. However, 35% of the ProCrit group required transfusions with an average of 2.5 (± 1.5) units compared to 8% of the controls who required 1.5 ($\pm .7$) units. Blood loss and length of surgery were comparable between the two groups. The ProCrit group was older (73.8 vs. 66.8) and had significantly longer hospital stays, 4.3 (± 1.3) versus 3.59 (± 1.3) days ($z = -3.295$, $p < .001$). While the two groups closely matched for musculoskeletal and hypertension co-morbidities, the ProCrit group was observed to have a higher incidence of cardiovascular disease and diabetes. In contrast, the control group was significant for higher rates of smokers and coincident pulmonary disease.

ProCrit therapy effectively decreases the transfusion rate in elderly anemic post-operative patients. However, hospital length of stay was significantly longer than non-treated cohorts. Nonetheless, if ProCrit lessens an elderly patient's chance of receiving a transfusion, reducing health risks and complications, this ultimately reduces health care costs.

KIDNEY TRANSPLANTATION AND MEDICATION ADHERENCE

Judy Barrera, RN BSN and Stephanie Roberts, RN BSN

Purpose of Study

The purpose of this study was to examine the relationship between age, culture, cost of medications, complexity of the immunosuppressive medication regimen, and adherence/compliance with the medication regimen among a sample of renal transplant recipients at the Christus Transplant Institute in San Antonio, Texas.

Rationale and Significance

According to the literature, non-adherence to the medications after renal transplant is believed to be the major cause for allograft (transplant) rejection. Poor adherence to the immunosuppressive medications among renal transplant recipients can lead to unnecessary disease progression, complications, reduced functional activities, a lower quality of life, a return to dialysis, and even death. Some studies have identified factors/variables such as age, race, ethnicity, income, socioeconomic status, and memories of past dialysis as factors influencing adherence to medication regimens. However, few to no studies have examined the proposed variables together as well as any difference between patients transplanted within one year compared to patients who were transplanted four years ago.

Description of Methodology

Sample: The retrospective review of the medical record was conducted among a sample of 25 patients who received a cadaveric or living kidney transplant from October 1, 2008 to October 1, 2009 and a sample of 25 patients who received a cadaveric or living kidney transplant from October 1, 2005 to October 1, 2006. A systematic sample of 25 patients was drawn from the list of total patients in each time period.

Setting: Christus Transplant Institute in San Antonio, Texas

Instruments/Data Collection: Medical records were reviewed using a coded spreadsheet to collect information on the study variables by the lead investigator (Barrera). Each subject was given project identification. No names or other identifying information was extracted from the record.

Research Design: A descriptive correlational design was used to determine the relationship between age, culture, and cost of medications, complexity of the immunosuppressive medication regimen and adherence / compliance with the medication regime.

Data Analysis: Descriptive statistics, chi square, and Spearman correlational analyses were used to assess relationships.

Findings and Conclusions

The sample of 50 patients showed a mean age of 49 years (SD=14; range 22-75 years). There was not a significant difference in adherence amongst the different ages, cultures, cost of medications, and complexity of the immunosuppressive regimen. However, those transplanted in 2005-2006 showed a drop in the adherence rate. The difference between the 2 groups were significant (Chi Sq= 10.976; df=2; p=. 004). This information may prove valuable as transplant centers can minimize graft loss if patients are followed at least once yearly and not lost to follow-up. Limitations to this study were the small sample size and limiting the time span of only 2 years.

LONGITUDINAL RESULTS FOR NUMBER NAMES PROJECT

Judith E. Beauford, Ph.D. and Asha Hill, MS

Purpose of Study

To investigate the long term results of the use of explicit number names by Pre-kindergarten and Kindergarten in their first formal introduction to number and counting.

Rationale and Significance

The use of explicit number names as children first learn numbers and counting facilitates their understanding place value at a language level. Pre-K and Kinder children in this study have been taught to name all two digit numbers in terms of tens and ones (26 = “two-ten six”). If this intervention has been of value, they should show differences in their understanding of place value at subsequent grade levels.

The understanding of place value is the basis for all calculation of base-ten numbers. This intervention is easily transferrable to many curricula, languages, and cultures. If its benefits are real, the implementation of the use of explicit number names in any language or culture could equalize opportunity in mathematics and science for all children.

Description of Methodology

The intervention has been applied to all Pre-K and Kinder classes at a small private school in South Central Texas since 2003. The Stanford Test of Basic Skills is given in the school in the spring of each year beginning with Grade 1. Stanford scores for the Grade 1 classes of 2004, 2008, and 2009 were analyzed to compare the performance of the children who participated in the study for one year (n= 15), those who participated for two years (n = 55) with those who did not participate (n= 18). One-way and factorial ANOVAs controlling for local standing on the Stanford were used to investigate differences between the groups.

Findings and Conclusions

Children who had participated in the intervention for two years outperformed those who participated for one year on several subscales. Children who had participated in the study consistently outperformed those who had not in Number Sense and in certain instances in several other subscales. Children who had not used explicit number names outperformed those who did in the subscale of Computation with Symbolic Notation.

Results of this analysis seem to indicate some differences among the children who used explicit number names and those who did not. Further study with larger groups in the U.S. and with children from Mexico and Bolivia will check for similar results in those cultures. Extended analysis of data at the current research site, including other grades and cohorts, will clarify implications found so far.

PERSISTENCE TO DEGREE: A COMPARATIVE ANALYSIS OF YOUNG AFRICAN AMERICAN MEN AND WOMEN

Dalia Bishop, McNair Scholar and Kevin B. Vichcales, Ph.D., McNair Scholar Mentor

Purpose of Study

Vast amounts of literature, and even a cursory look around most campuses, reveal the fact that African American women persist to baccalaureate degrees in proportionately larger numbers than African American men. The study examines how mentorship and opportunities for personal development influence persistence to degree among young African American men and women.

Rationale and Significance

Commonly, educational research draws a comparison line between Whites and Blacks or among the African American community – though typically across academic-achievement lines. However, there is significantly less scholarship that addresses the educational disparity between Black men and women of similar academic preparedness and/or abilities. It is expected that such insight could contribute to discourse on educational equitability and to provide the framework for programs that would foster increased degree attainment among African Americans.

Description of Methodology

This pilot study uses both Morehouse and Spelman College as case studies in a mixed methods approach that seeks to address male and female differences in educational attainment among African Americans. Data was collected from the United States Department of Education, The Journal of Blacks and Education, and literature that focused exclusively on the role of HBCUs, like Spelman and Morehouse College, in higher education. The researcher analyzed differences in mentorship initiatives or style and leadership programs, looking for their influence on attrition rates.

Findings and Conclusions

While not contained to Spelman and Morehouse, faculty advising at these schools receives high priority. Similarly, an institution in which African American worldviews and economic outlooks are of the dominant culture offers a uniquely different psychosocial environment than predominately White institutions provide. By extension, single-sex schools like Morehouse and Spelman, in which most students are Black, seemingly unite students at the cross-section of racial and gender identity. Additionally, we find that the types of mentoring programs for Black first-year students involving upperclassmen and emphasis on traditional African American leadership at Morehouse and Spelman (typically related to historically Black fraternal organizations and through multicultural organizations) aids psychosocial development and, ultimately, retention. The model HBCUs use to retain and graduate Black undergraduates can offer valuable insight into how non-HBCUs can do likewise. Similarly, a comparative analysis of degree attainment across both genders at HBCUs has implications for educational equality at all post-secondary institutions. Often, non-HBCUs utilize a blanket model for retaining African Americans, leaving unanswered the disparate perspectives and cultural (dis)advantages each gender experiences or has experienced before coming to the university setting. This research concludes that formal and informal faculty mentorship, peer mentorship, and multicultural leadership opportunities are invaluable in retaining and assisting Black men as they persist to degree completion.

A COMPARISON OF THE RATE OF DELIVERY ON KNOWLEDGE RETENTION USING AN AUTOMATED, DIGITIZED, TECHNOLOGY-BASED INSTRUCTIONAL TRAINING TOOL

Terry Boord, Ph.D., Alan Dreeben Research Post-Doctoral Fellow

Purpose of Study

The purpose of the study was to compare the rate of instruction delivery on knowledge retention of students enrolled in business classes using an original automated, digitized, technology-based instructional training tool, under three delivery speeds. An original instructional tool—*Accelerated Auditory Digitized Training Media*—was designed, developed, piloted and tested for validity and modified by the researcher. The *Accelerated Auditory Digitized Training Media* was used as the research instrument for data collection.

This research focused on the use of the e-technology of the digital media in terms of its delivery and retention of knowledge, using a new language as the training content. This study compared the retention potential of a technology-based training instructional tool under three modalities to help deliver and learn a new language.

Rationale and Significance

The training of adult learners is considered one of the most important issues of work performance in contemporary global society. While there have been numerous studies and theories as to how this can best be achieved, the issue remains unresolved, particularly the point at which the transfer of knowledge is fast enough, accurate enough, and effective enough.

Description of Methodology

This study, focused on the observed impact of delivery speed differences in the rate of delivery - in the matter of knowledge retention. A quantitative, quasi-experimental, non-equivalent comparison group, post-test only design was used to systematically compare the cause and effect relationship. A total of 231 undergraduate and graduate students (or three groups of 77) meeting the eligibility criteria were included in the study.

Findings and Conclusions

This research evaluated the impact of the retention of knowledge when three different training delivery speeds were applied. The study sought to determine if there was any difference in retention of knowledge first, by comparing the number of correct responses between the comparison groups, and second, comparing the statistical mean between the comparison groups. Since the training was delivered at three different speeds and there were no statistically significant differences between the comparison groups, the findings suggest that the information was successfully retained. If the information is retained, there is a potential for reducing training costs. In addition, reduction in training costs increases training opportunities for a greater number of employees, which is particularly important for organizations. Based on the findings of this limited study, the results suggest that e-learning delivered at an accelerated speed has the potential to be beneficial for all organizations using e-learning for training purposes.

ASSESSING WOMEN'S PERSONAL AND SOCIAL EMPOWERMENT IN DEVELOPING COUNTRIES

M. Alison Buck Ph.D., Dorothy Ettling, Ph.D., and Tere Dresner-Salinas, MBA, Doctoral Candidate

Purpose of Study

UIW researchers are utilizing an evaluation tool to assess Tanzanian and Zambian women's perceptions of personal and social empowerment impact after participating in economic development programs offered by Women's Global Connection (WGC). The survey, Women's Economic Development Personal and Social Impact Survey (WEDIS), was designed and piloted in Tanzania in 2008. The question posed in this study is "What are the women's perceptions of new knowledge and skills gained and how are they able to apply their knowledge in their businesses, families and communities?"

Rationale and Significance

WGC's process for empowerment includes the key component of assessing the personal and social impact of the activities it has developed. Creating evaluation tools and collecting data systematically assists WGC in extending and adapting its process for women's economic development in other countries. Research demonstrates that women's development is a key factor in overall economic and health progress in developing countries.

Description of Methodology

A pilot study confirmed the content validity of the survey and its initial reliability. The survey contains 60 forced and multiple choice items about knowledge acquisition, behavior change, business, finance, and demographics. The survey incorporates six personal and social outcome indicators, particularly relevant to women in developing countries: 1) acquisition of knowledge and skills; 2) utilization of technology; 3) involvement in family decision making; 4) political-legal awareness and participation in public life; 5) physical mobility and social interaction; and 6) ability to manage economic resources. Results from the pilot study led to minor revisions for ease of response, insertion of additional items and response categories, and translation into Kiswahili for Tanzania and Slozi for Zambia. In 2009, 48 surveys were collected in Tanzania and 17 in Zambia.

Findings and Conclusions

Overall, the findings document that the women perceived themselves to have: 1) attained new business skills, farming knowledge, and ease with simple technology and 2) gained personal and social empowerment, especially related to family decision making, participation in community groups, making individual choices, and managing family money. Research demonstrates the benefit of participation in these programs.

OUTCOMES OF NURSE DIRECTED HEALTH SCREENING AND COUNSELING FOR COMMUNITY RESIDING HISPANIC ELDERS

Holly Cassells, Ph.D., Jennifer Cook, Ph.D., Jeanette Armstrong, BSN, Yvonne Davila, MSN,
Maria Gillespie, MSN, and Sara Kolb, Ph.D.

Purpose of Study

The purpose of this pilot study is to evaluate the outcomes of blood pressure monitoring at sites associated with the University of the Incarnate Word School of Nursing and Health Professions/St. Philip of Jesus Ministerio de Salud. The question explored in this first phase of an ongoing study was: Are there changes in the blood pressures of participants in a blood pressure monitoring program?

Rationale and Significance

In the United States, hypertension (high blood pressure) affects 65 million adults. Nearly 29% of the adult population has hypertension, with 67% of adults over age 60 having this chronic health problem (Administration on Aging, 2003). Forty-five percent of those with hypertension are being treated with medications, but only 29% have their condition under control. For 30 years, it has been known that Mexican American elders have a known predisposition to inadequately controlled hypertension (Satish et al., 1998). In 2006, the CDC reported that there are disparities in both treatment and control of hypertension based on ethnicity. Fewer Mexican Americans with hypertension are taking medications, and fewer have their hypertension controlled compared with both White non-Hispanic and Black Non-Hispanic adults. In addition, recent research (Eamranond et al., 2009) found that persons who speak Spanish in the home had worse control over cardiovascular risks.

Description of Methodology

Retrospective record reviews of blood pressure screenings were conducted. Individuals who had been screened at least once per quarter over a two year period of time (2007 through 2008) were included in the analysis. During 2008, 550 individuals were screened at the 7 sites. Of these, 110 (20%) were screened at least quarterly over this 2 year period of time. Their age range was 41 through 93 years with a mean age of 75 years. Ninety percent were female and 10% male.

Findings and Conclusions

Analysis of variance was used to examine differences in diastolic and systolic blood pressures between the first quarter of 2007 and the last quarter of 2008. There were no statistically significant changes, either up or down, among this group of people who have frequent monitoring of their blood pressures. Mean systolic blood pressure at time 1 was 135.52 and at time 2 was 136.46. Mean diastolic blood pressure at time 1 was 70.18 and at time 2 was 68.75. Individual blood pressure changes over the two year timeframe ranges from systolic changes of increase of 66 points and decrease of 62 and diastolic changes ranging from increase of 38 to decrease of 35. Further quantitative analysis is in progress.

The group blood pressure readings remained stable over 2 years, with no statistically significant increases or decreases. However, individual changes in blood pressures over time had clinical significance. Qualitative information about each individual could be useful to determine overall effects of obtaining frequent blood pressure screening for these elders.

Acknowledgement

This project is funded through DHHS Bureau of Health Professions, Division of Nursing, NEPR Grant D 11 HP005196

18Q- PATIENT BALANCE MODEL: DATA COLLECTION

Christine E. Clark, McNair Scholar and Michael Frye, Ph.D., McNair Scholar Mentor

Purpose of Study

This research compared the gait of a person with 18q- syndrome to a person without this genetic anomaly. Research questions included: What is the difference between a normal person's gait and the gait of a person with 18q-? Will the processed data from the Artificial Neural Network (ANN) give the same numerical outputs as the VICON system?

Rationale and Significance

Approximately 1 in 40,000 people is born with 18q- syndrome which is caused by the deletion of a part of the long arm of one of the copies of chromosome 18. The amount of chromosome deletion affects the severity of symptoms for people with 18q- syndrome. Most people with 18q- syndrome have an abnormal gait which can cause emotional and physical problems. People with 18q- syndrome do not have the common heel to toe ground reaction when they walk; they put a lot of force on their heel which can cause extreme pain. Because of the pain, 18q-syndrome patients tend to exercise less and have higher rates of obesity. It is also more difficult for them to participate in sports, dancing, and other outdoor activities. If a balance model could be produced to give a better prediction of these gait abnormalities, then preventative measures, such as exercise and training, could be implemented at an earlier stage increasing the chance of developing a more normal gait.

Description of Methodology

Data was collected using VICON of the gait of a person without 18q- syndrome. This data was organized in Excel and then imported into the MATLAB program. MATLAB then used a code to calculate the center of mass (COM). This data was imported into the Artificial Neural Network where it was compared to data previously collected on the gait of a person with 18q- syndrome.

Findings and Conclusions

Six determinants of gait were identified. These include: pelvic rotation, pelvic tilt, knee flexion in stance, foot mechanisms, knee mechanisms, and lateral displacement of the pelvis. When comparing the gait of a normal person to one with 18q- syndrome, the researcher found that the 18q- patients have less knee flexion, the heel to toe-off is significantly decreased, and they have a shorter stride and therefore less knee displacement. Further research will concentrate on constructing a mathematical model to predict the motion of gait for a person with 18q- syndrome. A mathematical model is important as it could be applied to the entire 18q- population.

A FOOT CARE PROGRAM FOR HISPANIC ELDERLY: HOW EVIDENCE DIRECTED DEVELOPMENT

Annette E. D. Etnyre, MSN, Perla Zarate-Abbott, MSN, Jean Deliganis, Ph.D., and Sara Kolb, Ph.D.

Purpose of Study

This outcome evaluation was designed to determine if a foot care program for Hispanic elders met the expected outcomes as proposed in the grant application.

Rationale and Significance

Rates of diabetes among Hispanics increase with age and poverty. Complications including peripheral neuropathy increase with age. Insensate feet are a major risk for non-healing foot ulcers and amputations. The South Central sector of San Antonio is 82 % Hispanic and 34% of the population live below poverty level. Diabetes prevalence, hospitalization rate, and mortality are greater in South San Antonio than the rest of the county or state. Identification and management of foot complications and appropriate self-management education can prevent amputations. A model of health promotion for community residing elders developed from a synthesis of relevant literature emphasizes that environment, relationships and self care abilities must be addressed. Tailoring health interventions for Hispanics is advocated to promote better outcomes.

Description of Methodology

Program goals are to provide access to no-cost foot screenings, foot care, and self-care education. Procedures were developed from the Lower Extremity Amputation Prevention Program, the National Diabetes Education Program and the Foot and Nail Care Certification curriculum. The program, funded by DHHS grant D 11 HP05196, is implemented at senior centers where *El Ministerio de Salud* has established health promotion relationships. All nursing interventions are available in English and Spanish. Cultural values of *personalismo*, *respeto* and *dignidad* are honored. Outcomes collected by interview include client understanding of program purpose, incorporation of self assessment skills, improved condition of skin and nails, and follow up on referrals. A convenience sample of 50 clients who had at least 3 visits with a foot care nurse were interviewed using a questionnaire.

Findings and Conclusions

Outcome evaluation is ongoing. Trends from interviews (n=50) indicate improvement in client awareness of importance of foot care (94%), self care practices (88%), and foot health (86%). Recommended referrals were kept by 62% of clients(n=13).

This additional component of health promotion enhances the outreach of the Health Ministry and to date outcomes have been met for a majority of clients. Repeated doses of educational information are necessary with this population. Repetition of recommendations for referral is essential. Bringing nursing interventions to the elderly in their community setting facilitates access to health promotion education and improved self care. This evaluation calls for research to determine the best strategies to promote health in an elderly population with limited resources and significant health concerns.

Acknowledgement

This project is supported through DHHS grant D 11 HP05196 and has also received support from Methodist Healthcare Ministries, Baptist Health Care and the Kronkosky Charitable Foundation.

DOES HAPPINESS PREDICT ACADEMIC SUCCESS?

Anna Marie Evans, McNair Scholar
Lisa Lockhart, Ph.D. and Don Lucas, Ph.D., McNair Scholar Mentors

Purpose of Study

The purpose of this study is to examine the relationship between happiness and academic success. The primary research question is: Does a student's happiness predict his or her academic success?

Rationale and Significance

It is unclear whether happiness predicts academic success. Studies of young children show evidence that happiness and academic success are linked (Quinn & Duckworth, 2007); whereas, studies of college students show no support for happiness predicting academic success (Okun, Levy, Karoly, & Ruehlman, 2009). The present study further examined whether happiness predicts academic success with a college-level sample in online and on campus courses. Lyubomirsky, King, and Diener's (2005) review of the research literature found happiness to be a predictor of success within multiple life domains. The present study adds a life domain to those reported by Lyubomirsky, King, and Diener: happiness predicts success within the online college classroom. However, the present preliminary results must be interpreted with caution until replication from further investigations.

Description of Methodology

Three hundred eighty-three college students served as participants. During the first week of the semester, participants completed a survey packet composed of six instruments. Each of these instruments measures different positive emotions. The instruments were: the Self, Environment, Action-Weighting Instrument (SEA-WI; Lucas, Evans, Huegal, Bara-Escobedo, & Sanchez, 2009), the Single-Item Scale for Measuring Happiness (Abdel-Khalek, 2006), the Satisfaction With Life Scale (SWLS, Diener, Emmons, Larson, & Griffin, 1985), Oxford Happiness Questionnaire (Hills & Argyle, 2002), the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999), and the Positive and Negative Affect Schedule (Crawford & Henry, 2004; Watson, Clark, & Tellegen, 1988). At the end of the semester, the participants' professors included the participants' final course grades on their respective survey packets. Pearson correlations were then run between the participants' positive emotion scores (as determined by the above-mentioned instruments) and their final course grades.

Findings and Conclusions

Participants' overall positive emotion scores on the six instruments are consistent with those scores reported in the previous research literature, demonstrating the valid use of the instruments. For example, the present study found the mean SEA-WI score to be 3.5. This score is consistent with what has been previously reported by Lucas, Evans, Huegal, Bara-Escobedo, and Sanchez (2009) – who found the SEA-WI score mean of 3.3. The data were divided into two groups: participants who were in on campus courses ($n = 227$) and participants who were in online courses ($n = 48$). For participants who were in on campus courses, not one of the six Pearson correlations between positive emotion scores and final course grades was found to be statistically significant ($ps > .05$). However, for participants who were in on line courses, the Pearson correlation between their positive emotion scores on the SEA-WI and their final course grades approached statistical significance, $r(46) = .27, p = .06$.

IMPROVING COMMUNITY COLLEGE STUDENT LEARNING OUTCOMES IN BIOLOGY

David S. Fike, Ph.D.

Purpose of Study

The purpose of this prospective cohort study was to determine if implementation of the Keller method would be beneficial for community college biology students, leading to improved learning outcomes and neutralizing learning disparities associated with student gender and race/ethnicity.

Rationale and Significance

An instructional method that has demonstrated the potential to help students achieve successful learning outcomes in a variety of academic disciplines is the Keller method. With the Keller method, students progress through course learning modules at their own pace. Students are allowed to test repeatedly on module exams until competency is achieved. This is the first known study to use path analysis to confirm theory that the Keller method creates a learning environment where community college biology students are able to achieve improved learning outcomes and neutralize disparities associated with race/ethnicity.

Description of Methodology

Anatomy & physiology (A&P) courses were developed using the Keller method framework. 168 students in the A&P courses completed 1801 learning modules. To confirm that the Keller method creates a learning environment where community college biology students are able to achieve improved learning outcomes regardless of initial levels of preparedness, a path analysis was conducted using structural equation modeling software. T-tests assessed differences by gender and race/ethnicity for baseline scores, final (best) scores, number of exam attempts and mean time for exam attempts per module. Two-way analysis of variance was used to test the interaction effect of gender and race/ethnicity on final scores. A qualitative review of the benefits and limitations of implementing the Keller method in A&P courses in the community college was conducted. The significance level was set at .05.

Findings and Conclusion

Path analysis confirmed the benefits of the Keller method. All student groups achieved mean learning gains of at least 40% over baseline, and multiple module exam attempts produced mean increases of 6% per attempt in final scores. With the Keller method applied to A&P courses in the community college, non-Caucasian students were able to “close the gap” in final learning outcomes.

This study demonstrated that application of the Keller method within the community college was associated with improved learning outcomes for non-traditional students in a biology course. Findings suggest that the Keller method provides measureable benefits and should be considered for use in community college settings where there are race/ethnicity disparities in learning achievement.

EVALUATING PREDICTORS OF SUCCESS ON THE PEDAGOGY AND PROFESSIONAL DEVELOPMENT TEACHER CERTIFICATION EXAMINATION

Renea Fike, Ed.D., Elda Martinez, Ed.D., and David S. Fike, Ph.D.

Purpose of Study

The purpose of this study is to examine academic as well as demographic data in an effort to determine predictors of success on the Texas Pedagogy and Professional Development (PPR) exam required for teacher certification. This exam culminates a teacher candidate's preservice preparation. Understanding the predictors of success may help guide instructional and programmatic development in the teacher preparation program. Teacher candidates would benefit from early support efforts as teaching faculty may be better able to identify student and program needs.

Rationale and Significance

Teacher candidates must complete many requirements in their quest for teaching certification. While most students successfully complete coursework, perform well in field-based experiences, and present the social and professional skills to indicate expected success in the profession of teaching, many candidates struggle with the required certification exams despite success on the practical requirements. Teacher education programs are facing increasing accountability for retention and performance of their candidates. Consequently, it is a mutual benefit for pre-service teacher and program alike to support candidates through all requirements leading to certification.

Description of Methodology

For this retrospective study, academic and demographic data for 173 University of the Incarnate Word teacher education students from 2005-2009 were analyzed. Descriptive statistics including means, standard deviations and percentages were calculated to characterize the sample. Bivariate and multivariate analytical methods were used to assess performance of students on the PPR. Inferential statistical analyses included t-tests, one-way anova, correlation coefficients, chi-square and multiple regression.

Findings and Conclusions

1) Ninety-nine (99%) of the students were successful on their first attempt of the Official PPR exam. 2) Variables correlated with Initial Practice and Official PPR scores include GPA, Nelson Denny score, THEA scores and race. None of these variables were associated with Passing Practice PPR scores. 3) Multivariate analysis revealed that THEA Reading and Math scores were the only significant positive predictors of Initial PPR scores. 4) Multivariate analysis revealed the following significant positive predictors of Official PPR scores: GPA, White, and THEA Math score. The number of Practice PPR Attempts was a significant negative predictor.

Utilizing the data from this study, the Teacher Education Program will 1) continue to allow students to retest on the Practice PPR examination which provides the opportunity to close the gap between those who pass on the initial attempt and those who test repeatedly before passing the Official PPR exam, 2) continue to provide a competency-by-competency test analysis (formative assessment) of each Practice PPR exam attempt supplying critical information to the students to direct their studying, 3) explore the possibility of adding a critical thinking component to individual courses as well as a criteria for program acceptance, and 4) explore the possibility of an aggressive early intervention for students with lower Reading and Math scores.

POETIC ASSOCIATION: SHAKESPEARE'S USE OF THE PROLOGUE TO ENHANCE SOCIAL STATUS

Guadalupe Flores, McNair Scholar and Robert Ball, Ph.D. McNair Scholar Mentor

Purpose of Study

The study addresses the ostensibly multiple and conflicting purposes of the Chorus character by examining his prologue in William Shakespeare's *Henry V*. Research questions include: a) What was Shakespeare's overarching intent regarding the character and his text; b) Why has the character engendered conflicting and at times overtly hostile interpretations by scholars; and c) What does the prologue suggest about the political and social relationships between the noble class and performers, and the audience of Shakespeare's era as a whole?

Rationale and Significance

Shakespeare's *Henry V* has been subject to extensive analysis, but historically has been examined largely as a textual work. This has skewed the interpretation of the Chorus' purpose, as well as that of his prologue, with an incorporation of performance analysis often lacking. Previous examinations have perceived the Chorus and his prologue to *Henry V* as a function of, and a party to, England's imperial ambitions, disregarding the possibility of a subtler and more sublime purpose. As a result, a full and comprehensive grasp of the playwright's intent has not been achieved.

Description of Methodology

Two methodologies were utilized in the course of research: examination of existing scholarly literature, and a rhetorical criticism method, specifically a modified cluster approach. Extant sources include essays from *The Shakespeare Quarterly*, biographies by Peter Ackroyd, Nathan Drake, and Hamilton Wright Mabee, and numerous works on the political, cultural, and social milieu of the Elizabethan era. The modified cluster method ascertained associations between words or groups of words described as "term-relationships," with a specific focus on two Elizabethan Age social groups - the ruling class and the theatrical class.

Findings and Conclusions

The research has made the following evident: an examination of Shakespearean text at any level benefits from an accounting of the performance aspect; the relationship between the ruling class and Shakespeare's chosen social group was complex and resists facile categorization; the intentions of either Shakespeare as playwright or actor (he most likely would have performed in *Henry V*) were as densely convoluted and multifaceted as the text itself; and that associations occur within the prologue in a regular and consistent pattern. The findings using two methodologies are extensive and indicate that analysis beyond the close reading of text allied with the use of existing critical works can be more fruitful. The dual-approach analysis provides the opportunity for a comprehensive grasp of the playwright's intent using diverse but complementary techniques, and can be extended and applied to the remainder of the Chorus' text in *Henry V* beyond the prologue, with the prospect of examining a third element in the relationship matrix – that of the audience members who were part of the rising middle class, as well as the poor and impoverished.

**ACTIVATION OF DNA TOPOISOMERASE I AND DNA TOPOISOMERASE II IN
NUCLEI OF INTERLEUKIN-2-TREATED HUT 78 CELLS**

David Foglesong, Ph.D., Minh-Hieu Pham, Navya Kondapalli, Adi Singh, Tripti Jaiswal,
Jingjing Ma, and Leonard Contreras

Purpose of Study

The purpose of this study is to determine whether DNA topoisomerase I and DNA topoisomerase II are activated in interleukin-2-activated human T cells.

Rationale and Significance

Activation of DNA topoisomerases by a signal molecule represents a novel mechanism for control of gene expression in human cells. HuT 78 cells are activated by interleukin-2 (IL-2), an extensively characterized human signal molecule that acts as a growth factor for T cells. Thus, the results are highly relevant to the function of the immune response.

Description of Methodology

The activities of DNA topoisomerase I and DNA topoisomerase II were measured in HuT 78 cells, a human T cell lymphoma cell line, after treatment of the cells with interleukin-2 (IL-2). HuT 78 cells were treated with 1,000 units IL-2/ml, and extracts of the nuclei were prepared from 0 to 12 hours after treatment. The activity of DNA topoisomerase I was assayed by relaxation of supercoiled pBR322 DNA. The activity of DNA topoisomerase II was assayed by unknotting of P4 DNA, decatenation of kinetoplast DNA, and cleavable complex formation. The decatenation activity was sensitive to etoposide, an inhibitor of DNA topoisomerase II.

Findings and Conclusions

The specific activities of both enzymes were determined in units/mg protein. The specific activities of both DNA topoisomerase I and DNA topoisomerase II increased 3- to 11-fold in nuclear extracts prepared from HuT 78 cells in three transient, concomitant peaks observed at 0.5, 4, and 10 hrs after treatment with IL-2. The specific activities of both enzymes returned to baseline values after each peak. These results indicate that the activities of DNA topoisomerase I and DNA topoisomerase II are extensively regulated in activated human T cells, and they suggest that both DNA topoisomerase I and DNA topoisomerase II function in both transcription and DNA replication in IL-2-activated T cells.

Acknowledgements

This work was supported by grants from the Morrison Trust, the Clair Booth Luce Foundation, the NIH (HD 52388), and UIW.

HYPNOTIZABILITY IN MILD HEAD INJURY

Eleonora C. Garcia, McNair Scholar and John Velásquez, Ph.D. McNair Scholar Mentor

Purpose of Study

The study examined hypnotizability data to determine the typical symptom profile of persons with mild head injury. Research questions included: a) Can persons with mild head injury be hypnotized; b) Are there negative side effects of the hypnosis; c) What are the primary diagnostic features of mild head injury; d) Can mild head injuries be classified as “trauma”; and e) Do mild head injuries involve dissociation?

Rationale and Significance

There are no previous hypnotizability studies on mild head injury. If this population can be hypnotized, then hypnosis can be considered as a treatment option. The audiences that will benefit from this research are the patients with mild head injury who exhibit Post Concussion Symptoms (PCS), which include: unconsciousness, headaches, and disorientation. For individuals with mild head injuries, research could determine whether hypnosis can be used as a substitute for drug therapy. Hypnosis could also be used in conjunction with drug therapy to enhance outcomes for patients (Sterr, et.al, 2006).

Description of Methodology

Fourteen participants were recruited from psychology classes on the UIW campus. Approximately half of the participants had a history of a mild head injury and symptoms consistent with PCS. A control group consisted of participants with no history of prior head injury. Participants were administered the Hypnotic Induction Profile (Spiegel, & Spiegel, 1978), Questionnaire of Experiences of Dissociation (QED; Riley, 1988), the Rivermead Post-Concussion Symptoms Questionnaire (RPCS; King, Crawford, Wenden, Moss & Wade, 1995), and the Cognitive Failures Questionnaire (CFQ; Broadbent, Cooper, FitzGerald & Parkes, 1982).

Findings and Conclusions

The mean for the Rivermead Post-Concussion Symptoms Questionnaire was 0.71; this was expected from the college student population because these students are overcoming Post Concussion Symptoms by constantly training their brain for better concentration and better memory. For the CFQ, the participants reported an average mean of 1.18 of cognitive failures occurring in their daily lives. As for the QED, 13 was the cut off score which is a safe range to be hypnotized, and each participant reported an average mean of 7.57 dissociation experiences. For the HIP, the highest score that the participants could achieve was 12 and the mean score for this study was 8.61. As for correlations, a very significant correlation of 0.5 was found between the QED and CFQ.

RELATIONSHIP OF SPIRITUALITY AND RELIGIOSITY TO LONGEVITY IN OLDER LATINO ADULTS

Carmen Sarah Gauna, McNair Scholar, M. Felix-Ortiz, Ph.D. McNair Scholar Mentor,
Luciana Torres and Rachel Walsh

Purpose of Study

The purpose of the study was to examine the relationships between spirituality, religiosity, and longevity in older Latino adults while taking into account meaning in life and satisfaction with life as possible influences. Research questions include: a) Do religious or spiritual practices contribute to longevity? b) Does Satisfaction with Life/Meaning in Life influence the relationship of spirituality/religiosity to longevity?

Rationale and Significance

To date there is limited literature regarding the measure of spirituality and religiosity. Moreover, even fewer studies have been conducted that investigate religiosity and spirituality while taking elder adults of ethnic, religious or non-religious backgrounds into consideration. Studies that have investigated the relationship in elders often lack samples that include Latino elders. Current census data indicates the population of U.S. Latinos older than 64 is one of the fastest-growing segments of elderly Americans. With the target increase of both our elder and Latino population further investigation into what accounts for their well-being may prove to be a valuable investment.

Description of Methodology

The process of the study was conducted using a mixed methods approach. A semi-structured study helped in the process of collecting data and personal experiences. Data were collected from 29 Latino elders age 65 or over. Measures included the Satisfaction with Life Scale (SWLS), a 5-item scale assessing life satisfaction; a 10-item self-reported measure of overall health; a Meaning in Life Questionnaire (MLQ), consisting of two 5-item subscales measuring the Presence (MLQP) of and Search (MLQS) for meaning; and the Brief Multi-dimensional Measure of Religiousness and Spirituality (BMMRS), a 40-item scale consisting of 12 subscales.

Findings and Conclusions

As expected, overall self ranking of religiosity correlated with overall self reported health, $r = .33$, ($p < .09$). Self ranking of spirituality was negatively correlated with number of medications, "taken only as needed," $r = -.34$ ($p < .07$). Similarly, private religious practices were negatively correlated with the number of medications "taken only as needed;" $r = -.24$, ($p < .11$). Both findings indicate that more spirituality was associated with less medication use. Does satisfaction with life and meaning in life influence the relationship between religiosity and longevity? The Satisfaction with Life scale correlated positively with overall self-reported health, $r = .36$ ($p < .03$); similarly, the MLQ-S positively correlated with the self reported activity level, $r = .33$, ($p < .04$). Furthermore, there were also correlations between these and religiosity/spirituality: Spiritual Experiences correlated with Satisfaction with Life, $r = .60$ ($p < .001$); Private Religious Practices correlated with Satisfaction with Life, $r = .35$ ($p < .03$); and Daily Spiritual Experiences positively correlated with Meaning in Life-Presence, $r = .55$ ($p < .001$), and with Satisfaction with Life, $r = .56$ ($p < .001$). These latter relationships indicate that satisfaction with life and meaning in life account for some of the relationship between religiosity and good health outcomes. It may be important for doctors and clergy to support Latino elders' sense of meaning in life and satisfaction with life as a health maintenance strategy.

USE OF ESSENTIAL OILS TO TREAT METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS IN END OF LIFE: A CASE STUDY

Irene Gilliland, RN, CNS, ACHPN

Purpose of Study

The aim of this study was to examine the effectiveness of the use of essential oils to treat symptomatic Methicillin-Resistant Staphylococcus Aureus (MRSA) infection which did not respond to conventional antibiotics. More specifically the research question is can Lavender be used to treat MRSA infection of the eyes and nares that did not respond to conventional intravenous, oral, and topical antibiotics?

Rationale and Significance

MRSA is resistant to most antibiotics and is an important cause of mortality and morbidity in older adults. Up to 24% of all residents living in long term care facilities are colonized by MRSA but have no symptoms. Some long term care facilities place patients in isolation whose cultures are positive and whose infected drainage cannot be contained. Patients who are terminal and on hospice are limited by the hospice benefit as to what treatments they can receive. Isolating patients for up to years sometimes affects the quality of life for these patients. Several researchers have documented the effectiveness of specific essential oils in treating MRSA (Buckle, 2007; Edward-Jones, 2004; Roller et al, 2009).

Description of Methodology

This study is a case report of one patient who had been in isolation at the long term care facility for 3 years prior to her hospice admission. Cultures taken from her eyes and nares continued to identify Staphylococcus aureus in spite of attempts to treat with multiple oral, topical and IV antibiotics. A mixture was made of 15 drops of *lavendula angustifolia* in 500 cc of normal saline. Nasal and eye cultures were done prior to starting the treatment. The instructions to staff were to vigorously shake the mixture, soak a cotton ball wand wash the eye with one movement from the corner to the periphery twice a day. The same solution was applied to a Q-tip and both nares wiped twice a day.

Findings and Conclusion

Symptoms of active infection (red, draining, itchy eyes) subsided after 7 days of treatment. Cultures after four weeks of treatment were negative for MRSA.

Symptomatic MRSA infections affect quality of life especially if contaminated drainage cannot be contained and the patient is forced to stay in isolation. The use of essential oils provides a safe, cost effective, non obtrusive way to treat MRSA and improve quality of life for the terminally ill patient. More research is needed to add to the existing body of evidence of the antimicrobial properties of essential oils.

CARDIOVASCULAR AND RENAL RESPONSES PRODUCED BY THE CENTRAL MICROINJECTION OF SALVINORIN A (SAL A) IN KETAMINE/XYLAXINE-ANESTHETIZED RATS

H. B. Gottlieb, Ph.D., L. Ji, MD and J.T. Cunningham, Ph.D.

Purpose of Study

The goal of this study is to identify the cardiovascular and renal effects produced by central administration of Sal A. The hypothesis of this study is that central administration of Sal A produces marked effects on cardiovascular and renal function by modulation of selective central nervous system (CNS) regions in the forebrain and hindbrain.

Rationale and Significance

Salvia divinorum is a plant originally grown in Oaxaca, Mexico. One of its active ingredients, Sal A, has been shown to be a kappa opioid receptor agonist. The activation of CNS kappa opioid receptors markedly affects renal function (water diuresis) in a manner that is different from any clinically used diuretic to date. However, the cardiovascular and renal effects produced by central administration of Sal A are yet to be determined.

Description of Methodology

Sprague-Dawley rats were implanted with chronic arterial, venous and bladder cannulas and infused with isotonic saline (55 ml/min, iv) containing ketamine (1 mg/Kg/min) and xylazine (80 mg/Kg/min), which is used to induce anesthesia. After equilibration of blood pressure and renal function, urine was collected during two control periods (C, 10-min ea) and immediately after central injection of Sal A (10 nmol; n=5 or 30 nmol; n=7) for 80 min (10-min ea). Controls received injections of vehicle (DMSO) into the lateral ventricle (n=6). These measurements reflect the Sal A-mediated CNS effects on cardiovascular and renal function.

Findings and Conclusion

Injection of Sal A into the lateral ventricle markedly increased urine output (V) without significantly changing urinary sodium excretion (UNaV) or blood pressure.

In anesthetized rats, Salvinorin A selectively affected urine output (diuresis), whereas the activation of central kappa receptors U-50488H affects both urine flow and UNaV. From these studies, it is apparent that Salvinorin A's effects on renal differ from those elicited by central kappa agonists (endogenous and synthetic).

Acknowledgment

Supported by HL62579 and NIH EARDA grant

IDENTIFYING THE CHARACTERISTICS OF POTENTIAL AMERICAN MEDICAL TOURISTS FOR SOUTH KOREA

Michael Guiry, Ph.D. and David G. Vequist, Ph.D.

Purpose of Study

The purpose of this in-progress research project is to identify the characteristics of American medical tourists who would be willing to travel to South Korea for medical treatment.

Rationale and Significance

One of the up and coming countries, providing healthcare options to the world, is the country of South Korea. The country is already very popular with wealthy citizens in Southeast Asia who are in the market for high-quality health care at a low cost. South Korea has set the ambitious goal of having at least 100,000 foreign patients annually by 2012. Since one of the potential markets for the South Korean medical tourism industry is patients from the United States, it is important to identify the characteristics of potential American medical tourists to help the Korean government, hospitals, clinics, and other medical tourism industry participants develop more effective segmentation, positioning, and international marketing strategies to attract more American medical tourists.

Description of Methodology

Data were collected via an online survey of a convenience sample of potential medical tourists residing in the U.S. To administer the survey, U.S. medical tourism facilitators were asked to send the survey link to potential medical travelers who had contacted them in the past. Therefore, this population is assumed to be made up of Americans who were interested in medical tourism and had made an effort to find out more. To encourage participation, each respondent, who completed the survey, was paid \$10. Three thousand potential medical tourists were contacted by the medical tourism facilitators. The response rate was 51.2 percent, leading to a final sample size of 1537 respondents.

The questionnaire contained a number of scales from the marketing literature, i.e., modified brand personality scale (27 items; $\alpha = .96$), modified SERVQUAL scale (15 items; $\alpha = .98$), the SERPVAL scale (27 items; $\alpha = .98$), and the LOV scale (9 items; $\alpha = .93$). Additional items measured desired medical treatment, preferred sources of medical tourism information, preferred tourist and leisure activities, and demographic characteristics.

Findings and Conclusions

Preliminary data analysis showed no significant differences in the demographic characteristics of survey respondents willing to travel to South Korea for medical care and respondents not willing to go to Korea for medical treatment. Significant differences were found between these two groups when comparing their responses to the brand personality, SERVQUAL, SERPVAL, and LOV scale items. Respondents who indicated that they would go to South Korea for medical treatment perceive Korea to have a stronger medical tourism brand personality (e.g., sincere, imaginative, up-to-date, and successful), have more positive perceptions of the service quality of international healthcare providers and facilities, believe that using medical tourism services will lead to more positive value-based outcomes (e.g., more family security, more self-esteem, and a more pleasurable life), and put more importance on having particular values (e.g., excitement, warm relationships, and self-fulfillment) in their daily life than respondents who indicated that they would not go to Korea for medical care. These initial research results suggest opportunities for the South Korean government, hospitals, clinics, and other medical tourism providers to develop segmentation, positioning, and international marketing strategies to target American medical tourists.

COMMUNICATION COACHING AND PERSISTENCE IN A GATEKEEPER COURSE

Susan Hall, Ph.D., Theresa M. Tiggeman, MBA, CPA, and Meng-Tung Chen Doctoral Candidate

Purpose of Study

This study examines implementation of cooperative learning in Accounting I, specifically whether instruction in communication skills is associated with stronger academic performance. The coaching entailed class discussion of what effective group work on accounting problems “sounds like and looks like” followed by the instructor’s occasional reinforcement of key points. The study addressed three hypotheses: a) Coached students will perform better on tests/exams; b) Coached sections will earn higher course grades; and c) A larger percentage of coached students will complete the course successfully

Rationale and Significance

Identifying factors associated with improved success in a gate-keeper course, such as Accounting I, is a recent research focus with practical implications for entire programs. Also, much research on cooperative learning in accounting is based on a different theoretical model. This study is grounded in the Johnson, Johnson & Smith model which defines five essential elements of cooperative learning: positive interdependence, face-to-face interaction, individual and group accountability, development of teamwork skills, and group processing.

Description of Methodology

This quasi-experimental study lasted for two semesters with an experimental section and a control section each semester. The sections were randomized to treatment, and statistical analysis indicated that they had similar demographics. The same instructor and teaching assistant together taught all sections, and all enrolled students (N = 101) participated in the study. The independent variable was communication coaching and the dependent variables were test, exam and course grades. The treatment, communication coaching, consisted of brief but explicit instruction in small group discussion. Specifically, students generated and discussed ideas of what good problem solving within their groups would “look like and sound like.”

Findings and Conclusions

Hypothesis #1: Some, but not all, test/exam grades were higher in coached sections. Test 1 higher, coached (p = .014); Test 2 higher, coached (p = .019); and Test 3 and final, no significant difference

Hypothesis #2: Average course grades were higher for coached sections.

81.2% coached vs. 71%, uncoached (p = .023)

Hypothesis #3: There were more successful completers in the coached sections.

92.6 % successful completers, coached vs. 76%, uncoached (p = .021)

The research design did not establish causality; however, students receiving communication coaching consistently outscored the others, suggesting a benefit from the treatment. The instructor used base groups - long-term groups of four students - for problem solving in all sections. Because it provides norms favoring interaction over passivity and offers specific tips on conducting academic discussions, coaching may have enhanced the effect of base groups, a classic collaborative teaching strategy. Base groups in the coached sections also displayed more cohesion - groups had names, students attended more consistently and they texted tardy peers urging them to join class. Taken together, the findings suggest that simply implementing a collaborative strategy may be less effective than also teaching students how to use it. The higher percentage of successful completers in coached sections is the study’s most practically significant finding, since only those who successfully complete the “gate-keeper” course can move forward in a program.

CROSS CULTURAL COACHING: POSSIBLE IMPACTS ON DEVELOPING SWIMMERS IN DENMARK

Tim Henrich, Ph.D., Gregory Soukup Ed.D., and Bill Carleton, Ed.D.

Purpose of Study

We sought to determine whether an American had a negative impact on developing Danish swimmers by comparing perceptions of coaching behaviors between American and Danish Swimmers matched for age and grade and trained by the same coach during adjacent time periods.

Rationale and Significance

In international sport, expatriate coaches often work in sport development. At the elite level these exchanges pose minimal problem for highly motivated international competitors while a developing athlete may not be as resilient to substantial cultural differences.

Description of Methodology

We obtained informed consent from the Americans and Danes with the same consent forms were translated into Danish language and reviewed by three bilingual Danes with competitive swimming experience. The questionnaire was given to age and sex matched Danish and American middle school age swimmers. The questionnaire given to the Danes was administered by a bilingual Dane who had helped translate the questionnaire. The questionnaire given to Americans was administered by another individual familiar with the questionnaire. We used an independent t test to determine if there were significant differences between Danes and Americans in their coaching behavior preferences or observations. A questionnaire was given to the Danes only, to determine the impact of language differences between the coach and swimmers.

Findings and Conclusions

We observed the following in coaching behavior observations between Danes (D) and American (A) swimmers (Mean± SEM) Technical Knowledge, (D 9±.4 A 9±.27, P>05), Suitable Personality (D 8.75±.6 A 9.4±.33, P>05), Communication Skills (D 8.75±1.0 A 9.5±.24, P>05), Participates in Group Activities (D 6.3±.66 A 5.5±.77, P>05), Rule structure (D 7.8±.4 A 7.2±.5, P>05), Communication of Racing Strategy (D 8.9±.28 A 9.3±.3, P>05), Communication of Tactics (D 7.9±.33 A 8.3±.26, P>05), Communicates Training Instructions (D 8.6±.41 A 8.75±.37, P>05), Interest in Well Being (D 8.9±.12 A 9±.14, P>05), Expertise Communicated (D 9.6±.27 A 9.2±.22, P>05), Communication of Authority (D 7.8±.36 A 9.6±.29, P>05), Demonstration of Leadership (D 7.1±.42 A 9±.39, P>05), Example for Pursuit of Excellence (D 7.8±.49 A 9.1±.37, P>05), Danes' evaluations of the American coach in the language and cultural contexts were: Enjoyed American Coach (9.1), Made Significant Progress (8.4), Developed English Skills (9.8), Influenced my outside activities, (7.5), Would enjoy an international coach again, (9.6), Influenced my ability to learn, (7.9), Influenced Relationship With Coach, (7.5), Influenced my ability to communicate, (8.0), Influenced outside activities, (3.5), Made learning racing strategy difficult to learn, (5.8), Made it difficult to understand rules, (6.3), Made it difficult to understand training (6.1), Made it difficult to understand stroke technique (5.4), Did not limit my understanding of the coach's interest in my well being, (7.0), Made it difficult for me to evaluate the coach's level of expertise, (7.4), Did not limit the coach's ability to establish authority (9.7) Did not limit the coach's ability to lead, (9.1).

We found no significant differences between Danes and Americans in their coaching behavior preferences and observations. The American coach had minimal negative impact on the Danish swimmers with regard to preferred coaching behaviors. The language differences had minimal impact on the Danish swimmers.

“I HAVE JUST BEGUN TO LIVE”: THE LIFE AND TIMES OF LILIAN WYCKOFF JOHNSON

M. Sharon Herbers, Ed.D.

Purpose of Study

In 1916 at the age of 52 Dr. Lilian W. Johnson declared that she had “just begun to live” in a letter to friends in the Wellesley College class of 1885. Johnson, a woman with a doctorate from Cornell (1902), former faculty member at Vassar and the University of Tennessee, and president of a women’s college in Ohio, viewed her work in a rural community as the beginning of a new life. She planned to establish cooperatives which would lead to independence and sustainability for local farmers while stimulating growth in schools, health care, and transportation systems. Johnson faced many challenges and barriers. Denzin (1989) states, “A basic question drives the interpretive project in the human discipline: How do men and women live and give meaning to their lives and capture these meanings in written, narrative and oral forms?” (p. 11). The guiding research questions for this project are: How did Lilian Johnson address the cultural and social barriers of her time and context? What meaning did she find in this work?

Rationale and Significance

Johnson deeded the home she designed and her land, once the site of “a co-operative association of city and mountain folk with a kindred purpose,” to Highlander Folk School (HFS), an adult education center involved in major social movements since 1932. Johnson’s contribution as benefactor is noted in books about Highlander (Adams, 1975; Bledsoe, 1969; Glen, 1996; and Horton, 1998). A deeper understanding of Johnson’s legacy and the barriers she encountered will yield insight for community organizers seeking to bring social change and for individuals facing transitions in mid-life.

Description of Methodology

Review of documents found in the Lilian W. Johnson Collection at Western Reserve Historical Society in Cleveland, Ohio, the Highlander Collection of Wisconsin State Historical Society in Madison, the *Annals of Wellesley College*, and special collections of public libraries in Chattanooga, Knoxville, Grundy County and Memphis, Tennessee.

Findings and Conclusion

Johnson established a cooperative in 1916 but it was disbanded in 1921. She decided to focus on being a good neighbor and explore other ways to bring much-needed change. She was instrumental in establishing a county fair. She opened her home, a “country Hull House”, to the community for lectures and social events. Elected to the Board of Education from 1925-1932, Johnson’s efforts led to a Smith-Hughes teacher for agriculture, the placement of a Red Cross nurse, and the recruitment of experienced teachers.

Johnson broke ground and laid a cornerstone. Her faith, her persistence in seeking alternative routes, her belief in democratic ideals, her ability to stay problem-centered in the midst of conflict, and the joy she found in service created a legacy for the social justice work of Highlander.

FAITH-BASED ACTIVISM: THE CATHOLIC CHURCH AND CHICANO MOVEMENT IN TEXAS

Gilberto M. Hinojosa, Ph.D. and Sr. Maria Eva Flores, Ph.D.

Purpose of Study

The purpose of the project was to create a much-needed repository of oral narratives on high definition videotape that illustrate a significant and largely undocumented era of the Chicano rights movement. Specifically, the project seeks to understand the movement's influence on the Catholic Church, the Church's response, and the social and cultural impact of that response on Texas history.

Rationale and Significance

The Chicano Movement of the 1960s, *El Movimiento*, is an extension of the Mexican American activism that sought justice for *el pueblo* and inclusion American society. The 1960s was a turbulent decade in American history, fraught with conflicts over issues from Civil Rights to the war in Vietnam. At this time, Mexican Americans launched their own civil rights and social justice *movimiento*, one of the least studied social movements of the 1960s and 1970s, encompassed a broad cross section of issues—from restoration of land grants, to farm workers rights, to enhanced education, to voting and political rights. This project extends previous research by examining the role of the movement on the Catholic Church, the Church's response, and the social and cultural impact of that response on Texas history.

Description of Methodology

This work is based upon historical methodology utilizing primarily oral history techniques and secondary source materials. The real record of history is found in the lives of ordinary people who lived it. Oral history is the collection and recording of personal memoirs as historical documentation. It documents forms of discourse normally not documented and it emphasizes the significance of human experience. As a method it pairs the oldest type of historical inquiry, evoking spoken word responses that predates writing, with relatively modern technologies, audio and video recording. Oral history is the best method to garner what past times meant to people and how it felt to live and experience those times.

Findings and Conclusions

The Chicano Movement was not led initially by churchmen as was the African American civil right movement, but the Mexican American struggle for inclusion into American society was nonetheless a faith-based civic and social activism. Popular, non-church religious traditions infuse Mexican American culture and these traditions contributed to stirring the protest movement of the 1960s. Interestingly, those protests, along with the Church's own teachings on social justice, inspired Mexican American Catholic priests, nuns, and laity individually and collectively to prod a rigidly structured institutional Church to respond to Chicano demands for justice. The Church's response, in turn, added impulse to the *movimiento* for social, economic, and cultural change. The project highlights the contributions to social justice made by individuals inspired by faith.

So far, fifteen subjects have participated in videotape interviews regarding their roles in the Chicano Movement in Texas. The interviews will be available in full and in short segments indexed by topics. There will be transcripts and additional documents provided by the interviewees. All these materials will be posted on a website sponsored by the University of the Incarnate Word.

Acknowledgment:

Funded by the Sommerly and Humanities Texas foundations, UIW, and select private donors

METHOD DEVELOPMENT FOR THE IDENTIFICATION OF HYDROCORTISONE IN A COMPOUNDED MIXTURE

Ivan Juarez, Pharm.D. Candidate and Kathleen S. Martin, Ph.D.

Purpose of Study

A method was developed to identify and quantify the content of hydrocortisone in a compounded mouthwash mixture (MM) using High Pressure Liquid Chromatography (HPLC). Hydrocortisone (HC), which possesses anti-inflammatory and anti-itch properties, is commonly included in preparations to reduce irritation of the skin and mucous membranes. Studies of commercially manufactured hydrocortisone preparations have shown that HC has good stability in the various aqueous vehicles. However, the stability with the other ingredients in the compounded MM investigated here is unknown, and published methods are inadequate to separate HC from other ingredients in the mixture.

Description of Methodology

Compounded MM contains hydrocortisone and three other drugs in a complex liquid vehicle. Following accepted method development guidelines, experiments were devised and carried out to identify instrumental parameters to isolate the hydrocortisone component in MM for subsequent quantification. Different solvents, solvent combinations, gradient parameters, and program run times were evaluated. Detection wavelengths and column temperatures were examined to optimize HC peak shape and elution times. Pure hydrocortisone standards were used to generate standard curves to quantify HC in MM samples. Pure solutions of the other active ingredients (tetracycline, nystatin, diphenhydramine) and excipients (preservatives, flavorings) present in MM were tested under the same instrument conditions to demonstrate the HC was resolved from all known component peaks.

Findings and Conclusions

Using diode array detection (252 nm), a 10 cm x 4.6 mm HyperSelect BDS C18 column (particle size 4 μ , thermostated to maintain 30°C) was found to separate HC from other MM components. Methanol, acetonitrile, and deionized water (M:A:W, ratio 30:20:50) was changed using instrument-controlled gradient elution to M:A:W (30:30:40) over four minutes, with a mobile phase flow rate of 0.4 mL/min. HC eluted at 6.48 min, with a total run time of 14 minutes. HC concentrations were determined by comparing peak heights of test samples with a pure HC standard curve (range 2.5 mcg/mL to 10 mcg/mL.) The standard concentrations were selected to bracket the expected concentration of HC (5.01 mcg/mL after dilution) in the MM compound. The mean slope of three standard curves using the final method developed was 2.2477 mcg \cdot mL⁻¹ \cdot mAU⁻¹(\pm 0.052), with correlation coefficients of 0.99928 and higher. Negative controls demonstrated that under the conditions of analysis, there were no peaks from the MM mixture that interfered with HC. Forced degradation of hydrocortisone showed no interferences from breakdown products with the HC peak.

Method development has to be done prior to drug analysis. Complicating the analysis of drug stability for beyond-use-dating in compounded drug mixtures is the fact that each component has the potential to influence the elution of the chemical of interest or have a retention time in the analytical column similar enough to affect accurate quantification of a specific analyte such as HC. The current work demonstrates that HC in a complex mixture can be quantified using a stability-indicating HPLC methodology. Future directions include completing the validation of the method to substantiate its reproducibility and ruggedness.

USAGE OF OPEN COURSE WARE BY FACULTY IN THE DEVELOPING WORLD

Noah Kasraie, Ph.D., and Aláa Alahmad, MA

Purpose of Study

In April 2001, the Massachusetts Institute of Technology (MIT) introduced the Open Course Ware (OCW) project with the goal of creating a World Wide Web of knowledge that raises the quality of learning and ultimately the quality of life around the planet. While the popular literature continues to announce and introduce the revolution of OCW, data are sparse concerning how the information is being accessed and used by educators around the world. The purpose of this descriptive research was to examine the extent to which faculty in the developing world access and use OCW. The study was guided by the following questions: (1) What is the frequency of access to OCW by faculty in institutions of higher education in developing nations? (2) How is OCW material being used for teaching purposes by faculty in institutions of higher education in developing nations? (3) How satisfied are faculty in institutions of higher education in developing nations with the OCW material? (4) Do geographical location and area of study affect frequency of access, usage, and satisfaction with OCW by faculty in institutions of higher education in developing nations?

Rationale and Significance

Through the findings and conclusions of this study, educators in universities around the world will gain insight as to how the faculty are currently accessing and using OCW material published on the web and to what level the current material is impacting the professional practice of faculty in the developing nations of the world.

Description of Methodology

A web-based electronic survey instrument was designed to examine the extent to which faculty members around the world access and use OCW. A three-step process was followed to ensure validity and reliability of the instrument. The population of the study consisted of all institutions of higher education in developing nations that had a published website. A stratified method of sampling was utilized and 1850 faculty members teaching in the developing world completed the online survey. The statistical package SPSS was utilized to analyze the data. Chi-square test of independence and one-way Analysis of Variance (ANOVA) were utilized for analysis.

Findings and Conclusions

Faculty in institutions of higher education in developing nations of the world were satisfied with the quality of OCW material. The majority of faculty members in institutions of higher education in the developing world accessed OCW sites on a weekly basis. OCW materials were being used in different ways by faculty to enhance higher education teaching in the developing world. However, the primary reasons faculty in the developing world used OCW sites were to develop new courses and modify existing courses. Faculty from the Middle East and North Africa had the highest level of access of OCW in the developing world. Faculty from engineering and business used OCW more than other fields and had a higher level of satisfaction. Further research is recommended to determine what factors are causing the variability in the access, usage and satisfaction levels of faculty in different geographical regions and areas of study in the developing nations of the world.

PROMOTING THE COMMON GOOD AND ENCOURAGING STUDENT ENGAGEMENT: DEVELOPING ON-LINE EXCHANGES BETWEEN STUDENTS IN UNITED ARAB EMIRATES AND EGYPT AND UIW RELIGIOUS STUDIES STUDENTS

Sr. Martha Ann Kirk, Th.D. and Miguel Conchas, MA

Purpose of Study

To determine whether students actively involved in classes using on-line international exchanges become more concerned about the wellbeing of the whole human family.

Rationale and Significance

With modern technology, we have *global consciousness* but as teachers at UIW we need ways to help students develop a *global conscience* with a quest for justice and creative compassion. While the phrase *clash of civilizations* between the West and the Arab world is popular, students in this project are engaging in a mutually beneficial *dialogue of civilizations*.

Description of Methodology

This qualitative study relies on document analysis and words from the blogs and guided assignments from UIW students and Dubai Women's College students. These students exchanged ideas with two UIW introductory level Religious Studies classes for two months in 2009. Through blogs and with refined guided assignments, two classes from Al-Azhar University in Cairo, founded in 970 CE., are exchanging ideas with two UIW Religious Studies classes in the Spring 2010 semester. Thus the study is on-going.

The study primarily considers qualitative data indicating students' insights and attitudes. Surveys were used before the on-line exchanges to assess whether students had experience with peoples of other cultures and religions and surveys were also used after the exchanges to gauge the students' views of the benefits of the exchanges. Students' words were the main sources of information. Students researched and discussed environmental challenges in their areas and responses to protect the environment. Both Christianity and Islam hold that humans are entrusted with creation by God and called to be faithful stewards protecting these gifts. Students considered the Charter for Compassion, an international movement based on the Golden Rule seeking to build common ground among religions.

Findings and Conclusion

The surveys and analysis suggest that students actively engage in dialogue when some of the conversation partners are international. Students overcome negative stereotypes and grow in attitudes of religious pluralism, widening their circles of compassion. Some students report an awareness of environmental dangers and the importance of humans cooperating in the face of these challenges, rather than engaging in struggles or wars with each other. Students came to recognize that while things in cultures like dress or the observance of the season of Ramadan with fasting from sun up to sun down might differ, they actually had many things in common. In the current exchanges students in Cairo and at UIW are building rapport. The meaning of religious seasons and ethical issues will be considered.

This study is not concluded, but is a part of an on-going process hoping to promote more UIW international exchanges and study abroad. The study is attempting to suggest some models or best practices for on-line dialogues that could be used in various disciplines and further the goals of a Catholic university, that is promoting goodwill, justice, and peace in a globalized world.

Acknowledgement

School of Graduate Studies and Research 2010 – 2011 Graduate Research Assistant Competition

STEM CELL RECRUITMENT AND INDUCTIVE SIGNALING DURING NEURAL REGENERATION IN THE CALIFORNIA BLACKWORM, *LUMBRICULUS VARIEGATUS*

Gabriel J. Leal and Veronica G. Martinez Acosta, Ph.D.

Purpose of Study

Determination of axial position and segmental polarity following transection is critical for the successful regeneration of missing body parts and the recovery of function. Regeneration involves many of the same cellular events that are prevalent during early development, including induction of stem cell populations and differentiation via differential gene expression. While our lab has characterized cellular and molecular aspects of regeneration within the lumbricid central nervous system (Martinez et al., 2005; 2006; 2008), the mechanism of induction and the genes which may be involved are not well understood. Based on our previous studies, we hypothesize that the newly regenerating head might be a source from which differential gene expression is necessary to maintain neural regeneration.

Rationale and Significance

Studies of regeneration inspire development of therapies in tissue replacement and repair. *Lumbriculus variegatus*, an aquatic oligochaete, is an excellent regenerative model system, regenerating an entirely new worm from a three segment fragment. The present studies of regeneration in *L.variegatus* raise questions concerning axial body patterning.

Description of Methodology

The inductive potential of the newly regenerated head tissue are tested using two-dimensional gel electrophoresis and mass spectrometry to identify possible morphogenic influences of the anterior wound blastema. Moreover, stem cell populations recruited to the regenerating blastema is characterized using confocal microscopy.

Findings and Conclusions

Confocal analysis demonstrates populations of stem cells are recruited to the regenerating head at 6 hours post amputation and bromo-deoxy-uridine (BrdU) activity is detected at 1 week post-amputation. Moreover, the ventral nerve cord preparations within original fragments undergoing regeneration appear devoid of BrdU positive cells, demonstrating microscopically that lumbricid worm fragments regenerate via morphallaxis within original worm tissue and epimorphosis in the newly formed head and tail, as suggested by T.H. Morgan (1901). These results provide the initial characterization of a lumbricid stem cell population involved during regeneration.

Acknowledgement

Supported in part by a SOMAS award to V.G.M-A (Howard Hughes Medical Institute Grant No. 52006292 and a Director's Award for Distinguished Teaching Scholars National Science Foundation Grant No. 0426266). Images were generated in the Core Optical Imaging Facility which is supported by UTHSCSA, NIH-NCI P30 CA54174 (CTRC at UTHSCSA), NIH-NIA P30 AG013319 (Nathan Shock Center) and NIH-NIA P01AG19316 by an R21 grant from NIH/NIEHS (ES014441-01).

THE EFFICACY OF SILVER ALLOY-COATED FOLEY CATHETERS IN PREVENTING URINARY TRACT INFECTION (UTI): A QUANTITATIVE STUDY

Zhe Li, RN, BSN

Purpose of Study

The purpose of this study is to examine whether patients hospitalized in the Intensive Care Unit who have silver alloy-coated Foley catheters have fewer catheter-associated urinary tract infections (CAUTI) than patients hospitalized in the Intensive Care Unit who have non-coated regular Foley catheters.

What is the difference in catheter-associated urinary tract infections among patients hospitalized in the Intensive Care Unit who have silver alloy-coated Foley catheters compared to patients hospitalized in the Intensive Care Unit who have non-coated regular Foley catheters?

Rationale and Significance

About 15 to 20 percent of hospitalized patients may receive indwelling urinary catheters in the United States. The reported rates of CAUTI are 3.1-7.5 infections/1000 catheter-days. CAUTI has been associated with an increased mortality, hospital cost, and length of hospitalization. Silver-coated Foley may reduce the risk of CAUTI. In addition, the Centers for Medicare Services has announced that it will no longer reimburse healthcare institutions for care related to preventable conditions, including CAUTI.

Description of Methodology

A retrospective electronic chart review of convenience samples in an 18-bed Intensive Care Unit was conducted to compare the rate of CAUTI between 2 months period of using non-coated Foley catheters and 2 months period of using Silver-coated Foley catheters. The data collected will be recorded on an Excel spreadsheet from the electronic medical record. Data will be recorded on an Excel spreadsheet includes: Sex, duration of catheterization, whether the patient meets the criteria of CAUTI, and type of organism detected in urine culture. Patients with initial positive urine culture/urine analysis results will be excluded from the study. The criteria used for defining CAUTI will be based on CDC (2009) guideline. Rate of UTI is expressed as UTI/1000 patient-days.

Findings and Conclusions

The convenience sample consisted of 114 patients among which, 47 with Silver-coated Foley are in the study group and 67 with standard Foley are in the control group. The mean age of the sample are 53 year (SD = 16; Range 22-92 year). The mean catheterization duration was 7 days for the study group and 7.5 days for the control group. There were 3 CAUTIs in the study group (47 samples) and 10 CAUTIs in the control group (67 samples). The CAUTI rate for the study group is 9.9/1000 catheter days, and 19/1000 catheter days for the control group. However, data analysis using SPSS software shows the results are not significant (Chi Sq = 1.995, df =1, p = .132). This is mainly due to the small effect size that much larger sample size is required to serve the study purpose.

The study shows Silver alloy-coated Foley catheters was associated with a reduction in the rate of nosocomial UTI in the acutely ill ICU patient population studied. However, the result is not significant and therefore cannot answer the research question. A much larger sample size is needed in order to serve the study purpose.

INTERNATIONAL STUDENTS: CULTURAL BARRIERS AND ADAPTATION WHEN STUDYING ABROAD

Zhong T. Lin, McNair Scholar and Sara Jackson, Ph.D., McNair Scholar Mentor

Purpose of Study

This study investigates why the US attracts so many international students for study abroad experiences. The research questions explore the following areas: Why do many students choose to study abroad? Why do they choose the United States to accomplish their studies? What are some barriers encountered when students study in a foreign country? How do they overcome those barriers?

Rationale and Significance

This study explores why the US attracts so many international students for study abroad experiences. According to Bourke (2000) there are one million students studying in foreign countries. Thirty percent of these students are in the United States, and the other 70% are studying in host nations which include France, Germany, United Kingdom, Japan, Australia and Canada. Study abroad programs are important and necessary for students because they promote a diversity of environments which augment students' learning ability, promote the goal of diligent study, and enhance the learning development of the participants; learning a foreign language in the host country strengthens the students' knowledge skills (Black & Duhon, 2006). The Enderwick and Akoorie (1994) study emphasizes the importance of acquisition of language skills especially in the area of business.

Description of Methodology

This pilot study used a quantitative research methodology with a survey to collect information from a sample group of international students. The survey consisted of 26 questions and was administered through Survey Monkey. The results were analyzed by examining the responses of the target population who returned the survey. The participants in the study were UIW international students. Care was taken to cover a variety of time periods spent in the US; it was assumed that participants who have been away from their home country for less than one semester would have different perspectives than those who have been in the US for a longer period of time.

Findings and Conclusions

The majority of the participants declared the US was their first choice for study abroad. Roughly 40% of the students had studied in other countries before coming to the US. There were a variety of reasons stated for why students chose the US. These included: the prestige of US universities and a desire to understand the culture. Many students stated they would like to work in the US after graduation if it were possible, because of greater job possibility. The participants identified some of the difficulties they encountered when beginning their study abroad experiences in the US. These included: language barriers, transportation, and dietary concerns, among others. These students also identified coping skills they developed to overcome barriers.

DIFFERENTIAL RESPONSES TO FAVORABLE VS. UNFAVORABLE INFORMATION: DOES ETHNICITY MATTER?

Lisa K. Lockhart, Ph.D.

Purpose of Study

The purpose of the study was to further research related to our understanding of how different ethnic groups accept information related to preference consistency. The present study attempted to ascertain whether a robust finding involving differential reactions to favorable and unfavorable information would be replicated with Caucasian participants and extend to Hispanic participants as well; no prior studies utilizing this particular paradigm have been conducted with a sufficiently large enough Hispanic sample.

Rationale and Significance

Prior studies examining motivated reasoning have found that people treat preference-inconsistent information more skeptically than preference-consistent information (e.g., Ditto & Lopez, 1998). This study serves as a replication of these studies, and extends findings on primarily Caucasian samples by attempting to determine whether these reactions hold for a sample of predominantly Hispanic participants.

Description of Methodology

Students were recruited from classrooms to participate in individual data collection sessions ($N = 43$). Participants were given a number of measures to complete after informed consent was obtained, including a screening instrument for hypochondriacal tendencies which excluded anyone with such tendencies from further participation. For all others, the researcher explained the various medical tests and had participants self-administer and provide reactions to each upon completion. The key dependent measure was participants' reactions to a test for a fictitious enzyme, Thioamine Acetylase (TAA). Instructions for the TAA test contained the key manipulation. The outcome of the participant's TAA test was manipulated such that half of the participants received a favorable outcome (indicating that they were relatively immune from pancreatic disease later in life), and half received an unfavorable outcome (indicating that they were relatively susceptible to pancreatic disease later in life). Participants then answered questions regarding their perceptions of the validity and reliability of the test. Consistent with previous motivated skepticism studies' findings, it was predicted that those participants who received unfavorable information would rate the TAA test as being significantly less valid and reliable than those participants who received favorable information. Before leaving the session, all participants received a thorough debriefing in which they were assured that the condition and the test were fictional and that they had no bearing on their actual health.

Findings and Conclusions

The major dependent measures assessing participants' reactions to their TAA test result were highly correlated, so they were combined into a single Perceived Accuracy measure. A 2 (TAA condition) x 2 (Ethnicity) Analysis of Variance (ANOVA) indicated a main effect for Condition; those in the Unfavorable condition rated the TAA test as significantly less accurate than those in the Favorable condition [$F(1,42) = 13.91, p < .001$; Unfavorable $M = 5.90$ ($SD = 1.55$); Favorable $M = 7.61$ ($SD = 1.25$)], replicating previous findings of more skepticism in the preference-inconsistent condition. This held true for self-reported Hispanic and Caucasian participants alike, with the Ethnicity main effect and the Condition x Ethnicity interaction not reaching significance. This suggests that there are no obvious differences in how these two groups react to these types of information. However, closer inspection of the means of Hispanic ($n = 25$) and Caucasian ($n = 18$) participants reveals potential subtle differences in reactions based on ethnic group, warranting further study with a larger sample. This research is a preliminary step toward our understanding of the cultural generalizability of differential reactions to preference-consistent vs. preference-inconsistent information. Further research is underway exploring these reactions more closely. Findings have implications for understanding how cultural differences influence reactions to preference-inconsistent information within a variety of contexts.

STUDY SKILLS FOR PHARMACY STUDENTS IN ACADEMIC TROUBLE

David F. Maize, Ph.D. and Lynda Cavazos, MA

Purpose of Study

The purpose of this study was to discover the students' perceptions of the study skills classes and their self-reflection on the successful incorporation into their study routine.

Rationale and Significance

Students entering pharmacy school may possess study skills that have made them successful enough for admission, but possibly not efficient enough for their continued success. It then becomes the responsibility of the school to help academically challenged students. One option is to offer a study skills class for students with early failures in courses. At our school, we offered five one hour sessions on note taking, study groups, time management, test taking, understanding syllabi and seeking instructors' help.

Description of Methodology

Twenty-two students were enrolled in the classes and completed an 11 question survey weekly. Grades were compared before and after using SPSS for comparisons.

Findings and Conclusions

Approximately two-thirds (60.6%) of the students felt the sessions were worth attending and 54% thought they would raise their grade by at least half a letter. 69.7% strongly agreed or agreed that their study skills were improved and 62.2% of them believed they would use the skills all or almost all of the time. With the small sampling, no statistical difference in grades before or after the study skills classes was documented.

Although the methods taught were all pedagogically proven to improve study habits, the duration and intensity of this intervention was not sufficient to overcome previous academic deficiencies. Teaching study skills may not quantitatively improve study effectiveness, but qualitatively, the intervention was found helpful by students.

ACHIEVEMENT BEYOND EXPECTATIONS: RESULTS OF POSITIVE STUDENT/TEACHER RELATIONSHIPS IN THE ART CLASSROOM

Linda A. Malcom, Ph.D.

Purpose of Study

The purpose of this qualitative study was two-fold. First, the researcher sought to examine how current educational reform efforts emphasize role changes for both students and teachers within the classroom. Second, an investigation was conducted with regards to Frederick Erickson's (1987) theories on teacher-student interactions. The primary research question under investigation was: What are the associations between the teacher relationship narrative and its characteristics to the achievement of present and past students in a gifted art program?

Rationale and Significance

Students perceive the social context of the classroom as equally important, or more important than the content received (Cooper, 2002). Teachers have to take greater responsibility for creating a positive classroom culture where each student feels known, accepted and trusted (Wolk, 2003). Teachers must discover and develop techniques to reach students to prepare them for the demands of tomorrow and this includes developing relationships that promote learning.

Description of Methodology

Case study methods in the phenomenological tradition were used to study one teacher and her relationships with her students in a gifted art program. Data collection included: (a) 1 two-hour classroom observation of teacher/student interactions during regular class time and 4 two-hour observations during afterhours studio time; (c) 1 interview with teacher; (d) 3 parent /student conferences with teacher; (e) 5 e-mail interviews with past students; and (f) various artifacts including student work, sketch books, notes, and visual gifts from students.

Findings and Conclusions

These students had a 99.9% passage rate of the TAKS the first time taken with 47% being in the commendable range (the highest scores). Their attendance rate was 98%. The graduation rate was 99.9% with 55% graduating with honors. These students placed in every contest entered and often received the first place award. All of the students were accepted to college and the 11 seniors of this group received over \$750,000 in scholarships. Two categories emerged: (a) theory support and (b) teacher roles. The teacher roles were analytical (interactions, family effects, culture and role model) and descriptive (instructional tasks, setting, and interviewer participation). The teacher recognized the importance of classroom relationships. Students felt motivated to attend classes and to engage in activities. Past students felt like their teacher "knew them". Students demonstrated: (a) sustained attention, (b) interest to new ideas, and (c) the impression they were working to learn something important. This study suggests the following recommendations: (1) for school districts- this art program supports the research findings that high school students are more successful when they attend small learning community schools. It also reinforces the idea that small school environments affect student achievement in a positive way; (2) for teacher preparation programs- this study has delineated the multiple roles that a teacher plays in the education of students today. These roles have developed from the problems existing in society and the expectations society has placed on educators. To handle these expectations, teacher preparation programs need to examine how they are preparing new teachers to build student/teacher relationships and how student teachers are prepared to meet these diverse and demanding roles.

BIODIVERSITY OF TREE SPECIES IN THE SAN ANTONIO RIVER HEADWATERS SANCTUARY

Bonnie McCormick, Ph.D. and William Thomann, Ph.D.

Purpose of Study

This project involves the measurement, analysis, and interpretation of the biodiversity of tree species along Olmos Creek near the headwaters of the San Antonio River on the University of the Incarnate Word (UIW) campus. The research question of this study was to determine the species biodiversity and community dominance of tree species in this ecosystem.

Rationale and Significant

The study site is located in the Headwater's Sanctuary which is the focus of a restoration project. The first step of ecological restoration is to document and evaluate the current state of the restoration area. The results of this study will help inform the restoration of the area by documenting the state of current woodland composition.

Description of Methodology

Trees were sampled along four transects that were approximately 130 meters in length. Forty-four, five by five meter plots were established along the transects. All trees over one meter in height were identified and counted. Data from each transect and from the combined area were analyzed using Simpson's Index of Biodiversity, Community Dominance Index, and Jaccard's Index of Similarity.

Findings and Conclusions

Species richness (number of species present) of trees in the research area was 15, and species abundance (total number of trees) was 478. Overall diversity as measured by Simpson's Index of Biodiversity was 0.76 (1.0 is the highest value). The most diverse transects were the one along Olmos Creek and the one near the west side of the research area next to the service road. The transect along Olmos Creek was different from the other transects in the study and had the lowest Jaccard's Similarity Index when compared to other transects. The Community Dominance Index of 57 represents the percentage of trees represented by the two most abundant species. The native tree *Ulmus crassiflora* (cedar elm) and non-native, invasive tree, *Ligustrum spp.*, represented 28 percent and 29 percent respectively of trees in the study area. *Celtis laevigata* (sugar hackberry) represented another 25 percent. This means that 82 percent of the trees belong to three species. Thirty-nine percent of all trees identified in the study were non-native invasive species that outcompete the desired native tree species. This study indicates that 39 percent of the trees in the study area must be removed because they are undesirable non-native trees. In order to balance biodiversity, the restoration plan will have to consider that 53percent of the trees represent two native species. In order to increase biodiversity of tree species in the Headwaters Sanctuary, new plantings should not include *Celtis laevigata* and *Ulmus crassiflora*.

WORLD BANK TAX ADVICE AND INCLUSIVE DEVELOPMENT: NEW EVIDENCE

Michael McGuire, Ph.D. UIW ECON 4350: Latin American Economics Class
Martha Barreda, Patrick Baxter, Steven Cheney, Pamela Diaz, Ryan Duncan,
Aaron Flores, Eliana Gonzalez, Sarah Hernandez, Gyu Heon Kim, Edna Lozano,
Elsa Minana, Rosario Plascencia, and Travis Wright

Purpose of Study

An inclusive development process includes satisfying the basic needs of low income people. For example, satisfying the basic needs for education and health increases the productivity of the poor. This enables them to participate more fully in the development process and to earn the income necessary to live a full life. It also increases national production. Taxation may play a crucial role in generating an inclusive development process. Regressive taxation that falls relatively heavily on the poor tends to slow the satisfaction of basic needs and reduce the participation of the poor in the development process. If, for example, the poor who are living on the margin of existence are taxed in order to build a new school, the poor children who attend the school may be less nourished and less able to learn. If, on the other hand, the wealthy are taxed to pay for the school, the poor children not only have better facilities, but they may also be more nourished and better able to learn. The purpose of this presentation is to explore the role of progressive taxation in generating an inclusive development process that benefits all people.

Rationale and Significance

Progressive taxation enhances the satisfaction of basic needs and thereby increases production. Progressive taxation leaves more money in the pockets of the poor with which to purchase basic goods and services. The consumption of basic goods and services enhances productivity and participation in the development process. Progressive taxation not only leaves more money for the poor, but also raises revenues that the government can use to supply goods and services.

The World Bank issues tax advice to developing countries. Following the tax advice is often a condition for developing countries to receive loans at preferential rates. Consequently, virtually all Latin American countries have adopted the World Bank's prescriptions. The tax advice issued by the World Bank contains significantly regressive elements. For example, the regressive Value-Added Tax is to be the most important source of tax revenue. If progressive taxation contributes to the satisfaction of basic needs and to development, the World Bank should revise its advice.

Description of Methodology

Earlier econometric work provided preliminary evidence that progressive taxation stimulates development. This presentation builds upon the earlier work by including data for more years and more variables. If the same conclusion holds, it will be more robust. Data is collected for 16 Latin American countries for all years from 1980-2005. Proxy variables for the satisfaction of basic needs and tax progressivity are developed. Regression analysis relates to the satisfaction of basic needs and tax progressivity to the level of national production.

Findings and Conclusions

Preliminary findings are that both the satisfaction of basic needs and tax progressivity increase real gross domestic product per capita. The policy recommendation is that the World Bank advise developing countries more progressive taxation.

TIME OF CLASS OFFERING AND ITS EFFECT ON STUDENT ACHIEVEMENT IN COLLEGE MATHEMATICS COURSES

Paul F. Messina, Ph.D. and Abigail Shaver, MA

Purpose of Study

The research study examines whether enrollment in MATH 1306 – College Geometry, during various times of the day, have a statistical significance upon student achievement. The study is composed of $n = 121$ students who have enrolled for MATH 1306 over the past 4 years. The research question for this study, “Is there a tendency for ranks of one time of day to be significantly higher (or lower) than those of the other, effecting student achievement in MATH 1306 at the University of the Incarnate Word (UIW)?”

Rationale and Significance

The debate of whether children learn better and achieve higher scores in morning classes or afternoon classes continues as a source of controversy. Many factors contribute to the optimal time of day for class scheduling including the learning environment, circadian rhythms, and student and teacher preferences. Age is also a primary factor when looking at class scheduling. For an individual to have an accurate perspective of the effects time of day has on academic scheduling, one must investigate a full range of topics. This study supports and expands the results of recently published articles concerning the phenomenon of circadian rhythms in college level achievement.

Description of Methodology

The research used an ex-post facto design and the Mann - Whitney U Test to determine whether the two group medians are statistically significant. The two groups consisted of students who enrolled in and completed MATH 1306 during the two distinct time offerings over the past 4 years.

Findings and Conclusions

In support of our null hypothesis, the analysis found that there is no tendency for ranks of one time of day to be significantly different compared to those of the other. Specifically, for college geometry our analysis yielded $U = 4788.0, p > 0.05$. As a result we conclude that in this study, there is not enough evidence to support the claim that the time of day a class convenes has any positive or negative effect on the final grade earned in College Geometry at our particular university.

TRAJECTORY PATH PLANNING USING PARTICLE SWARM OPTIMIZATION

Lewis Nichols, Michael Gardoni, and Michael Frye, Ph.D.

Purpose of Study

The purpose of this research is to investigate the use of Particle Swarm Optimization (PSO) for path planning.

Rationale and Significance

PSO has been coming to prominence in the last ten years as a robust method for computer decision making. Dynamic 'swarms' of particles are distributed throughout a solution space and are then used to make decisions for the PSO algorithm. The term "Dynamic Targets" is used to describe points of interest that are continually moving. These targets become the basis of the criteria used to continually produce an optimal path in changing conditions. The optimal path represents the most efficient way to a target of interest while avoiding undesired or possibly known danger areas in a simulated terrain. It is this dynamic environment that makes PSO a good choice to categorize possible solution paths.

Description of Methodology

Solutions are evaluated according to pre-set criteria nested inside the PSO algorithm. The nature of PSO allows for multi-point analysis which in turn allows the simulation to "think" its way through the terrain. This step involves assigning a score to various points inside the "searchspace", a known area in which the PSO will operate. As each point is evaluated, one point becomes the best option and the entire algorithm shifts toward the best solution. This is accomplished by producing a new searchspace around the last known best solution. This process is then repeated until a desired target is reached. The results are then evaluated in a dynamic model to test feasibility of a solution. The feasibility evaluation becomes necessary due to the nature of the algorithm. Solutions that predict movements that are not capable in the real world must be ignored to increase the usefulness of the model. The dynamic model is representative of an object of interest that will remain mobile inside the terrain space. Objects of interest can be a moving vehicle or a walking human, the variety of possible objects further necessitates the need to make sure only feasible movement is allowed. The limits of the terrain space itself can be dynamically changed to produce a 'receding horizon' wherein the PSO itself can continually operate. This receding horizon property becomes useful by not restricting the model to one predefined area.

Findings and Conclusions

The PSO algorithm itself is proving difficult to "teach". The desired path is achieved only fifty percent of the time and stepping through the code will be necessary to pinpoint the location of the problem. LEGO Mindstorms is being investigated as a potential platform only if the main microprocessor of the kit contains the necessary processing power. Future work will entail converting MATLAB code into Mindstorm code.

A COMPARATIVE STUDY OF COMPLIANCE BETWEEN WEEKDAY AND WEEKEND HOSPITAL DISCHARGES OF PATIENTS ON ANTICOAGULATION WITH POST HOSPITALIZATION MONITORING THERAPY APPOINTMENTS

Kathryn Norton, RN, BSN, CCRN and Peggy Pais, RN, BSN

Purpose of Study

The purpose of this comparative study was to determine differences in compliance with follow-up clinic appointments for anticoagulant therapy within one week post hospital discharge among a sample of hospitalized patients from the period of September 2008 to September 2009 with Procedure Code 99363 discharged Monday through Friday and those discharged on Saturday and Sunday.

Rationale and Significance

Anticoagulation drugs are given to prevent formation of new clots in the treatment and prevention of cardiac disease. A key to safe anticoagulant therapy is monitoring of the International Normalized Ratio (INR) and platelets. Presently adherence with monitoring appointments is not verified. If the patient is discharged home Monday-Friday on anticoagulation therapy a nurse schedules the follow-up appointment is made on their behalf. When a patient is discharged Saturday-Sunday on anticoagulation therapy the patient is responsible for making their own follow-up appointment. The question has been asked if patients should remain hospitalized for the weekend in an effort to increase compliance with anticoagulation therapy appointments. The study determined that existing protocols were sufficient to support the current standards of care, and identified patients at risk for non-compliance for follow-up clinic appointments.

Description of Methodology

The study employed a comparative quantitative design to identify differences in patient compliance with anticoagulation therapy monitoring appointments between two patient groups: a) those discharged from hospital during the week; and b) those discharged on weekends. A randomly drawn sample of 69 patient records with CPT Code 99363 between September 1, 2008 and September 1, 2009 comprised the study population. A retrospective chart review was conducted to ascertain compliance. Relevant data drawn from the charts included: a) demographics; b) date of discharge; and c) date of post hospital discharge appointment for monitoring. Two statistical analyses were performed on the population: a) a t-test to identify potential differences between the two patients groups and their frequency of compliance with anticoagulation therapy appointments after hospital discharge; b) a chi-square test to identify potential demographic differences among the entire data sample without regard to date of discharge.

Findings and Conclusions

There was no statistically significant difference in compliance of clinic appointment among a diverse population of ethnicity, age, gender, BMI, and religion based on the day of week discharged. There were significant differences between single and married subjects in measured number of days between discharges to clinic appointment ($t=2.374$; $df=58$; $p=.021$). The results suggest no change in existing discharge policy for patients with discharge code 93363.

RETENTION IN THE FOUNDATION COURSES IN CHEMISTRY AT THE UNIVERSITY OF THE INCARNATE WORD

Adam J. Obregon, BS and Brian G. McBurnett, Ph.D.

Purpose of Study

Students majoring in science or on a pre-professional track are required to complete the four foundation courses in chemistry: Chemical Principles I, Chemical Principles II, Organic Chemistry I, and Organic Chemistry II. The purpose of this study is to determine the percentage of students that successfully complete this sequence. The research questions that guided this study are: a) for students that initially pass Chemical Principles I, what is the percentage of students that will complete the foundation courses in chemistry within two years? b) for students that initially pass Chemical Principles I, what is the percentage of students that will eventually complete the foundation courses in chemistry? and c) for students that fail or withdraw from Chemical Principles I, what is the percentage of students that complete the foundation courses in chemistry?

Rationale and Significance

This initial study provides baseline data by determining the length of time necessary for completion and the percent of students who complete the foundation courses in chemistry. The aim of this research is to determine factors that influence both student performance and retention in order to increase the number of students completing this course sequence.

Description of Methodology

This work is based on data obtained from Institutional Research at The University of the Incarnate Word. This study quantifies the percentages of successful completion for first time in students, majoring in biology, chemistry, nutrition, or pre-pharmacy, from fall 2004 to fall 2006. Students attempting Chemical Principle I for the first time, post censuses, were tracked until fall 2009 in order to determine an average length of time and the percent completion for the course sequence. These results are compared to the success rate of those who failed or dropped Chemical Principles I, the first course in the sequence.

Findings and Conclusion

Data was obtained for 349 students that started in the foundation courses in chemistry from fall 2004 to fall 2006. Of the students that passed Chemical Principles I on their first attempt, 38% successfully completed the sequence by fall 2009, and 25% were able to successfully complete the sequence within the two years, as designated in the degree track for science and pre-professional majors. For those students who took Chemical Principles I, but either withdrew or did not pass the course on their first attempt, only 4% successfully completed the sequence by fall 2009. Due to the low completion rate for students who either withdrew or did not pass Chemical Principles I on their first attempt, the long term goal of this study is to determine factors that affect retention in the foundation courses in chemistry.

**POLYAMINES ARE REQUIRED FOR THE EXPRESSION OF KEY HMS PROTEINS
IMPORTANT FOR *YERSINIA PESTIS* BIOFILM FORMATION**

Marcos A. Oliveira, Ph.D., Brian W. Wortham, Ph.D.,
Jacqueline D. Fetherston Ph.D., and Robert D. Perry, Ph.D.

Purpose of Study

To investigate the effects of polyamine deficiency on proteins required for biofilm formation.

Rationale and Significance

Biofilms are complex bacterial communities that congregate within an exopolysaccharide matrix often at liquid-surface interfaces. Members of these biofilm communities are afforded protection from antibiotics and a number of environmental stresses like changes in pH and UV exposure as well as from some host defenses and medical treatments. We previously showed that mutations in the genes encoding the two main biosynthetic enzymes responsible for polyamine production, arginine decarboxylase (SpeA) and ornithine decarboxylase (SpeC), cause a loss of biofilm formation in *Yersinia. pestis* (Patel, Wortham, Lines, Fetherston, Perry, Oliveira, *J. Bacteriol.* 603, 106-15). The development of a biofilm in *Y. pestis* is dependent on 6 Hms (hemin storage) proteins (HmsH, F, R, S, T, and P) grouped into 3 operons; *hmsHFRS*, *hmsT*, and *hmsP*. The next step in establishing a mechanistic role for polyamines, in the regulation of biofilm, is to determine if changes in polyamine levels interfere with the proteins that are known to be involved in the regulation of biofilm.

Description of Methodology

We used molecular biology techniques of Western blotting to measure the levels of Hms proteins, transcriptional reporter assays to quantify production of mRNA and translational reporter assays to measure expression of Hms proteins.

Findings and Conclusions

We show that polyamines are necessary to maintain the protein levels of key Hms proteins. In the absence of polyamines there is an ~93%, ~43%, and ~90% reduction in protein levels of HmsR, HmsS, and HmsT respectively. Analyses using transcriptional reporters indicate that the initiation of transcription is not reduced by polyamine deficiency. Instead, translational reporters indicate that polyamines function at least in part by modulating the translation of these three key Hms proteins. The results suggest that polyamines regulate biofilm production via translation. If this mechanism is used by different bacteria this may be potential broad spectrum target for the design of novel antibacterial agents.

AGE DIFFERENCES IN FRONTAL EEG ACTIVATION IN RESPONSE TO ATTRACTIVE AND UNATTRACTIVE FACES: A STUDY OF 6- AND 10-MONTH-OLD INFANTS

Teresa Partridge, Ph.D. and Judith H. Langlois, Ph.D.

Purpose of Study

The purpose of this study was two-fold: 1) To test differences in frontal EEG activation in response to attractive and unattractive faces by 6- and 10-month-old infants; and 2) To support the use of EEG as an index of approach/withdrawal motivation in infancy.

Rationale and Significance

Infants selectively attend to social stimuli in their environment, but motivation underlying selective attention is difficult to study across the first year. Six-month-olds look longer at attractive than unattractive faces suggesting visual preference, but 9- and 12-month-olds do not look significantly longer at attractive or unattractive faces (e.g. Langlois et al., 1987). By 12-month, infants show more approach behaviors toward attractive strangers and more withdrawal behaviors toward unattractive strangers (Langlois et al., 1990)—clearly indicating social preferences through behavior. We studied frontal EEG hemispheric activation to assess approach/withdrawal motivation in response to attractive and unattractive faces before 12-months. Greater relative left EEG activation correlates to approach motivation, whereas greater right EEG asymmetry correlates to withdrawal motivation (Fox, 1991). Thus, we expected infants to show left asymmetry (approach motivation) in response to attractive faces and right asymmetry (withdrawal motivation) in response to unattractive faces. The expected results would support the use of EEG asymmetry as an index of infant approach/withdrawal motivation while also supporting the view even infants younger than 12-months prefer to approach attractive faces more than unattractive faces.

Description of Methodology

Nineteen 6-month-olds and twenty 10-month-olds viewed images of 5 attractive and 5 unattractive female faces presented for 20 seconds each while EEG was acquired from electrodes at left (F3) and right (F4) mid-frontal regions of the scalp. Following EEG data reduction, we calculated raw power density for the 6 to 9 Hz frequency band and the EEG asymmetry index as the difference between the log-transformed alpha power density from the right and left sites [$\ln(F4) - \ln(F3)$]. Power and activation are inversely related - negative scores indicate greater activation on the right while positive scores indicate greater activation on the left.

Findings and Conclusions

A 2 (Face Type) X 2 (Age) repeated measures ANOVA using EEG asymmetry as the within subjects variable showed a main effect for face type but no age effect. Infants showed greater left asymmetry when viewing attractive faces ($M = .07$; $SD = .36$) compared to unattractive faces ($M = -.02$; $SD = .36$), $F(1,37) = 7.58$, $p < .01$.

A 2 (Face Type) X 2 (Age) X 2 (Hemisphere) repeated measures using EEG raw power as the within subject variable showed a Face Type X Age interaction, $F(1,37) = 6.63$, $p = .01$ and a Face Type X Hemisphere interaction, $F(1,37) = 5.52$, $p = .02$.

Supporting our hypothesis, both age groups showed EEG asymmetry suggesting greater motivation to approach attractive than unattractive faces. The relative contributions of left and right hemispheric activation to these asymmetry indices differed by age. Older infants showed differences in left activation between conditions suggesting greater motivation to approach attractive than unattractive faces. Younger infants showed differences in right activation suggesting more motivation to withdraw from unattractive than attractive faces.

EVALUATION OF A SUPPORT GROUP FOR HISPANIC ADULTS WITH DIABETES

Sarah A. Salazar, McNair Scholar and Amy Witte, Ph.D. McNair Scholar Mentor

Purpose of Study

The purpose of this study was to evaluate a seven-week seminar support group for Hispanic adults with diabetes to see if participants gained a better understanding and an increase of knowledge of the disease state by participating in the group. The primary question was: Is there an increase in knowledge by participation in a support group that may result in lifestyle changes for the participants?

Rationale and Significance

In the United States, diabetes is ranked number seven of the leading causes of death based on more than 72,000 death certificates in the year 2006. Among Hispanics diabetes was the fourth leading cause of death. Over 86,000 people have been diagnosed with diabetes in Bexar County where San Antonio, Texas is located. A support group is an essential strategy for persons with diabetes in order to increase awareness of self-management to prevent or delay complications associated with the disease. Winzelberg (2003) stated that there is empirical evidence that community-based support groups are beneficial. DiMarco, Menke, and McNamara (2001), an Evaluation of a support group was aim for perinatal loss. The researcher found no significant difference in grief reactions from the participants who attended the support group and those who did not. The researchers saw that the participants were able to console each other and from this the participants learned from each other experiences, than the participants who did not attend.

Description of Methodology

The study involved one sample group of Hispanic adults 45 years of age and older with diabetes recruited from a church located in San Antonio, TX. The group was provided bilingual presentations on five topics: an overview of diabetes management, medication, nutrition, exercise, and diabetes foot care. The sample group consisted of 14 participants who attended a two hour seminar each Saturday for seven weeks. The group was provided with ten-item questionnaires given pre- and post- sessions to assess if knowledge of self-management was gained. An evaluation form was also administered after each presentation to assess lifestyle changes. Using SPSS, results of the questionnaires were analyzed.

Findings and Conclusions

The community based support group can be an effective tool for adults with diabetes. The participants were able to gain a better understanding about diabetes as the pre and post-test demonstrated. The pre- and post-test difference is statistically significant ($p=.033$) with a mean difference of 1.14 and a 95% confidence interval of .1086 for the lower and 2.1171 for the upper. In the study the participants were able to expand their knowledge on diabetes by learning from each other experiences. By the evaluation forms each participant strongly agreed they were able to apply the information to their lifestyle and daily activities. The researcher concluded a seven week support group is effective for teaching self-management and to gain an understanding of diabetes that resulted in lifestyle changes.

THE EFFECT OF PROTEIN SUPPLEMENTATION ON PRESSURE ULCER HEALING

Elsa E. Sanchez. RD, LD

Purpose of Study

The aim of this study was to compare pressure ulcer wound healing scores using the Bates-Jensen wound assessment tool in patients who received a hydrolyzed protein supplement versus those who did not.

Rationale and Significance

Nutrition is pivotal in both the healing and development of pressure ulcers although this relationship is complex. Hospitalized patients are especially at risk for pressure ulcer development.

Description of Methodology

This study was a correlational, retrospective study, conducted at a long-term acute care facility in San Antonio, TX. The Bates-Jensen wound assessment tool scores were obtained from fifty-one inpatient chart reviews by the registered dietitian at the hospital. Patients were categorized into the supplement (Prostat, Medical Nutrition USA, Inc., Englewood, NJ) group and those who did not receive the supplement. Statistical analysis was performed using SPSS software (SPSS Inc., Chicago, IL). Student's t-test test was performed to compare the means between the two groups. A p-value < .05 was considered significant.

Findings and Conclusions

The pressure ulcers scores were found to not be statistically significant between the two groups (95% confidence interval= -8.9 - 3.5; p=.375). Multivitamin/mineral supplementation was found to be significantly correlated with pressure ulcer scores (p=.01). Also, female patients were found to have poorer outcomes. The use of protein supplementation does not appear to improve wound-healing scores. Emphasis on multivitamin/mineral supplementation and female patients may be more pertinent.

PALLADIUM CATALYZED HYDRATION OF NITRILES IN WATER: SYNTHESIS AND CHARACTERIZATION OF PALLADIUM(II) COMPLEXES OF 4-CYANOPYRIDINE AND 4-PYRIDINECARBOXAMIDE

Nicole Sanchez and Rafael A. Adrian, Ph.D.

Purpose of Study

The purpose of this project is to synthesize palladium (II) complexes of 4-cyanopyridine and to study their conversion to 4-pyridinecarboxamide complexes by the palladium-catalyzed hydration of the nitrile groups in the 4-cyanopyridine ligands.

Rationale and Significance

Hydration of nitriles to amides is one of the basic transformations in organic chemistry, providing a good starting point for the synthesis of carboxylic acids. With that in mind, our group has been exploring the synthesis of palladium (II) complexes that could serve as model molecules for the study of intermolecular palladium-catalyzed hydration of nitriles.

Description of Methodology

In order to test our hypothesis we would synthesize novel palladium (II) complexes by the reaction of Pd(bpy)Cl₂ and Pd(phen)Cl₂ with 4-cyanopyridine in two different solvents, acetonitrile and water. Infrared (IR) spectroscopy and ¹H Nuclear Magnetic Resonance (NMR) would be used to characterize the resulting complexes.

Findings and Conclusion

The reaction of palladium (II) complexes Pd(bpy)Cl₂ and Pd(phen)Cl₂ with 4-cyanopyridine in water yield a new family of complexes where the 4-cyanopyridine ligands have been transformed into 4-pyridinecarboxamide by the palladium-catalyzed hydration of the nitrile in the 4-cyanopyridine ligands. These new complexes have been characterized by IR and ¹H NMR spectroscopy. If the reaction is carried out in the absence of water, no hydration of the ligands occurs.

Palladium-catalyzed hydration of nitriles to amides over coordinated ligands is possible using palladium (II) complexes in water under mild conditions. In the future, we hope to use these findings to synthesize a palladium-based catalyst for the hydration of nitriles to amides under mild conditions.

MARTIAL ARTS AND MCDONALDS: THE DILUTION OF TRADITIONS VIA DIFFUSION

Zachary Schudrowiz, BA

Purpose of Study

The study investigates the massive distribution of hand to hand martial arts within China, the United States, and subsequently the globe. Research questions include: a) How did traditional practitioners transmit the martial arts; b) What was communist China's impact; c) How did an iconic American business style influence the arts' future; and d) What course did this set for the global community?

Rationale and Significance

Historic Chinese distribution cemented martial arts traditions as uniquely Asian. Familial transmission gave way to more simplistic sport forms in the service of nationalism. Initial waves of exposure brought to the United States techniques of interest. The American mass production business model democratized and globalized martial arts.

Description of Methodology

The paper is founded upon historical methods using a review of monographs and secondary literature. Classical Taijiquan practitioners provided trends perspectives information encompassing contemporary decades. Materials gathering comprised the online journals database JSTOR, services at the Mabee Library, and private collections.

Findings and Conclusions

Although the volume of practitioners undoubtedly increased, the quality conveyance of cultural artifacts did not. Within China early propagation depended upon a monastic and familial base. Monastic orders enshrined techniques within legend and transcendence which paralleled physical pursuits. Nationalist and Communist China codified the arts under the principles of simplification, sportification, and nationalism. These actions dealt a blow to traditional masters, students, and forms. After World War II another blow landed in the embodiment of American business. Agencies in Japan and Korea followed suit. Ironically the state of knowledge, finer techniques, and worthy apprentices bears striking resemblance to medieval times. That is to say quality instruction still exists.

“MEZZATERRA: READING WORLD LITERATURE IN 2010”

Tanja Stampfl, Ph.D.

Purpose of Study

World Literature has traditionally referred to either European literature with classical texts from the Roman and Greek traditions, or postcolonial literature. Neither of these approaches do justice to the complexity of the interactions and encounters between cultures we experience in a globalized world.

Rationale and Significance

I propose the concept of Mezzaterra, which aims to break through traditional barriers of Us vs the Other and East vs West in order to facilitate a better understanding of literature from other cultures and thus to aim at a broader and more constructive communication between cultures.

Description of Methodology

I use basic premises from Ahdaf Soueif’s definition of Mezzaterra, Salman Rushdie’s concept of the “third space” and Marie Louise Pratt’s “contact zones”, in order to create a new model for reading. While Soueif’s concept describes the various facets of the self and Rushdie and Pratt analyze the encounter between different cultures, I propose a model that analyzes the encounter by focusing on the multiple strands of identity, power, and influence that converge in these encounters. Mezzaterra rejects pre-established categories of the West and the East by complicating them based on the interactions between characters, specific historical and social circumstances, and the individual make-up of major characters.

Findings and Conclusions

Mezzaterra as a reading concept invites us to pay special attention to encounters in texts, as well as to regard each text as an encounter with the other culture. The outcomes are therefore manifold: Mezzaterra asks us to investigate relationships and encounters that are complex and don’t fit the traditional mold; secondly, Mezzaterra invites us to look at the shared places and shared histories in texts; and thirdly, I see this concept as important in contextualizing a work and writer. If we are able to appreciate the complexity of other people and their literature, we might be able to detect more commonalities with each other across cultures and thus communicate and collaborate more constructively and effectively.

TEACHER PREPARATION THROUGH CONTINUOUS PROFESSIONAL DEVELOPMENT IN ZAMBIA

Lisa Uribe, Ph.D., Jacquelyn Poplawsky, MA and Dorothy Ettling, Ph.D.

Purpose of Study

This study presents research on the Teacher Training Institute (TTI) in Zambia that aimed to address the effects of HIV/AIDS on young children and their families through promotion of Early Childhood Learning centers. In Zambia, pre-school education is in a precarious state with overcrowded classrooms, few educational materials with insufficiently prepared teachers who, often, are unable to provide more than mere care-giving for the children. This study questions if there is evidence that the TTI through Continuous Professional Development (CPD) is building the capacity of teachers to implement more comprehensive Learning Centers in preschool programs. Women's Global Connection (WGC) conducted a formative evaluation of the outcomes of the TTI. The purpose of this mixed methods study was to explore the perceptions of teachers, directors and community stakeholders as to the perceived value of the TTI and its potential as a sustainable model for CPD for preschool teachers in other rural areas.

Rationale and Significance

The location of the TTI is in the Mongu District of the Western Province of Zambia. The Western area of Zambia has the highest incidence of poverty in the country as well as the highest prevalence of HIV/AIDS creating a larger number of AIDS orphans and vulnerable children. Currently, there is minimal government implementation of pre-school education for children who are under seven years of age. To respond to this tremendous need, the Zambia Ministry of Education has recognized the value of collaboration with committed educators from other countries. WGC initiated the TTI to develop pre-school teachers' capacity to apply new learning in their classrooms as well as in mentoring other under-prepared teachers. This study evaluates whether the TTI was perceived as a viable model of strengthening teachers' capacity to create child-friendly classroom environments and learning activities in regions where teacher training and learning materials are insufficient or unavailable. This study can offer a major step in creating a model of sustainable professional development for teachers in Zambia.

Description of Methodology

This mixed methods study gathered data from July 2008-July 2009 and utilized the following data collection strategies: questionnaires administered to the 15 teacher/mentors in Mongu; weekly web-based reports of these teacher/mentors over a two year period; classroom observation and photographs; 31 personal interviews with teacher/mentors, mentees, directors and stakeholders; and the administration of a 62 item survey with 115 teachers/mentors, mentees, directors, parents and community stakeholders. The results of the data were coded and categorized into supporting evidence to demonstrate the perceived outcomes of the Teacher Training Institute.

Findings and Conclusions

The findings include evidence that the teachers have attained knowledge related to early childhood education and content as well as evidence of an increase in technology application, mentor relationships, leadership skills and professional development. Participants in this study expressed personal and professional empowerment as classroom teachers and peer mentors. Future research should include the continued study of professional empowerment and the direct effects on the learning acquired by children.

BANKING ON THE FUTURE: BUILDING INFRASTRUCTURE TO PROTECT THE WATER ENVIRONMENT

Kevin B. Vichcales, Ph.D.

Purpose of Study

The study examines the problem of protecting the water environment within the U.S. – Mexico border region. Research questions include: a) How does an advanced industrial society respond to the challenge of providing a healthy water environment to their citizens; b) What have been the keys to their success or failure; and c) What does the U.S. – Mexico British experience suggest for other nations?

Rationale and Significance

NADB has contracted a cumulative total of approximately \$1.03 billion in loans and grants to help finance 130 BECC certified projects estimated to cost a total of \$2.86 billion to build. Of that amount, almost \$894.7 million has been disbursed to project sponsors for the implementation of 119 projects. An additional \$74.7 million in funding has been approved to support eight other projects, as well as three projects already receiving funding. As of September 2009 of the 130 projects receiving funding from the Bank, 94 percent are either under construction or have already been completed. Specifically, 75 have been completed and are in operation, 47 are currently under construction or in various stages of completion, and 7 are in the design or bidding stage.

Viewed historically, the enduring problem of environmental pollution control on the U.S. – Mexico border has been the establishment of regulating authority over aspects of nature that are regarded simultaneously as economic resources, public utilities, and public amenities. Unlike some natural resources, water can be protected if sufficient human will is exercised. In addressing this problem challenges have included: a) a lack of comprehensive master plans; b) limited financial, administrative, commercial and operating capabilities of some local agencies responsible for providing water, sewage and sanitation services; c) the high cost of infrastructure projects and insufficient community resources; d) inadequate revenue for the sound operation and maintenance of existing systems, coupled with resistance to user fee increases; and e) insufficient interest and limited success with private sector participation.

Description of Methodology

The work is based upon historical methodology utilizing primary and secondary source materials gathered from the BECC and the NADB. Contemporary materials include newspaper accounts, letters and conference proceedings on related subjects and interviews with government officials, related water and sanitary engineers, and pollution control officers. Relevant secondary literature was also utilized.

Findings and Conclusions

The BECC and NADB has assist communities in addressing challenges by pursuing a multi-faceted strategy to address specific needs in project development and finance. These strategies have included: a) ensuring broad community support for environmental infrastructure projects that meet the principles of sustainable development; b) improving the operating efficiency and capabilities of public utilities by strengthening their institutional capacity to formulate and execute projects effectively; c) continuing to develop, in coordination with international, federal, state and local authorities and community sponsors, programs and projects that are adequately designed and financially feasible; d) identifying additional sources of capital, credit, and grant funds; and structuring financial packages based on the reasonable capacity of communities to service debt and cover operation and maintenance costs; and e) promoting structural changes that are essential to the long-term success of projects, including proposals for reforming the legal and institutional frameworks in which they are developed.

DRUG STABILITY STUDIES IN COMPOUNDED MIXTURES: A STUDENT PERSPECTIVE

Ronda Wenzel, Pharm.D. Candidate and Kathleen S. Martin, Ph.D.

Purpose of Study

The primary aims of this work included achieving reproducible analytical results as well as insight into the learning process involved in developing research habits and competence through a directed, hands-on elective experience.

Rationale and Significance

Development of research skill requires guidance and is best approached through a meaningful research project. Assessment of the physical and chemical short-term stability of diphenhydramine in Mary's Magic Mouthwash suspensions was carried at both refrigerated and room temperatures by a novice researcher. The analytical results are important to the pharmacy community because such mixtures are commonly prepared in community pharmacies.

Description of Methodology

Mary's Magic Mouthwash (MMM) was prepared using two different diphenhydramine solutions following a prescription formulation. Two samples of each of the formulations were prepared and stored in amber bottles in either the refrigerator (5° C) or at room temperature (21.7° C). Immediately following preparation, on the next 4 consecutive days, and continuing twice a week for 3 weeks, the samples were assayed in triplicate by a stability-indicating high-performance liquid chromatography method. The samples were tasted and inspected for color changes, pH variation and ease of redistribution. The percent of the initial concentration remaining at each study time for each MMM suspension was determined. Stability was defined as the retention of at least 90% of the initial concentration. The student researcher prepared a statement of personal outcomes from the experience, carried out the work, recorded and synthesized the analytical results, and prepared a weekly journal of her progress.

Findings and Conclusions

Significant changes in color over time were noted in the MMM samples. Changes in taste, though less significant, were also noted and depended on the storage temperature. Changes in pH were inconclusive. All samples were easily suspended with minimal shaking. Negative control samples showed no interferences. The diphenhydramine assayed immediately following preparation was only 60% of initial concentration (2.01 mg/mL). Back-calculated concentrations for positive controls (spiked vehicle with diphenhydramine concentrations of 1.68 and 1.94 mg/mL) had percent errors of 4.2% and 6.7%, respectively, with coefficients of variation of 4.0% and 4.6%. Standard curves were consistent, 90% had correlation coefficients of 0.995 or higher.

Standard curve and control sample data were consistent and reproducible throughout the study. Although the analytical results of the test samples excluded the work from publication, there was insufficient time to assess and resolve the problem and restart the work. Therefore, analysis continued, as the experience in research was a valid secondary goal, and the student was charged with analyzing the problem and potential solutions.

The student researcher developed good analytical habits, as evidenced by the reproducibility of the results. Reflection of the student researcher throughout and at the end of the work gave evidence of both developing competence and confidence in her research abilities.

**FUNCTIONALIZED TERPYRIDINES AS BRIDGING LIGANDS FOR THE SYNTHESIS OF
HETERONUCLEAR PALLADIUM-RUTHENIUM COMPLEXES WITH POTENTIAL
FOR ANTI-TUMOR ACTIVITY**

Adrian Zapata, McNair Scholar, Erin Dunne, Abigail Buck and
Rafael A. Adrian, Ph.D. McNair Scholar Mentor

Purpose of Study

The purpose of this study was to synthesize functionalized terpyridine molecules that could serve as bridging ligand for the synthesis of heterometallic complexes.

Rationale and Significance

Terpyridines have been used as a bridging ligand for the synthesis of polynuclear complexes of platinum (II) and ruthenium (II) among others. We believed that 4'-functionalized terpyridine could be easily synthesized by the reaction of alcohols with chloro-functionalized terpyridines and that these molecules could serve as bridging ligands between two separate metal centers.

Platinum complexes as cisplatin and carboplatin have been successful chemotherapeutic agents. Recently, considerable effort has been directed to the study and understanding of the chemistry of polynuclear metal complexes due to their potential application in antitumor therapy. With that in mind, our group has been exploring the synthesis of polynuclear palladium-ruthenium using functionalized terpyridine as bridging ligands between metals.

Description of Methodology

In order to test our hypothesis we would first synthesize functionalized terpyridines by the reaction of 4-chloroterpyridine with a myriad of diols and substituted alcohols. Infrared (IR) spectroscopy and ¹H Nuclear Magnetic Resonance (NMR) would be used to characterize the resulting complexes.

Findings and Conclusions

Functionalized terpyridines ligands were synthesized in a good yield by the reaction of hexanediol and 1-amino-5-pentanol with 4-chloroterpyridine. The new ligands were characterized by melting point, as well as, IR and ¹H NMR spectroscopy.

The synthesis of functionalized terpyridine ligands can be accomplished by the reaction between diols or substituted alcohols and a 4'-chloroterpyridine molecule. New ligands can be easily designed by introducing new alcohol and amines with different structural features. In the future, we hope to use these new ligands to synthesize heteronuclear ruthenium-palladium complexes.

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