28TH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS OF THE 2007 SYMPOSIUM

Convened on

Thursday, April 12, 2007

in the

University Business Center

California State University, Fresno

TWENTY-EIGTHTH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS

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California State University, Fresno

Thursday, April 12, 2007

ORAL PRESENTATION ABSTRACTS

(IN ALPHABETICAL ORDER BY PRESENTING AUTHOR)

Anthony Alvarez, Ming Li, Ph.D.
anthonyalvarez@csufresno.edu
California State University, Fresno
Department of Computer Science
Undergraduate Student

ROBOTRAK: A Software for Monitoring, Control, and Coordination, of Intelligent Robotic Swarms

Robotic swarms have been a hot topic in recent years. In robotic swarms, a team of network enabled bots are dispatched to some areas to fulfill certain tasks, such as military actions and chemical substance tracking. However, how to monitor, control, and coordinate swarms in a real-time manner such that bots can collaborate efficiently and effectively is a challenging issue.

In this work, as part of the Provost Research Activities Awards funded project: "Planning and Management of Next Generation Wide Area Wireless Networks – A Cross-System integration Approach", a real-time software to enforce the monitoring, and control, and coordination of Intelligent Robotic Swarms (ROBOTRAK) has been developed. Using TCP connections through wireless medium, the server running ROBOTRAK can exchange information with the robotic swarm reliably and continuously. For monitoring purpose, all the bots collect and report wireless signal strength, interference, neighboring bots list, and location information. For control purpose, the bots communicate with the server can be guided from starting locations to destination locations. For coordination purpose, the server keeps the swarm on task, and minimizes the work needed to be completed by the robot swarm. For example, if one robot moves far away from the rest of the team and gets isolated, the server can identify this situation quickly and guide it to move towards the rest of the team. Furthermore, to maintain network privacy, multi-security levels and a dynamic password technique were implemented.

We have developed this software system with Microsoft Visual Basic 6.0. All the designed features and functionalities have been successfully implemented with nice graphical user interfaces (GUI) and extensively tested in various scenarios such as multiple robots and multiple instances of running ROBOTRAK software. Results show that ROBOTRAK is user friendly and can help monitor, control, and coordinate robotic swarms timely, effectively, and efficiently.

Hazel Antaramian Hofman, Jennifer Borland, Ph.D.
adam13andre13@csufresno.edu
California State University, Fresno
Department of Art and Design (Art History)
Graduate Student

The Eleventh Century Royal Portrait Manuscript Leaf of King Gagik-Abas of Kars, Queen Goranduxt, and Princess

A visual and contextual comparative study of the eleventh-century royal portrait of King Gagik-Abas of Kars and his family, Queen Goranduxt and Princess Marem, was made to determine the most likely patron of the illumination and the "lost" manuscript from which it came. The illumination is a fragmentary painting of the last royal Bagratuni family prior to the annexation of its kingdom by the Byzantines in 1065. A serendipitous find in 1911 brought the defaced, medieval miniature leaf to the forefront of scholarly study. Over the last fifty years, the painting has attracted several prominent scholars to closely examine its composition, iconography, and stylistic characteristics for a better understanding of the image. The studies have revealed a specific role of the king towards the princess with respect to the inheritance of the throne. Further scholarly review has alluded to a possible role of the queen with respect to the portraiture. However, neither study expanded their assumptions to examine the painting as a whole, that is, within a broader geo-political and social context.

My research expands the exploratory process. It is built upon a contextual understanding of the royal portrait from the image depicted in the painting itself and from the sociopolitical, historical, geographical, and theological informational sources that would have affected the climate whereupon such an image would have been commissioned. Within a contemporary contextual framework, my research attempts to systematically explore the prospect of the queen's role of patronage.

Using a tiered process, the following steps are used to further the support for the queen as central to the question of commission: first, using the composition of the image, the queen is established as a unique contributor to the production of the portrait; second, the notion that the queen commissioned the work is further explored using comparative visual studies of portraits found in Byzantine illuminated manuscripts, concluding top three scenarios identified to be the most likely intentions of the queen's commission.

Thomas Attard, Ph.D.
tattard@csufresno.edu
Thomas Attard[1], Robin Dansby[1], Mirjana Marusic[2]
California State University, Fresno[1]; DMJM Harris[2]
Department of Civil and Geomatics Engineering & Construction[1]; Structural Engineering[2]

Evolutionary Control of Large Damages to Steel Structures during Seismic Activity

Performance-based engineering includes the use of damage-mitigation systems to increase seismic protection in structures. In particular, the lateral force-resisting system in buildings is enhanced using structural control to satisfy certain permissible and safe response levels - for example, not allowing a particular amount of lateral deflection to be exceeded on a given story. The objective of this study is to specifically reduce responses in experimentally-tested and computer-simulated buildings by dissipating the earthquake energy that is imparted to buildings using installed semi-active dampers. Experimentally, seismic tests are conducted on a large 'shaking table' in the Center for Earthquake Modeling and Simulation (CEMS) in the structures laboratory adjoined to the Engineering East (EE) wing on the campus of the California State University, Fresno.

An evolutionary gain matrix is implemented in an algorithm that is embedded within a controller unit that receives the sensor data from the shaking building during the earthquake. The unit then 'feeds back' optimal semi-active ("reaction") forces to the building so as to offset any potential damages. The embedded algorithm (COntrol NONlinear time-history analysis, or CONON), which resides on a computer chip inside the controller unit, automates the process using permissible 'damage-safe' and 'elastic' performance-objectives. In this manner, the performance index of the steel buildings is evolutionarily minimized at each time-step during the shaking. The results of the evolutionary approach are compared to more conventional Linear Quadratic Regulator (LQR) 'static' techniques that depend on 'weighing matrices' to minimize the cost function and can either be inefficient or possibly result in the inaccurate control of seismic demands. The comparison indicates that damage to buildings is significantly reduced using the proposed evolutionary method, which is independent of the weighing matrices, and shows a marked increase in the ability to meet the desired performance-objectives.

Jason Bush, Ph.D.
jbush@csufresno.edu
California State University, Fresno
Department of Biology

Proteomic Identification of a Functional ß3-Integrin Interaction with a Protease: Implications for Cancer Metastasis

Integrins are heterodimeric transmembrane receptors involved in sensing and transmitting informational cues from the extracellular environment to the cell. This study explored the scope and nature of changes to the proteome in response to elimination of the beta3 integrin using a knockout murine model. Isotope-coded affinity tagging in combination with sub-cellular fractionation, multiple dimensions of separation and tandem mass spectrometry were used to characterize differentially expressed proteins between ß3 integrin-lacking mouse embryonic fibroblasts and isogenic wild-type controls. From a membrane protein fraction, forty-eight proteins were identified in which expression differed by > 1.5-fold. These proteins could be clustered into several similar groups, with cytoskeletal-associated and protease-related proteins being predominant. We found that expression of the ß3 integrin was inversely correlated with Cathepsin B, a lysosomal cysteine protease, as its expression increased over 3.5-fold in the ß3 integrin knockout cells. This inverse correlation was also observed in stable heterologous cells transfected with ß3 integrin, where the intracellular expression and activity of Cathepsin B was decreased comparedto untransfected control cells, analogous to the ß3 integrin knockout fibroblasts. Our data suggests that the composition of the cellular proteome is strongly influenced by integrin expression patterns and reveals a strong functional relationship between ß3 integrin and Cathepsin B. This unexpected link between two markers of advanced oncological disease may provide insight for alternative therapeutic intervention.

Hilary Casner, Sundé Nesbit, Ph.D.
hgcasner@hotmail.com
California State University, Fresno
Department of Psychology
Undergraduate Student

Applying the Frustration-Aggression Hypothesis to Driving Situations: A Preliminary Analysis

Driving anger, popularly known as "road rage", has become an issue of both public and psychological concern. Over 200 people from 1990 to 1996 were killed as a direct result of the aggressive acting out of angered drivers (AAA, 1997). Past research has attempted to identify the causes of driving anger, and this project is an expansion upon those findings.

One of the explanations for driving anger which shows much empirical support is that of the frustration-aggression hypothesis. In the past application of this hypothesis to driving anger, the frustrator was identified as traffic congestion and the aggressive outcome as driving anger. However, some research findings indicate that traffic congestion may not be a reliable trigger for driving anger.

The purpose of this study was to investigate the possibility that any pre-existing source of frustration may lead to an aggressive driving response. Specifically, in this case the source of frustration was in the form of a series of abstract reasoning matrix tasks. Participants in the control condition received matrix problems that were easily solvable and they were given positive feedback regardless of their performance. Immediately following the matrix tasks, participants rated their levels of frustration and then viewed videotaped, simulated scenes of driving in the experimental condition were expected to report increased angry and aggressive responses to the driving situations, when compared to those in the control condition. Implications of this study include increased knowledge concerning the causes of driving anger.

Jason Charalambides, Ph.D.
jcharalambides@csufresno.edu
California State University, Fresno
Department of Civil and Geomatics Engineering and Construction

Reassessing Computer Aided Design in Architectural Practice

Architectural design is a process of decision making. There are quantitative and non quantitative issues that a designer has to address. The advance in the use of computer technology in design has been particularly slow, if not misinterpreted altogether since the early stages of the generation of commercial Computer Aided Design (CAD) programs. The quantitative power of a computer was used to generate a finalized set of drawings, conforming thus IT to the standards of analog drafting. The early attempts by commercial CAD program designers to generate fully fledged 3D modeling programs proved useful to very few users, leaving the bulk of the industry in the minimal use of 2D computer drafting. Building Information Modeling (BIM) which appeared recently, can be viewed as the new generation of Computer Aided Design. Given the level of computer education provided by current University Architecture programs, the anticipation of adoption of BIM to its full potential by the industry seems like an awfully distant faded target. By the time new designers possess the knowledge to implement BIM as it is today a much more potent version of CAD will be anticipated by the Information Technology (IT).

The problem lies in the lack of communication between IT and the building design professionals which leads to inaccurately assessed objectives. The design professionals use experiential methods and address issues in ways that do not conform to the potential of computers as design tools. Computers have not gained the trust of architects for their capabilities in risk analysis and elimination of alternatives so as to become autonomous decision making agents.

The objective was to develop and seamlessly incorporate the quantitative processing advantages of Computer Aided Design technology within the usual practices of the industry. Examples where this stealth type technology was implemented allow design professionals to engage in setting the projects' primary objectives and computers to perform risk analysis, resolve complex quantitative problems, and generate results in form of virtual models and even construction documents. The process can be automated and semi automated, allowing a controlled degree of interaction between the architect/designer and the computer program. The end result benefits the end use while minimizing any losses due to learning curve factors by the building design professionals.

Melissa Dittmar, Kathleen Ramos, Ph.D., Kathleen Reid, Ph.D.
California State University, Fresno
Psychology, Child, Family and Consumer Science
Undergraduate Student

Infant Sleep and the Parent-Child Attachment Relationship

Introduction: The present study sought to explore the relationship between infant sleep and parent-child attachment. The most common recommendation given to parents in regard to dealing with infant sleep is behavioral sleep training, based on limiting responsiveness to the child when they are supposed to be sleeping. Despite the popularity of this method, Attachment Theory suggests that limiting responsiveness in this way may lead to an insecure child-parent attachment relationship. Some experts promote parent child co-sleeping in order to increase parental responsiveness during nighttime hours, thought to contribute to a secure parent-child attachment. Our research sought to explore a relationship between family sleeping arrangements and the quality of the mother-infant attachment relationship as well as the possibility of a relationship between family sleeping arrangements and behavioral sleep problems.

Methods: Participants were 20 pairs of mothers and infants between the ages of 12 and 18 months. Each infant wore an acti-watch for 5 days nights to record data regarding movement and sleep patterns. Each pair participated in a "Strange Situation" where interactions were coded in order to assess attachment quality. Finally, mothers completed a survey reporting information regarding sleep history, sleeping arrangements in the home and demographics.

Results: Of the 20 infants studied, 3 were identified as having an insecure attachment relationship. These three were all solitary sleepers who had been sleep trained. Data showed that infants who sleep alone spent more time in bed, more time asleep and woke fewer times throughout the night. However, mothers of co-sleepers reported less problematic behavior than those of solitary sleepers.

Conclusions: Our results suggest that parental non-responsiveness throughout the night may lead to an insecure attachment relationship although co-sleeping versus solitary sleeping is not the variable that determines attachment quality. Instead, maternal responsiveness (which is limited by sleep training) can influence attachment quality.

Jennifer Dodge, M.P.H.[1]
jdodge@phifresno.org
Paul K. Mills, Ph.D.[1]**; Deborah G. Riordan, M.P.H.**[2]
Public Health Institute[1]*, Central Valley Health Policy Institute*[2]
Cancer Registry of Central California[1]

Cancer Survival in California Hispanic Farm Workers, 1988-2001

Introduction: Although epidemiologic studies have identified elevated cancer risk in farm workers for some cancer types, little is known about cancer survival in this population. This study aimed to determine if cancer survival differs between a Hispanic farm worker population and the general Hispanic population in California.

Methods: Hispanic United Farm Workers of America (UFW) union members and California Hispanics diagnosed from 1988-2001 with a first primary cancer were identified from the California Cancer Registry. Kaplan-Meier observed 5-year cause-specific survival rates were calculated and log-rank tests assessed population differences. Cox proportional hazards models for the most common cancers provided age, stage and year of diagnosis adjusted hazard ratios.

Results: Observed five-year cancer-specific survival rates were lower for Hispanic UFW males compared to California Hispanic males for all cancer sites combined (53.7% versus 57.7%, respectively) and colorectal cancer (48.1% versus 60.6%, respectively) and higher for non-Hodgkin lymphoma (86.7% versus 57.6%, respectively). Only non-Hodgkin lymphoma survival differences remained significant ($p=0.021$) after adjusting for age and stage at diagnosis. No statistically significant survival differences were detected between UFW and California Hispanic females.

Conclusions: Although survival was generally similar between UFW members and California Hispanics, lower crude survival among UFW males for all sites combined and colorectal cancer warrants public health measures to address barriers to cancer screening in California's Hispanic farm working populations. Histology-specific analyses with larger sample sizes are required before reaching conclusions on non-Hodgkin lymphoma survival differences.

Ian Dryden, Gregory W. Hendey, M.D.
drydenian@gmail.com
Ian Dryden, Tania Robertson, M.D.,
Gregory W. Hendey, M.D., Geoff Stroh, M.D., Marc Shalit, M.D.
UCSF-Fresno Medical Education Program
Emergency Medicine
Graduate Student

Prehospital Intranasal versus Intravenous Administration of Naloxone for Narcotic Overdose

Study Objectives: The narcotic antagonist medication, naloxone, can be a life saving intervention by reversing the respiratory and mental status depression caused by an overdose of narcotics. Since intravenous (IV) administration of naloxone can be difficult, time consuming, and risky, intranasal (IN) administration may prove to be a better alternative. This study investigates the efficacy of IV versus IN administration of naloxone, by comparing the mean time intervals from patient contact and administration of naloxone to the clinical response for each route of administration.

Methods: Emergency Medical Services (EMS) and hospital records, from March 2003 to July 2004, were retrospectively reviewed from the EMS database. Patients suspected of narcotic overdose and treated with naloxone in the pre-hospital setting were included. Administration type, dose number, administration time, patient contact time, and clinical response time, were documented. Clinical response time was operationally defined as an increase in respiratory rate or Glascow Coma Scale (GCS) of at least six. The mean time interval from naloxone administration to clinical response, the mean time interval from patient contact to clinical response, and the percentage of patients successfully treated with one and two doses of naloxone, were then compared. Means and proportions were compared using t-tests and chi-square tests as appropriate.

Results: 147 patients met the inclusion criteria during the study period; 97 were treated with IV naloxone and 50 were treated with IN naloxone. Clinical response was noted in 56% of the IV group and in 64% of the IN group ($p = 0.3$). More patients in the IN group received two doses of naloxone (38% vs. 19%, $p = 0.05$). The time interval between naloxone administration time and clinical response was longer for the IN group versus the IV group (12.6 vs. 8.1 min., $p = 0.004$). However, the mean time interval from patient contact to clinical response was not significantly different between the IV and IN groups (20.3 vs. 19.4 min., $p=0.7$).

Conclusion: The dose to clinical response time for naloxone was longer for IN administration, but the overall time for patient contact to clinical response was the same for both IV and IN routes. However, two doses were required more often when using the IN route. Due to difficult and hazardous nature of obtaining IV access in some patients experiencing narcotic overdoses, IN naloxone appears to be a safe and effective alternative.

Stephanie Fratto Torres, Barara Owen, Ph.D.
snf_torres@hotmail.com
California State University, Fresno
Criminology
Graduate Student

Women in the Secured Housing Unit of California Prisons

This project fills a void in the women's prison literature by reporting descriptive detail about women in the Secured Housing Unit or SHU, of the California Department of Corrections and Rehabilitation. The 2005 population census sample of 142 distinct female inmates was derived from coding of official records kept weekly in the SHU at Valley State Prison for Women. Using a multi-method approach, the frequency and nature of the prison rule violations committed by the sample and the institutional response to the in prison offenses are all described by layered contextual detail. The project utilizes three data sources that are all official records collected and kept by California Department of Corrections and Rehabilitation. Women in the sample ranged in age from 16 to 58, were disproportionately African American and Hispanic, and nearly half of the sample had a recorded violent felony conviction. Most frequently recorded in prison offenses include battery on staff, threatening staff, battery on an inmate with a weapon, possession of a weapon, and battery on an inmate. These frequent offenses were found to most often to be preceded by a verbal escalation leading to the offense and never led to a recorded stabbing or death.

Tiffany Friedland, Kent Yamaguchi, M.D.
ttyner@fresno.ucsf.edu
Tiffany Friedland[1], Tim R. Tyner M.S.[1], Antonio D. Toribiol[1], Kennedy Vu1[1], Kenty Sian M.D.[2], Kent T. Yamaguchi [2]
California State University, Fresno[1], University of California San Francisco, Fresno[2]
Department of Biology[1], Department of Surgery[2]
Undergraduate Student

Effects of Diesel Exhaust Chemicals on Wound Healing in Healthy and Diabetic Mouse Models

The management of diabetic wounds is a major clinical challenge. Among patients diagnosed with diabetes, the lifetime risk of developing lower-extremity ulcers is estimated to be 15% to 25%, and the treatment cost is estimated to range from $15,000 to $28,000 per episode. Current research therapies include the use of vasodilators and angiogenesis-stimulating agents to improve blood flow and antioxidants to reduce ischemia-related tissue damage. While high levels of free radicals (H2O2) generated by neutrophils and macrophage at wound sites contribute to lipid peroxidation and tissue damage, recent studies suggest that low levels of H2O2 may induce angiogenesis and enhance the wound healing process.

A growing concern in Fresno and the Central Valley is poor air quality. Of particular significance are diesel emissions which include a variety of noxious pollutants. Diesel exhaust chemicals have been linked to the exacerbation of many health conditions, including heart and respiratory diseases. Some constituents of diesel exhaust have been found in higher concentrations in Fresno than in any other part of the country, including 9, 10-phenanthraquinone, a highly reactive 3-ring polyaromatic hydrocarbon oxygen derivative. Preliminary studies in cell-free assays have revealed that this chemical undergoes redox cycling and is capable of generating significant levels of free radical (H2O2), indefinitely.

This project examined the effects of 9, 10-phenanthraquinone (PQ) on wound healing in a healthy and diabetic mouse model. Briefly, homozygous diabetic (db) and heterozygous nondiabetic (+/-) mice were exposed to high levels of PQ (150 mg/kg/d) orally for 14 days prior to wounding. Mice were kept on PQ and the healing rate (wound epithelialization) evaluated 10 days post-wounding. Wound biopsies were taken and slides prepared to assess neovascularization and tissue free radical levels. Significant differences were demonstrated in the healing rate of db and +/- mice.

Salvador Gallegos, Matthew A. Jendian, Ph.D.
gallegos2006@csufresno.edu
California State University, Fresno
Craig School of Business, Information Systems
Undergraduate Student

Information and Communication Technology and Its Effects on Nonprofits

This research addresses the availability problem of Information & Communication Technology (ICT) among NPOs, and its effects on the nonprofit sector. Though a digital divide exists for many nonprofit organizations (NPOs), most agencies can obtain the needed technological knowledge to more effectively and efficiently accomplish their missions.
This is a continuation of research work aimed at measuring the technological divide.

A sample of small to medium sized (SMEs) NPOs in Fresno County is used in this case study. Information from surveys, personal interviews, Information Systems audits, and previously collected data (by University students) is used for analysis.

The research shows that NPOs have a perception that funding for ICT is very limited, and beyond their reach. The results will show the contrary, ICT is readily available to the nonprofit sector than commonly believed.

The study was kept within small to medium sized (SMEs) NPOs; therefore, the focus was in the area of technology in NPOs. Recommendations are presented to assist various NPOs in implementing the improvement of their ICT.

Maribel Galvez, Ted Bergman, Ph.D.
maribelm@csufresno.edu
California State University, Fresno
Modern and Classical Languages
Graduate Student

Arabic influences in the Castilian Literature

When one mentions the presence of the Arabs in Spain usually the first thoughts are of a dark cloud of violence, hatred, holy wars and differences between Christians and Arabs. Although, the Arab and Christian communities had many differences they coexisted harmoniously in a society where unity, diversity and tolerance played important roles. Due to the unity and tolerance between the cultures prior to the Reconquest, the expulsion of the Arab community from Spain, Arabs and Christians shared many talents among each other. The presence of the Arabic culture influenced many of the Christian writers' to explore new methods of writing styles.

There where different techniques of Literature introduced by the Arabs however, only four will be discussed. One of the first styles of literature introduced by the Arabs consisted of oral poetry based on the readings of the Koran. The second style of poetry consisted of themes which embrace nature and it was written in classical Arabic. In the theme of nature the most influential poet was Adb al-Rahman I who wrote the poem "a una palmera", (To a Palm Tree). The third style of poetry introduced was the Muwashshahat and Zajal or Zéjel which where written in a vernacular language instead of the classical Arabic and it consisted of themes of human virtue and passion. Finally, the fourth style consists of short stories. Arabic short stories played an important role in the development of Castilian Literature. For example, One Thousand and one nights, and Calila y Dimna are some of the most recognized short stories from the Iberian Peninsula. All these themes and styles of literature captured the attention of many Christian writers and poets because one can trace and identify the similarities between the literature of the Arabs and Christians. Some examples of Christian Literature with similarities to does of the Arabs consist of the "cantigas de Santa María", the lyrics "Villancicos" and short stories like el conde Lucanor by Don Juan Manuel, to mention a few. The presence and influences of the Arabic Literature in the Iberian Peninsula the literature flourished with oral and written poetry and short stories. By having knowledge of the influences of the Arabs one can identify analogous methods of literature between Arabs and Christians.

Alicia Gonzalez, John Capitman, Ph.D.
aligonzalez@csufresno.edu
Alicia Gonzalez, John Capitman, Ph.D., Marlene Bengiamin, Ph.D.
California State University, Fresno
Central Valley Health Policy Institute
Graduate Student

Using Photovoice in Needs Assessment to Promote Action in an Underserved Community

Background: Rural communities often experience healthcare access barriers1. Findings from a focus group conducted in the community under study found lack of comprehensive, preventive healthcare and insurance as barriers to accessing needed services.

Purpose: This study identifies the healthcare, social service needs and access issues experienced by members of an underserved, rural community in California's central valley. The use of multiple data sources to ensure participation from all community segments is emphasized.

Learning Objectives:
1. Apply Photovoice as a needs assessments tool
2. Describe how to empower youth to participate in community needs assessment

Method: We used a needs assessment tool to conduct face-to-face interviews with 183 parents of school-aged children and 53 elders. We trained ten youths to use Photovoice. They took forty-six photos and expressed their perception in writing. Descriptive analyses to questions addressing common problems in Home Garden were conducted.
Qualitative analyses were performed using an inductive approach on verbatim answers to open-ended questions. The qualitative analysis was enhanced by results from Photovoice using the SHOWeD method developed by Caroline C. Wang, DrPH, MPH.

Results: The family and elder interviews reveal a need for access to healthcare and social services, affordable insurance, recreation, and community service. The community envisions a future that is safe and healthy. Photovoice enabled youth to express concerns about environmental burdens in their neighborhood. They feel the unclean appearance of the community gives a bad impression to the public.

Conclusions: Photovoice empowers youth and serves as a powerful tool for the community's voice. Photovoice enhances what the needs assessment captured by combining the community's story through the eyes of the youth, families and elders.

Ashley Gosney, Sundé Nesbit, Ph.D., Paul Price, Ph.D.
ajgosney@csufresno.edu
California State University, Fresno
Department of Psychology
Undergraduate Student

The Relationship between Exercise and Perceived Control: A Meta-Analysis

There is considerable evidence that a serious lack of exercise plagues the health of many Americans. Therefore, it is not surprising that an important issue health psychologists face is devising methods for exercise motivation. Even more important than initiating exercise behavior is gaining an understanding of prolonged adherence to exercise programs. Only about one half of individuals who start participating in an exercise program on their own accord will still be participating in it six months after the initiation (Dishman, 1982).

This meta-analysis investigated the relationship between exercise and one's perceived control, with regards to both present exercise behavior and adherence to exercise programs. It was hypothesized that there was a low to moderate correlation between an individual's exercise behavior and her or his perceived control. More specifically, it was hypothesized that one's level of exercise behavior would vary accordingly to the type of perceived control one reports as well as various demographic factors.

Extensive searches conducted through the PsycINFO system resulted in several articles (approximately 20) containing information regarding exercise behavior and perceived control. The main determinant of whether or not an article would be used in the statistical analysis was the presence or lack of a correlation between exercise and perceived control in the results section. The preliminary steps for the statistical analyses are complete and the entire analyses are currently underway.

Overall, the previous literature suggests a low correlation between exercise and perceived control, which generally supports the hypothesis of the present study. The results may guide the future research of health psychologists toward devising more effective exercise regimens that are based on one's sense of perceived control.

Rebecca Headrick, Shigeko Okamoto, Ph.D.
rheadrick@csufresno.edu
California State University, Fresno
Department of Linguistics
Graduate Student

No Person Shall Be Forced to Have an Abortion against His Will: A Case of Epicene Pronouns in Written Discourse

These studies examine intensely debated epicene pronouns: generic masculine he, singular they, and he or she. One hundred and one college students participated in a study by writing about an educated person. These writings, along with fourteen academic texts from various disciplines, and nine discussion forums were collected and analyzed according to epicene pronouns. Additionally, a survey that investigated the acceptability of epicene pronouns was administered to eight writing experts, such as English teachers and a newspaper editor. These studies illustrate extensive use of singular *they* in written discourse. Singular *they* was the preferred pronoun in the present studies; it was used 70% in the first study and 33% in the second study. Although they was the preferred epicene pronoun, the majority of teachers and experts said *they* would not accept singular they from students' or employees' writings. Singular *they* usage has increased 38% since Meyers's (1989) study. This increase may suggest a grammaticalization in progress.

Laine Hendricks, Tamyra Pierce, Ph.D.
lainehendricks@csufresno.edu
California State University, Fresno
Mass Communication and Journalism
Graduate Student

The Motives for Viewing Reality Television among Age, Sex and Race

This study examined the motives for watching reality television among various age, sex and race groups. Little to no previous research has examined racial or age differences in motives for viewing reality television. Likewise, no research exists examining audience interactivity or participation as an added motive for viewing.

Multiple purposive samples were surveyed in a classroom setting on a large west-coast university campus Surveys were distributed during a lecture style class period and participants were given ten minutes to complete questionnaire. No incentives or class-credit were offered in exchange for completing the survey. A total of 353 participants (students and faculty) were surveyed to assess their reality television viewing and participation habits, preferences for certain reality subgenres, and motives for watching reality programming. 74 percent of participants claimed to watch reality television.

Aside from demographics of each participant, results found common motives for watching reality television, which included entertainment, passing time, and relaxation. African-American's were more motivated by entertainment, while Armenians by information. Younger age groups sought to pass time, while older age groups looked for entertainment in reality television. Overall, females reported having stronger reasons for watching reality television than did males, especially in the areas of entertainment, escape, companionship, habit and participation.

It was concluded that females audiences, older age groups, and non-white viewers are more strongly motivated to watch reality television for specific reasons that other audience segments.

Adam B. Hess
matthew_sharps@csufresno.edu
Adam B. Hess, Hilary Casner, Bethany Ranes,
Jenna Jones, Matthew J. Sharps, Ph.D.
California State University, Fresno; Alliant International University, Fresno
Department of Psychology
Faculty or Professional

Eyewitness Memory in Realistic Context

Eyewitness identification research has typically focused either on specific factors in isolation, or on attempts at ecologically valid contexts in less-controlled crime simulations. There has been a lack of studies which "bridge" these approaches. This was the intent of the present experiments, which addressed the effects of stimulus complexity and weapon presence on memory for dress and physical characteristics of assailants, for weapons and peripheral sources of hazard, and for perpetrators in lineups. Standardized contexts were used for solid experimental control. Results indicated that eyewitness memory under even idealized conditions was highly unreliable, both for perpetrator characteristics and for other aspects of the crime scene, including weapons and peripheral sources of hazard. Clothing, physical appearance, and actions were poorly recalled. The presence of a weapon was also poorly recalled; the majority of respondents, faced with a "perpetrator" armed with nothing more lethal than a power screwdriver, still believed that a weapon was present and used in the scene depicted. In those scenes in which peripheral sources of hazard were included (explosive devices or potential explosive devices, similar to the improvised explosive devices [IED's] currently encountered in Iraq), only 1% of respondents detected an "explicit" explosive device (a grenade shell, from which the actual explosive, of course, had been removed), placed in plain sight. No one detected a potential "implicit" source of explosive (a military ammunition box) placed within detonation range of the grenade shell. Finally, it was shown that in context, and with a single visual transformation characteristic of real-world "lineup" criminal identification procedures, only 10% of respondents were able to make an accurate identification of a given perpetrator. These results add to the growing body of information on the elements of eyewitness situations which are most likely to yield difficulty in investigative and courtroom settings.

Kirstie Hettinga, Tamyra Pierce, Ph.D.
kehettinga@gmail.com
California State University, Fresno
Department of Mass Communication and Journalism
Graduate Student

Convergence Education

This study focuses on the changes in journalism education wrought by the forward movement of convergence and whether or not the education provided reflects the skills needed by professional journalists. One of the goals of this research was to determine whether or not more students of specific option within the mass communication and journalism major were being taught to write for a variety of mediums. The survey also looked at how students use the Internet — to complete coursework and for communication.

This study utilized quantitative methods and surveyed 63 students from California State University, Fresno. The students responded to survey that measured their use of the Internet to complete class work, whether or not they had learned new computer courses for their classes and if they communicated with professors and classmates online. This was measured on a five-point scale.

The results revealed a significant difference in Internet use between students of varying options within the MCJ major. Students reported using the Internet to complete online coursework. In addition, results showed that students who used the Internet to communicate with professors were more likely to use the Internet to communicate with classmates. Finally, a relationship was found between students completing class assignments online and their use of the school-provided Blackboard service.

While relationships were found linking students' Internet use and their class work, it was determined that there is a need for additional research in this field. Media professionals suggest that applicants without multimedia skills are less likely to be hired in a competitive market. Therefore, more research is needed in this area.

Todd Johnson, Mamta Rawat, Ph.D.
johnsont@csufresno.edu
California State University, Fresno
Department of Biology
Undergraduate Student

Unique Thiol Compositions of Two Actinomycetes

Low-molecular weight thiols exist in all living organisms and possess strong antioxidant properties. Of these intracellular redox buffers, glutathione is among the most prominent as it is found in a wide range of organisms. Bacteria in the Order Actinomycetales, however, are known to produce mycothiol, a unique tripeptide, and lack glutathione. Several studies have found evidence for glutathione dependent enzymes in several Actinomycete species, including Rhodococcus AD45 as well as Streptomyces griseus, though the actual thiol composition of many such species had not been characterized. This research aimed to quantify the mycothiol and glutathione contents of a wide range of Actinomycete species.

Cultures were grown in tryptic soy broth (TSB) liquid media, incubatedat 30° C or 37° C, and harvested in the exponential growth phase. We applied a derivitization solution to the cells, which consisted of 50% acetonitrile and a fluorescent labeling reagent, monobromobimane (mBBr). High performance liquid chromatography (HPLC) was used to separate the labeled thiols, which were then detected via spectroflourometer. We determined the thiol composition for Rhodococcus rha1, Rhodococcus erythropolis, Rhodococcus AD45, Streptomyces griseus, Streptomyces ghanaensis, Rubrobacter radiotolerans, Kinneococcus radiotolerans, Deinococcus radiodurans, and Mycobacterium smegmatis.

Most Actinomycetes analyzed in this study produced mycothiol as the dominant thiol as expected. However, we found that the production of mycothiol is not mutually exclusive with that of glutathione, as shown in Rhodococcus AD45, a species of bacteria renowned for the ability to degrade isoprene and other related organic pollutants. An analysis of glutathione and mycothiol levels through the growth cycle of this organism revealed a changing ratio of glutathione to mycothiol. Furthermore, Rubrobacter radiotolerans, a radiation resistant Actinomycete, did not have mycothiol but contained glutathione. Understanding the thiol composition of Actinomycetes may shed light on detoxification pathways that could use mycothiol as a cofactor.

Bobby Kamansky, Steve Blumenshine, Ph.D.
bobinator1@csufresno.edu
California State University, Fresno
Department of Biology
Graduate Student

Burning and Grazing Increase Biodiversity in Vernal Pool Grasslands

Annual grasses from the Mediterranean region now dominate many grassland ecosystems in the Central Valley. These ecosystems often have low species diversity compared to historical diversity and contain a dense thatch buildup caused by annual grass residual matter. Fire suppression and inadequate or poorly timed grazing may contribute to low diversity. We present the results of a two-year study at the James K. Herbert Wetland Prairie Preserve in Tulare County, where vernal pool, vernal pool edge and upland plant communities can be studied. The objectives for this study are: 1) to understand how prescribed fire affects species diversity in the upland, edge and pool areas in and surrounding vernal pools, 2) to understand how burning and grazing interact to affect native and non-native species diversity, 3) to study vernal pool diversity without treatment with grazing or fire. We treated nine vernal pools with fire and grazing while eleven pools received grazing only treatments and three pools received no treatment. We found that burning significantly increases plant species diversity compared to grazed, unburned pools and ungrazed, unburned pools. Ungrazed, unburned pools had the lowest diversity in our study. Though total biodiversity increased during the study in response to treatment with fire, native forbs and grasses increased in greater numbers and abundance compared to non-natives in the treatment plots. The results suggest both fire and grazing are effective tools in controlling exotic species while enhancing native species abundance, vigor and reproduction.

Katelyn Kelly, Karl Oswald, Ph.D.
katelynkelly@csufresno.edu
Katelyn Kelly, Lisa Silvera, Karl Oswald, Ph.D.
California State University, Fresno
Department of Psychology
Undergraduate Student

Facial Composite Identification across Delay and Identification Procedure

The purpose of this study is to determine if novices can create, from memory, identifiable computer-generated composites using the computer software FACES™. FACES™ and other software programs like it are used in many police agencies in order to apprehend suspects. However, there is little research on FACES™ in particular. In the first phase of the experiment, participants will view a mug-shot for a brief period, and then work on an unrelated task for 10 minutes before creating a composite of the target. In the second phase of the experiment, other participants will be asked to identify the target composite from a simultaneous lineup of five photographs. Previous research in this area indicates that identification accuracy will decline as the memory demand placed on participants is increased. The participants received one unit of lab credit toward their psychology 10 classes. There was minimal risk involved in this study. Procedures to minimize risk included allowing students to withdraw from the experiment at any time with no penalty and complete confidentiality.

Kherstin Khan, Diane Blair, Ph.D.
khersti@csufresno.edu
California State University, Fresno
Department of Communication
Graduate Student

Communication Theory: A Graduate Student's Grappling with Questions, Answers and Processes

This paper is a culmination of my experience with communication theory. Theory is considered a set of tools for understanding and acting in the world, in a sense a process. Similarly, communication/ing is viewed as a process where communication, itself, is problematized. These two conceptualizations work together to provide insight to the reflexive nature of theory and communication. Based on communication scholars' grappling with these very issues, I discuss how assumptions about theory impact understandings of communication and how assumptions of communication impact understandings of theory. Graduate students tend to approach theory with the presumption they will come away with definitive answers. More valuable than answers, though, is understanding the set of questions; thus realizing their political, personal and professional implications.

Communication theories are generally categorized into three main sections; theories of explanation, theories of understanding and critical theory. To explicate the importance of understanding the assumptions of the set of theoretical questions, I take a theory of understanding, socio-cultural theory, and a critical feminist theory, and apply each to the wedding ceremony. The purpose of this is to show how different sets of questions provide different, but equally valuable understandings of communication and theory. I conclude with a discussion of what this means for me not only as a scholar, but also personally, because the presumption I make is that theorizing is a lived experience.

Karl Kraft, Madhusudan Katti, Ph.D.
karlkraft@gmail.com
California State University, Fresno
Department of Biology
Graduate Student

If You Build It, Who Will Come? Landbird Response Toriparian Restoration at the San Joaquin River National

Biodiversity loss under human landscape alteration is often sought to be reversed through ecological restoration. Most restoration projects focus on restoring habitat by reintroducing elements of the native flora, letting the remaining plant and animal species from the native community return on their own. Research / monitoring efforts therefore emphasize rapid recovery of ecosystem processes, and have only recently begun addressing recovery of functional groups and community assembly. Such engineered habitats are an underexploited opportunity for ecologists to understand the basic processes underlying community assembly, and to follow a community's long-term trajectory. Here I examine avian responses, specifically community assembly, to riparian restoration along the San Joaquin River in the Central Valley of California. I use point counts and vegetation assessment to investigate bird habitat relationships and seasonal habitat use patterns. Preliminary results from 2006 (four years post restoration) show increases in vegetation height, cover, and structural complexity, and that cultivated riparian forests appear to be supporting a diverse avian community. Bird species richness ranges from 6 to 13 (total of 23) in the summer and 3 to 12 species per point in the fall (total 21). In the summer the most abundant functional groups were ground granivores and insectivores, followed by foliage insectivores, bark insectivores, aerial insectivores, and generalist omnivores. In the fall ground granivores were the most abundant functional group followed by bark insectivores, aerial insectivores, ground insectivores, foliage granivores, and generalist omnivores. Results from my ongoing study provide a baseline for monitoring the reassembly of this riparian forest community, now likely to experience greater management inputs under new agreements to restore the San Joaquin River, and provide insights into the process of community assembly in engineered habitats.

Victoria Kubal, M.S., B.C.B.A.
vkubal@fresno.ucsf.edu
John Zweifler, M.D., M.P.H., Susan Hughes, M.S.
University of California, San Francisco, Fresno
Department of Family and Community Medicine

California Statewide Family Medicine Preceptorship Program's Impact on Medical Students' Specialty

Introduction: Population increases, coupled with dwindling interest in primary care residencies, suggest the supply of primary care physicians in general, and family medicine physicians in particular, will be inadequate to meet future needs. The California Academy of Family Physicians Foundation (CAFP-F) has funded the Family Medicine Preceptorship Program to allow first-year California allopathic and osteopathic students the opportunity to explore careers in family medicine by precepting full-time with a family medicine physician for four weeks. This study's first objective was to determine the proportion of CAFP-F Family Medicine Preceptorship participants who matched into family medicine and compare this to program applicants who did not participate in the program. The second objective was to investigate whether applying to the preceptorship program, year, and medical school were predictors of family medicine residency match.

Methods: Medical and osteopathic students who applied to the CAFP-F Family Medicine Preceptorship program from 1996 to 2002 were followed until they matched into specialty selection. Participants were compared to non-participants for family medicine and primary care match rates via chi-squared analysis. Using California family medicine match data from 1999 to 2005, binary logistic regression was performed with family medicine match as the outcome measure and school, application/participation status, and year as the covariates.

Results: According to the chi-squared analysis, 24% of the participants matched into family medicine residency programs, while only 13% of non-participants went into family medicine ($p < .001$). Logistic regression odds ratio for participants compared to non-applicants matching into family medicine was 2.7 with a 95% confidence interval of 2.0 to 3.6 ($p < .001$). The odds ratio for non-participants compared to non-applicants matching into family medicine was not statistically significant.

Conclusion: Participants in the CAFP-F Family Medicine Preceptorship program were more likely than both non-participants and non-applicants to select a family medicine residency.

Chung Hoon Lee, Ph.D.
chulee@csufresno.edu
California State University, Fresno
Department of Electrical and Computer Engineering

3-D Nanogap Molecular Electronics

Molecular electronics is using individual molecules as conducting elements to perform electronic circuit functions. Individual molecules are hundreds of times smaller than the smallest features conceivably attainable by semiconductor technology. Since individual molecules are easily made exactly the same by the billions and trillions, the dramatic reduction in size, and the sheer enormity of numbers in manufacture, is the principle benefits offered by the field of molecular electronics. Moreover, diversity of molecular structures and associated properties has expanded the field of molecular electronics to electronic components, bio-sensors and quantum electronics.

The success of molecular electronics lies in theoretical and experimental understanding the charge transport and the coupling of molecules to electrodes. Theoretical studies of charge transport through a molecule seek to understand electron transfer rates depend on donor and acceptor properties and on electronic coupling states. Experimental studies of charge transport seek to observables such as conductivity in molecular junction. The major difficulties studying the charge transport lie in constructing molecular junctions with a high degree of reliability and reproducibility. A typical molecular junction is constructed by two metal electrodes and molecule(s) connected between them. The two electrodes are usually fabricated on dielectric substrates and patterned by using electron-beam lithography that has the resolution limit and a limited accessibility. In consequence, providing nanoscale electrode gap without any substrate around the gaps for a single molecule attachment is essential to develop electronic and biological systems at the molecular level.

In the laboratory we will demonstrate methods of fabricating 3-dimentional nanogaps. The 3-dimentional nanogaps are fabricated by conventional bulk-micromachining techniques that are easily accessible compared to electron-beam or nanolithography. This technique allows not only constructing a single nanogap formed in 3-D structure configuration but also enabling nanogap arrays.

Song Lee, Ph.D.
songleeis@yahoo.com
California State University, Fresno
Department of Counseling, Special Education, and Rehabilitation

Hmong Women Issues: Identity and Mental Health

This mixed-method research investigated perceptions, behaviors, and mental health issues of Hmong women in the United States. One of the main goals was to examine associations among mental health, behaviors, and demographic variables. Another goal was to examine whether perceptions of the participants were similar to their reported behaviors. Lastly, another main goal was to create a Hmong women identity model based on their perceptions and behaviors.

Thirty-eight Hmong women from Fresno, California ages 18 to 92 were given a survey on their behaviors and perceptions. They were also given the Hopkins Symptom Checklist-25 to assess symptoms of depression and anxiety. The women were broken down into three groups based on their length of stay in the United States: wave1 (more than 10 years), wave2 (5-10 years), wave3 (less than 1 year). Five women, representing the different waves and ages, were further interviewed on their perceptions regarding women and societal views. The Mantel-Haenszel Chi-Square Test was utilized to capture associations among the variables and descriptive statistics were utilized to determine whether perceptions were congruent to behaviors. Themes abstracted from the interview transcripts and data from the survey were used to formulate the identity model.

Statistical data analysis yielded some associations among mental health, perceptions, behaviors, and demographic variables. For example, perception of who should be more respected and actions to improve one's life were found to be associated with anxiety. Additionally, perceptions of who should be more respected, women's role in voicing concerns, education, maintaining cultural practices, and educational level were found to be associated with depression. Furthermore, more than half of the participants reportedly behave in ways that were different from their perceptions or beliefs. Utilizing the various data sets and interviews, a five stage identity model was created to better visualize the different perceptions and behaviors of Hmong women as they acculturate into the culture of the United States. The Hmong have only been relocating to the United States since 1975. Results showed that the acculturation process seemed to affect mental health and perception of Hmong women. Mental health was associated with some of the perceptions, which were related to their length stay in the United States. The five stage identity model was created to assist helping professionals to gain insights into the perceptions and struggles of Hmong women.

Amanda Lockling, Kathleen Ramos, Ph.D.
mandipandi@csufresno.edu
Amanda Lockling, Kathleen Ramos, Melissa Dittmar
California State University, Fresno
Department of Child, Family & Consumer Sciences
Undergraduate Student

Bedtime for Baby: Parental Responsiveness during Infant Sleep Routines

Background: Sensitive responsiveness is the key predictor of secure attachment in adult-infant relationships (Ainsworth, 1978). We focused on sensitive responsiveness of parents during the management of infant sleep.

Methods: 20 parents of infants 12 months or younger completed surveys and went through an interview about their infant's sleep routines. The survey included the Nighttime Parental Responsiveness Questionnaire to identify nighttime sensitive responsiveness. A coding scheme was developed by adapting Ainsworth's Maternal Sensitivity Scales (1969) to apply to sleep routines. We coded the transcribed interviews for the qualities of care described by Ainsworth as sensitive: 1) awareness of signals, 2) accurate interpretation of signals, 3) prompt response, 4) appropriate response, 5) rhythmicity, and 6) affect.

Results: In a sleep context, parents with high awareness scores recognized subtle signs of tiredness such as eye rubbing and general fussiness, while less aware parents only noticed crying. Those who accurately interpreted sleep signals expressed empathy for their baby, whereas misinterpretation was often reflected in the belief that the baby was manipulating the parents. With regard to promptness, some parents made a point of waiting until the child was in a full-fledged cry before attending, whereas others laughed at the idea of letting the baby cry without response. Appropriate response to sleep signals was the most difficult category to code because it seemed to be ideological in nature. We decided that it was appropriate to always provide comfort to a distressed baby even during sleep times, but inappropriate to use the television to soothe babies to sleep (based on medical recommendations against television viewing in infancy). Rhythmicity was most apparent in parents' attempts to create a bedtime routine including keeping the environment conducive to sleep, but also being willing to be flexible based on the infant's specific needs. We noted that parental affect varied from expressing frustration and anger at babies during bedtimes and night walking to expressing a sense of awe and appreciation for their babies at those times. Based on the Nighttime Parental Responsiveness Survey, the two interviewees with the lowest overall responsiveness scores (4 on a 7-point scale) put their babies down with a bottle on a strict schedule and left them alone or with the television to fall asleep. The two interviewees with the highest possible overall responsiveness scores (7 on a 7-point scale) both rocked and walked their babies to sleep at night, and had more flexible bedtime.

Conclusion: The interviews provide insights into the application of the concept sensitive responsiveness to parenting strategies in regard to infant sleep.

Enrique Lopez, Alam Hasson, Ph.D.
eje2929@yahoo.com
Enrique Lopez, Myeong Chung, Christina Sabado, Dora Rendulic, Mark Sorenson, Kennedy Vu, Laiky Nor, Alam Hasson, Ph.D.
California State University, Fresno
Department of Chemistry
Graduate Student

Size-Segregated Measurements of Organic Compounds in Particulate Matter in the Central Valley

Current research supports the idea that exposure to elevated levels of small solid and liquid particles suspended in outdoor air, known as particulate matter (PM), contributes to various deleterious health effects such as reduced lung function, increased mortality rates, and a higher tendency to develop cardiovascular disease. Recent work has suggested a relationship between organic chemicals present within PM and increased adverse health effects. In particular, a class of organics called quinones has been implicated in causing health problems. These findings have significant implications for the Central Valley; the region remains among the most polluted in the nation, and high levels of PM and quinones may contribute to elevated incidences of asthma and other diseases experienced by local residents.

The goal of this study is to understand the origins and levels of quinones found within PM. Field samples were collected using a combination of Teflon filters and a Lundgren impactor between November 2005 and July 2006. Organics within the sample were extracted and analyzed by gas chromatography with mass spectrometry. Levels of about seventy organic pollutants (including alkanes, carboxylic acids, polycyclic aromatic hydrocarbons (PAHs), and quinones) were quantified.

Levels of all organics were consistently higher during the winter than at other times of the year. More volatile compounds such as alkanes were found predominantly in coarse particles, while less volatile components such as quinones were mostly in fine particles. PAH and quinone levels are positively correlated, indicating either that quinones and PAHs are emitted from the same sources, or that quinones are formed in the atmosphere from PAHs. Relative levels of alkanes and acids are consistent with traffic as the predominant source of PM collected in these samples. Collectively, these data provide important information on the origins of quinones in the Central Valley.

Gilberto Lopez, James Mullooly, Ph.D.
l.gilberto@gmail.com
California State University, Fresno
Department of Anthropology
Undergraduate Student

Contesting Cultural Incompatibility Theories of Latino Health

Obesity and overweight are issues that have received special attention by governments and health related institutions in the last decade. Obesity rates in the United States have increased dramatically in the last fifteen years with five of the ten leading causes of death being illnesses related to overweight and obesity. This problem is very prevalent in California's Central San Joaquin Valley, with no less than 40% and 25% of the total population being overweight and obese respectably. Within ethnic minority groups, Mexican-Americans have had the highest increase in overweight and obesity since 1991. Research is divided as to why this specific group has had the highest increase in obesity. Of the three dominant arguments, one side claims that biology is the primary influencing factor affecting health. The second claims social-economic factors are the primary cause.

The third argument is that cultural beliefs are to blame for overweight and obesity among Latinos. This paper examines views and attitudes towards overweight and obesity by Mexican immigrants in California's Central Valley and challenges the belief that Latinos have an idealized concept of a larger body. By better understanding the interrelation between culture and health we are better prepared to implement effective programs that serve the valley's health needs. Research methods include participant observations and interviews on the health perceptions, specifically on overweight and obesity, of Mexican immigrants living in Fresno, CA. Findings indicate that socio-economic status is a greater factor than cultural incompatibilities in the high prevalence of overweight and obesity in the Mexican immigrant population. It is concluded that Mexican immigrant knowledge of health does not deviate from that of biomedicine and research must therefore stop using cultural incompatibility theories to rationalize Latino health disparities.

Ashlin Mattos, Mardon Russell, Ph.D.
ashlin_mattos@yahoo.com
California State University, Fresno
Departments of Political Science, Sociology, and Anthropology
Undergraduate Student

Anti-American Foreign Policy: Strained Relations between the United States and Latin America

U.S. foreign policy in the post 9/11 era can be seen in the context of what may be labeled as a neo-conservative approach to foreign policy, under the leadership of President George W. Bush. This study will limit its examination of neoconservatism only as it applies to the international sphere. There are three important tenants to this model of foreign policy: patriotism is vital to achieve international goals, world organizations are not a solution to solving international problems, and a strong military is a necessity to "export democracy" and help in the "nation-building" process.

In certain areas around the world, support for U.S. foreign policy post 9/11 has been heavily criticized. This appears to be the case in Latin America where recent democratically elected presidential candidates have been elected on "anti-American foreign policy" platforms. The greatest threat to U.S. influence in the region comes from the President of Venezuela, Hugo Chavez Frias. Frias, along with other leaders in Latin America, are turning away from U.S. advocated free markets and moving towards a type of new-socialist economic model of development.

The recent shifts to the left that are characteristic of many countries in Latin America are perhaps one of the most intriguing areas of study in international relations. The obvious question is; what is causing this shift in Latin America today? This paper will argue, using primary sources and case studies, that one possible reason for this shift in Latin American policy can be attributed to the aggressive neo-conservative model of foreign policy employed by the Bush administration. Bush's aggressive stance on unilateralism and "nation building," coupled with failed U.S. policy in Iraq, has led to damaged U.S. influence in Latin America. As a result, alternative economic models of development, based on reaction to neoconservative ideology, are emerging in the region.

Jarrad Merriman, Mukesh Misra, M.D.
ttyner@fresno.ucsf.edu
Jarrad Merriman[1], Tim R. Tyner M.S.[1 3],
Victor McCray M.D.[2 3], Kent Yamaguchi Jr[3] *,
Dianne Lim[1 2], Alam S. Hasson[1 2], Mukesh Misra[2 3]
California State University, Fresno[1];
University of California San Francisco, Fresno[2];
University of Southern California[3]
*Departments of Biology[1], Chemistry[2], Surgery[3], Neurosciences**
Undergraduate Student

Diesel Exhaust Chemicals Identified in Cerebrospinal Fluid and Possible Effects in Various Regions of the Brain in a Rodent Model

Phenanthraquinone (PQ) is a highly reactive oxidized 3-ring polyaromatic hydrocarbon formed during diesel combustion. PQ has been measured in exceptionally high levels in ambient Fresno air during the fall and winter when air quality is poor. Studies of PQ reactivity in cell-free assays have revealed that it undergoes redox cycling and is capable of generating free radical species, like H2O2, indefinitely.

Diesel exhaust chemicals have been linked to the exacerbation of many health conditions, including heart and respiratory diseases. Scientific evidence shows that oxidative damage may play a part in many brain-associated neurodegenerative diseases. This study was designed to determine whether PQ would cross the blood-brain barrier into the central nervous system. In addition we examined the histological effects on specific areas of the brain in a rodent model. We hypothesize that exposure to PQ will cause an increase in free radicals and decrease in antioxidants, resulting in oxidative damage to neurons.

Thirty rats (n=10) were exposed (oral administration) to 30 mg/kg/day PQ (low dose), 300 mg/kg/day PQ (high dose) or no PQ (control) for 24 days. CSF was collected and PQ measured by gas chromatography/mass spectrometry (GCMS). Briefly, a 26G needle was inserted through the posterior atlanto-occipital membrane and into the cisterna magna. 50-100 *f*Ýl of CSF was collected and extracted with dichloromethane (DCM) for GCMS analysis. PQ was detected in CSF of both high and low dose rats, but not control animals. Intact brains were harvested 24 days post-exposure and sectioned at various regions (cerebral cortex, brain stem and cerebellar cortex) for assessment of pathophysiologic markers (H&E stain).

Greg Morris
gmorris@csufresno.edu
California State University, Fresno
Department of History

Ambivalent Relationship: The United States and the Russian Constitutional Monarchy 1905-1911

The fundamental contention of this study is that American public opinion of Russia and its constitutional monarchy was molded and shaped by the profound cultural differences between the two nations. Notwithstanding an appreciation for the richness of Russian artistic achievements, Americans viewed with equal contempt the odious tsarist regime, a dangerous and radical revolutionary movement, and the ignorant masses. For a brief time the constitutional monarchy tempered these fears, embodying American hopes for the peaceful transformation of Russia into a freedom loving, democratic nation. However, the failure of Russia to transform itself only served to deepen American scorn and the public soon found little value in maintaining ties with Russia. Through readings of newspapers, magazines, memoirs, and travel writings, it is hoped that some sense of public opinion can be established. Used in conjunction with political statements and by exploring larger ideological attitudes on issues such as race and immigration a better understanding of American perceptions is garnered. Doing so will reveal an inherently ambivalent American public caught between its liberal ideals and conservative outlook.

Thomas Nguyen, Ph.D.
tomn@csufresno.edu
California State University, Fresno
Department of Mechanical Engineering

Non-destructive Sensor Development of the Detection and Measurement of Residual Stresses

Uncontrolled residual stresses have been known to cause many unexpected structural failures. Current technology of detection and measurement of residual stresses is limited to destructive means, in which the sample may render unusable after the measurement. Our research focused on the non-destructive means of quantifying the state of residual stresses.

Ultra-high frequency acoustic surface waves, similar to those generated by an earthquake, were employed. The development work was based on theory of acoustoelasticity to establish the relationship between surface acoustic wave velocity and residual stresses near the surface region of a workpiece. The measurement concept was based on the pitch-catch method, in which the generated ultrasonic signals travel through a pre-determined region in the workpiece and are received by a second identical transducer. Our research identified some specific cases of residual stress generation by common machining processes such as surface grinding and surface milling. Several design configurations were evaluated in the search for reliable ultrasonic signal reception. It was learned that several competing effects such as workpiece's hardness condition, material forming condition, etc., could have an influence on the measurement of surface wave velocity. Experimental studies were conducted with these influencing parameters isolated to show the presence of residual stresses in test samples. Our developed technique successfully filtered out these influencing factors resulting in more reliable measurements. Furthermore, our developed sensor system provided useful information of surface residual stresses generated from typical machining process.

Segun Ogunjemiyo, Ph.D.
sogunjemiyo@csufresno.edu
California State University, Fresno
Department of Geography

Crown Delineation and Profile Characterization of Old Growth Conifer Forest Using LIDAR Data

Automated tree recognition and crown delineations are computer-assisted procedures for identifying individual trees and segmenting their crown boundaries on digital imagery. The concepts are not new to digital image analysis, but were rarely implemented until recently due to high-resolution data requirement. The need to obtain detailed forest information, coupled with recent advances in remote sensing technology, marked by the advent of airborne sensors with capability for acquiring high resolution data, sparked the growing interests in the procedures. The primary objectives of this study are to derive crown attributes using LIDAR data acquired over a structurally complex old-growth conifer forest stand.

The data used for the study were acquired within a 4-hectare plot at the Wind River Canopy crane Research Facility in southern Washington State, on the western slopes of the Cascade Range. The raw LIDAR data were processed to extract surface elevation and to create raster-based canopy height model, which was used for tree identification and crown segmentation. Both manual and automated approaches were adopted in identifying tree locations and delineating their crown boundaries. Among the crown attributes derived were crown height, crown length, crown radius, height to crown base and crown radius profiles. The estimated variables were compared with field measurements. The results showed a high correlation between the two sets of estimates. The results demonstrate the capability of small footprint lidar systems for characterizing forest structure and estimating forest biophysical parameters.

Arpita Paul, Ramakrishna Nunna, Ph.D.
arpitapaul97@gmail.com
California State University, Fresno
Department Electrical and Computer Engineering
Graduate Student

Important Issues in Power Supply Noise Measurement

Delay variation due to power supply noise is the most important concern in modern submicron CMOS designs. On chip power supply noise causes significant delay variation. The change in supply voltage locally applied to each gate element modulates the capability to drive load capacitance. Therefore, power supply noise detection is very important. An on-chip detector circuit for power supply noise detection is not only detects noise (i.e. the variation of supply voltage) but also detects noise that does not originate from supply voltage variation. There may be noise due to the interconnect path for clock sharing and signal path from one circuit to other. In this research, we are trying to detect the variation in power supply grid in presence of dense interconnect and compare this with the noise which is present only due to power supply variation. Our results show a significant variation in these two measurements. These results are useful in measurement of noise in denser submicron integrated circuits.

Natalie Powers, Alejandro Calderon-Urrea Ph.D.
fox83@csufresno.edu
Natalie Powers, John V.H. Constable, Alejandro Calderón-Urrea
California State University, Fresno
Department of Biology
Graduate Student

Analysis and Characterization of Putative AtWRKY6 and AtWRKY53 Orthologs in *Podophyllum peltatum*

One of the most crucial processes to the development of higher eukaryotes is programmed cell death (PCD). In both plants and animals, for example, PCD is involved in such processes as defense against pathogens and development. It has been extensively studied in animals because of potential medical applications, but it is still little understood in plants, despite potential applications to agriculture and biopharming. The most easily studied manifestation of PCD in plants is leaf senescence; we therefore propose an organism with a simple senescence program to further research in this field: Podophyllum peltatum. For this study, we propose to verify the presence and study the expression patterns of two senescence-associated transcription factors previously characterized in Arabidopsis thaliana: AtWRKY6 and AtWRKY53. These are immediate early senescence-associated genes—possibly 'master regulators' of senescence. Since the P. peltatum genome has not been sequenced, we must use a PCR (polymerase chain reaction) based strategy to locate the orthologs of interest in the P. peltatum genome. Using primers designed to flank the most conserved regions of the A. thaliana genes, we amplified P. peltatum DNA, and cloned and sequenced the resulting fragments. We then used Southern blotting to verify that they belong to the P. peltatum genome. To elicit their full-length transcripts, we synthesized a cDNA library, and will screen it using the fragments as probes. We will study their expression via RT-PCR and in situ hybridization. We found two fragments- one each for AtWRKY6 and AtWRKY53- in which the WRKY-coding region (conserved in all WRKY genes) is completely conserved. Furthermore, Southern blotting experiments suggest that the AtWRKY6- like gene is regulated by methylation- that is de-methylated when the plant begins the senesce. Taken together, these results suggest that the P. peltatum genome contains functional AtWRKY6 and AtWRKY53 orthologs. The particulars of their expression remain to be seen.

David Pyrooz, Jason Kissner, Ph.D.
dpyrooz@yahoo.com
California State University, Fresno
Criminology
Graduate Student

Risk Factors of Gang Membership: Results from an Analysis of Self-Reported Gang Members in the Fresno County Jail

This study quantitatively analyzes an atypical population in the annals of gang research. The Fresno County Sheriff's department approached faculty of the department of Criminology at California State University, Fresno requesting a needs-assessment demographic study of inmates housed in their facilities.

Under faculty supervision, an instrument was designed in 2005 by graduate students and a section was included pertaining specifically to those who self-reported to a history of gang membership. Face to face interviews were employed to obtain cross-sectional data of 200 randomly sampled inmates. Two different statistical tests were run to establish significance. Independent sample t-tests were utilized to determine significant differences of the mean responses between the gang and non-gang populations and the logistic regression model was used to find risk factors that significantly predict gang membership.

The results indicate that gang members are significantly more likely than non-gang respondents to: have grown up in households of lower socioeconomic status, to have been arrested as a juvenile, report inferior relationships with their mothers, begin using substances (alcohol or drugs) as a juvenile, and to have grown up with gang members in their family. In addition, the logistic regression results indicate gang membership is predicted by cultural influences, juvenile arrest, low self-control, and growing up with gang family. Also, across a number of independent variables, the results indicate significant disparity between the current gang and non-gang population while few significant differences between the former gang and non-gang population.

Implications from this study include addressing the durational issues involved in gang membership with the effects of low self-control and growing up with gang family. Also, these data expose a new variable (growing up with gang family) that has been excluded from modern longitudinal studies. The significant results of this variable in this study implicate its necessary insertion in the future life course or developmental domain research of delinquent youth.

Kathleen Ramos, Ph.D.
kramos@csufresno.edu
Kathleen Ramos, Amanda Lockling, Melissa Dittmar
California State University, Fresno
Department Child, Family & Consumer Sciences

A Good Baby: Infant Sleep and Parental Judgments about Moral Goodness

Background: Advice to parents about infant sleep abounds, and is often contradictory, suggesting that such advice may be deeply ideological. This research was conducted, in part, to discover the nature of the ideological issues that shape the debate over appropriate management of infant sleep.

Methods: Twenty parents of infants younger than 13 months old completed surveys and were interviewed about their infants' sleep habits and their own parenting with respect to infant sleep. In order to explore moral judgments, we analyzed the text of the transcribed interviews for uses of the words "good," "bad," and "should".

Results: Use of morally laden terminology was common in the interviews. Only one interview did not include any uses of these terms; the others ranged from one to nine instances. The use of "good" (found in 8 of 20 interviews) generally referred to babies sleeping a lot or without assistance (e.g., "He's a good boy, he goes right to sleep when I lay him down.") The use of "bad" (found in 10 interviews) was generally found in discussions of the parent's judgments of themselves (e.g., "I feel really bad about making her cry.") Use of the word "should" (found in 12 interviews) was found in two contexts, first in parental descriptions of what they believe their child was capable of (e.g., "she should be sleeping better after she stops teething"), and second in descriptions of advice they receive from others (e.g., "the doctor says I should just let her cry.") The use of morally laden terminology in the interview was negatively correlated with a belief in the role of temperament in shaping infants' sleep habits, as identified by the Infant Sleep Vignettes Interpretations Scale. Single parents used "good" more often than married parents. Parents with fewer bedrooms in the home (perhaps an indicator of social class) used "bad" more often than those with more bedrooms in the home.

Conclusions: Parents to infant struggle with inconsistent moral convictions about infant sleep. However, the tendency to assign moral value to sleep habits is not universal and may be associated with structural stresses on the family unit.

Caroline Rhodes, Mdhusudan Katti, Ph.D.
California State University, Fresno
Department of Biology
Graduate Student

The Foraging Behavior of Birds along Urban Gradients

With rapid urbanization as the dominant trend in California and worldwide, there is interest in studying urban habitats, their effects on habitat usage by animals and their role in modifying animal behavior. Urban areas are made up of heterogeneous habitats that vary along gradients such as age of development and density of housing. For example, a study conducted in Phoenix, AZ showed that urban animals may be less influenced by climactic factors, predators or resource availability than animals in the wild. That study contrasted birds foraging in wild vs urban habitats. The focus of my study is to compare variable habitat patches within the urban environment and assess their effects on foraging birds. I compare: 1) neighborhoods at least 10 years old to neighborhoods less than 10 years old and 2) low density neighborhoods with high density neighborhoods. To measure these effects I am using artificial food patches around the city of Fresno and I will measure the amount of food leftover after a day of foraging (also known as Giving Up Density, GUD). In newer neighborhoods I expect less food leftover (lower GUD) than in older neighborhoods due to less food available in the local environment. I also expect lower GUD in high density housing compared to low density housing because of less vegetation and food in the environment. Here I will present the preliminary results obtained in the winter and spring of 2006/2007. I suggest that urban research such as mine will permit integration of urban ecosystems into wildlife management plans and give information for regional land planning.

Andrea Salazar, Amanda Mortimer,Ph.D.
asalazar@csufresno.edu
Andrea Salazar[1], Amanda Mortimer[1],
Linda Hewett[2], Loren Alving[2]
California State University, Fresno[1],
UCSF Fresno Alzheimer's and Memory Center[2]
Department of Psychology
Undergraduate Student

The Montreal Cognitive Assessment, MoCA: A Brief Early Cognitive Screening Tool for Alzheimer's Disease

The proposed study examines the usefulness of the Montreal Cognitive Assessment (MoCA) as an earlier, more in depth assessment in the diagnosis of Alzheimer's disease in comparison to the routinely used cognitive tests. Patients at the University of California San Francisco Fresno Alzheimer's and Memory Center were administered the MoCA during their neurological assessment visit. Five patients were tested and experience roughly ten minutes of cognitive screening in which their memory, visuospatial skills, executive functioning, attention, concentration, working memory, language, and orientation to time and place was evaluated. The patients' scores from the MoCA will then be compared to the other routine brief cognitive screening tools used at the Alzheimer's and Memory Center.

Leela Sannyasin, Chris Henson, Ph.D.
leela1@pacbell.net
California State University, Fresno
Department of English
Undergraduate Student

Expunging Herself—Elizabeth Bishop Disappears

(Icebergs behoove the soul both being self-made from elements least visible)
Elizabeth Bishop, "The Imaginary Iceberg"

"I don't write confessional poetry," Elizabeth Bishop asserted in 1976. Despite this repudiation, her poetry has persistently been linked with Confessionalism, the mid-twentieth century school associated with a small group of poets who exposed tragic childhoods, troubled marriages, and psychological breakdowns using emotionally charged admissions, jarring syntax, and explicit psychoanalytical images. My paper explores the links between Bishop's subject matter, the Confessionalists', and the techniques she used to disguise autobiography in her poetry. Bishop expunges her obvious presence when dealing with exceptionally intimate material. To achieve this distance, she uses a collection of rhetorical moves I call "sneaky first person."

This technique divides itself into three main devices: inscrutability, embedded first person, and implied direct address. Inscrutability is comprised of an expunged real author, and barely-there speakers and characters. Embedded first person executes its viewpoint in the flashed, delayed, and conflated forms. Lastly, implied direct address uses implicit commands and subtle humor. The elements of 'sneaky first person' act together on the reader to conjure a malleable implied author. That is, the person whom the reader invents as she reads. The set of choices that create the poem, its ideas, images, and inferred system of values belong to this author. The voices of Bishop's implied authors open her work to multiple, but equally valid, interpretations founded on diverse critical theories. Bishop's well known "One Art" provides examples of all these strategies, which can be seen as characteristics of all her poetry. Studying Bishop's distancing techniques can suggest methods writers and teachers can use to deal with sensitive autobiographical material craft poetry that resists sensation and sentimentality. It can facilitate the construction of works that remain open to dissimilar reading from diverse audiences.

Sean Seepersad, Ph.D.
sseepersad@csufresno.edu
California State University, Fresno
Department of Child, Family, and Consumer Sciences

An Evaluation of a Loneliness Intervention Program for College Students

One of the important challenges that individuals face is successfully satisfying their social needs while relying less on family and more on friends (Weiss, 1989). Adolescents and young adults may be particularly vulnerable to feelings of loneliness through failure to successfully satisfy their social needs (Brennan, 1982, 1984). Experiencing persistent feelings of loneliness is accompanied by a host of other problems, such as: physical illness, suicide, alcohol use, poor psychological adjustment, aggression, and low grades in university (Perlman & Landolt, 1999).

While the links between loneliness and adjustment problems have been known for some time, investigations into successful intervention programs for lonely young people have been limited. Previous evaluated intervention programs have only focused on developing social skills and not specifically on reducing loneliness. This study was geared towards creating and evaluating a loneliness intervention program for college students based upon recommendations other researchers have made regarding effective strategies for reducing loneliness.

The program was developed as a seven week psycho-educational program covering topics on cognitive-behavioral components of loneliness, coping strategies, and social skills training. The evaluation of the program was a pretest-posttest-follow up posttest design having both an experimental group and a control group. Participants for the experimental group were college students recruited through advertisements in a university newspaper, flyers, word of mouth, announcements, while participants for the control group were recruited through an introductory human development class. The program was conducted twice in a Fall semester and then in a Spring semester at a large mid-Western university.

In total 16 participants took part in the loneliness intervention program as the experimental group. The Matched Control Sample had 18 participants (9 in the Fall group, 9 in the Spring group), which was matched with experimental group on levels of loneliness, depression, gender, romantic status. For the pretest-posttest-follow up posttest, both the experimental and control group were given identical questionnaires evaluating: loneliness, depression, self-disclosure, social skills, self esteem, attachment styles, coping and alcohol use. The results suggest the treatment was effective. Results compared the experimental group with the Matched Control Sample using repeated measures MANOVA for the pretest-posttest data. They revealed that the experimental group compared to the Matched Control Sample made significant reductions in loneliness, depression, negative attachment styles (such as preoccupation), and negative coping behaviors (such as ruminating). There was also a significant increase in social skills. The findings suggest that the program was successful in helping college students reduce their feelings loneliness.

Matthew Sharps, Ph.D.
matthew_sharps@csufresno.edu
Matthew J. Sharps, Adam Hess, Bethany Ranes
California State University, Fresno, Alliant International University, Fresno
Department of Psychology

"Mindless" Decision Making and Contextual Reasoning in Environmental

Decisions are often made without reference to vital information, even under conditions in which such information is readily available. Our previous research showed that this can be explained under the aegis of the Gestalt/Feature-Intensive (G/FI) Processing theory of cognition; in the absence of relevant information in the immediate decision context, respondents tend to rely on gestalt processing which, although more rapid than more in-depth feature-intensive cognition, is more likely to result in premature or inaccurate decision making (Sharps, 2003; Sharps & Nunes, 2002). Previous research demonstrated these effects in the realm of general or executive decision making (Sharps & Martin, 2002). In the present research, these influences were tested in the realm of reasoning and decision making about environmental issues. Respondents rated the utility of decisions concerning such issues as overpopulation, energy policy, and food production, either in the presence or absence of simple information pertinent to the issue at hand. The information provided required no training, was relatively obvious, and was rated as moderately well-known to the adult study population. Presentation of such information in the immediate context of environmental decisions significantly improved respondents' abilities to understand their negative consequences. These results add to earlier demonstrations of the importance of contextual information in decision context; provide further confirmation of the utility of the gestalt/feature-intensive processing theory of cognitive representation in addressing higher cognitive processing; and demonstrate a significant cognitive influence on environmental decision making which may help to explain the formulation and acceptance of inadequate or erroneous environmental policy.

Faith Sidlow, Tamyra Pierce, Ph.D.
fmsidlow@sbcglobal.net
California State University, Fresno
Department of Mass Communication and Journalism
Graduate Student

Breaking News: Are the Media Creating an Illusion of Importance?

Local television news viewership has been decreasing rapidly over the past ten years. Many in the industry blame increased competition from satellite channels and the internet. We investigated whether it is merely increased competition that is causing the decrease in viewership, or whether television stations are overreacting by hyping their news content in an effort to attract viewers, which in turn might be turning viewers off.

We conducted a survey to explore why viewers are turning away from local television news. We looked at whether viewers were turned off by the use of the term "breaking news" to describe any story, regardless of whether it was bonafide breaking news. Participants included 67 undergraduate college students from the Department of Mass Communication and Journalism at California State University, Fresno. Results showed most of the participants gave their full attention to a story labeled breaking news, no matter what the subject matter, and that they believed a story labeled breaking news to be more important than stories that did not carry the label. Results showed that women tended to believe more than men that stories labeled breaking news were more important than other stories, and women tended to believe stories labeled breaking news were truly breaking news. Our survey found that nearly half of the participants perceived a television station to be less credible if it overused the term breaking news.

We are in the process of expanding our sample size and reworking a few of the survey questions to find out whether viewers are driven away from television stations that sensationalize or hype their news. Our goal is to perform a content analysis on local news to determine how many and what types of stories are labeled breaking news and to conduct an additional study with participants who have viewed newscasts.

David Sischo, Brian Tsukimura, Ph.D.
dsischo@csufresno.edu
David Sischo[1], M.A.R. Koehl[2],
Tom Hata[2], Tim Cooper[2], Michael Hadfield[3]
California State University, Fresno[1]; University of California, Berkeley[2]; University of Hawaii[3]
Departments of Biology[1]; Integrative Biology[2], Zoology[3]
Undergraduate Student

Settling Behavior of Planktonic Marine Larvae in Realistic Flow and Wave Conditions

Many benthic marine animals release planktonic larvae that are dispersed by ocean currents. After becoming "competent" to undergo metamorphosis, larvae can settle into benthic habitats known as fouling communities. These conglomerations of sessile organisms encrust on docks, boats, and other nautical equipment, increasing drag and fouling exposed surfaces. Organisms already comprising the community can affect where larvae settle via chemical cues and alterations of ambient water flow. We studied the effects of benthic organisms on the initial touchdown behavior of competent larvae of the tubeworm Hydroides elegans, an abundant member of warm-water fouling communities worldwide. We videotaped behavior of larvae of H. elegans near substrata in a laboratory flume in which we produced water currents and waves (wind chop) similar to those recorded across fouling communities in Pearl Harbor, HI. Substrata tested represented early stages in fouling community succession: "clean" (unfouled glass), "biofilmed" (natural biofilm on a flat surface), and "fouled" (natural biofilm on a rough surface of tubes of H. elegans adults). Substratum type had no significance on mean downward velocities of larvae carried in the water near the bottom. Larvae lingered on substrata after contact, whereas neutrally-bouyant particles did not. In flowing water, the duration of larval touchdowns on the bottom correlated with the degree of fouling (mean touchdown duration = 1.6s on clean, 2.6s on biofilmed, and 3.6s on fouled surfaces ($p<0.05$). In contrast, there was no correlation between degree of fouling and the number of times larvae landed on the bottom per horizontal distance they traveled in the ambient flow. In waves, vertical transport was more variable and larval touchdown durations were longer ($p<0.05$) than in unidirectional flow. Thus, in realistic water flow, substratum chemistry and roughness can affect larval touchdown behavior.

Tonantzin Soto, John Capitman, Ph.D.
tesoto@csufresno.edu
California State University, Fresno
Central Valley Health Policy Institute
Department of Health Science
Graduate Student

Media's Perception on Health Disparities: A Meta-Analysis of Newspaper Publications

Introduction: How do mainstream media interpret health disparity reports to the public? The U.S. has aimed to eliminate health disparities as a national goal (US DHHS, 2000). The media plays an important role in influencing advocacy and policy change. Newspaper reports may shape how the public frames the causes and potential solutions for racial/ethnic health disparities, but little is known about how these reports are addressing these issues.

Objective: This report examines health disparities coverage in the media. Which health disparities receive the most attention? How is health disparities framed in the media? What has been cited as the cause of disparity? Have solutions been reported to address these issues?

Methods: We used LexisNexis to sample 57 articles from the 20 highest newspaper circulations according to the Audit Bureau of Circulations. Inclusion criteria included "race" used as term for an ethnic group, a health topic must be covered in relation to race/ethnicity, and the population must be within the U.S. We covered articles published between 06/01/2006 to 08/31/2006. Keywords for the search were race, ethnicity and health.

Results: Disparities concerning Blacks (66.7%) and Latinos (21.1%) were the most frequently addressed. Cultural issues were the most commonly reported cause (52.6%) for disparities, with health care provider issues as the least common (21.2%). Furthermore, solutions to disparities were mostly cultural-based approaches (31.6%).

Conclusion: Health disparity issues have been narrowly addressed by the media. A broader social context of disease must be considered, such as environment, genetics, socioeconomic status, and providers.

Diana Stuber, Scott Moore, Ph.D.
dstuber@csufresno.edu
California State University, Fresno
Department of Communication
Graduate Student

Effects of Racial Concordance, Physician Sex, and Patient Education on Patient Satisfaction

As the healthcare system grows and competition increases, patient-satisfaction has become an important issue in the industry. Identifying the most communicatively desirable physician-patient dyad provides insight into achieving greater patient satisfaction and thus an increase in patient compliance with treatment. This research article explores the cultural variables of ethnicity and sex on the dependent measure of satisfaction with a physician.

A survey was constructed to quantify subject's patient satisfaction ($f\tilde{N}$=.95). 603 surveys were distributed using multiple purposive sampling techniques.

Hypothesis one predicting racial concordant patient-physician relationships to result in greater patient satisfaction was not supported. Hypothesis two predicting both male and female patients would report greater patient satisfaction with a female physician over a male physician was not supported. Support for hypothesis three stating satisfaction of patients with a higher level of education will be greater than that of lower educated patients, was determined. Although significance was not great, a correlation of education and patient satisfaction was detected.

In conclusion, hypotheses were partially confirmed. Utilization of Spearman's rho revealed a relationship between education and patient satisfaction. This information may be utilized by the health care industry to improve patient-satisfaction by providing more opportunities for health related education. Additional findings revealed a correlation indicating that as patient age increased satisfaction increased. One may conclude that the older a patient is, the more satisfied he/she is with their attending physician. The study furthers our knowledge of cultural competence by investigating the most communicatively desirable physician-patient dyads.

Sean Thompson, Brian Tsukimura, Ph.D.
ffascout3@csufresno.edu
Sean Thompson, Emily Carrington, Gretchen Moeser
California State University, Fresno,
University of Washington, Friday Harbor Labs
Department of Biology
Undergraduate Student

Fluid Biomechanics of a Mussel Bed

Mussels, an important intertidal species, provide food, filter water, and provide interstitial habitat for many species. To attach to a substrate, mussels produce byssal threads by extending the muscular foot to the substrate. It has been shown that thread production is limited by the ability of the foot to protrude into flow, and placed this physiological threshold of thread production at ~18 cm/s for solitary Mytilus edulis (Moeser et al., 2006). Given that flows on wave swept shores are routinely two orders of magnitude higher (e.g. 35 m/s), it is unclear when mussels can produce byssal threads on exposed coasts. This study evaluates the extent to which mussel aggregations (or beds) reduce extreme flows, thereby facilitating byssal thread production. An Acoustic Doppler Velocimeter (ADV) was used to measure water velocities in mussel beds of M. galloprovincialis and M. trossulus in a laminar flow flume and as well as in the field. Video was also used for particle tracking to calculate velocities within 1 cm of the bottom. Flow velocities found in the bed were greatly reduced, less than 6% of freestream velocity in lab trials, and 0.5% of freestream in the field. Overall, the magnitude of the flow reduction observed in the bed is sufficient for individual mussels to produce new byssal threads at freestream velocities that exceed their physiological threshold, even on exposed wave-swept coasts.

Kiran Toor, M.D.
ktoor@fresno.ucsf.edu
University California San Francisco- Fresno
Department of Internal Medicine

Patients Attitude towards Physicians and Health Screening Issues a Among First Generation Asian-Indian immigrants to United States

Aim: To better understand expectations and attitudes of first generation immigrants from India to USA.

Background: There is a large difference in healthcare system as practiced in India and in USA. After immigrating to USA these immigrants are exposed to new healthcare systems. We do not have any data showing their attitudes to some specific health screening questions and physician preference in general. We also have significant concentration of these ethnic groups in the central valley.

With this questionnaire study we hope to get better understanding of their beliefs and expectations. We have tried to keep the questions simple and straightforward. The study investigators served as translators when needed.

Method: We formulated a list of questions we thought appropriate, mostly needing an answer in Yes/No, to make it simple. We targeted the said ethnic population in local parks, community gatherings, etc which are frequented mostly by first generation immigrants. The questions were distributed to willing subjects. We could get data from 123 unique individuals, 85 [69%] were male, 38[31%] female.

Results: 56% of people had never seen a doctor in USA. Over 70% were not aware of screening colonoscopy as a screening option. Overall awareness was 96% for HTN and DM , 76% for lipids , 66% for cancer screening worse awareness with colonoscopy and pap smears, better with mammography].The awareness increased with length of stay in USA and doctor visits. Lack of insurance seemed to be a big problem preventing physician visits. Patients' preference for physicians based on ethnic consideration decreased after entering into health system here.

Conclusion: There is a vast medical illiteracy among immigrants of Asian-Indian origin to USA, which improves somewhat with years of stay here and physician visits. Ways to overcome this would be to use the same community gatherings and information dispensing centers, encourage regular physician visits, and dissipate resources available for better health access.

Antonio Toribio, Alice Wright, Ph.D
tonyto@csufresno.edu
Antonio Toribio, Arthur Johnson, Alice Wright
California State University, Fresno
Department of Biology
Undergraduate Student

Degrading Propargyl Bromide with Soil Bacteria

As methyl bromide use is restricted, propargyl bromide has been identified as an attractive soil fumigant alternative to methyl bromide to control soil-borne pests. We have used enrichment culture techniques to isolate ten strains of bacteria capable of using propargyl bromide as a sole source of carbon and energy. The purpose of this study was to determine if the strains use propargyl bromide directly as a carbon source or if they use the products of abiotic degradation. Additionally, for organisms that degrade propargyl bromide, the rate of degradation was to be determined. Three different strains of microorganisms were grown in Minimal Media broth and mixed with propargyl bromide. After a period of growth, samples were removed from the culture and extracted. Gas chromatography was used to determine the concentration of propargyl bromide from the extracted samples. Strains presented a significant increase in propargyl bromide degradation. Degradation in the inoculated samples was considerably faster than the abiotic degradation in the uninoculated samples, suggesting the microorganisms enhance the rate of degradation. Work has begun to determine if degradation occurs in the soil. Test soil samples are spiked with pesticide and inoculated with a degrading organism under conditions approximate to the conditions in the field. This work should provide insights to into the environmental fate of propargyl bromide in the soil. Results should aid in the development of bio-remediation strategies and provide insights into appropriate use of propargyl bromide in the field.

Antonina Trachuk, Tamyra Pierce, Ph.D.
atrachuk@gmail.com
California State University, Fresno
Department of Mass Communication and Journalism
Graduate Student

Newspaper Framing of a Hospital: The Impact of Hospital Public Relations

This study attempts to contribute to the understanding of how newspapers cover the healthcare facilities in mid-sized cities in the United States, and how the coverage that is initiated by journalists varies from those launched by hospital public relations efforts.

To conduct this analysis, stories covered by two sources, the Community Medical Center (a large medical center in Fresno, California) and The Fresno Bee (daily newspaper in Fresno, California) were used. Specifically, data were gathered and analyzed through interviews with public relations specialists at the medical center and the content within stories obtained from the local newspaper articles.

The analysis showed that journalists generated more coverage than did the hospital PR. It was found that the media and hospital were different in selecting a thematic focus even though the media tended to cover all the topics. Finally, hospital PR stories differed in tone and source selection; they tended to be more positive and quoted hospital staff, patients, and doctors/nurses, while media stories had a negative tone and quoted government, hospital staff, and business sources.

This study highlighted several important observations. Firstly, the news media are interested in reporting about the hospital as much as the hospital is interested in disseminating information through the news media. Secondly, the news media are likely to produce stories on the majority of hospital and health-related topics, while the hospital PR is selective about topics to generate proactively in print. Thirdly, the hospital public relations have an impact on the tone of the coverage generated proactively: there is more positive coverage in hospital PR generated stories and more negative articles initiated by reporters. Based on these findings, recommendations for both the health care public relations practitioners and journalists are suggested.

Carlos Tristán, Alejandro Calderón-Urrea, Ph.D.
catristan@yahoo.com
California State University, Fresno
Department of Biology
Graduate Student

Expression Profile of Transgenic Nicotiana tabacum PlantsExpressing Caenorhadbitis elegans' Cell Death Genes

Introduction: Transgenic tobacco (Nicotiana, tabacum) expressing Caenorhabditis elegans' cell death genes, Ced4 and Ced3, show evidence suggesting such expressions protect the plants from infection by the plant parasitic nematode Meloidogyne incognita. Although positive results have been correlated with gene expressions, the mechanism by which the nematode protection is manifested is not clearly understood. We hypothesized that expression of the C. elegans cell death genes Ced3 and Ced4 induce plant pathogenicity related genes leading to nematode resistance. Alternatively, the C. elegans cell death proteins produced by the transgenic plants are being ingested by the nematode leading to their demise. Here we tested the former hypothesis by establishing gene expression profiles of transgenic tobacco plants.

Methods: Three programmed cell death gene combinations; Ced3, Ced4 and Ced3XCed4, were used to create transgenic tobacco plants. RNA extractions were used to generate single-labeled fluorescent cDNAs. Labeled cDNA were hybridized onto Solanaceae cDNA (EST) microarrays in a reference design hybridization scheme. Hybridizations and data analyses have been conducted. Data will be validated via quantitative real time polymerase chain reaction.

Results: Absorbance ratios for extracted RNA were within the acceptable range indicating purity. Analysis via gel electrophoresis suggest the presence of high quality intact RNA. Microarray hybridizations have been conducted. Data analyses indicate the up-regulation of endogenous pathogen resistance genes.

Conclusion: These microarray studies in this project have established gene expression profiles for Ced3-, Ced4-, and Ced3XCed4-transgenic plants. These profiles have assisted in elucidating the mechanism through which nematode resistance is acquired in response to gene transformation. Data analyses indicate a significant up-regulation of several endogenous pathogen resistance genes in response to gene transformation.

Acknowledgments: This work was funded by grants from the National Insitute of General Medical Science (MBRS-SCORE grant #S06-GM61223, MBRS-RISE grant #38358), the California Agricultural Research Initiative (CA-ARI grant #03-2-006-33) and the Institute for Genomic Research to A.C.U. Lab.

Trudy Tucker, Connie Conlee, Ph.D.
trudyt@sti.net
California State University, Fresno
Department of Communication
Graduate Student

An Appreciative Inquiry Ethnography of a Native American Tribe

The project purpose was the development and implementation of an organization analysis of a non-federally recognized California Native American tribe using a specific, positive focused social change model, the Appreciative Inquiry (AI) model. AI was used to explore real world, naturally occurring communicative practices to perform an assessment of the tribal group's communications, establishing goals for preservation of their culture, and formation of processes to resolve issues with recognition by the federal government.

The project used qualitative data ethnographic collecting methods analyzing narrative stories collected from participants during the four phases of the AI discussion sessions. Care was taken to avoid a bias as a critical analysis of the qualitative data was completed through interpretive procedures, coding of data in order to produce a written narrative of results, to clarify, illustrate and synthesize the qualitative findings building basic knowledge and framework for the group to move forward. The project intervention successfully used Appreciative Inquiry, collecting a wealth of qualitative data from extensive participant narratives. The participants used this information, shaping positive goals and priorities, defining tribal needs, goals and objectives and, in doing so, became united and empowered in a very positive manner. Through this work, they have taken great strides forward for their tribal membership; have pledged to unite their people; moved to capture and document their tribal heritage, traditions and lifeways; and, are moving towards legal federal recognition. The participants emerged from the intervention with an armful of their own work, their own desires for their people, their own priorities and needs. Through this positive Appreciative Inquiry environment, they seemed to have gained an uplift in their spirits and confidence that appears to be moving them forward towards their goals.

Maria Woodcock, Alam Hasson, Ph.D.
mariawk@hotmail.com
Maria Woodcock, Enrique Lopez,
Kennedy Vu, Laiky Nor, Alam Hasson. Ph.D.
California State University, Fresno
Department of Chemistry
Undergraduate Student

Spatial and Temporal Variations in Levels of Particle Bound Pollutants in Fresno

It is now established that high levels of particulate matter (PM) are linked to a number of adverse health effects. There is a growing body of evidence indicating that specific chemicals present within PM are the origin of these health problems. In recent years, a class of chemicals called quinones has attracted attention because of their ability to initiate oxidative stress and cause cell damage. Our group has previously shown that levels of these pollutants are unusually high at a sampling site at Fresno State, raising the possibility that they may contribute to regional health problems such as the high childhood asthma rate. Since measurements were only taken at a single site, the previous study could not determine whether quinone levels are uniform within the Fresno area, or whether there is a high degree of variability from location-to-location. Further, differences between daytime and nighttime levels were not examined.

To evaluate the spatial variation of quinone levels, PM samples were collected on Teflon filters at sites at Fresno State and in central Fresno between 5:00 and 18:00 during March 2007. Differences between day- and night-time quinone levels were examined by placing an additional sampler at the Fresno State site that ran between 18:00 and 5:00. Quinones were extracted from the filters by sonication with dichloromethane, and the samples were concentrated and analyzed for the presence of twelve quinones by gas chromatography / mass spectrometry.

Preliminary data indicate that levels of organics are higher at the Fresno State site than at the central Fresno site. Signals from samples collected at are higher than during the day. This appears to be due to a meteorological effect rather than a nighttime chemical source of these compounds. The data indicate that within the Fresno area, residents are likely to be exposed to different levels of quinones.

Jessica Woody, Sandra Donohue, Ph.D.
jessica.woody@gmail.com
California State University, Fresno
Department of Health Science
Graduate Student

Gross Apha Radiation Levels in Private Drinking Water Wells Foothill Areas

Alpha particles, when absorbed, are known to have carcinogenic effects on the human body. As a result, the United States EPA has set the Maximum Contaminant Level (MCL) for gross alpha radiation in municipal drinking water systems at 15 picoCuries per liter (pCi/L). This standard applies to public water systems only and does not extend to private wells, which are seldom, if ever, tested for gross alpha contamination. With mounting concerns over the elevated levels of gross alpha in some community system wells located in the Sierra Nevada Mountains, the objectives of this study were to determine if the private wells in 4 separate foothill areas were also showing high gross alpha levels (over 15 pCi/L), and whether the levels differed between the test areas.

Private well water samples were collected from 42 sites during February of 2007. Analyses for gross alpha were conducted at the Fresno County Public Health Laboratory. A one-tailed t-test was used to determine if test results exceeded the MCL and a one-way ANOVA was used to find any significant differences between the areas.

The study found that there was sufficient evidence, at the 0.05 level of significance that one area out of the 4 sampled was over the MCL for gross alpha set by the EPA, and that the same area was statistically different from the other sample areas. Possible reasons for the findings and observations made during the study are discussed.

Paula Wright, VaNee L. Van Vleck, Ph.D.
pdwright@csufresno.edu
California State University, Fresno
Department of Economics
Undergraduate Student

Health, Wealth, and Home: The Effects of Household Air Quality on Income

There have been various studies performed examining the effects of air quality on health. Further studies have examined the effects of health on income. However, there have been no studies examining the effects of air quality on income. This analysis uses statistical methods to test the hypothesis that poor air quality in the home will have a negative impact on household income through air quality's effects on individual health.

This analysis uses data from the Behavioral Risk Factor Surveillance Survey (BRFSS), fielded annually by the Center for Disease Control (CDC), and is performed using a two-stage regression model. In the first stage, I estimate the effects of household air quality on the self-reported number of days a respondent feels ill. The predicted values from the first-stage analysis are then included in the second-stage estimation of household income. Using this approach, it is possible to examine the effects of air quality on income.

I find home air quality to have a significant negative impact on household income through the effect it has on a respondent's number of poor health days. I estimate the household income lost due to poor home air quality to be as high as 16.5% annually. I also find that household air quality can be responsible for as much as one and a half poor health days per month. In conclusion, I show that degraded air quality causes a substantial loss of household income. Improving the quality of household air will have substantial health and thereby income benefits.

Ming Xiao, Ph.D.
mxiao@csufresno.edu
Ming Xiao, Christopher Abela,
Keith Mortensen, Michael Beltran, Aaron Oliver
California State University, Fresno
Department of Civil and Geomatics Engineering and Construction

Erosion Control Using Compost Soil on Roadside Embankment

Each year more than two billion tons of topsoil is lost in the US due to erosion. Soil erosion of roadside embankment leads to failure of the embankment, and the eroded soils, when carried into downstream water body, could contaminate rivers and lakes. Surface erosion control is regarded the "first line of defense" in maintaining highway serviceability and environmental protection. Using compost in highly erodible areas can decrease erosion and allow quicker establishment of vegetation. The objective of this study is to identify and evaluate the appropriate compost soils that can be used as effective roadside rainfall erosion control materials.

Bench scale experiments were conducted to test the erosion of natural base soils and compost. Rainfall simulators were constructed to simulate natural rainfall of 3.0 in/hr in intensity. Soil boxes (3ft long, 1ft wide, 7in tall) were designed and built to simulate inclined embankment (slop angle= 27o). Base soils (sand, silt, and clay) were tested under 1hr rainfall. Then three types of composts (provided by Earthwise Organics) were laid on the base soil as erosion control layer. The composts are 1) green material compost made from yard trimmings, 2) dairy manure compost, and 3) biosolid and green material co-composts (equal in mass and evenly mixed). Repeated rainfalls were used to test the long-term erosion resistance of composts. Chemical and biological analysis of the runoff constituents was conducted (by Twining Lab, Inc) to assess the environmental impact.

Without compost cover, slope failure and excessive soil loss were observed in all base soil erosion tests. With compost cover, soil loss significantly deceased. But slope failure occurred on slopes with green compost and manure compost, while co-compost retained the slope after three repeated rainfalls. The biological and chemical constituents in the runoff were measured to be low. This preliminary study concluded that different composts have different erosion control resistance. Some compost can serve as successful erosion control materials on roadside embankment.

Fumiko Yamamoto, Alejandro Calderon-Urrea, Ph.D.
yafiona@csufresno.edu
Fumiko Yamamoto, Glenda W. Polack, and Alejandro Calderón-Urrea
California State University, Fresno
Department of Biology
Graduate Student

Effects of the Parasitic Nematode *Meloidogyne incognita* on Transgenic Tobacco Plants Expressing an Antisense Construct of the Cell Death Protection Gene *ced-9*

The damage to agricultural products caused by plant-parasitic nematodes is a serious problem. In the US alone, these nematodes do about $10 billion of damage; the loss worldwide amounts to about $100 billion. Methyl bromide, a potent soil fumigant, is an effective pesticide for controlling these nematodes, and has been applied worldwide. However, it is associated with grave environmental concerns. Therefore, it has been scheduled to be phased out and banned from US agriculture. However, alternatives are needed to control these nematodes. We propose the development of transgenic plants with introduced nematode programmed cell death (PCD) genes. Previous work has demonstrated that an antisense gene against *ced-9* (a PCD protection gene) generates loss-of-function (lf) phenotype in *Caenorhabditis elegans* via RNA interference (RNAi); the consequent induction of PCD leads to the death of the nematodes. We hypothesize that if plants can be engineered to express a *ced-9* antisense gene, it should stimulate the programmed cell death pathway of parasitic nematodes, and act just as a *ced-9* (lf) mutation.

We generated homozygous transgenic tobacco plants expressing either *Ced-9-F* (*ced-9* cDNA cloned in the sense orientation) or *Ced-9-R* (*ced-9* cDNA cloned in the antisense orientation). Using competitive RT-PCR, the RNA expression levels of the *Ced-9-R* and *Ced-9F* transgene in the leaves of transgenic plants were determined. Selected *Ced-9-R* and *Ced-9-F* transgenic tobacco lines that expressed high levels of the transgene were tested for tolerance to *Meloidogyne incognita* (Root Knot nematode) infection. Ability to hatch normally was compared between nematode eggs removed from the transgenic and from the wild-type tobacco plants. A Multi-Factor ANOVA was used to compare the means of number of galls formed in plants with the most and least expression of *ced-9-R* or *ced-9-F*.

Although no significant correlation between expression of *Ced-9-R* and tolerance to *M. incognita* was found during initial infection, it is still possible that a significant difference is present when we look at the hatching of nematodes generated in these transgenic plants. Also, the expression levels of the transgenes might be influenced by co-suppression.