29TH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS OF THE 2008 SYMPOSIUM

Convened on

Wednesday, April 16, 2008

in the

University Business Center

California State University, Fresno

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Linking Affective Learning Theory to Resident Competence

Objective
To examine the link between educational interventions and affective learning by measuring resident comfort level before and after an objective structured clinical examination (OSCE) combined with an educational intervention in family planning methods.

Methods
Our obstetrics and gynecology residency program incorporates OSCE plus educational interventions (OEI) in order to
teach and assess skills in family planning. Three months after the OEI, the residents were polled via a series of Likert-scaled questions on their comfort level before and after the OEI experience. Comfort was ranked on a 1 to 5 scale. Similarly, residents reported their level of experience prior to the OEI on a Likert scale with higher values representing higher levels of experience. Pre- and post-OEI comfort scores from all procedures were aggregated into a composite comfort score for each resident. In addition, scores were averaged for each procedure to determine which procedures contributed the most to the changes in resident-specific comfort score improvement. Correlations were made between level of resident experience and resident year and the pre-, post-, and change in resident comfort. Two-tailed paired t-test, Wilcoxon Signed Rank Test, and Pearson's correlation were used to infer statistical significance as appropriate.

Results
OSCE experience increased aggregate resident comfort level from 3.63 ± 0.21 to 4.47 ± 0.13, an average of 0.84 ± 0.16 (mean $\pm$ SEM) ($p<.001$). Prior to the OSCE, comfort level positively correlated with self-reported level of resident experience, and the OSCE-related improvement in comfort level was inversely related to the degree of experience. The improvement in comfort level related to the OSCE was not uniform across all procedures.
Procedures in which residents reported a relatively high level of comfort prior to the OSCE did not show much improvement in comfort score, such that statistically significant improvements in comfort were observed only in diaphragm fitting and vaginal ring, the two procedures with the lowest level of pre-OSCE comfort. Resident year was also related to initial comfort level as well as improvement in comfort secondary to OSCE experience: First year residents had relatively low levels of comfort and the OSCE brought them up into the same range as the following three years.

Conclusion
This study has resulted in two new findings: 1) there is a relationship between comfort level of the trainee and the OSCE educational intervention and 2) the degree of increase in comfort level is related to level of experience prior to the OSCE educational intervention.

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Intermodal Trucker Labor Protest in Central Valley Stockton

On April 26, 2004 Sikh Indian truckers working in rail yards outside of Stockton initiated a successful week and a half long strike in protest of escalating diesel prices which they pay out of pocket, along with demands around improved pay and working conditions. Hauling Intermodal containers that can be moved across the world and interchanged between container ships, rail lines and a truck chassis, these truckers work as independent contractors without the traditional labor rights of employees

The effort of the Sikhs, who make up 80% of the 3-400 Stockton Intermodal workforce, would play a key role in the ensuing Intermodal trucker strike that swept west coast ports within the next week and even southern and eastern ports by June. By striking first and playing a role in initiating the Oakland port truckers strike several days later, the Stockton Sikh truckers played a leadership role in the ensuing west coast strike. In August of the same year many of the these truckers joined the Industrial Workers of the World labor union and went on to initiate several successful workplace actions and strikes up through December 2004.

This manuscript is a social history of these events including the period of the wildcat strike and union involvement up to the point where the leadership of the drivers ended their union involvement in early 2005. The author bases his research partly on his experience as a union organizer in the events. This work further places the drivers and their struggle in several contexts to better grasp a more nuanced understanding behind the events beginning with an overview of the Intermodal trucking industry, a look at the political economy of California's Central Valley, and a discussion of the radical tradition of the Sikh diaspora to which the Stockton truckers are linked.

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Effects of Evaporation and Sampling in the Forensic Analysis of Fire Debris Evidence

The forensic analysis of debris from suspicious fires aids in determining whether it is a case of arson. An indication of arson is the presence of an accelerant, often an ignitable liquid such as gasoline, in the fire debris. The most common method of chemical analysis involves GC/MS analysis of the vapor headspace over properly packaged and stored fire debris.

During a gasoline fire, the vapors combust but the liquid does not burn. Instead, the liquid gasoline evaporates generating the combustible vapors. Therefore, understanding the evaporation of gasoline and its change in content in the laboratory can help us understand how the content of gasoline residues change in a fire. We used three different temperature mineral oil baths to evaporate liquid accelerants, primarily gasoline and kerosene. Less then one mL was extracted from the evaporating beakers at regular intervals and diluted in pentane. The diluted samples were there run on the GC/MS and analyzed using the same method to ensure consistency. The method was written to standard Department of Justice protocol. The shapes of chromatograms were evaluated using a series of reference peaks. Initially, the n-alkane series was selected because of their stable retention times and relatively large intensity in kerosene.

The alkane analysis of kerosene samples provided predictable variations through out the evaporations, showing that the lighter alkanes would leave the solution first. The larger and heavier alkanes appeared to become more concentrated through the evaporation progress. However, their amounts stayed consistent as the apparent concentration increased and total volume of gasoline decreased. A new series of reference compounds are being developed to better describe the gasoline evaporations, as their alkane profile does not have as predominant of an n-alkane series.

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Internal Erosion Mechanisms of Heterogeneous Soils

The devastating impact of Hurricane Katrina on New Orleans's levee system galvanized public awareness of the fragility of California's 13,700-mile levee system. Earthen levees, some of which are more than 100 years old and were built with inadequate materials and poor techniques in late 1800s, provide most of the state's flood control. Frequent floods, land subsidence, and earthquakes have made these levees highly vulnerable to erosions. Soils at the landside levee toe, if not properly protected, are first washed out by concentrated leakage in the tiny cracks (i.e., sand boil). Piping is a form of internal erosion that occurs when internal soils in the levee or its foundation are washed away by concentrated seepage causing the channel to advance from downstream to upstream. Piping can eventually cause excessive seepage and levee collapse. Internal erosion and the resulting excessive seepage was one of the major causes of the levee breach in New Orleans in 2005.

The purpose of this research is to study erosion mechanisms of heterogeneous soils through laboratory experiments. Three phases are planed. In the first phase, the standard small-scale pin-hole tests (soil column dimension: length=2in, diameter=1in) are conducted to study the various erosion resistance of homogeneous soils (sand, silt, clay, and organic soils). In the second phase, larger scale erosion tests (soil column dimension: length=20in, diameter=10in) are conducted to study the erosion mechanisms of the same homogeneous soils to reveal any scaling effect; stratified soils are then used in the column to study the erosion of heterogeneous soils. In the third phase, tri-axial apparatus is used to study the effect of stresses (pore water pressure and effective stress) on erosion; stratified soils are also used to study the coupling effect of heterogeneity and stresses on erosion. Hydrometer and turbidimeter will be used to characterize the eroded soils in the effluent.

This presentation reports the ongoing erosion tests in the first phase. Preliminary results revealed poor erosion resistance of silty soils. Research plans and methodologies on phase 2 and 3 are also presented.

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Hmong Students in Higher Education and Academic Support Programs

Current secondary education Hmong students are often first generation college students. Obtaining higher education has been a challenge for many of the Hmong students. The goal of this study is to examine obstacles to participation in and the effect of academic support services (ASPs) on Hmong college students. Effectiveness of ASPs were examined among 55 Hmong college students at a large, public western university. The Effectiveness of Academic Support Program Survey (EASPS) A and B were developed to obtain student perception of how effective ASPs are in meeting educational needs of Hmong students. Furthermore, motivation of students was also examined to determine if there is a link between motivation and participation in academic support programs. Findings conclude that obstacles in higher education for the Hmong students were lack of study time, poor study habits, lack of money, lack of motivation, lack of direction and career goals, and poor time management. Results also indicate that half of the study participants have participated in ASPs. Those who have participated found ASPs to be moderately supportive with an average rating of 7.39 out of 10 (10 being most supportive). Financial assistance, peer advising, and academic advising were among the most helpful academic support services. Those who did not participate in any ASPs reported that they were not aware of ASPs. Lastly, motivation was not found to be a factor in influencing participating in ASPs.

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Effects on the Parasitic Nematode Meloidogyne Incognita of Transgenic Tobacco Plants Expressing an Antisense Construct of the Cell Death Protection Ced-9 gene

The damage of nematodes in agricultural products is a serious problem in the US. Methyl bromide is an effective pesticide for controlling plant parasitic nematodes, but it leads to great environmental hazards. Instead of pesticides, the development of transgenic with introduced programmed cell death genes may prove efficient and safe for agriculture production in the US. Depending on the ced-9 sequence orientation present in transgenic plants, two predictions can be made. First, plants containing a forward (sense) ced-9 gene will protect against nematode infection by enhancing the "immune" response of the plant. In fact, previous work showed that over-expression of ced-9 leads to the protection against other plant pathogens by this mechanism fro example TMV infection. Second, plants containing a reverse (antisense) ced-9 gene would enhance the programmed cell death pathway in the nematodes, and act just as a ced-9 (lf) mutation. The second hypothesis assumes that there is a ced-9-like sequence in Meloidogyne incognita (Root-Knot Nematode-RKN), which is the target of the ced-9 antisense gene. We have preliminary data suggesting this is the case.

We generated homozygous transgenic tobacco plants expressing either ced-9-F (ced-9 gene clones in the sense orientation) or ced-9-R (ced-9 gene cloned in the antisense orientation). The expression levels of the ced-9-F and ced-9-R genes in transgenic plant were determined by competitive RT-PCR. Selected ced-9-R and ced-9-F transgenic tobacco lines, both expressing high levels of the transgene and having no other phenotypic effect, were tested for resistance to M. incognita by measuring gall formation (invasion ability), gall size, and J2 hatching (reproduction ability).

The means of number of gall formation did not exhibit any statistical difference between transgenic and wild-type tobacco plants. Gall size was smaller, however, in transgenic ced-9-R or ced-9-F than in control plants. Furthermore, hatching ratios were low in ced-9-R transgenic plant lines, by approximately 50%, when compared to ced-9-F or control plants. Results from these experiments suggest that expression of either ced-9-R or ced-9-F genes in tobacco plants induced prevention of M. incognita proliferation. However, ced-9-F expressing plants prevent the proliferation by limiting the size of galls formed, while ced-9-R expressing plants do so by both limiting the size of galls formed and by preventing embryo hatching. We speculate that the hatching prevention in the ced-9-R expressing plants is due to the action on a ced-9 like sequence during embryogenesis of M. incognita taking place in the transgenic plant.

POSTER PRESENTATION ABSTRACTS

(IN NUMERICAL ORDER BY POSTER BOARD NUMBER)

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Poster Session I
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Parameterization of a Fractured Hardrock Aquifer in Western Foothills of the Sierra Nevada, California

Introduction. The Sierra Nevada foothill areas along the east side of California's Central Valley have experienced a continuous increase in population and land development activities. This has in turn put pressure on the local groundwater supply which is strongly controlled by the complex fracture hydrology of the region. Therefore, understanding how the ground water flows is essential for land use planning and water supply management. This study is aimed at characterizing the fractured granitic aquifer in the foothill areas of western Sierra Nevada, Madera County of California, and model parameterization to obtain the best values of hydraulic properties of the aquifer through long-term pumping tests.

Methodology. The hydraulic properties (transmissivity and storativity) were obtained by conducting pumping tests for 34 days, involving two test wells and 17 observation wells at a 540-acre study area. Results of three aquifer-test methods (step-drawdown, constant-discharge, and constant-drawdown) were analyzed. Results were examined in relation to the distributions and orientations of the fracture systems as observed on the surface by outcrop mapping and lineament studies using aerial photographs and Digital Elevation Model (ArcGIS). Two hypotheses (radial or linear flow patterns) were assumed and tested by evaluating these field experimental data.

Results and Conclusions. To characterize a large area of the fractured aquifer, a pumping test of at least 15 days is required to get a realistic trend line of drawdown versus time. Because of limited well capacities, constant-head pumping test methods have been found to be more practical than constant-discharge or step-drawdown methods. The results of different pumping test methods suggest that both the aquifer parameters (transmissivity and storativity) and the flow patterns (radial or linear) are scale-dependent, and the scale effect is related to the anisotropy controlled by the fracture orientation and connectivity independent of the test methods. The tests revealed that drawdowns at observation wells as far as 4,000 feet radius can still be influenced by linear flow intersecting the pumping well. Thus, model that assumed uniform aquifer properties can not be applied to the site, although some generalization can be made.

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Social Impact of Environmental Racism in the Outsourcing of E-waste in Africa and Asia

Environmental racism describes a society's intentional policies or actions that seek to dispose of its most harmful waste in areas populated by ethnic minorities or other disenfranchised groups. For centuries, minority groups and the poor in the United States have been the victims of hazardous waste disposal schemes, resulting in a disproportionably large number of Latinos and African-Americans living within two miles of one of more than 400 waste sites across the nation.

Nowadays, environmental racism plays an important role in the outsourcing of electronic waste (e-waste) into developing countries. Asia and Africa are quickly becoming the developed world's illegal dumping ground of choice for e-waste. Technology's rapid growth and the Western world's demand for the latest technology gadgets have caused 50 million tons of e-waste to be imported into developing countries each year—computers, fax machines, cell phones, and other electronic equipment.

Most of the e-waste being outsourced into developing countries is done illegally or by falsifying documents or by bribing officials. Although the demand for e-waste by e-waste brokers from developing countries is increasing at an astonishing rate, most of the e-waste shipped to developing countries is junk. The developing country's most vulnerable citizens tend to be the children and the poor who dismantle by hand the e-waste for less than $2 per day. This electronic equipment when dumped, leaches lead, mercury, and cadmium into the soil; when burned, it releases carcinogenic dioxins and polyaromatic hydrocarbons into the environment.

In the United States, activists are working to limit the flow of e-waste to developing countries through international agreements, such as the Basel Convention Treaty, and voluntary e-waste export reduction efforts. However, large e-waster producers, like the United States, have not signed the treaty.

Due to the lack of domestic and international laws or regulations, people in Asia and Africa continue to be the victims of the consequences of unregulated exposure to e-waste. The United Nations has called for Western countries to end the illegal dumping of e-waste into developing countries. It remains to be seen whether Western nations will fulfill and honor their international and moral obligations.

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Swiss Author Martin R. Dean's Novel Meine Väter Explores a Suppressed Multicultural Identity through the Search for an Unknown Father

My research focuses on Martin R. Dean's novel "Meine Väter" and his struggle with identity as well as the feelings of otherness in one's homeland. The protagonist comes from a multi-cultural family with his mother being Swiss and his father originating from Trinidad. Even though he considers himself Swiss, he is viewed differently by his community because of his outward appearance, mainly his darker skin tone. Furthermore, the author challenges the traditional view of what it is considered to be Swiss. My research will focus on his struggle of cultural duality as well as the ambivalence surrounding his search for identity and acceptance.

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Poster Board No. 4

Self-Efficacy Change is Associated With Better Quality of Life in Heart Failure Patients: A Quality Improvement Project Evaluating the Chronic Disease Self-Management Model in a Veteran Population

Background: Heart Failure (HF) occurs in 6-10% of people 65 years and older and is the leading cause of hospitalization in this group. Chronic disease self-management (CDSM) has become a priority in this large aging population with self-regulation accepted as beneficial in HF management. Clinical trials suggest that CDSM programs are more effective than information-only education and may improve quality of life. Self-efficacy or confidence to carry out a behavior necessary to reach a healthcare goal is central to the model.

Methods: Thirty-two male veterans (mean age 71 years) with HF in our Primary Care Clinic identified by chart review and physician referral were enrolled in a 4-session group clinic led by an interdisciplinary team consisting of a psychologist, a registered nurse, and internists over 8-weeks. Each session included one hour of education and development of self-management skills. CDSM skills over the four sessions included: monitoring weight gain/fluid retention, logging symptoms, medication adherence, diet/exercise, sodium reduction, energy conservation, and coping with emotional consequences of chronic disease. The second hour focused on active group discussion, patient goal setting, motivation enhancement, and a private consultation with a physician. Self-efficacy (SE) was measured by Self-Efficacy for Managing Chronic Disease 6-item scale and health-related quality of life (HQOL) was measured by Physical Component Score (PCS) and Mental Component Score (MCS) of SF-12 Health Survey both before (T1) and after the intervention (T2).

Results: Large effect relationships were observed between T1 SE and T1 PCS ($r=.58$, $p<.01$) and T1 MCS ($r = .62$, $p<.01$). Paired t-tests yielded significant change over time for SE ($t=-2.04$, $df=31$, $p=.05$; T1 SE, $M=6.2$, $SD=2.59$, T2 SE, $M=7.0$, $SD=1.96$) and for MCS ($t=-2.04$, $df=31$, $p=.05$; T1 MCS $M=43.8$, $SD=13.39$, T2 MCS $M=48.4$, $SD=11.64$). No significant change over time was present for PCS. Then, PCS and MCS were also evaluated via correlations using percent change variables. Results revealed relationships between percent change in SE with PCS ($r=.40$, $p=.02$), and MCS ($r=.62$, $p<.01$).

Conclusion: The increased SE and mental HQOL following interdisciplinary group intervention supported the self-management model in chronic HF treatment. Further examination of the role of depression in these relationships is warranted. Also changes in physical health-related outcomes following CDSM intervention require evaluation in larger samples and longer duration, and should include hospitalization rates and ER visits in controlled studies.

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Poster Board No. 5

Development of a Chronic Disease Self-Management Clinic for Heart Failure: A Quantitative and Qualitative Analysis of Patient and Caregiver Evaluations

Introduction: Heart Failure (HF) is the leading cause of hospitalization for people age 65+ (6-10%). About 6% of our patients are diagnosed with HF. VHA Clinical Practice Guidelines recommend education of patients/families, providing continuity of care via interdisciplinary disease management clinics. Chronic Disease Self-Management (CDSM) has become a priority in this aging population with self-regulation identified as good medicine. CDSM emphasizes interactive teaching, patient problem solving skills, an interdisciplinary team, patient goal setting, action plans, and support groups.

Methods: This quality improvement project describes development of our first CDSM clinic implemented in Primary Care for HF veterans and includes evaluation responses of patients and caregivers (n=33 patients; n=6 caregivers). Patients identified by chart review/physician referral enrolled in a 4-session 8-week clinic; caregiver attendance was encouraged. Interdisciplinary team included: Physician, Registered Nurse, Clinical Psychologist, Clinical Pharmacist, Dietician, Physical Therapist, and Social Worker. Each session included 1 hour of education and development of self-management skills. CDSM skills included monitoring weight, logging symptoms, medication adherence, diet/exercise, energy conservation, and coping with emotional consequences (depression/ anxiety), utilizing support groups, and completion of advance directives. Patients were provided tools to monitor/record symptoms and behavior change. The second hour focused on patient goal setting, motivation enhancement, and included vital signs and private consultation with a physician and pharmacist.

Results: Quantitative survey results yielded high satisfaction ratings. Participants rated how well the clinic met 6 core objectives (1=poor to 4=excellent) and rated the clinic overall (1=poor, 7=excellent). Mean results for patients and caregivers: 1.Increased HF knowledge, 3.6 ± .56; 3.8 ± .41; 2.Know when/how to contact PC team/emergency services, 3.5 ± .62; 3.8 ± .41; 3.Understanding importance of weight monitoring/med adherence, 3.7 ± .53; 4.0 ± 0.0; 4.Increased diet/nutrition knowledge, 3.5 ± .56; 3.7 ±.52; 5.Increased understanding of exercise and energy conservation, 3.5 ± .56; 3.7 ± .52; 6.Recognize depression/anxiety, 3.6 ± .55; 4.0 ± 0.0; Overall Rating, 6.6± .49; 7.0 ± 0.0. Qualitative analysis themes: Shared group sessions beneficial in decreasing fear, anxiety, and sense of isolation while building sense of community and support. Shared sessions helped patients move forward in accepting their disease.

Conclusions: Future research should include satisfaction ratings of providers since anecdotal evidence suggests CDSM gave providers a new context wherein they could build more "immediate" and meaningful professional relationships; evaluation of outcome data such as hospitalization/ER visits; and identification of more referral sources and methods to develop patient self-referral.

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The Link between Nutrition and Crohn's Disease

The focus of this review is to provide a basic understanding of inflammatory bowel disease (IBD) with special focus on Crohn's disease, its possible causes, symptoms, side effects and potential coping methods. About 500,000 of the American population is currently living with Crohn's disease, which means that 1 in 544 people are diagnosed with Crohn's disease in the U.S. alone (Cure Research, 2003). About 64 percent of patients who are diagnosed with Crohn's disease are hospitalized (Cure Research, 2003). As a result, it is critical for these individuals to know possible ways to improve their health and state of disease. Although it is extremely challenging to understand the nutritional effects on Crohn's disease, it must be examined in order to understand the alternatives to medication for the treatment of this specific disease. Due to the fact that many Crohn's patients do not understand the importance of nutrition and the role it plays in maintaining the disease, the main focus of this review is to present knowledge to the reader about the link between Crohn's disease and nutrition.

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Reservation Blues: A Novel of Historical Legacies

This paper examines the major themes Sherman Alexie addresses in his 1995 novel Reservation Blues: how, when, and why the Spokane Indians were placed on reservations; what treaties are and how they were not honored; how the history of the Indians in the nineteenth century affects Indians in the twentieth century. Sherman Alexie, a Coeur d'Alene/Spokane Indian, sets his novel on the Spokane reservation, and his central characters are members of an Indian band, Coyote Springs. While the band's career in the music industry is short-lived, it is through their dreams, journal writing, and story telling that the near genocide of the Spokane Indians emerges. Alexie uses the names of actual historical figures, such as George Armstrong Custer and Sheridan Wright, two men who were generals in the Indian Wars. The past historical events that the generals participated in are explored, as well as how the "generals" in the story perpetuate the pseudo-Indian cultiral, rather than physical, genocide. The essay explores why claiming to be Indian or part Indian has become popular, even while, in a double irony, the Indian who is thus co-opted is not Indian, but a fake stereotype. Finally, this essay identifies the factual references from the nineteenth century that Alexie weaves into the consciousness and subconsciousness of his characters and also the historical parallels between the Spokane Indians and other Indian Nations.

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Children's Practices in an Institutional Context

The objective of this study is to understand what messages the school as an institution conveys about other institutions to children and how those messages affect students' practices at school. A qualitative ethnographic study on approximately seventy-five students in K-4th grade of children five-ten years old and the director, nine teachers, and teacher's assistants 18-65 years old was done at the Astar School program in San Jose, California. Field-notes were taken for over twenty days between June 25 and August 24, 2007 in about ninety-three hours on normal daily behaviors in the classrooms, activities hall, black top, field and playgrounds outside, and bathrooms.

The results on Astar School include an analysis of how the school provides a set structure for students. Here, students are given choices which are controlled by the school institution and taught rules with the result of consequences or rewards. Appropriate behavior and how to mediate and solve problems can be seen in daily child-adult interactions. Encouragement, approval and attention are established with the use of certain tones of voice. Individualism is encouraged, protection and safety are important and an awareness of cleanliness and health are stressed. This institutional setting presents a mixture of ages and peer teachers that learn collaboration and group-work; indirectly their interactions also express influences of family.

Adult institutions are reflected in the Astar School through the use of language, messages on the ideal student, activities and environment of the school. Students receive acceptance if they conform. They also take in consistent direct messages such as courteousness and other complex messages indirectly. Here, imagination and creativity are encouraged within constraints. Children reflect those messages of societal norms through their behavior and thinking, but may not want to conform. Similar to adults, children are taught to conform in public, but may rebel certain rules privately.

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Young Voters' Evaluations of Presidential Candidates: Superficial or Substantive?

A general trend of voter apathy has raised concern in recent years. The group that exhibits the highest degree of political apathy consists of young voters. In the 2000 presidential election, only 36% of voters within the age range of 18-24 participated in the electoral process (Grant, 2004). Since young individuals are the most apathetic voting group, it seems likely that when they do choose to participate in the electoral process their decisions may be based on insufficient information. The diversity of the presidential candidates in this year's election presents new challenges for young voters regarding their political evaluations. The current study examined young voters' evaluations of presidential candidates based on two different types of characteristics. Superficial characteristics included ethnicity, age, gender, physical attractiveness, and religion. Substantive characteristics included stance on controversial issues, leadership ability, level of intelligence, and policy awareness. It was hypothesized that young voters (18-24 years of age) are more likely to evaluate presidential candidates using superficial than substantive characteristics.

Participants were recruited through the Psych 10 Experiment Participation System at CSU, Fresno. Students completed an online survey administered through the SONA system, which included questions regarding the demographics of the participants followed by scaled items in which the participants rated their likelihood of evaluating presidential candidates based on given characteristics.

The responses of 38 participants were statistically analyzed. A dependent samples t-test revealed that young voters are significantly more likely to evaluate presidential candidates based on substantive characteristics ($M = 25.53$, $SD = 4.04$) than superficial characteristics ($M = 15.39$, $SD = 5.47$), $t(35) = 8.38$, $p = .000$, $d = 1.4$. The results suggest that the tendency of young voters to focus on substantive characteristics will allow them to make informed political decisions in a presidential election.

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Poster Board No. 10

Radical-Radical Interaction

The purpose of our research is to synthesize, using a shorter scheme, a bis hydroxyl amine, 2,2-Pentamethylene-4,4,5,5-tetramethylimidazoline-1,3-bis hydroxyl, and oxidize it to the corresponding bis nitroxide radical (4). This radical has been probably reported but incompletely characterized. By synthesizing it, we hope to eventually learn more details about the radical-radical interactions, such as measuring the triplet-singlet gap. The reaction steps included synthesis of several compounds; 2,3-Dimethyl-2,3-dinitrobutane (1) was obtained through the oxidation of 2-nitropropane. 2,3-bis(hydroxylamino)-2,3-dimethylbutane (2) is to be made as a result of the reaction of zinc, ammonium chloride and dimethyldinitrobutane in tetrahydrofuran. The initial plan was to condense (2) with cyclohexanone to form 2,2-Pentamethylene-4,4,5,5-tetramethylimidazoline-1,3-bis hydroxyl (3), which in turn was expected to be oxidized with sodium periodate to give the 2,2-Pentamethylene-4,4,5,5 tetramethylimidazoline-1,1-dioxyl (4), the final radical. However, the condensation of (2) with cyclohexanone, resulted in the complete disappearance of cyclohexanone, yet (3) could not be found in the product. An alternative route involving the oxidation of 2, 2-Pentamethylene-4,4,5,5-tetramethylimidazoline (5) with dimethyl dioxirane is being explored.

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Poster Board No. 11

Detecting Genotoxicity in Pacifastacus leniusculus (Crayfish) Exposed to Polluted Sedimentsin Coyote Creek and the South San Francisco Bay

Xenobiotics such as organochlorine pesticides (OC), polychlorinated biphenyls (PCBs) and mercury, can greatly influence the biodiversity and balance of the aquatic habitats because of their toxicity. Coyote Creek in San Jose has the potential to accumulate xenobiotics. Crayfish are one of the organisms that are living in and are exposed to these contaminated environments. The comet and micronucleus assay were used to test for genotoxicity in four tissues types namely blood, gill, gut and liver. This paper presents the preliminary findings of the study. These findings will be used as baseline for other sites along the stream.

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Poster Session I
Poster Board No. 12

Unmanned Aerial Vehicle for Precision Agriculture

The use of unmanned aerial vehicles (UAV) can provide useful data often in the form of digital images to many different users. Cattle location and range data can be easily collected with UAVs to assist ranch management. Agriculture can benefit from aerial photography in multiple ways. Remote sensing by UAVs can provide useful local site-specific data including crop scouting, geo-referencing, locating weed or pest outbreaks. UAVs can be used to quickly map the entire field and provide real time imagery data used to support management decisions.

A full size working craft will be constructed from balsa wood and plywood with an 8-pound empty weight. This UAV will carry 3 optical sensors 1 high-resolution still camera 1 high-resolution 1080i video camera and 1 small video camera that provides live feedback that can be used for flying the UAV manually. A Global Positioning Satellite (GPS) receiver will be carried by the plane and used to map the terrain. The GPS receiver will also be synchronized to the camera so each photo the camera takes will have corresponding GPS coordinates exactly locating the area show in the photo. An autonomous flight system to automatically guide the plane over a pre-programmed path is planned for this project as well.

Several test flights have been made and data has been collected at field 5 and field 9 located at California State University, Fresno, CA. Both GPS and video data were collected during these flights. The data provided useful information that could be used to guide management decisions.

Further testing and modification is required before full usefulness can be achieved. Autonomous navigation systems require further testing or need to be swapped for a more adequate system. When completed this UAV can be very useful in many applications.

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Poster Board No. 13

Learning and Choice Behavior in Siamese Fighting Fish

The majority of research on learning and choice behavior in animals uses nutritional rewards. In some cases, however, social contact can reinforce behavior. Male Siamese fighting fish (Betta splendens) will show aggressive displays when faced with another male – this they find rewarding. The question remains as to whether parameters of a social reward affect learning and choice behavior in the same ways as nutritional rewards. In this current study, we will present three experiments which investigate how social rewards in Siamese fighting fish affect choice behaviors in a T-maze with discrete trials. The first experiment (n=12) established fish can learn to make a choice that gives them visual access to another male for 20 sec. compared to the side of the T-maze which has no visual access to a male. The second and third experiments deal with what Hull (1943) called the "law of less work". He found rats would choose a side where they traveled a shorter distance to gain access to food. In the second experiment (n=10) we found, paradoxically, Siamese fighting fish will choose a side where they have to swim a greater distance to get visual access to another male. One possible explanation is, fish find swimming itself rewarding. So, the final experiment compared two groups (n=10 in each group) with different levels of deprivation to swim (half of the fish housed in large tanks and half of the fish housed in very small tanks). Again, we found a preference for swimming the greater distance to another male, but deprivation did not affect that level of preference. These experiments encourage further investigation into the nature of social rewards and learning.

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Poster Board No. 14

Parental Mental State Talk and the Development of Theory of Mind

How does children's theory of mind develop? Researchers like Perner, Ruffman, & Leekam (1994) and Wright Cassidy, Fineberg, Brown & Perkins (2005) believe that family dynamics are influential in the development of theory of mind in three ways. First, during family interactions children are exposed to conversation about theory of mind, which possibly leads them to think more about theory of mind phenomena. Second, these interactions give parents the opportunity to explain theory of mind phenomena. Finally, parents mediate conflicts between siblings during family interactions, addressing theory of mind issues that are immediately relevant to the child. Literature has suggested conversation effects on the development of children's social understanding, but the causality has been neglected. Three studies will investigate the effect of parental mental state talk on 38 to 43 month old children's theory of mind development. Study 1 attempts to determine if conversation has an impact on theory of mind. It's predicted that children who hear stories high in mental state talk will perform better on theory of mind tasks. Study 2 attempts to find which conversational devices are most effective in guiding children's theory of mind. It's predicted that children who are read picture books with cognitive talk will perform better on false belief tasks than children whose books contain talk about desires or feelings. Study 3 will investigate how much input is needed to see a measurable change in theory of mind. It's predicted that children who are read stories by their parents for 6 months will perform better on false belief tasks than children who are only read to for 1 of 3 months. These studies will benefit theory of mind literature by providing a window into the causal role of conversation in the development of theory of mind.

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Poster Board No. 15

Vertical Profiles of Ozone in an Urban Area during a Wildfire Event

We present the results of the data analysis based on vertical ozone profiles acquired in Fresno in the summer of 2007; during a period of unhealthy air quality caused by wildfire smoke. The analysis was done as part of the air quality study funded by the National Science Foundation (NSF) through the Major Research Instrumentation (MRI) Program. The data was collected using equipment setup consisting of an ozonesonde, a tethersonde, a balloon, an electric winch with tether, a laptop computer and a sounding processor made up of a radio receiver and transmitter. Variables measured include ozone concentration, wind speed and direction, water mixing ratio, relative humidity, potential temperature, and specific humidity. The data was analyzed to examine the evolution of ozone profiles and their impacts on air quality. The results showed that ozone buildup near the surface is related to turbulence intensity in the lower atmosphere. They also provide insight into the vertical transport of ozone in urban the environment; a knowledge that is critical for improving air quality forecasts for the region.

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Automated Identification of Flammable Liquid Residues In Fire Debris

When accelerants, such as gasoline, are used to start fires they often leave behind detectable residues in the fire debris. Chemists seek to identify these residues by: 1) removing the residue from the debris using passive headspace concentration, 2) analyzing the residue using gas chromatography – mass spectrometry (GC-MS), and 3) identifying the residue by manual comparison to a reference library of GC-MS data for known accelerant materials. A successful identification of an accelerant residue can be critical evidence in the prosecution of arson cases.

The identification of accelerant residues is challenging because of the variety and chemical complexity of the commercial products (e.g. gasoline, kerosene, diesel fuel, paint thinners, lamp oil, etc.) that may be used as accelerants and because of the changes that may occur to these materials during a fire. Computational approaches at automating the search process have not yet been successful in addressing these challenges.

Experienced fire debris analysts overcome these obstacles by focusing on unique, chemical characteristics or "signatures" of accelerants that will still be identifiable in the residue left after the fire. We will mimic this process by: 1) identifying numerical descriptions (metrics) of these signatures, 2) generating a library of the metrics for known products, and 3) using the metrics with statistical analysis techniques to group the unknown with the closest matching known product.

Early results have shown the ability of this approach to overcome the changes that occur due to evaporation in gasoline samples. Using less than 20 simple metrics we have been able to correctly identify a sample of gasoline that was greater than 95% evaporated.

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Ruthenium(II)-Catalyzed Asymmetric Transfer Hydrogenation of Aromatic Ketones Using a New Planar Chiral, Diferrocenyl Diaminodiphosphine Ligand

Ferrocene-based ligands with planar chirality have been shown to be effective in Ru(II)-catalyzed asymmetric transfer hydrogenation (ATH) of aromatic ketones. This reaction leads to the formation of enantiomerically-enriched chiral alcohols which are very useful synthetic intermediates that are utilized to prepare optically-active pharmaceuticals and other biologically-important compounds.

In regards to the ATH reaction, we have been able to successfully synthesize 2-diphenylphosphino ferrocenecarboxaldehyde (1) by utilizing a chiral auxiliary. The corresponding diimine (2) was prepared by the reaction of 1 with trans-(1R,2R)-diaminocyclohexane. The diimine 2 was then reduced with LiAlH4 to produce the diferrocenyl diaminodiphosphine ligand (3). Ligand 3 was characterized by NMR and IR spectroscopy, and by polarimetry. The Ru(II) complex 4 was obtained by the reaction of ligand 3 with the precursor complex [(DMSO)4RuCl2] in dry toluene. Complex 4 was then used as a pre-catalyst in the asymmetric transfer hydrogenation of various aromatic ketones. The results of our work on the synthesis, characterization, and catalytic studies will be presented.

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The Relationship between Extroversion/Introversion and Obsessive-Compulsive Symptoms

Obsessive-compulsive disorder and its symptoms have recently been receiving more attention in the last few decades. Although considered very rare as little as a century ago, it is estimated today that up to 20 percent of the population suffers from some for of obsessive-compulsive symptoms (Tallis, 1996). Past research has attempted to find out more about what causes such symptoms and if these symptoms are related to other mental disorders.

Research on symptoms of mental disorders in general has demonstrated that there may exist a relationship between disorders and/or symptoms and behavior. In addition, behavior has also been shown to be related to the personality of an individual. Therefore, it is very likely that because mental disorders are related to behavior, personality characteristics are also related to mental disorders.

The purpose of this study is to investigate the possibility of a relationship between specific personality characteristics and symptoms of mental disorders. More specifically, it is hypothesized that there is a significant negative relationship between levels of extraversion and expressed obsessive-compulsive (OC) symptoms. All participants completed a self-report questionnaire consisting of the Maudsley Obsessive Compulsive Inventory and the NEO Five-Factor Inventory. The results yielded a moderate negative correlation with regards to OC symptoms and extraversion. Implications of this study include an increased knowledge regarding how personality traits may influence (and potentially exacerbate) OC symptoms and disordered behavior.

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Poster Board No. 19

Relationships between Steroid Hormones and Aggression in the Clonal Mangrove Killifish,Krytolebias Marmoratus

Aggression is a valuable trait in the animal world. Mating, nest sites, social status and access to resources, such as food, can be decided through aggressive encounters. Krytolebias marmoratus is a self-fertilizing hermaphroditic fish with members of a clonal line being genetically identical to each other. We have shown in two previous trials that these killifish display a variety of aggressive behavior despite the lack of genetic variability. We investigated whether hormonal output could predict and/or respond to aggressive behavior exhibited by the killifish towards their mirror image, a stimulus known to evoke pronounced behavioral responses. We examined the stress hormone cortisol, and the sex hormone, testosterone, which in other studies have been shown to increase after an aggressive display.

We collected pre- and post-fight hormones using a non-invasive water-borne collection method. For each trial behavior and pre- and post- test hormones were evaluated during two fights that were conducted a week apart. Our preliminary results indicate that mirror induced aggression causes a reduction in both cortisol and testosterone, a unique finding in studies of this sort. We ran two trials, n=12, n=32, in which pre- and post- hormone levels were correlated to the behavior exhibited. Our results indicated that the fish were better able to correlate their endocrine response with their behavior in the second contest. Individuals with lower pre-fight cortisol levels were more aggressive. Testosterone levels were shown to rise sharply before the second fight, and this pre-fight increase predicted more aggressive displays and less strikes towards the mirror. The experiment that we present here is still under way, and is the last in a set of three trials; this final trial involved more animals, n=48, and was run with more stringent controls in an attempt to validate our original findings. The combined results of all three trials will be discussed.

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Poster Board No. 20

Does Challenging Convict Cichlids with ACTH Manipulate the Stress Axis?

Corticosteroids, secreted by the interrenal tissue of fishes, are steroid hormones that play an important role in maintaining equilibrium. Cortisol is the major hormone released in response to stress, and can vary in concentration when animals receive a physiological challenge. In this study, we challenged convict cichlids, Cryptoheros nigrofasciatus, by injecting them with different doses of adrenocorticotropic hormone (ACTH), which is secreted by the pituitary to stimulate stress hormone production. We evaluated whether ACTH challenge caused an interrenal hormonal response in the form of increase or decrease in the cortisol levels. In the five rounds of experiments that we conducted, 60 animals (12 animals per round) of approximately the same size were used; males and females were equally represented. The animals were acclimated to 37 liter tanks for five days, and then were habituated over four days to a beaker confinement procedure for collecting hormones. Cortisol was collected and extracted from fish holding water at different time intervals including pre-injection, and 2 h, 4h, and 24 h post injection. Blood also was collected at the 24 h time point. Preliminary analyses indicate that the low dose of ACTH brought about a significant increase in cortisol levels while medium and high doses resulted in a decrease in cortisol levels. These results suggest that exogenous ACTH was successful in manipulating the hypothalamic-pituitary-interrenal stress axis. While the low dose of ACTH stimulated cortisol secretion as expected, the medium and high doses perhaps triggered negative feedback regulation that caused a decrease in cortisol levels. Future work can include a study on how this manipulation can bring about differences in the behavior of these fish, and can provide insights into possible sex differences in stress responsiveness.

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Poster Board No. 21

Investigating Associative Connectivity of Cues for Unrelated Word Lists

Activating information in long-term memory implicitly activates associated information. Word list memory tasks have commonly been used to investigate the characteristics of these memory activation patterns. Although consistent impairment of memory for word lists has been shown during cued recall tasks, results have been mixed for word list tasks involving free or part-list cued recall. The current study is designed to clarify the role of associations in word list memory.

This study employs both free (Experiment 1) and part-list cued (Experiment 2) recall paradigms. Word lists have been designed to control for confounding word characteristics (e.g., frequency, concreteness, imageability). A within-subjects design implemented for both experiments reviews variations in associative set size, list length, connectivity, and cue type for all participants.

Results for the first experiment indicate a main effect for associative set size as well as a main effect for list length. The lack of an interaction between set size and list length suggests possible insufficient activation of implicit associative sets during free recall. Preliminary results for the second experiment suggest main effects for set size as well as cue type. Analyses to understand the effect of connectivity on word lists as well as the interaction of connectivity, associative set size, and cue type are still in progress. In conclusion, implicitly activated characteristics of word memory have varying impacts on memory impairment depending on the memory task at hand.

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Poster Board No. 22

Educational Efficacy of Applied Graduate Experience to Address Real World Problems

This evaluation study examined the educational efficacy of involving graduate students in the application of social psychology to address a real world problem. Specifically, graduate students (N=19: Females N=12; Males N=7) at California State University, Fresno enrolled in a Graduate Seminar in Applied Social Psychology were assigned to measure the value of earning an undergraduate degree in psychology as a term project. Students conducted an extensive literature review on alumni surveys for psychology majors. In addition, guest experts and stakeholders were invited to share relevant information related to survey design, alumni assessments, sampling, web surveys, statistical analyses, alumni communications, and evaluation. Students self-assigned themselves to teams and selected team leaders to accomplish the following tasks: questionnaire development, human subject approval, pilot survey, sampling, web design, alumni newsletter interface, data management and statistical analyses, and program evaluation. Students created a web-based alumni survey that would interface with the newly developed web alumni newsletter as a link on the CSU Fresno department of psychology web page. Students evaluated their engagement and learning in this applied process. Survey results of the formative evaluation suggest that students found this involvement in an applied project highly educational. Specifically, 83% reported, compared to traditional seminars, they spent more time engaged in this applied approach and that they learned new skills. In addition, 94% reported this was a challenging learning experience. Moreover, 78% reported that, based on this class experience, they would be able to effectively contribute to a professional project as an applied consultant. Finally, confidence in the effectiveness of applying social psychological theories to solve real world problems was reported by 100% of students that had been involved in this class experience.

Qualitative results showed students often reported they were challenged by tight timelines that required organization, delegation, collaboration, and time management. However, this experience ultimately strengthened their leadership skills and their ability to be effective team players/collaborators with people from different backgrounds. Detailed results of both the formative and summative evaluation of the web-based psychology alumni survey at CSU Fresno will be discussed in this poster presentation.

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Poster Board No. 23

Size-Segregated Measurements of Organic Compounds in Particulate Matter in the CentralValley

Particulate matter (or PM) consists of tiny solid and or liquid particles suspended in the air. It is widely believed that PM either exacerbates or causes a variety of adverse health effects including asthma, pulmonary disease and cardiovascular disease. A class of chemicals called quinones has been implicated in causing such health problems. Previous work in this lab has shown that levels of these chemicals are high in Central California.

In this work, levels of about seventy organic compounds (including quinones, polyaromatic hydrocarbons (PAHs), alkanes and carboxylic acids) were quantified in Fresno CA. Samples were collected at two sites using both Teflon filters and a Lundgren impactor during 2006 and 2007. Organics were then extracted and analyzed by gas chromatography-mass spectrometry. Method validation studies were also carried out to determine the uncertainties associated with the measurements made as well as the major sources of these uncertainties in the analytical methods.

Mass loadings of quinones are in good agreement with previous measurements in the region, with up to 70 % of the quinones found in fine PM. The measurements are consistent with traffic and wood burning as the predominant sources of these compounds.

The data suggest that the quinones are directly emitted into the air and that atmospheric oxidation of PAHs does not contribute significantly to the mass loadings of these compounds in the region.

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Informal Science Play: Comparing Systematic Comparisons in Dyads and Solo

This study investigates student interactions during informal science activities among different majors and science backgrounds. We are interested in whether students with science majors are more systematic and cooperative when engaging in an informal science activity. Participants were asked to interact with a partner to explore and test different cars. Each car contained three different car variables: shape of wheel, car length, and weight of the car. Students were encouraged to test for the distance and bumpiness of each car on a car ramp. In a second phase participants were separated and each participant was asked to individually test a new set of cars that only varied in the car's shape of wheel to compare the pair's interaction with individuals' exploration.

The degree of systematic testing was coded on a four-point scale, along with the frequency of note usage and who recorded the notes. Interaction between participants was also categorized into four categories; didactic, collaborative, modeling, and non-interactive. Of the four dyads currently examined, most interacted collaboratively: working together on the activity. Of the four dyads, three dyads were also extremely systematic in their comparisons where they tested each car multiple times. The one dyad using a different interaction style was composed of one science major and one non-science major, this dyad used a modeling interaction style with the science major taking the leading role. Individually, however, no one tested the new set of cars more than once suggesting that their individual exploration was less systematic than when comparing in a dyad.

These findings raise interesting questions that will be addressed in further work by increasing the number of participants examined and counter balancing order of the phases. These findings suggest that students do apply their scientific training to informal interactions at least in some cases.

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Poster Board No. 25

Identification of Two Mycobacterium Smegmatis Transposon Mutants Resistant to the Thiolcrosslinking Agent Diamide

M. smegmatis mutants were created by random insertion of the transposon EZ-Tn5 <KAN-2> and screened for growth on the thiol oxidizer, diamide, which creates disulfide bonds. By two-step arbitrary PCR, the flanking region of the transposon was cloned into plasmid pCR 2.1-TOPO, transformed into competent TOPO 10 cells and confirmed by restriction digest to contain the flanking region, and sequenced. In one such mutant, 274R1, the transposon disrupted an amino acid permease gene, likely involved in amino acid uptake from the surrounding media (233 bp into the 1347 bp gene, MSMEG_6727). It is possible that diamide may enter the cell by this transporter in wild type cells. In the second mutant, 198R1, the transposon disrupted a cobalt permease gene 260 bp into the 780 base pairs of MSMEG_2609. This gene is a part of the cbiMNQO operon that contain genes coding for cobalt and nickel permease subunits as well as genes involved in the synthesis of vitamin B-12, cobalamin. Lower levels of cellular cobalt may result in less oxidative stress due to a decrease in Co2+-catalyzed hydroxyl radical formation similar to the Fenton reaction catalyzed by iron. In both mutants, the phenotype has only been characterized as the ability to grow on diamide. The obvious next step would be to observe growth under normal conditions as well as increased cobalt, nickel, and amino acids and in the presence of other oxidative stresses. Ultimately, the mutant phenotype will be confirmed by reintroducing a functional gene copy into respective mutants and ascertaining if these strains display a wild type phenotype.

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Poster Board No. 26

Smog Chamber Studies of the Reactions of Butanal and Pentanal with Chlorine Atoms

Organic chemicals are emitted into the atmosphere in huge quantities both naturally and as a result of human activities. In the atmosphere, these compounds undergo a complex sequence of chemical reactions that can lead to the build-up of smog. The reaction products may also modify the physical properties of aerosol particles, affecting their ability to form clouds. This in turn may impact climate change. Understanding the atmospheric chemistry of organics is therefore crucial if these important issues are to be fully understood.

Aldehydes (such as butanal and pentanal) are important organic pollutants that are both directly emitted into the atmosphere as well as being intermediates formed in the atmospheric degradation of many other organics. However, published studies on the kinetics and mechanism of their reactions in the atmosphere do not agree well with each other. In this work, mixtures containing butanal (or pentanal), chlorine and nitrogen were photolyzed in a 140 L smog chamber, and changes in the composition of the chamber were monitored using Fourier Transform Infra-Red (FTIR) spectroscopy. Additional relative-rate experiments were carried out using mixtures that also contained a tracer compound (ethene or isopropanol).

High yields of acid chloride products (76 % and 69 % for butanal and pentanal, respectively) show that the chlorine atom predominantly abstracts a hydrogen atom from the acyl carbon atom. These measurements contradict an earlier study (Wu and Mu, Int. J. Chem. Kinet., 2007, 39, p168-174) which concluded that as little as 42 % of the chlorine atoms react in this way for butanal. The relative rate measurements reveal that the rate coefficient for the aldehyde + chlorine atom reaction lies at the lower end of the published literature values.

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The Relationship between Functional Outcome, Obesity and Radiographic Severity inPatients with Osteoarthritis of the Knee

Osteoarthritis (OA) is a major chronic disease leading to musculoskeletal morbidity and functional loss, its effects increasing with age. The individual with OA may experience pain, stiffness, and decreased range of motion (ROM), leading to loss of function in activities. The impact of obesity on function in patients with OA of the knee is not known. Clinical observation indicates that degree of obesity may have an equal or greater impact on function than the underlying anatomic severity of joint disease present. The purpose of this study is to determine the relationship between obesity and function in patients with OA of the knee.

A sample of convenience consisting of 41 subjects with a mean age of 66 years was used in this retrospective data analysis. A comprehensive clinical assessment was performed for self-reports of well being and physical outcomes measures. The severity of anatomic joint disease was scored using the Kellgren-Lawrence scale. The degree of obesity was determined using body mass index. Spearman rank correlation coefficients were run to assess relationships first between the magnitude of OA present to outcome measures, and then to assess relationships between the severity of obesity to outcome.

Correlational r values between BMI and self report and physical measures of function ranged from 0.21 to 0.34. While these correlations were low to moderate, they were stronger than correlations found between the severity of OA present to function.

This study indicates that in patients with OA of the knee, the level of obesity present has a greater influence on function and reports of well being than the severity of anatomic joint disease present. Weight management should be a critical rehabilitation goal when working to maintain and improve function in patients with OA of the knee.

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Explaining the Comorbidity of Intermittent Explosive Disorder and Depression

Intoduction. Current research shows that there is a relationship between major depressive episodes (MDE) and anger. Nevertheless, there is no research as to why this co morbidity occurs. Research indicates that people with MDE use anger-in strategies to express their anger. Research indicates that people with intermittent explosive disorder (IED) use anger-out strategies to express their anger. Finally, research indicates that people with MDE and IED use anger-out and anger-in strategies to express their anger. . In learned helplessness theory, a reaction of depression is caused by the lack of controllability of stress. Thus, we expected controllability of anger provoking situations would be an important factor in predicting anger expression scores in participants with MDE and in participants with IED and MDE. The first hypothesis is that controllability of situations would interact with diagnostic status to predict anger-in scores. The second hypothesis was that controllability of situations would not interact with diagnostic status to predict anger-out scores.

Method. We used 50 participants from the Anger Disorders Validity Study. Within the lifetime MDE (n=26) and the lifetime IED (n=14) participants, there were 7 MDE+IED participants. Research participants completed Composite International Diagnostic Interview and a modified role-play interview about anger-provoking situations. The present study used 2 situations involving family members, a controllable situation (conversation with parents about changing a major) and an uncontrollable (early morning wake-up from father) situation. We tested our hypotheses with 2, 3 factor ANOVAs (MDE X IED X Situation) with repeated measures on the third factor.

Results. For anger-in, there was a significant situation main effect, with the uncontrollable situation eliciting higher levels of anger-in than the controllable situation. Also, there was a trend towards significance in the MDE by IED by Situation interaction with a diagnostic status interaction within the controllable situation (MDE participants had higher scores than MDE+IED participants) and an IED main effect within the uncontrollable situation. For anger-out, there was a significant MDE by IED by situation interaction. In the uncontrollable situation, the MDE group scored lower than the MDE+IED participants. In the controllable situation, the MDE participants scored higher than the MDE+IED participants. Results were partially consistent with the first hypothesis, but inconsistent with second hypothesis.

Conclusion. It seems that people with MDE and IED are more likely to have learned helplessness responses to controllable situations than to uncontrollable situations. The opposite is true of people with only MDE.

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Poster Board No. 29

Who do children trust?

Previous research in our lab suggests that conversation gives children important opportunities to learn. Chouinard (2007) found that children ask as many as 2 questions every three minutes of their parents, and Chouinard & Clark (2003) found parents give potentially useful feedback to children about the language errors they make. But are parents the only people that children trust for such information? Would children be just as willing to accept other addressees as sources of information? Corriveau & Harris (2006) found that 3- and 4-year-olds are more likely to display trust in a familiar informant rather than an unfamiliar adult in some situations. So, to understand the role that conversation plays in children's ability to learn about the world, we need a better understanding of what sorts of addressees children will use as sources of information. The present research examines how likely children are to ask question and accept feedback from a variety of addressees. We predict that children will be more likely to rely on parents for information than other addressees, and parents will be more responsive to children.

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Poster Board No. 1

Dual Detoxification of Mercury And 2, 4-D BY

Background: Soils contaminated with both metals and organics are difficult to remediate because of the divergent nature of the two contaminants. 2,4-D and mercury fall under this category of contaminants that are difficult to remediate. Both of these contaminants are found in high levels in soils all over the United States, specifically in California where Mercury contamination can be linked to mercury mines. 2-4D has been used extensively in pesticides control. Both of these contaminants pose serious health issues. To achieve a sustainable agricultural industry, it is necessary to understand the fate of chemicals that contaminate our soils so that land used for agricultural purposes is not limited due to contamination from metals and organics and to limit the exposure to the health risks. The aim of this project is to study the effects of heavy metal and pesticide contamination on catabolic pathways that microorganism use during bioremediation.
Methods: In order to find the minimum inhibitory concentration (MIC), 2 bacterial types which are Arthobacter fluorescens and Ralstonia eutropha (JMP134) are cultured on defined minimal media (M9) in both solid and liquid media and then analyzed. Both media are supplemental with either 2, 4-D, mercury chloride or both. After initial culture with a 5 day incubation period, both types of medium are analyzed for the inhibitory concentration. With the solid medium, the concentration at which there is no evidence of growth is considered as the MIC. For the analysis of the cultures in the liquid medium, cell density was measured using SoftMax Pro software (Molecular Devices, Sunnyvale, CA)
Results: In solid media, gram negative JMP had a MIC of 10mM 2,4-D and the gram positive Arthobacter had 9mM 2,4D. Media supplemented with mercury chloride showed 16 μM as MIC for JMP and 20 μM as MIC for Arthobacter. In combination, 6mM 2-4D and 8 μM mercury chloride was confirmed as the MIC for Arthobacter and 8mM 2,4-D and 10 μM mercury chloride as the MIC for JMP.
The results in liquid media are similar to those found in solid media but there is still further testing needed. For Arthobacter fluorescens that was only exposed to 2,4-D it was found that the 5th day reading compared to the first initial reading, the cell density reading had a low OD reading being below 0.6 with a concentration of 15mm of 2-4D. But when compared to the initial growth there was a significant jump. Ralstonia eutrophus yield better results with an OD reading between 0.2 and 0.3 with a concentration of 15mm 2-4D
Conclusions: Overall these results show that the bacteria are able to concomitantly detoxify both mercury chloride and 2, 4-D. However; when both mercury chloride and 2,4-D are combined, the MIC was much lower than the MIC for the individual toxins. Future research will study gene expression for genes needed for detoxification.

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A Report on Our Laparoscopic Surgery Experience at a Community Medical Center

Academic medical centers are supported for the advantages of multiple doctors covering the patients 24/7. This improves patient care. However, residents are suspected of having a higher operative death and complication rate than usual, especially with laparoscopic procedures.

Laparoscopic surgery has achieved increasing popularity. The purpose of this study was to review our laparoscopic surgery experience. We conducted a retrospective chart review on laparoscopic surgeries that were performed at UCSF- Fresno, California from 1/1/06 to 11/30/07. Charts were identified by CPT codes for laparoscopic cholecystectomy, laparoscopic appendectomy, laparoscopic hernia repair, laparoscopic colectomy and laparoscopic fundoplasty. Pre-operative risk factors were examined. Cases were followed up to 30 days to determine the rate of mortality and post operative complications.

There were 529 cases of laparoscopic cholecystectomies. The 30 day mortality (0.4%), infection rate (1.5%), respiratory occurrences (1.9%) and cardiac occurrences (0.2%) were the same as expected for their pre-op risk factors. 217 cases of laparoscopic appendectomies were performed. There were no deaths at 30 days. The wound infection rate was 6.5%. There were twelve cases of laparoscopic hernia performed, of which 1 case (8.3%) was a recurrent hernia repair while the remaining cases were initial hernia repair. There was no reported mortality at 30 days. The only complication was one unplanned intubation. There were 25 laparoscopic colectomies performed with 100% survival at 30 days. There were 2 cases (8%) of superficial incisional infection that were treated successfully with antibiotics. 7 cases of laparoscopic fundoplasty were done for gastroesophageal reflux disease +/- hiatal hernia. All patients were alive at 30 days. 1 patient remained intubated for >48 hours. Overall, our complication rates in the various types of laparoscopic surgery are comparable to the reported complication rates in the literature. In conclusion, laparoscopic surgeries were performed safely by residents at our institution.

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The Current State of Bilingual Education in Central Valley Preschools

This research seeks to better understand the current state of bilingual programs in Merced County and how these programs are incorporating current recommendations for effective bilingual education. The following two-studies involved approximately 600 surveys distributed to parents of Central Valley Kindergarteners and 33 surveys to all the preschool Administrators in Merced County. We predict the results of the current data received from the surveys so far, will indicate the overall availability of bilingual education in Merced County preschools, and parent perceptions of bilingual education, student and teacher demographics, and implementation of current recommendations. These findings will contribute to understanding how and what recommendations are being implemented in Central Valley preschools and will open the communication between researchers, parents, teachers, and administrators so we can provide future success in improving education and providing children with effective bilingual education. This type of assessment has yet to be done in Merced County and we hope to contribute to the growth of research in the success of bilingual education.

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Montreal Cognitive Assessment

This study explores the effectiveness of the Montreal Cognitive Assessment (MoCA; Nasreddine et al. 2005) as a superior cognitive screening tool to assist in making an earlier diagnosis of Alzheimer's disease. The patients' scores from the MoCA will be compared to the results of the Mini Mental State Exam (MMSE; Folstein et al., 1975), which is a commonly administered dementia screening instrument, in order to test whether the MoCA will be more sensitive than the MMSE in detecting cognitive impairments. The MoCA has already been shown to be an excellent screening tool when used to investigate mild cognitive impairment, but it might also be able to differentiate people with mild cognitive impairment from people with early dementia. Approximately sixty patients from the University of California San Francisco Fresno Alzheimer's and Memory Center will be administered the MoCA and the MMSE during their neurological visit. Each test will last about ten minutes, during which eight different cognitive domains will be assessed. The results of this study will be useful in determining whether the MoCA is a better screening option than the commonly used MMSE to increase detection of cognitive changes, resulting in earlier effective dementia diagnoses.

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Investigate the Effects of Glucose and Insulin on Glucose Metabolism, the GH/IGF-I axisand on GRLN Production in the tilapia

The growth hormone (GH)/insulin-like growth factor-I (IGF-I) axis regulates growth and metabolism in all vertebrates. Ghrelin (GRLN), a gut peptide, plays a role in regulating the GH/IGF-I axis and recent evidence indicates that it may be involved in glucose homeostasis. It is understood that glucose plays a central role in energy homeostasis and is tightly regulated by insulin in mammals. However, it is suggested that fish, in general, are glucose intolerant, but what is not clear is what role glucose and insulin play in the regulation of metabolism and growth in fish. This study was conducted to investigate the effects of glucose and insulin on glucose metabolism, the GH/IGF-I axis and on GRLN production in the tilapia (Oreochromis mossambicus). Male tilapia were given an initial IP insulin injection at one of 3 doses (0.1, 1, 10 U/gm), 16 hours later fish were injected again with insulin + glucose (1 mg/gm). Control fish received either saline or glucose alone. Samples were collected at 2, 4, 8, and 24 hours post 2nd injection. None of the doses of insulin tested had any effect on plasma glucose levels. Plasma GRLN levels appear to exhibit a temporal response to glucose treatment. At 4 hours, glucose increased plasma GRLN levels, whereas at 24 hours plasma GRLN levels were reduced. Insulin treatment recovered the inhibitory effect of glucose on plasma GRLN levels at 24 hours. Glucose and insulin had no clear effect on the GH/IGF-I axis. These data suggest that glucose and insulin play a role in regulating GRLN production and may influence GRLN's orexigenic and/or adipogenic actions.

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Verification of Visual Semiquantitaive Analysis of Plain Radiograph to Assess Outcome and Prognosis of Osteoporotic Vertebral Fractures

Vertebral fractures (VF) are the hallmark of osteoporosis. Studies have shown that the presence of VF is a key risk factor in predicting future fractures in spine / limbs. Evaluation of conventional lateral radiographs of the thoracolumbar spine is traditionally used for diagnosis of VF. However, there is no accepted radiological standard to predict subsequent outcome. The goals of this study were to 1) identify morphologic features of osteoporotic VF, 2) classify VF on serial radiographs by visual determination of the extent of vertebral height reduction and 3) predict the radiological outcome of VF using these measurements & features. This is a retrospective study that examined serial plain lateral radiographs of the
thoracolumbar spine of patients with osteoporotic vertebral fractures during 2000 to 2007.
The average follow up interval was 18 months. VF were graded according to Semiquantitative Visual Assessment of Osteoporotic Vertebral Fractures described by Genant, morphological Classification by Sugita and the existence of a Vacuum Cleft. A vacuum cleft is a transverse, linear or semilunar radiolucent shadow that is located centrally or adjacent to the endplate. It is caused by a vascular insult at the anterior segment of vertebral body and is highly suggestive of, although not specific for, osteonecrosis.
Our findings suggest that significant number of osteoporotic VF showed further collapse at 18mths. In particular, vertebral fracture at thoracolumbar junction showed significant height change at the same level although it did not predict collapse at other levels. Morphology suggestive of "Poor Prognosis", namely swelled-front, bow-shaped or projecting types did not demonstrate significant height change at same level or other levels.

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A Randomized Experiment Comparing Random to Cutoff-Based Assignment

Previous studies have attempted to show that non-randomized experiments can approximate results from randomized experiments for testing effect of policy and practice in fields such as education, medicine, public health, job training, and psychology. Methods from these studies have compared results from randomized and non-randomized experiments, the latter usually subject to adjustments like econometric selection bias models or propensity score analysis. Several years ago, a laboratory analogue paradigm was developed to improve this design by randomly assigning participants to randomized or nonrandomized experiments in which they could choose their training or were otherwise treated identically. The current design follows that paradigm by randomizing participants into a Randomized Experiment or a Regression Discontinuity Design. Regression Discontinuity Designs are cut-off based designs which assign participants to a treatment dependent upon a single score on a pre-test.

The current study was hosted online, using human subject pools from the University of California, Merced and Southern Illinois University, Carbondale. Target sample size was 500 to ensure adequate power. Treatment consisted of two conditions: training in vocabulary and training in mathematics. Preliminary analyses indicate that Randomized Experiment vocabulary training significantly improves vocabulary post-test outcome, while mathematics training did not significant improve mathematics post-test outcome. Regression Discontinuity
Design showed a similar pattern. The vocabulary finding replicated previous studies, while the mathematics training did not. This prompted the distribution of a follow-up survey to explore reasons why math training did not influence mathematic outcome scores. Several predictors were significant in predicting outcome, including previous course work in the area of math and vocabulary. This study suggests that Regression Discontinuity Designs approximate the results of Randomized Experiments showing that these designs are effective and equivalent alternatives to Randomized Experiments.

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Validation of Rapid Stain Identification (RSID) Kits

Blood and semen stains are two of the most common fluids recovered from the scenes of violent crimes. Therefore, the forensic scientist must be able to identify these stains reliably, consistently and specifically. Presumptive tests for blood and semen are used widely throughout forensic laboratories to detect these fluids. Previous tests for these fluids were designed to detect hemoglobin in blood and P30 in semen, but they have specific drawbacks. Tests for hemoglobin in human blood have been shown to cross-react with the blood of other species (ferret, skunk, primate) and have a tendency to indicate false negatives due to a pronounced high dose hook effect. P30 tests for the detection of semen have specificity and sensitivity limitations as well. It has been shown that acid phosphatase activity is not confined to semen or prostatic tissue. Rather, it has been found to be present in amniotic fluid, breast milk, female serum, female urine and vaginal fluid. The tests for P30 can also be influenced by high dose hook effect.

Independent Forensics (IFI) has recently released RSID-Blood and RSID-Semen, which are new assays designed to detect blood and semen in a sample, respectively. IFI claims its new tests have higher specificity than older tests and do not give false negatives due to high dose hook effect. RSID-Blood kits are more specific than older tests because they detect for the red blood cell membrane antigen, glycophorine A, rather than hemoglobin. The RSID-Semen kits are also more specific than previous tests since they were designed to detect the presence of semenogelin which is a protein found only in seminal fluid. The purpose of this study was to validate the use of the RSID kits for forensic casework.

RSID-Blood and RSID-Semen kits were tested for specificity and sensitivity in accordance with the data presented by IFI in their developmental validation work. The sensitivity of RSID kits was tested with minimal concentrations of blood and semen as well as high concentrations at which false negative results might be given (due to high dose hook effect).

Next, specificity and mixture studies were performed to demonstrate that the presence of blood and/or semen were the only fluids that gave positive readings on the RSID test strips. RSID assays were also studied in order to determine the optimal time for a positive test to be determined, and to see if the recommended time for sample extraction could be shortened.

When the recommended procedure is followed, the RSID kits perform within manufacture specification. No false negatives resulted from high dose hook effect in either RSID-Blood or RSID-Semen assays. This study showed that the kits are specific to blood and semen when tested in the presence of other human tissue. RSID-Blood kits; however, show slight background signals for samples containing only urine.

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Toward Sustainable Agriculture and Improved Natural Resource Use in Senegal

Objective: The Republic of Senegal is a western African country with a gross domestic product of $24.54 billion and a GDP per capita of $1,700. Many of Senegal's farmers use traditional farming methods, causing inefficient land use and production. In addition, there is poor physical infrastructure surrounding its rivers, a major cause of a disastrous flood of the Senegal River in 1999. The flood not only caused substantial damage to the surrounding area and crops, but also several deaths. The "lack of adequate physical protection infrastructure" (Dia, 2004) is one of the reasons why this was such a large problem. This study proposes development methods that will improve Senegal's economy and make natural resource usage more efficient, and at the same time address the potential recurrence of this problem.

Methods: Data from Internet websites, books, and scholarly journals were collected to analyze several important characteristics of Senegal. Information analyzed included physical geography, climate, agriculture, food systems, and the economy. After being analyzed, the collected information was synthesized and then used to construct a development plan.

Results: Much of Senegal's grassy, flat land is used to raise animals. Only 11% of the land is used for crops, with 5% being irrigated. The average yearly rainfall ranges from 0 to 19.7 inches in the northern region to 49.2 to 98.4 inches in the southernmost areas. Flooding regularly occurs on the northern Senegal River and the southern Casamance River, which creates moist and fertile soil. The country's north must utilize the Senegal River's flood waters in order to produce crops on their land, assuming the events such as the 1999 Senegal River flood can be prevented.

Conclusion: We propose construction of safe and stable infrastructure around the Senegal River and its surrounding cities, including a series of dams, flood channels, reservoirs, and irrigation canals. Rain and river water should be collected and utilized by building water-holding and distribution facilities. In addition to utilization of water, new varieties of crops should be introduced to farmers in hopes of improving production and land use, providing more capital, and raising income of rural households. Safe and user-friendly methods of improving soil quality and preventing erosion can be introduced to the public as well. The cost of these activities would be approximately $2 billion. Although funding has yet to be identified, this project would bring substantial benefits to Senegal. It could also provide ancillary benefits to Mauritania, which lies north of the Senegal River.

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The Viability of Freeze-Dried ABI Identifiler Reaction Mix Preserved with Trehalose

Prior research by others has shown Trehalose to be an excellent preservative additive with the ability to preserve a myriad of biological substances and organisms. The object of this research is to freeze-dry and preserve in individual tubes, using the sugar Trehalose, all the reagents necessary to complete a polymerase chain reaction (PCR) using the Applied Biosystems Identifiler PCR kit.

A Labcono Freeze Dry System was utilized as the freeze-drying system for this series of experiments. Amplification was performed using an ABI 9700 Thermal Cycler, and short tandem repeat fragments were separated using the ABI 310 Genetic Analyzer.

The first experiment tested the effects of adding 10%, 15%, and 20% wt./vol. Trehalose to the PCR reaction mix without freeze drying. Results indicate the over-all quality of DNA profiles are not adversely affected by the addition of Trehalose. In the second experiment, reaction mixture that was 20% wt./vol. Trehalose was prepared and freeze-dried. Pre-loaded tubes were stored frozen, at room temperature, 50¢ªC, 60¢ªC and 90¢ªC for approximately 37 hours. Good quality DNA profiles are obtained when the pre-loaded tubes (20% wt./vol. Trehalose) are stored at room temperature for approximately 37 hours. Some preservation occurs at 50¢ªC, as indicated by partial DNA profiles. The third experiment is ongoing. Lyophilized reaction mix (20% wt./vol. Trehalose) is being stored frozen and at room temperature for up to six weeks. Samples are currently being collected and tested at two week intervals.

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Are Judgments of Improvement Accurate?

Students' judgments of their learning rate has been proposed as a possible metacognitive tool used in the allocation of study time. In this study, we investigated the accuracy of these judgments by asking students to estimate how much they improved between trials in a multi trial learning procedure. In experiment 1, we solicited judgments on a percentage scale, while in experiment 2, a 0 to 6 rating scale was used.

In both experiments, participants studied paragraphs of random words for six study-test cycles. After each study session, participants were asked to provide a judgment of learning (by estimating what percent of the paragraph they could recall), as well as how much they felt they improved since the last trial. They were then asked to recall the paragraph to the best of their ability.

In the first experiment, we found correlations between judged improvement and actual improvement to be quite small, at .187, while in experiment 2 there was no significant correlation. Correlations between judged improvement and the change in judgments of learning from one trial to the next were significantly larger than the correlations between judged improvement and actual improvement. Experiment 1 correlations between judged improvement and change in judgments of learning was .314, and experiment 2 correlations between judged improvement and change in judgments of learning was .335.

Results indicate that ability to judge improvement is very poor. The finding that correlations were larger between judged improvement and change in judgments of learning than the correlation between judged improvement and actual improvement suggests that participants were using their judgments of learning to estimate their improvement. This in turn suggests that students may not have access to their learning rate.

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A Visually Transcribed Lexicon

Spoken word recognition is defined as the process by which acoustic patterns are matched to semantic entries in the "mental lexicon" – the memory storehouse of information about the 85K+ words known by an adult language speaker. Previous research has demonstrated that the structure and content of the mental lexicon affect spoken word recognition. For example, computational analyses of the lexicon demonstrate that the number of acoustically similar "neighbors" to a given word changes from word to word and influences the ease with which that word is recognized in noisy conditions. Thus, when lexical variables (variables that quantify the structure and content of the mental lexicon) are unevenly distributed across the lexicon, behavioral effects are often observed.

However, speech recognition is not solely an auditory phenomenon: among other behavioral effects, the visual form of speech can be useful when lipreading. To date, very little work has been conducted to investigate the role of the mental lexicon in visual spoken word recognition. One problem that arises in visual speech recognition is that speech units that are acoustically different are visually identical. For example, the initial sound in the words "ban", "pan" and "man" look the same. Under lipreading conditions, then, there is literally no difference between these three words. That is, they form a visual Lexical Equivalence Class (LEC). The aim of our research was to investigate the distribution of several candidate lexical variables that arise uniquely under visual-only conditions. Using a lexical database of 19,308 words, we programmatically transcribed the words into lexical equivalence classes (LEC). We then looked for unevenly distributed variables by performing a computational analysis to identify the percentage of unique LECs and other structural relationships amongst LECs. The results can be used to predict the probability of correctly recognizing a word in visual-only speech perception and will be tested in follow-up behavioral experiments.

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Efficacy of HeartMath Intervention to Support Math Performance

The prevalence of math anxiety has shown to be a component of low performance in math students. Research on arousal and performance (Yerkes & Dodson, 1908), anxiety in athletic performance (Gucciardi & Dimmock, 2008), and math anxiety (Wigfield & Meece, 1988; Beilock et al., 2005) has provided a foundation for the development of general and math anxiety. Previous techniques used to reduce math anxiety (Pan & Tang, 2005; Strachan & Munroe-Chandler, 2006; Shobe et al., 2005; Ysseldyke & Bolt, 2007) have been conducted and used as effective interventions.

A select number of students in an experimental group (N=22) enrolled in an online remedial mathematics course at California State University, Fresno have been provided research and training on techniques developed by the Institute of HeartMath. These techniques have been tested at several universities and shown effective to reduce math anxiety and increase math performance in math students at various difficulty levels.

As mandated by the Chancellor of California State University and the Board of Trustees, using HeartMath to reduce the number of students requiring remediation and the experience of math anxiety will help improve math retention. As activists of this objective, our research and training has made an effort to address math anxiety and high remediation rates. In a collaborative study involving the CSU Chancellor, the Institute of HeartMath, and the Departments of Mathematics and Psychology at California State University, Fresno, we have helped to reduce math anxiety and improved performance in students requiring math remediation.

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Diamide Resistant Transposon Mutants in Mycobacterium smegmatis

Mycobacterium smegmatis is a model bacterium for the tuberculosis causing bacterium Mycobacterium tuberculosis. In order to study the oxidative stress defense mechanisms of mycobacteria, it is important to examine resistance to diamide since diamide oxidizes thiols which protect the bacterium against oxidative stress. This study examines three diamide resistant transposon mutants, 178, 183, and 197, of M. smegmatis. The mutation was identified by amplifying regions flanking the transposon using arbitrary PCR. Fragments of 600bp (197), 480bp (178), and 700bp (183) were amplified. The fragment was cloned into a PCR cloning plasmid, PCR 2.1, and transformed into E. coli to propogate the plasmid. Successfully transformed cells were grown, harvested, lysed, and the plasmid was extracted.
The plasmid DNA was digested with restriction enzymes to confirm cloning. The plasmids will be sent off to be sequenced. Once sequenced, the fragment will be compared to M. smegmatis genome sequence to identify the site of transposon insertion. Bioinformatic analysis will be performed to identify the disrupted gene. A native copy of the gene will be cloned and introduced into the mutant. This strain will be checked for diamide sensitivity to see if this gene is responsible for resistance to diamide in the mutants.

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Characterization of Diamide Resistant Mycobacterium Smegmatis Transposon Mutants 182 and 240

Mycobacterium smegmatis is a non-pathogenic relative of Mycobacterium tuberculosis, the causative agent of tuberculosis, that is frequently used to study the biochemistry of M. tuberculosis. A transposon mutant library of M. smegmatis was constructed and screened for mutants that are resistant to diamide, a thiol oxidant. Two of these diamide resistant mutants, 182 and 240, were further analyzed. The DNA flanking the transposon was amplified using two-step arbitrary PCR. The first step PCR uses a primer that binds to the end of the transposon and another degenerate primer that binds in the region flanking the transposon. A second round of arbitrary PCR is conducted with primers that are a subset of the original primers. The arbitrary PCR was able to amplify a 950 base pair DNA fragment for mutant 182 and a 300 base pair fragment for mutant 240. The mutants were later cloned via PCR cloning into the vector, pcr2.1. The presence of the cloned fragments was confirmed via restriction enzyme digestion with EcoRI. Then cloned fragments were sent for sequencing to determine the site of transposon insertion. The site of insertion for mutant 182 was at base pair 1516 of 2001 base pairs of MSMEG_6513, annotated as a membrane transport protein. The site of insertion for 240 was at base pair 2219 of 5004 base pairs of MSMEG_1254, a DEAD-DEAH box helicase involved in DNA metabolism and DNA replication, recombination, and repair. Next, wild-type copies of the disrupted genes will be expressed in the corresponding mutants to determine if complementation of diamide resistance will occur. Further studies will be done to determine the sensitivity of these mutants to various stressors, such as redox cycling agents, and the level of diamide resistance will be tested by subjecting them to increasing concentrations of diamide.

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Assessing Appearance Biases

These studies are part of an effort to calibrate the Implicit Association Test (IAT) as a tool for eliciting unconscious biases elicited by facial features. Evidence suggests that perceptual cues available in facial appearance powerfully, yet implicitly, elicit expectations about qualities and characteristics of others. We are adapting the IAT for use in a research program designed to explore the extent to which unconscious appearance biases can be modified. In our application of the test, participants see photographs of children who differ on a dimension of appearance such as attractiveness, age appearance, or gender. They are asked to pair the photographs with words that are consistent or inconsistent with the appearance dimension, and the time it takes to make the pairing is recorded. Participants decide for themselves whether a child looks masculine or feminine, older or younger, more or less attractive. Results show that participants take significantly longer to associate words and pictures that are inconsistent with the bias relative to words and pictures that are bias consistent. For example, participants take longer to associate words such as naïve or innocent with faces of children who look relatively old for their age compared children who look even slightly younger. Using the IAT, we have demonstrated attractiveness, age appearance, and gender appearance biases. In initial tests, the appearance differences among the stimulus children are subtle. This resulted in high levels of classification error, with some participants classifying particular stimulus children in a different way than others do (e.g., consistently classifying a child as looking young even when others typically classify that child as older-looking). We are now exploring ways to remedy this reliability issue. Overall, however, the IAT appears to offer a quick method of eliciting appearance biases, making it a valuable took for evaluating the effectiveness of bias change strategies.

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Couple Relationship Characteristics and its Association to Attachment Styles

The purpose of this current study is to consider the effects of attachment of both individuals in a romantic relationship on relationship characteristics, including relationship strategies (use of ideas and skills to enhance the relationship), relationship effort (persistence in using ideas and skills to enhance relationship), relationship satisfaction, and communication styles.
A major problem with most of these previous research is that they consider the individual and their perception of the relationship without considering the other partner and their influence on the relationship. Feeney, Noller, and Roberts (1999) emphasize the need to consider both partners' attachment styles on such things as partner matching and relationship functioning. This preliminary study is an attempt to explore this area further.

There were 13 heterosexual couples that were recruited through a convenience sample. The majority were White and about half the sample was married and the other half, in a steady relationship or engaged. Both individuals in the relationship were administered separate questionnaires utilizing the RELATE Scale (Busby, Holman, & Taniguchi, 2001) to assess relationship characteristics and the Relationship Style Questionnaire (Griffin & Bartholomew, 1994) to assess attachment style.

The results showed complementary pattern pairings between preoccupied individuals with dismissing avoidant individuals and similarity pattern pairings between fearful individuals. Fearful men and women show an expected pattern of behavior that suggests high anxiety and avoidance (e.g. not sending clear messages, feeling overwhelmed, etc.). Preoccupied men seemed engaged in their relationship, whereas preoccupied women were disengaged (withdrawing, being critical).

The results do provide some further support for previous research that individuals with similar attachments do tend to be in romantic relationship as well as complementary patterns between avoidant and anxious styles. Fearful men and women show an expected pattern of behavior that suggests high anxiety and avoidance (e.g. not sending clear messages, feeling overwhelmed, etc.).

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Critical Thinking in Today's High Schools: A Case Study of California Schools

The purpose of this study was to examine if high schools in the state of California are teaching critical thinking skills necessary for success in college through Ivie's Survey of Critical Thinking (ISCT). Secondly, the study was interested in the validity of ISCT by including a measure of critical thinking disposition and a measure of critical thinking ability to the original survey. Data collected was compared with two other measures: an abridged version of the California Critical Thinking Skills Test (CCTST) and the Critical Thinking Motivation and Dispositions Survey (CTMDS). Ultimately, the study addressed four questions: (1) Are students reporting that they are learning critical thinking skills in high school? (2) Is there a difference in scores on the three measures between students who attended different types of high schools (e.g., separate districts, school size, average class size, as well as other classifications)? (3) Are there any other demographic information differences in how much of the critical thinking skills they have learned? And (4) is the data consistent between the ISCT, CCTST, and CTMDS?

Three-hundred and fifty students were recruited for this study from California State University, Fresno (CSUF). Participants were obtained from introductory psychology and introductory statistics courses. Participants completed the ISCT, CTMDS, CCTST and a demographics survey.

Students reported learning adequate critical thinking skills. Ivie's High School Critical Thinking, the CCTST and the CTMDS were unable to be significantly predicted by school district, average class size, teacher-student ratio, student-computer ratio, state ranking of the school, or geographic region within California. There was no significant difference in critical thinking scores based on demographics such as gender or parental schooling levels.

Though a wide variety of students were surveyed, this study was limited in obtaining enough students to adequately represent the array of high schools in California.

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Graduate Student
Poster Session II
Poster Board No. 19

How Fish Turn – an Experimental Study of Motion Patterns

Most bony fish bend their body to change swimming direction. A change in direction constitutes an angular acceleration and therefore requires a turning force, otherwise the fish will slow down. Previous studies have shown that high-bodied fish achieve higher linear accelerations than shallow body morphs (Domenici et al., 2008, Proc. R. Soc. Lond B 275, 195-201). In this study, we will focus on high-bodied fish to establish whether they also excel at angular acceleration, in particular, whether they can turn without slowing down. To this end, we need to trace the speed and acceleration of the fish's center of mass during a turn. First, we need to determine the position of the fish's center of mass. We make plaster casts of the fish, cut the cast into 5 mm sections, and determine the cross sectional shape and area, and then integrate these values along the fish's body axis. We then record turning fish with two high-speed cameras from a ventral and a lateral point of view. We use custom-made software to detect the fish in each image and to analyse its movements. From the ventral images, we extract swimming speed and direction, and we establish if and when during the turn the fish slows down. The ventral images also allow us to quantify how the fish alters its body wave before, during, and after the turn. We trace the fins in the ventral and lateral views to explore the role of fins in powering and steering a fish through a turn. We predict that fish accelerate their body wave to generate the extra force to power turning and to avoid slowing down during turns. In the next step of our analysis, we will combine the shape of the ventral outline with the three-dimensional shape data to reconstruct the position of the center of mass. The trajectory of the center of mass will then tell us whether fish can turn without slowing down.

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Doctoral Student
Poster Session II
Poster Board No. 20

Factors Impacting Final Discharge Disposition After Hip Fracture in Individuals 60 Years and Over

The National Center for Health Statistics reported 309,500 hospitalizations due to hip fractures in individuals aged 65 years or older in 2003. Only half of older adults with a hip fracture will return to the community, and only one-third will regain their pre-fracture level of function. The direct cost associated with hip fractures in older adults is currently estimated to be $19 billion annually in the United States. The purpose of this study is to examine differences in discharge disposition between two surgical alternatives for hip fracture repair, arthroplasty and open reduction and internal fixation (ORIF).

A retrospective medical record review was carried out for individuals admitted to one skilled nursing facility in 2007. Ambulatory individuals 60 years or older with hip fracture who underwent surgical repair of arthroplasty or ORIF were included in this study. Exclusion criteria included living in a nursing home pre-fracture, or individuals with revision hip surgery.

Thirty-four records reviewed to date met the inclusion criteria. The arthroplasty group of 21 patients was compared with the ORIF group of 13 patients. At this time, there appears to be a difference in final discharge disposition between groups. Pre-fracture, 71% of the ORIF group and 62% of the arthroplasty group lived at home. Following rehabilitation for hip fracture, 62% of patients in the ORIF group went home compared to only 38% in the arthroplasty group. Individuals with arthroplasty were six times more likely than those with ORIF to have the final discharge disposition of a nursing home.

Results at this time indicate that individuals with ORIF repair have a higher likelihood to return home and a lower likelihood of requiring nursing home care following rehabilitation than those who undergo arthroplasty repair. This is significant considering the increased costs incurred for nursing home care compared to returning home.

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Poster Board No. 21

Synthesis, Recrystallization, and Oxygenation of Bis(O-ethyl-L-cysteinato)nickel(II)

Bis(O-ethyl-L-cysteinato)nickel(II), which is more conveniently named (cysE)2Ni, was synthesized and characterized as part of a larger study that is trying to understand the mode of action in which metals replace zinc in zinc fingers. Zinc fingers are involved in the transcription of DNA. Displacement of zinc with other metals can lead to toxic effects. When carefully controlled, these toxic effects can be used to kill cancer cells. The (cysE)2Ni complex is a control for our model studies where nickel replaces the zinc in bis(O-ethyl-L-cysteinato)zinc(II). During the synthesis of (cysE)2Ni, we were able to improve the formation of crystalline product by controlling the rate of stirring and the rate at which nickel is added to the cysteine ligand. The product was characterized by Infrared Spectroscopy, Proton Nuclear Magnetic Resonance, and Electronic Spectroscopy. We will present the structural data obtained from X-ray crystallography as well. When dissolved in methanol, the green (cysE)2Ni makes a pink solution. Exposure of the pink (cysE)2Ni solution to oxygen results in a darker red color. This change in color indicates a reaction takes place. These color changes can be better analyzed by electronic spectroscopy. The differences in the electronic spectra of the starting materials and the oxygenated products show the absorption at 485 nm has intensified and red-shifted slightly. In addition, a more distinct shoulder develops at 385 nm when the solution has been exposed to oxygen for 1.25 hours and longer. Comparisons to literature values suggest the spectral changes are a result of the formation of a trimetallic species. There were also changes in the infrared spectrum.

The oxygenated spectrum develops shoulders on the doublet at ~1230 cm-1 where there is a "sharp" doublet in the control spectrum. Additionally, there appears to be a formation of a new peak at ~1010 cm-1 in the oxygenated spectrum where there is a single peak in the control spectrum. These differences allude to the oxidation of the sulfur groups on (cysE)2Ni to create sulfones. This is plausible because transition metal thiolates have a tendency to form metallosulfones when exposed to oxygen. Data from the electronic and infrared spectra lead us to conclude that the oxygenation of (cysE)2Ni results in a mixture of products: sulfones and a trimetallic.

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Poster Board No. 22

Pre-Admission Factors as Predictors for Success in a Master of Physical Therapy Program

The Master of Physical Therapy (MPT) program at California State University, Fresno, uses a variety of pre-admission factors in order to determine acceptance into its rigorous program. The purpose of this study was to identify the best predictors for academic and professional success in the MPT Program in order to decrease time and resources required by faculty in the admissions process.

Three years of retrospective admission and program data were obtained from a sample of convenience of 100 student records. Included in the data were pre-admission grade point average(pGPA), Graduate Record Examination (GRE) scores, pre-requisite observation hours, MPT GPA, program comprehensive examination scores (CES) requiring a passing grade in the final MPT year in order to graduate, total admission score (TAS), a computed sum of 40% pGPA, 40% interview score and 20% average GRE, and National Physical Therapy Examination (NPTE) scores. Academic success was defined as the MPT GPA whereas the professional success was defined as NPTE scores.

Stepwise regression models indicated the comprehensive examination score and first year MPT GPA predicted 79% of the professional success for the NPTE scores (R=.888, R2=.788). Additionally, the total admission score and pGPA predicted 46% of the academic success, for the MPT GPA (R=.674, R2=.455).

Our results suggest that pGPA and TAS could effectively predict student academic success in the MPT program. Student CES and first year MPT GPA could predict NPTE performance. Our department might continue focusing on the applicant pGPA score and TAS to assure student success in the MPT program as well as future professional success.

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Poster Board No. 23

Parent-Child Interactions and Note-Keeping during Science Play

The current study examines the way that parent-child interactions influence children's science learning during informal science activities. Previous research suggests that parents often facilitate problem solving-activities by recording data while their child manipulates the materials (Gleason & Schauble, 1999). The current study further examines this role by recruiting thirty sets of parents with their children (ages 7-10) to engage in an activity together to test cars with multiple variables, and have the opportunity to record the results of their trails. After, the child tests and records their results for a new sets of cars independently to look at the way the dyad's interaction influences the child's trails.

Parent-child interactions will be coded and categorized into four categories: didactic, modeling, collaborative, and non-engaging. Data analysis will also included coding dimensions of systematic testing of cars and frequency of note taking on a four point scale. We are currently collecting data, and anticipate having results from 10-15 participants by the time of presentation.

Pending data analysis, it is expected that parents that use more didactic and modeling interactions with their children will be correlated with children's frequent use of systematic car testing and recording their results in independent trials. Children of these parents are also expected to generalize the use of recording trials, and show understanding of the effects of car variables on a post-test.

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Poster Session II
Poster Board No. 24

Paraneoplastic Syndromes Presenting with Depression and Psychosis: Two Case Studies

Introduction: Isolated personality changes, depression, dementia and frank psychosis, often common manifestations of new-onset psychiatric disorders, may be associated with limbic and brainstem involvement in paraneoplastic syndromes.

Methods: Two distinct patients with depression and psychosis who received primarily psychiatric intervention initially, with subsequent atypical responses to treatment, are examined.

Results: Two patients with paraneoplastic syndromes, presenting primarily with psychiatric symptomatology, received considerable psychiatric care with poor response to treatment. Ultimately, paraneoplastic syndromes were considered as potential causal entities. In both cases, extensive antibody testing, CSF analysis, and cranial imaging were required to make the diagnosis. Treatment in one case consisted of tumor excision, while in the other, a tumor has not been found. However, a combination of steroids, plasmapheresis, and IVIG has returned the latter patient to near baseline cognitive function and improved the patient's mental health, though these procedures have been required on a continuing basis to maintain the patient at baseline.

Conclusion: The diagnosis of paraneoplastic syndrome should form part of the differential in all patients with sudden or new-onset psychiatric illness; otherwise, it may be missed as it poses a significant diagnostic challenge because the symptoms are likely to be inconsistent from one patient to the next and are frequently unrelated to the primary tumor which may not be discovered for months to years. In addition, though the literature has traditionally indicated that typical antibodies such as the anti-Hu and anti-Ma are associated with malignancies, it is becoming increasingly clear that perhaps an equal number of limbic encephalitides are the result of antibodies, such as anti-NMDR, which lack associations with cancer and respond more readily than true paraneoplastic syndromes to plasmapheresis and IVIG.

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Case Report : Diverticulitis with Intramural Abscess

We present a case of a 51-year-old man who was admitted to Community Regional Medical Center, Fresno in March 2008 for evaluation and treatment of three day history of abdominal pain. Patient had history of colon cancer underwent lower anterior resection in December 2005, diabetes, hypertension and asthma. Admission CT showed a short segment of sigmoid colon with diverticulitis with intramural abscess. Presence of free air and fluid indicated probable perforation. Patient was given IV antibiotics and managed medically and improved.

Acute diverticulitis is a disease with a wide clinical spectrum, ranging from a phelgmon (stage Ia) to localized abscesses (stages Ib, II) to free perforation with purulent (stage III) or feculent peritonitis (stage IV).
CT evidence of a diverticular abscess has a prognostic impact as it correlates with a high risk of failure from nonoperative management. After treatment of diverticulitis with CT evidence of an abscess, physicians should strongly consider elective surgery in order to prevent recurrent diverticulitis.
Kaiser AM et al demonstrated in a retrospective study that conservative treatment fordiverticulitis failed in 6.8% in patients without abscess or perforation whereas 22.2% ofpatients with an abscess required an urgent resection (68.2%, one-stage, 31.8%, two-stage).
Recurrence rates were 13% for mild cases, as compared to 41.2% in patients with a pelvic abscess (stage II) treated conservatively with/without CT-guided drainage.Further study is needed to determine the best treatment for various stages of diverticulitis.

Reference
Kaiser AM, Jiang JK, Lake JP, Ault G, Artinyan A, Gonzalez-Ruiz C, Essani R, Beart RW Jr. The management of complicated diverticulitis and the role of computed tomography. Am J Gastroenterol. 2005 Apr;100(4):910-7.

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Investigation of Biomarkers as a Measure of Exposure to Air Pollutants

Particulate Matter (PM) is a form of air pollution consisting of solid and liquid particles suspended in the air. PM has been linked to a range of adverse health effects including asthma. A causal link has yet to be established, but chemicals called quinones that are present within PM are suspected of being involved in initiating inflammation that may lead to an asthma attack. Levels of quinones are high in Fresno, and it is possible that these air pollutants may be responsible for the high incidences of asthma experienced by residents within the region.

To investigate this possible relationship, it is important to know how much of a particular pollutant an individual has been exposed to. One approach to obtain this information is to monitor the levels of the pollutants or their metabolites in the urine or blood of the subject.
However, the use of these so-called biomarkers will only work if the levels of these compounds in the body are correlated with levels in the air. In this work, the urinary concentrations of ten quinones are being measured from sixteen human subjects (eight asthmatics and eight non-asthmatics). PM mass loadings and atmospheric quinone levels are simultaneously measured at two sites in Fresno. Quinones are extracted from the samples into an organic solvent, and are analyzed using gas chromatography/mass spectrometry.

Preliminary results indicate that urinary quinone levels are positively correlated with the organic components of PM, but not the total PM mass. These data suggest that the analytical method used is a promising approach to determine the exposure of individuals to these air pollutants.

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Perceptual Similarity, Difference, and Identity

The capacity for judging similarity is central to theories of cognition. Similarity is highly involved in a vast array of cognitive abilities, including categorization and concepts, language, memory, reasoning, and perception. Similarity is often used in many aspects of everyday life, such as unifying various clothing items to form an outfit, to deciding whether "a needle in a haystack" is an appropriate metaphor for the difficulty in locating your car in a city after forgetting where you parked. Despite its heavy use in both scientific and mundane descriptions and actions, similarity is little understood. It is virtually limitless in its flexibility, as it is so unconstrained that nearly any two objects or any two concepts can become more or less similar based on the context (e.g., your outfit and your car are very different when considering their physical materials, but very similar when considering both are often required for attending a conference). In a series of cognitive science experiments, the processing of perceptual similarity was investigated for both separable and integral features.

Separable features are those than can easily be made distinct from the other features of an object, such as separating an object's color from its shape. Integral features are those than cannot easily be made distinct from each other, such as a color's hue, brightness, and saturation. The findings demonstrate significant differences in how people process perceptual similarity, difference, and identity for objects with integral or separable features.

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Examining Pre-exposure as a Teaching Variable for Children with Autism

Intensive behavior therapy has been described as the treatment of choice for young children with autism (US Surgeon General, 2003). The purpose of this study is to determine whether pre-exposure to an item prior to formal teaching will increase the rate of acquisition during formal behavioral lessons. Three children were recruited from the Central California Autism Center. Behavior therapists currently working on the child's case received training on a protocol used to pre-expose selected target items during free-play. A single-subject, multi-element design which involves alternating the traditional teaching method of trail and error, with our pre-exposure teaching method was used. Results are expected to indicate that participants will obtain a higher percentage of correct answers in less time when using the pre-exposure method prior to engaging in formal teaching. The study discusses implications for formulating appropriate treatments for individual children with autism, with faster skill acquisition as one goal.

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Poster Board No. 29

A Comparative Study of the Nematocidal Activity of Phenyl and Ferrocenyl Chalcones

Chalcones are natural or synthetic compounds that have a broad range of biological activities. In a previous study, ferrocenyl chalcones were found to show nematicidal activity (O'Brien, 2006). The objectives of this study were to (1) synthesize phenyl chalcone analogs of ferrocenyl chalcones, (2) test the nematicidal activity of the synthesized phenyl chalcones, (3) and compare the nematicidal activity of the phenyl chalcones to that of the ferrocenyl chalcones. The chalcones were synthesized via the aldol condensation reaction, and were analyzed by 1H NMR and IR spectroscopy. The compounds were administrated to Caenorhabditis elegans nematodes in a solution of 1% DMSO and 99% liquid medium (100 μM concentration). Each nematode was incubated in 50 μl of the test solution and (3x96) duplicates were run for each compound. The (4'- fluorophenyl)- and (2'-thiophenyl) derivatives of phenyl chalcones caused 100% mortality for all duplicates on the first day of treatment and the furanylchalcone caused over 50% mortality in the same interval.

In comparison, the ferrocenyl chalcones with the same derivatives caused less than 10% mortality on the first day of treatment. Nematodes incubated in media containing ferrocenyl chalcones were able to reproduce in higher numbers when compared to those incubated in media containing the phenyl chalcone analogs. The results clearly suggested that the ferrocenyl chalcones are biologically less active than phenyl chalcones. More specifically, it seems that the ferrocene moiety in the ferrocenyl chalcones interferes with the biological function of the chalcone as a unit.

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Poster Board No. 30

Assessment of Freeze Damage in California and Possible Remedial Solution

Freeze damage to crops occur when water within the crop freezes and ruptures the cell membranes, which is not limited to only the fruit but also the leaves, twigs and wood. Citrus and some vegetable crops unlike deciduous trees cannot protect it self by shedding their leaves in the fall, but continue to grow year around.

This year's sudden drop in temperature has affected citrus, avocado, strawberry, winter vegetables, spring vegetables, artichokes, olives and flowers. Damage has been reported from as far as Imperial Valley and San Diego among others and has turned this into a Federal disaster. Currently, large wind machines are being used to keep off the cold air from settling over the crop canopy, unfortunately this method was not found to be very effective.
Research was initiated on the use of a harmless bacterium that contained an "ice nucleation" protein, but due to gene manipulation regulation and EPA disapproval the research did not see the light of the day (EPA 2005). In the wake of the recent crop damage all over California and other parts of the United States, unless drastic remedial measures are researched and implemented this might turn in to an epidemic in the years to come. This will not only affect the local economy but also the constant supply of fruits and vegetables for the masses.

This research proposes to use a Supervisory Control And Data Acquisition (SCADA) system to prevent freeze damage using a combination of irrigation techniques and computer modeling. The proposed computer model will be capable of making intelligent decisions and use the most effective solution according to the changing weather and demand conditions. Additionally this system will be used to manage the irrigation round the year using the SMART sensors as a feedback loop and provide water to the plants on DEMAND.

TWENTY-NINTH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS

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California State University, Fresno
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Agricultural Research Service

Convened in the *University Business Center*
on the campus of

California State University, Fresno

Wednesday, April 16, 2008

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PREFACE

Welcome to the *29th Annual Central California Research Symposium.*

From its inception, the purpose of this symposium has been to bring together investigators, students, and faculty from a variety of disciplines to share the results of their scholarly work. The continuation of these activities in the Central Valley is encouraged by this opportunity for exchange. We hope that all participants will gain new insights from this experience and that learning about the interests of other scholars will enrich them.

Abstracts for this year's event were reviewed and selected for presentation by the Symposium Planning Committee. In this review, the committee looked for a well-written abstract on a topic of scholarly merit.

This year *UCSF Fresno* has provided two cash awards for the best symposium presentation by a student--one for an undergraduate student and one for a graduate student. *Alliant International University, Fresno* has provided a cash award for the best poster presentation by a student. In addition to providing a cash award, the *Office of Research and Sponsored Programs* at *California State University, Fresno* has planned and administered the symposium in cooperation with these institutions.

Presenters and guests are invited to a social hour following the student awards ceremony, which will be held in the University Business Center Gallery.

These proceedings are published as a permanent record of the work presented. We hope they will stimulate ideas for future work and subsequent symposia.

PLANNING COMMITTEE

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
FRESNO MEDICAL EDUCATION PROGRAM

Donna Hudson, Ph.D.
Symposium Co-Chairperson

Joan Voris, M.D.
Malcolm F. Anderson, M.D.
Robert Hierholzer, M.D.
Michael Peterson, M.D.
Kent Yamaguchi, M.D.

CALIFORNIA STATE UNIVERSITY, FRESNO

Thomas McClanahan, Ph.D.
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Millie C. Byers & Maral Cingoz
California State University, Fresno

CALIFORNIA
STATE
UNIVERSITY,
FRESNO

April 16, 2008

MESSAGE TO ALL RESEARCH SYMPOSIUM PARTICIPANTS

California State University, Fresno is pleased to serve as the host campus for the *29th Annual Central California Research Symposium.*

This symposium continues to provide a unique forum for the presentation and discussion of scholarly activities of interest to researchers throughout the Fresno Community. The program for the symposium reflects our commitment to promoting interdisciplinary research, encouraging scholarly exchange on theoretical and pragmatic topics, and providing an opportunity for both students and research scholars to share common interests. Cooperative efforts such as these benefit the individual institutions involved and ultimately the public that we all serve.

We appreciate your participation in this symposium, and it is my pleasure to extend my warmest welcome to our campus.

Sincerely,

John D. Welty
President

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the President

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Fresno Medical Education Program

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29th Annual Central California Research Symposium

Dear Symposium Participants and Visitors:

Once again I am impressed by the variety of research projects we have ongoing in the Central Valley and how privileged we are to have the richness and diversity of academic activity in our own backyard. The studies represented here will lead to an improved quality of life for our community. It is indeed exciting to be involved in this.

It is my pleasure to welcome you to this 29th Annual Research Symposium. Whether you are attending today as a participant or a visitor, I believe you will feel challenged and energized as you explore the research displayed here today.

Sincerely,

Joan L. Voris, MD
Associate Dean, UCSF Fresno Medical Education Program
Assistant Clinical Professor of Pediatrics, UCSF

Fresno City College
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Office of the President

March 26, 2008

Symposium Participants
Central California Research Symposium
University Grants and Research Office
California State University, Fresno
4910 North Chestnut Avenue
Fresno, CA 93726-1852

Dear Symposium Participants:

Fresno City College is pleased to be a sponsor of the 29th Annual Central California Research Symposium. This cooperative venture not only advances the frontiers of knowledge but leverages the research resources of each participating institution.

Fresno City College is proud to be a partner in hosting this program and extends best wishes to all participants.

I hope the Symposium will be both informative and enjoyable for you.

Sincerely,

Ned Doffoney, Ed.D.

lmw

United States Department of Agriculture
Research, Education and Economics
Agricultural Research Service

March 27, 2008

Symposium Participants
29th Annual Central California Research Symposium
Fresno, California

Greetings,

On behalf of the USDA, ARS, San Joaquin Valley Agricultural Sciences Center in Parlier, I want to welcome you to the 29th Annual Central California Research Symposium. The San Joaquin Valley has a large research community that includes scientists from state, university, federal and private institutions covering a wide range of disciplines from the biological and physical sciences including agriculture to zoology. This symposium provides an opportunity to share and exchange current research information in these various fields among scientists, students and the general public. Through your participation in this Symposium you will gain knowledge of current research being conducted in your areas of interest and be given the opportunity to establish cooperative associations with others.

Your participation will open new perspectives and provide new opportunities for you and your parent organization. We in ARS hope that you will take advantage of this opportunity to enrich your knowledge and expand your friendships in order to promote better scientific research. If we can be of any assistance to you on matters concerning the agricultural sciences, please do not hesitate to contact us.

Again, welcome to the Symposium. I hope that your scientific endeavors and horizons will be broadened by this experience.

With best regards,

for

Edwin L. Civerolo
Director

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Pacific West Area

Agricultural Research – Investing in Your Future

Plenary Session

University Business Center
Auditorium, Room 191

12:00 Opening Remarks:

Dr. Thomas McClanahan, California State University, Fresno

Dr. Donna Hudson, University of California, San Francisco
Fresno Medical Education Program

Dr. Lynnette Zelezny, California State University, Fresno

12:10 ***Effects of Facial Prominence on Predicted Job Performance***
Justin L. Matthews, Teenie Matlock, Ph.D

12:25 ***Quantification of Volatile Fatty Acid Emissions from California Dairy Facilities***
Phillip Alanis, Mark Sorenson, Brian Shamp, Alam S. Hasson, PhD

12:40 ***Glucose Alters Plasma Ghrelin Levels and its Receptor in the Brain in the Tilapia, Oreochromis mossambicus***
Casey Dorough, Larry Riley, PhD

12:55 ***Effects of Diesel Exhaust Chemicals on Diabetic Wound Healing and Cellular Proliferation***
Victor McCray, MD, Saben Kane, MS, Patrick Cary, Jane Kim,
Tim R. Tyner, MS, Kent T. Yamaguchi, MD

1:10-1:30 **Break--University Business Center, Gottschalks Gallery**

Concurrent Session A

University Business Center
Auditorium, Room 191

1:30 ***Pre and Postprandial Effects on the Ghrelin Receptors in the Mozambique Tilapia (Oreochromis mossambicus)***
Sarath C. Peddu, Larry G. Riley, PhD

1:45 ***The Identification of Brachyuran Megalopae of the San Francisco Bay Estuary***
Vanessa A. Gonzales, Brian Tsukimura, PhD

2:00 ***Potential Impacts of Selenium on California Red-Legged Frog (Rana draytonii)***
Foung Vang, Brian Tsukimura, PhD

2:15 ***Effects of Diesel Exhaust Chemicals on Aggressive Behavior in a Mouse Model***
Jane Kim, Daniel Moon, MD, Saben Kane, MS, Michael Nies, Tim R. Tyner, MS, Kent T. Yamaguchi, MD

2:30 ***Rate of Metabolism of Methyfarnesoate by MF Esterase Emzyme in Tadpole Shrimp (Triops longicaudatus)***
Nagaraju Kotagiri, Brian Tsukimura, PhD

2:45 ***Effects on the Parasitic Nematode Meloidogyne Incognita of Transgenic Tobacco Plants Expressing an Antisense Construct of the Cell Death Protection ced-9 Gene***
Fumiko Yamamoto, Glenda W. Polack, Alejandro Calderon-Urrea, PhD

3:00 ***Optimizing Water Use Efficiency Using "SMART" Sensors and Controllers***
Diganta D. Adhikari, Dave Goorahoo, PhD, Florence Cassel, David Zoldoske, PhD

3:15 **Break--University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session B

University Business Center
Room 192

1:30 ***Facts from the Fallout: Making a Documentary about the Human Health Research in the Wake of the Chernobyl Disaster***
Geoffrey S. Nelson, Charles Tenney, PhD

1:45 ***Effects of Evaporation and Sampling in the Forensic Analysis of Fire Debris Evidence***
Maria Woodcock, Eric Person, PhD

2:00 ***Branching Ratios for the Reaction of Hydroperoxy Radicals with Propionyl Peroxy and Butionyl Peroxy Radicals***
Sukhdip Singh, Yesenia Ibarra, Sam Hernandez, Alam S. Hasson, PhD

2:15 ***Overgrowth after Femoral Shaft Fractures in Infants Treated with a Pavlik Harness***
John Mahajan, William Hennrikus, MD, Adam Johnson, Julie Veroff

2:30 ***ORIF of Displaced Lateral Condyle Fractures of the Humerus via the Posterior Approach***
Samine Ravanbakhsh, William Hennrikus, MD

2:45 ***Non-Operative Treatment of Medial Epicondyle Fractures in Adolescents***
Kevin Buckowski, William Hennrikus, MD

3:00 ***P-Colorability of the Knot/Link (12)^n and (12')^n***
Iliana Perez, Abinet Tibebu, Mayra Rodriguez, Larry W. Cusick, PhD

3:15 **Break--University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session C

University Business Center
Room 193

1:30 ***Hmong Students in Higher Education and Academic Support Programs***
Soua Xiong, Song Lee, PhD

1:45 ***Latina Middle School Students and Self Efficacy: Opening the Gateway for Change***
Sarah M. Rios, Kenneth Magdaleno, PhD

2:00 ***"I'm Just Your Typical Anti-Sterotype Female": An Exploration of Females Living on the Streets of San Francisco***
Claudia Maria Lopez, Natalie Boero, PhD

2:15 ***The Effects of Type A Pattern Behavior on Aggressive Driving Behavior***
Georgianna F. MacDowell, Sunde M. Nesbit, PhD

2:30 ***The Use of Mood Induction to Reduce Depression's Negative Effects on Working Memory***
Debbie Schmidt, Sunde M. Nesbit, PhD, Karl Oswald, PhD

2:45 ***Reduplicative Pig Latin***
David Cords, Sean Fulop, PhD

3:00 ***Intermodal Trucker Labor Protest in Central Valley Stockton***
Adam Welch, Maria Luisa Alaniz, PhD

3:15 **Break--University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session D

University Business Center
Room 194 AB

1:30 ***Hmong Healthcare Practices in Fresno County: A Pilot Study***
Chia Thao, Miguel Perez, PhD

1:45 ***Prevalence of Hepatitis B Virus (HBV) Infection among Hmongs in the San Joaquin Valley***
Leepao Khang, Muhammad Y. Sheikh, MD, FACP, FACG, Mouatou Mouanoutoua, MD, Jasjit Singh, MBBS, Mandeep Singh, MD, Jay Choudhury, MD, Steven Stoltz, MD, Paul Mills, PhD

2:00 ***An Educational Program for Older Adults: Medication Management/Preventing Falls***
Sabrina Garcia, Mary Barakzai, PhD

2:15 ***The Effects of Lawful Multi-Sensory Concordance on Visuo-Spatial Adaptation***
David Lewis, Lorin Lachs, PhD

2:30 ***The Sound and its Aesthetic Counterpart, or Your Whiteness***
Christopher A. Lopez, Edward Gillum, MFA

2:45 ***Higher-Mode Effects in Lead-Core-Rubber Base Isolated Multistory Steel Buildings Subjected to Near-Field Excitations***
Kittinan Dhiradhamvit, Thomas Attard, PhD

3:00 ***Consumption of News among Various Age Groups: Traditional Media Versus New Media***
Faith Sidlow, Tamyra Pierce, PhD

3:15 **Break--University Business Center, Gottschalks Gallery**

3:30 **Concurrent Sessions Resume**

Concurrent Session E

University Business Center
Auditorium, Room 191

3:30 ***The Reliability of a Computerized Measurement Tool (Dartfish) to Document Three Resting Calcaneal Stance Positions in a Sample of Adolescent Females***
Jason Gray, Gary L. Lentell, DPT, C. Hickey, S. Sailor

3:45 ***Evaluation of Four Rates of Feather Meal Organic Fertilizer on Yield of Vegetables Subjected to AirJection® Irrigation***
Namratha Reddy, Dave Goorahoo, PhD, Diganta Adhikari

4:00 ***Impact of Amendments on Physical and Chemical Properties of Soils Irrigated with Saline-Sodic Drainage Water***
Vijayasatya N. Chaganti, Dave Goorahoo, PhD, Sharon E. Benes, PhD, Diganta Adhikari

4:15 ***Effect of Hematocrit Concentrations on Forensic Blood Alcohol Analysis***
Jessica A. Savopolos, Eric Person, PhD

4:30 ***Propargyl Bromide as an Alternate Fumigant***
Antonio Toribio, Arthur Johnson, Alice Wright, PhD

4:45 ***Bacterial and Fungal Communities Composition in Aerated Soil***
Lucia Rubio, Alice Wright, PhD

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social Hour

Concurrent Session F

University Business Center
Room 192

3:30 ***Designing and Building the Ultimate World-Class Packaging Automation Laboratory***
Robert Michalk, Nitaigour P. Mahalik, PhD

3:45 ***A New Approach to Facilitating System Integration (SI): Case Study through the Development of a Food Processing and Packaging Automation Laboratory***
Sean M. Alsop, John W. Anderson, Kevin P. Bell, Satnam Singh, Nicholas J. Wong, Rovert Michalk, Nitaigour P. Mahalik, PhD

4:00 ***An Investigation of the Relationship between Air Pollutants and Lung Function***
Kennedy-Kiet Tuan Vu, Dianne Lim, Akihiro Ikeda, Tim Tyner, Jose Joseph, Alam Hasson, PhD

4:15 ***Air Quality Analysis for Select Cities in the United States***
Lauren McQuone, Segun Ogunjemiyo, PhD

4:30 ***North American Tardigrade Project***
Carleigh Takemoto, Carl Johansson

4:45 ***Comparison between Urban and Rural Tardigrade Communities***
Stephanie Calloway, Carl Johansson

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social Hour

Concurrent Session G

University Business Center
Room 193

3:30 ***Linking Affective Learning Theory to Resident Competence***
Nicholai Weibell, DO, Heather Peters, PhD, Alfred Peters, Jr., MBA, Conrad Chao, MD

3:45 ***Emperic Treatment for Cocci Could Decrease Mortality in HIV Patient***
Wagih W. Ibrahim, Paul Simon, MD

4:00 ***Prediction of Uncertainty and Confidence Intervals in Thermal Radiative Modeling Using the Monte Carlo Ray-Trace Method***
Maria Sanchez, PhD

4:15 ***Control Algorithm for Civil Structures Subjected to Earthquake Loading***
Nikos G. Pnevmatikos, Charis J. Gantes, Thomas Attard, PhD

4:30 ***Investigation of Field Performances of Advanced Fiber Composite Fabrics in Infrastructure Application***
Ching C. Choo, Issam Harik

4:45 ***Internal Erosion Mechanisms of Heterogeneous Soils***
Ming Xiao, PhD, Denise Soria

5:00 ***Eyewitness Evidence and Cognitive Reconfiguration***
Matthew Sharps, PhD, Jessica Janigian, Adam Hess, Sina Tuy, Bill Hayward

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social Hour

Concurrent Session H

University Business Center
Room 194 AB

3:30 ***Rwanda: Trouble within the Gacaca Courts***
Stephanie Stockdale, Matthew Jendian, PhD

3:45 ***The Last Right: Access to Land as a Human Right***
Cynthia Oliphant, Matthew Jendian, PhD

4:00 ***Role of Demographic Factors in Determining Acculturation Strategies among Asian- Indian Immigrants in the United States***
Anamika Barman-Adhikari, Jane Yamaguchi, PhD

4:15 ***Indonesian-English Mixing and Hybridization in Media Discourse: A Study of Indonesian Adolescent's Magazines Across Time***
Ria Kudu Inge Cahyani, Shigeko Okamoto, PhD

4:30 ***Original Picturebooks and Houghton Mifflin Anthologies: A Comparative Analysis***
Therese M. Ewing, Glenn DeVoogd, PhD

4:45 ***The Effects of Recreational Dancing on Quality of Life in Older Adults***
Damien G. Terronez, Anne Petrovich, PhD

5:00 ***People's Self-Reference Label during Inner Speech: Another Outlook for Psycholinguistics***
Tim Alichanh, Cheryl Chancellor-Freeland, PhD

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social Hour

Poster Session I
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 12:00 p.m. until 2:00 p.m.

(1) ***Parameterization of a Fractured Hardrock Aquifer in Western Foothills of the Sierra Nevada, California***
Ori Sartono, Zhi Wang, PhD

(2) ***Social Impact of Environmental Racism in the Outsourcing of E-Waste in Africa and Asia***
Antonia Mendoza, Anne M. Todd, PhD

(3) ***Swiss Author Martin R. Dean's Novel Meine Vater Explores a Suppressed Multicultural Identity through the Search for an Unknown Father***
Vedada Sirovica, Romey Sabalius, PhD

(4) ***Self-Efficacy Change is Associated with Better Quality of Life in Heart Failure Patients: A Quality Improvement Project Evaluating the Chronic Disease Self-Management Model in a Veteran Population***
G.R. Twitchell, PhD, R.M. Carlson, RN, MSN, W. Gu, MD, J. Huang, MD

(5) ***Development of a Chronic Disease Self-Management Clinic for Heart Failure: A Quantitative and Qualitative Analysis of Patient and Caregiver Evaluations***
R.M. Carlson, RN, MSN, G.R. Twitchell, PhD, G. Gill, MD

(6) ***The Link between Nutrition and Crohn's Disease***
Sahar Saffi, Colleen O'Leary-Kelly, PhD

(7) ***Reservation Blues: A Novel of Historical Legacies***
George Ophelia, Allison Heisch, PhD

(8) ***Children's Practices in an Institutional Context***
Tuyet Ngoc Huynh, Chuck Darrah, PhD

(9) ***Young Voters' Evaluations of Presidential Candidates: Superficial or Substantive*** ?
Ashley J. Gosney, Sunde Nesbit, PhD

(10) ***Radical-Radical Interaction***
Nura Omer, Brook David, PhD

Poster Session I Continued
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

(11) ***Detecting Genotoxicity in Pacifastacus Ieniusculus (Crayfish) Exposed to Polluted Sediments in Coyote Creek and the South San Francisco Bay***
Sukhbir Singh, Adrian Rodriguez, PhD

(12) ***Unmanned Aerial Vehicle for Precision Agriculture***
Nick Simonian, Balaji Sethuramasamyraja, PhD

(13) ***Learning and Choice Behavior in Siamese Fighting Fish***
Imelda Cavazos, Vanessa Villar, Martin Shapiro, PhD

(14) ***Parental Mental State Talk and the Development of Theory of Mind***
Lizbeth Duran, Michell M. Chouinard, PhD

(15) ***Vertical Profiles of Ozone in an Urban Area During a Wildlife Event***
Segun Ogunjemiyo, PhD, Samuel Omolayo, PhD,
Stuart McFeeters, PhD, Michelle Himden, Erika Antonio

(16) ***Automated Identification of Flammable Liquid Residues in Fire Debris***
Seth Yates, Eric Person, PhD

(17) ***Ruthenium (ll)-Catalyzed Asymmetric Transfer Hydrogenation of Aromatic Ketones Using a New Planar Chiral, Diferrocenyl Diaminodiphosphine Ligand***
Charles Grove, Saeed Attar, PhD

(18) ***The Relationship between Extroversion/Introversion and Obsessive-Compulsive Symptoms***
Esdras Gonzalez, Sunde M. Nesbit, PhD

(19) ***Relationships between Steroid Hormones and Aggression in the Clonal Mangrove Killifish, Krytolebias marmoratus***
Janet Campbell, Ryan L.Earley, PhD

(20) ***Does Challenging Convict Cichlids with ACTH Manipulate the Stress Axis?***
Swapna Medichetti, Stephanie Wong, Boopathy Sivaraman,
Haley Stephenson, Ryan L. Earley, PhD

Poster Session I Continued
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

(21) ***Investigating Associative Connectivity of Cues for Unrelated Word Lists***
Mackenzie Rickard, Paul Skomsvold, Shauna Buchholz, Karl Oswald, PhD

(22) ***Educational Efficacy of Applied Graduate Experience to Address Real World Problems***
Lynnette Zelezny, MBA, PhD, David Lewis, Ashely Jensen

(23) ***Size-Segregated Measurements of Organic Compounds in Particulate Matter in the Central Valley***
Darius Khorshidchehr, Enrique Lopez, Myeong Chung, Christina Sabado, Dora Rendulic, Mark Sorenson, Kennedy Vu, Laiky Nor, Alam Hasson, PhD

(24) ***Informal Science Play: Comparing Systematic Comparisons in Dyads and Solo***
Daniella Echeveste, Lara Triona, PhD

(25) ***Identification of Two Mycobacterium smegmatis transposon Mutants Resistant to the Thiol Crosslinking Agent Diamide***
Mike Gledhill, Mamta Rawat, PhD

(26) ***Smog Chamber Studies of the Reactions of Butanal and Pentanal with Chlorine Atoms***
Samuel Hernandez, Sukhdip Singh, Yesenia Ibarra, Alam S. Hasson, PhD

(27) ***The Relationship between Functional Outcome, Obesity and Radiographic Severity in Patients with Osteoarthritis of the Knee***
Tony Hernandez, MPT, Gary Lentell, DPT, PT

(28) ***Explaining the Comorbidity of Intermittent Explosive Disorder and Depression***
Lisa Nightingale, Christine Edmondson, PhD

(29) ***Who Do Children Trust?***
Kristi Imberi-Olivares, Michelle M. Chouinard, PhD

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social Hour

Poster Session II
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 3:00 p.m. until 5:00 p.m.

(1) ***Dual Detoxification of Mercury and 2, 4-D BY***
Leslie Dominguez, A. Mohan, M. Rawat, PhD, A. Wright, PhD

(2) ***A Report on Our Laparoscopic Surgery Experience at a Community Medical Center***
Winnie Tong, Steven Parks, MD

(3) ***The Current State of Bilingual Education in Central Valley Preschools*** Kandice
Soraya Grote, Michelle M. Chouinard, PhD

(4) ***Montreal Cognitive Assessment***
Ashely Hacnik, Amanda Mortimer, PhD

(5) ***Investigate the Effects of Glucose and Insulin on Glucose Metabolism, the GH/IGF-l Axis and on GRLN Production in the Tilapia***
Alicia Walker, Bradley K. Fox, Tetsuya Hirano, E. Gordon Grau,
Larry G. Riley, PhD

(6) ***Verification of Visual Semiquantitative Analysis of Plain Radiograph to Assess Outcome and Prognosis of Osteoporotic Vertebral Fractures***
Sara H.Y. Tong, MS, E.W.K. Lee, FRCS (Edin), FHKCOS, FHKAM (Orth)

(7) ***A Randomized Experiment Comparing Random to Cutoff-Based Assignment***
Rodolfo Galindo, William R. Shadish, PhD

(8) ***Validation of Rapid Stain Identification (RSID) Kits***
Jordan Anderson, Christina Capt, MS, Amy Smuts, MS,
Joseph Warren, PhD, Kevin Miller, PhD

(9) ***Toward Sustainable Agriculture and Improved Natural Resource Use in Senegal***
Jon C. Phillips, PhD, Chelsye D. DeBoor, Lauren Hays

(10) ***The Viability of Freeze-Dried ABI Identifiler Reaction Mix Preserved with Trehalose***
Elisabeth Schoenau, Howard Ono, PhD

(11) ***Are Judgments of Improvement Accurate?***
Corinne Townsend, Evan Heit, PhD

Poster Session II Continued
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

(12) ***A Visually Transcribed Lexicon***
Barbara Ann Harrington, Lorin Lachs, PhD

(13) ***Efficacy of HeartMath Intervention to Support Math Performance***
Kyle Fuhrer, Lynnette Zelezny, MBA, PhD, Regan Caruthers, Daniel Reimer, Bob Musselman, Peter Tannenbaum

(14) ***Diamide Resistant Transposon Mutants in Mycobacterium smegmatis***
Sean Thompson, Mamta Rawat, PhD

(15) ***Characterization of Diamide Resistant Mycobacterium smegmatis Transposon Mutants 182 and 240***
Maria Carrizales, Mamta Rawat, PhD

(16) ***Assessing Appearance Biases***
Stephen M. Gutknecht, Jean M. Ritter, PhD, Kevin L. Blankenship

(17) ***Couple Relationship Characteristics and its Association to Attachment Styles***
Milia Mahfoud, Sean Seepersad, PhD

(18) ***The Relationship between Extroversion/Introversion and Obsessive-Compulsive Symptoms***
Esdras Gonzalez, Sunde M. Nesbit, PhD

(19) ***Relationships between Steroid Hormones and Aggression in the Clonal Mangrove Killifish, Krytolebias marmoratus***
Janet Campbell, Ryan L.Earley, PhD

(20) ***Does Challenging Convict Cichlids with ACTH Manipulate the Stress Axis?***
Swapna Medichetti, Stephanie Wong, Boopathy Sivaraman, Haley Stephenson, Ryan L. Earley, PhD

(21) ***Investigating Associative Connectivity of Cues for Unrelated Word Lists***
Mackenzie Rickard, Paul Skomsvold, Shauna Buchholz, Karl Oswald, PhD

Poster Session II Continued
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

(22) ***Pre-Admission Factors as Predictors for Success in a Master of Physical Therapy Program***
Rachel Worman, Y. Chen, PR Truebood, J. Laslovich

(23) ***Parent-Child Interactions and Note-Keeping During Science Play***
Elizabeth L. Echeveste, Lara M. Triona, PhD

(24) ***Paraneoplastic Syndromes Presenting with Depression and Psychosis: Two Case Studies***
Mary Gable, MD, MBA, MPH

(25) ***Case Report: Diverticulitis with Intramural Abscess***
Elizabeth Tong, W. Tong, MD, J. Williams, MD

(26) ***Investigation of Biomarkers as a Measure of Exposure to Air Pollutants***
Akihiro Ikeda, Dianne Lim, Kennedy Vu, Tim Tyner, PhD
Alam Hasson, PhD

(27) ***Perceptual Similarity, Difference and Identity***
Michael Romano, Evan Heit, PhD

(28) ***Examining Pre-exposure as a Teaching Variable for Children with Autism***
Janet Saenz, Mari Orita, Amanda Adams, PhD

(29) ***A Comparative Study of the Nematocidal Activity of Phenyl and Ferrocenyl Chalcones***
Hasan Alhaddad, Zachary O'Brien, Saeed Attar, PhD,
Alejandro Calderon-Urrea, PhD

(30) ***Assessment of Freeze Damage in California and Possible Remedial Solution***
Diganta D. Adhikari, Balaji Sethuramasamyraja, Matthew Yen

5:15 **Conclusion--University Business Center, Gottschalks Gallery**
Proceed to Student Awards and Social Hour

Judges for Undergraduate and Graduate Student Presentations and Poster Presentations:

Dr. Amanda Adams	California State University, Fresno
Dr. Saeed Attar	California State University, Fresno
Dr. Sharon Benes	California State University, Fresno
Dr. Alejandro Calderon-Urrea	California State University, Fresno
Dr. Kathleen Dyer	California State University, Fresno
Ms. Marie Fisk	California State University, Fresno
Dr. Robert Hierholzer	University of California, San Francisco
Dr. Donna Hudson	University of California, San Francisco
Dr. Susan Hughes	University of California, San Francisco
Dr. Thomas McClanahan	California State University, Fresno
Dr. Karl Oswald	California State University, Fresno
Dr. Siobhan O'Toole	Alliant International University, Fresno
Dr. Miguel Perez	California State University, Fresno
Dr. Jim Prince	California State University, Fresno
Mr. Chuck Radke	California State University, Fresno
Mr. Rick Stewart	Fresno City College
Dr. Brian Tsukimura	California State University, Fresno
Dr. Lynnette Zelezny	California State University, Fresno

Moderators for Oral Presentations:

Mr. Doug Carey	California State University, Fresno
Dr. Daniel Griffin	California State University, Fresno
Dr. Donna Hudson	University of California, San Francisco
Dr. Jim Prince	California State University, Fresno
Mr. Chuck Radke	California State University, Fresno
Dr. Brian Tsukimura	California State University, Fresno

Presentations will be judged based on the following criteria and considerations:

- Merit, creativity, timeliness, and value to an audience of scholars not necessarily from the same discipline
- Authors are encouraged to present their work using terminology suitable for a multi-disciplinary audience
- Results of completed work, as well as work-in-progress, for which there is preliminary data

ORAL PRESENTATION ABSTRACTS

(IN ALPHABETICAL ORDER BY PRESENTING AUTHOR)

Diganta Adhikari
diganta@csufresno.edu
Diganta D. Adhikari, Dave Goorahoo, Florence Cassel S and David Zoldoske
California State University, Fresno
Center for Irrigation Technology (CIT)
Faculty or Professional

Optimizing Water Use Efficiency using "SMART" Sensors and Controllers

According to the California Water Plan Update 2005, Californians used about 2.9 million acre feet of water to irrigate landscape, parks and golf courses. The potential for water conservation in the landscape ranges from 400,000 to 600,000 acre feet per year through improved hardware design and management. One approach of achieving this goal is to use "SMART" controllers and sensors as part of a Feedback loop irrigation system to deliver water on "DEMAND" based on plant water requirements.

In collaboration with the Irrigation Association (IA) and water purveyors, the Center for Irrigation Technology (CIT) been conducting research aimed at improving residential irrigation water use efficiency. First, we review research on developing standards and protocols to evaluate the accuracy, reliability and repeatability of commercially available soil moisture sensors under various salinity, soil types and temperature conditions. Then, we discuss potential opportunities for applied research which make these data available in real time on the web, so that monitoring and control can be done remotely via PDA's/Laptop or cell phones.The accuracy and reliability of soil moisture sensors evaluated to date appear to be dependent on soil textural classes.

For example, a Time Domain Transmissitivity (TDT) based sensor had high correlation (r2 = 0.89 to 0.99), between measured and predicted moisture water contents measured for various temperatures and salinity levels in medium and coarse textured soils. Also, the use of soil moisture sensors or Evapotranspiration (ET) based controllers with feedback loop has the potential to give the end users better control over irrigation management as water was applied only when needed. For example, a system has been designed to prevent freeze damage in citrus crops by incorporating the micro- sprinklers within the crop canopy using a Supervisory Control and Data Acquisition (SCADA) system.

Phillip Alanis, Dr. Alam S. Hasson
philly86@csufresno.edu
Phillip Alanis, Mark Sorenson, Brian Shamp and Alam S. Hasson
California State University Fresno
Department of Chemistry
Undergraduate Student

Quantification of Volatile Fatty Acid Emissions from California Dairy Facilities

Dairies are a major source of volatile organic compounds (VOCs) in California's San Joaquin valley; a region that experiences high ozone levels during summer. Short-chain carboxylic acids, or volatile fatty acids (VFAs), are believed to make up a large fraction of VOC emissions from these facilities. Emissions from dairy facilities can be divided into two categories: enteric sources and non-enteric sources. Non-enteric sources were the focus and these include all sources that are not generated by microbial fermentation within the digestive system that are eructed or exhaled by the animals themselves.

In this work, non-enteric sources were sampled from four different sites common in a typical dairy. The sites included the silage piles, total mixed rations (TMR), the open lot, and the flushing lanes. The animal feed and animal waste are located at these sites. In this work, a method using a flux chamber coupled to solid phase microextraction (SPME) fibers followed by analysis using gas chromatography-mass spectrometry was developed to quantify emissions of six VFAs (acetic acid, propanoic acid, butanoic acid, pentanoic acid, hexanoic acid and 3-methyl butanoic acid) from non-enteric sources.

The peak area obtained from the field sample analysis was determined from linear calibration curves. Acetic acid is the dominant VFA measured, with emissions that are 1-2 orders of magnitude higher than the other monitored VFAs from all four sources. The highest fluxes were observed from silage with lower emissions from TMR. While a direct comparison between fluxes measured in different studies is complicated by differences in climate and facility management, some tentative conclusions can be drawn. The total flux of non-enteric VFA emissions calculated for Dairy C (18 pounds.cow-1.year-1) is about 2.5 times higher than the 7.3 pounds.cow-1.year-1 estimated by the San Joaquin Valley Air Pollution Control District. Part of the reason for this is that the SJVAPCD estimate only considers emissions from animal waste and does not include emissions from feed.

Tim Alichanh, Dr. Cheryl Chancellor-Freeland
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San Jose State University
Department of Psychology
Undergraduate Student

People's Self-Reference Label during Inner Speech: Another Outlook for Psycholinguistics

Humans think to themselves using inner speech a covert subvocalization in the mind. Young children use private speech to aid themselves in different tasks. Most people use a specific self-reference label (srl) (e.g. you, I, or a first name) within their inner speech. This research was conducted to determine what individuals use for their srl. The participants in the study consisted of three female and five male undergraduate students, three full-time employed males, two full-timed employed females, and a homemaker, all between 19 and 35 years old (n=14). The apparatus used were a sports water bottle, two plastic cups, and three poem templates. The templates were short poems, one each of first, second, and third person perspectives. The experimenter used random assignment to assign one template to each participant. Each participant read one short poem, poured a drink of water and drank it, and was interviewed using the author's questionnaire about their inner speech. The results revealed that 64% of the participant used a first-person srl, .07% used third-person srl, 0% used second-person srl, and 28% used a later discovered fourth-person srl (i.e. something other then a 1st, 2nd, or 3rd-person srl).

Sean Alsop, Dr. Nitaigour P. Mahalik
boarderdude03@csufresno.edu
Sean Michael Alsop, John Wesley Anderson, Kevin Paul Bell, Satnam Singh, Nicholas Jeffrey Wong, Robert Michalk, Nitaigour P. Mahalik
California State University, Fresno
Department of Industrial Technology
Undergraduate Student

A new approach to facilitating System Integration (SI): Case study through the development of a food processing and packaging automation laboratory

A new approach to facilitating System Integration (SI) was studied through a case study. SI is the process of designing and developing a new system from a range of basic elements, entities and tools confirming to different standards. System integrators face challenges because a wrong selection-decision at the planning stage of a project can result additional investments during the design and development phase. The situation is complex while developing industrial automation systems because the integrability indices amongst the automation entities are apparently low. A simple semiconductor based analog to digital converter as well as a complex robotic platform including the software and logics must be integrated synergistically in order to produce a complete system that would be able to perform the global task. The complexity increases even further when the requirement changes while the system is in operation. So, the study of SI was important.

The approach is based on a Distributed Control Strategy that constitutes an Interfacing Layer (IL) between the available entities and the global requirements. We took food processing and packaging automation system as an exemplar target application. Bearing in mind that such an system is complex because it consists of multiple drives, actuators, sensors, switches, robotic systems, inspection system, quality control platform, traceability infrastructure, data logging and interfacings, we started analyzing the system closely and concluded to introduce a middle layer that can facilitate the design, development, and implementation more efficiently. We used LonWorks, a fieldbus to validate our thought.

Note that almost all central valley food industries use traditional PLC based centralized scheme. The proposed interfacing layer that facilitates integrability can be best realized by using the fieldbus type systems. We are still investigating whether or not a dedicated fieldbus layer could be designed for the food plant operation and management.

Anamika Barman-Adhikari , Dr. Jane Yamaguchi
anamika@csufresno.edu
California State University, Fresno
Department of Social Work Education
Graduate Student

Role of Demographic Factors in Determining Acculturation Strategies among Asian-Indian Immigrants in the United States

Introduction

This present paper is an attempt to understand the issues of acculturation and its effects on psychosocial functioning among Asian Indian immigrants in the United States. This study will specifically look at first generation Asian Indian immigrants living in the Bay Area and Central Valley regions of California. The main goals of the study are to explore ways in which this community deals with cultural adaptation or acculturation, the acculturation strategy that is most used by members of the community and how it might affect a person's psychosocial adjustment. The relationship between certain demographic variables such as lengths of residence, age and gender to the acculturation process are also assessed.

Methodology

The present study uses three self reported scales to measure the levels of acculturation, psychological and social functioning among first generation Asian Indian immigrants in the Central Valley and Bay Area regions in California, U.S. The unit of analysis is the individual. About 100 surveys were sent out. Out of the 100 sent, 46 people responded. Both convenience and snowball sampling methods were used to arrive at the group of people to whom these surveys were distributed Surveys were sent out by regular mail as well as electronically. People were also recruited through the Asian Indian clubs and organizations in Fresno and San Jose. The research design is non experimental and uses quantitative methods to analyze the data collected.

Results

The findings provide us with significant information on the acculturation strategies used by Asian Indians depending on certain demographic factors and how it impacts their psychosocial functioning. It was also found that consistent with other studies, the majority of participants (76%) in this study preferred the bicultural (integration) mode of acculturation. Age was found to be positively correlated with improved psychological functioning. A significant negative correlation was found between integration and that of levels of depression, anxiety and stress. A statistically significant negative correlation was found between integration and the levels of difficulty in social functioning.

Conclusion

The findings of this study provide support for a number of studies that have been done in the past with Asian Indians. It was seen that the majority of respondents in this study preferred to use the integration acculturation strategy which is consistent with previous findings. Secondly, it was seen that lengths of residence were important in the selection of acculturation strategies. It was found that longer lengths of residence were related to the use of integrated styles of socialization and also to better psychological and social functioning. .

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Non-operative treatment of medial epicondyle fractures in adolescents

Introduction: The treatment of medial epicondyle fractures of the elbow is controversial. The purpose of this paper is to report the outcomes of patients treated non-operatively with a cast or splint.

Methods: The charts and radiographs of 24 patients treated with a cast or splint for a medial epicondyle fracture were reviewed. Six patients were lost to follow up or had less than 6 months follow up and were excluded from the study.

Results: 18 patients were included in the study. The average age was 11 years (range 5-17). 13 were male and 5 were female.10 right elbows and 8 left elbows were injured. Nine patients (50%) had an elbow dislocation in addition to the medial epicondyle fracture. After the elbow was relocated, the average number of days immobilized in a cast or splint was 15. The average displacement of the medial epicondyle fragment was 7 mm (range 4-25 mm). No facture healed by x-ray. All cases resulted in a fibrous non-union. 3 patients (16%) had a re-injury and demonstrated medial elbow instability. One patient had two additional episodes of instability. The average range of motion at final follow up was 20 to 126 degrees. Six patients (33%) lost more than 20 degrees of extension. Only 3 patients regained equal motion compared to the opposite elbow.

Conclusions: Non-operative treatment of medial epicondyle fractures in adolescents resulted in stiffness in one-third of patients and instability in 16%. No fracture treated with a cast or splint healed by x-ray. Fibrous non-unions occurred in all cases.

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Indonesian-English Mixing and Hybridization in Media Discourse: A Study of Indonesian Adolescent's Magazines across Time

Since the introduction of English to primary school students in Indonesia began formally in 1994, English has been more and more employed in Indonesian media especially those for adolescents. However, this issue has never been researched extensively. Thus, this study describes changes in the way English was used in "Aneka" magazine, one of the top ten magazines in Indonesia which is designed for boys and girls between 12 to 24 years of age. Three issues from three different years (1996, 2003, and 2007) were quantitatively and qualitatively analyzed to see changes in the way English loanwords, English words/phrases/sentences and hybrid forms were used.

First of all, the total number of words and articles in each magazine were counted. Magazine 3 (2007) has the largest number of articles (N=34) and Magazine 1 (1996) has the largest number of words (N=21488). Then, the percentage of English loanwords and English words were compared based on the total number of words in the articles. The results show that the use of English has been shifting from English loanwords to the use of English words. There was also a clear pattern of the increasing use of English phrases and sentences across time. Since the copywriter relied more on English phrases and sentences to convey the meanings, the use of hybrid forms was decreasing over time.

Quantitatively, the English words, phrases and sentences used in Magazine 3 (2007) also had higher level of linguistic complexity, compared to the previous two magazines. The copywriter started to use low frequency words, idioms and slang as the magazines were becoming more recent. As for hybrid forms, there was also a change of trend from mixing Indonesian + English in lexical level to a more complicated type: creating new local English expressions.

The increasing use of English can be interpreted in two ways. First, Indonesian-English bilinguals have grown rapidly in both number and proficiency recently. Second, the use of English expressions is related to the fact that English has expanded as a sign of modern identity among the Indonesian bilingual adolescents. In addition, the hybrid forms appear in the data reflected the gradient use of English and Indonesian. For that reason, rather than assuming the two languages as two distinct dichotomy codes, the hybridization must be perceived as a dynamic continuum.

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Comparison between Urban and Rural Tardigrade Communities

In researching urban tardigrades, it has been postulated that there may be a difference in tardigrade diversity and density in comparing urban and rural populations. If this is found to be true, different factors in the environments such as air pollution, development, etc., may influence this. With this, researching these different environments is important in understanding tardigrades and their distribution. In accordance with the National Science Foundation Tardigrade Research Grant, this study will also help supplement ongoing research.

Research has been conducted in different rural and urban sites in Fresno County, California, in order to measure this hypothesis. Multiple sites that are essentially urban have been collected from as well as a control rural site in order to measure the differences. Following collection, the samples are processed, tardigrades are collected, and they are made into slides. Keying them to species is essential in measuring the diversity of the two different environments, as this is what determines the results.

Once all the information has been presented, statistical data from the different sites will be compared through separate species area curves. The analysis of these curves will be presented. In doing this, we can measure if there is a difference in diversity. We can also measure if different environmental factors really do have an affect on the diversity of tardigrades.

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Impact of Amendments on Physical and Chemical Properties of Soils Irrigated with Saline-Sodic Drainage Water

Re-use of saline-sodic drainage water (DW) for the irrigation of salt tolerant forages and row crops is an important tool for salinity and drainage management on the Westside San Joaquin Valley of California. Proper irrigation management and on-going soil reclamation are needed to ensure the sustainability of these DW re-use systems now called Integrated On-Farm Drainage Management (IFDM). The IFDM system at Red Rock Ranch uses good quality canal water (electrical conductivity (ECw) = 0.3ds/m) to irrigate high value crops in Stage-1, collects the Stage-1 DW and re-applies it successively to Stage-2, Stage-3 and Stage-4 with progressive increases in salinity levels of the DW reaching an average ECw of 12.9ds/m when applied to Stage 4. The sodic nature of this DW can cause clay dispersion and reduce infiltration and hydraulic conductivity (K) of soils. The objective of the current research was to assess the impact of three amendments (sulfur, gypsum and poultry manure) on the physical and chemical properties of these salt-affected soils. The amendments were applied twice a year starting in Fall 2006. Unsaturated hydraulic conductivity (K) rates were compared for tensions of 0.5, 2 and 6 cm obtained using mini-disk infiltrometers. Soil samples were analyzed for pH, saturated paste electrical conductivity (ECe) and sodium adsorption ratio (SAR).

Results from the three amendment applications completed to date indicate general increases in K for the soils in Stages 3 & 4, although these values were not statistically significant. There has been no significant change in pH with values ranging from 7.95 to 8.4. Soil salinity ranged from 15-30ds/m ECe in Stages 3&4. The SAR values dropped significantly (P = 0.1) in amended plots in both Stages 3&4 which would be indicative of a positive effect of the amendments. A final round of infiltration measurements in April 08 should better reflect the overall effect of these amendments in saline-sodic soils.

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Investigation of Field Performances of Advanced Fiber Composite Fabrics in Infrastructure Application

The use of high-strength fiber reinforced polymer (FRP) composites in infrastructures is now a commercial reality. In this paper, the performance of an advanced fiber composite fabric is investigated after almost eight years of use (i.e., since fall of 2001) in a bridge rehabilitation project.

In 2001, the KY3297 Bridge over Little Sandy River in Carter County, KY, was repaired using advanced fiber reinforced polymer (FRP) composites. The bridge was deteriorating at an alarming rate due to a lack of carrying capacity in shear in the several of the main supporting bridge girders. To repair and partially restore the bridge, which at that time had only being in service for less than 10 years, an advanced FRP composite was selected over more traditional repair materials. The repair cost $105,000, compared to the estimated replacement cost of $600,000.

To assess the field performances such as its effectiveness and durability of the installed system, crack gauges were installed and visual inspections of the system were carried out. The crack gauges allow direct measurement of crack movement or propagation. Visual inspections allow monitoring of system defects such as de-lamination of FRP composites from concrete surface, formation of undesirable air pockets or bubbles between layers, and localized damage and/or rupture of the FRP system.

The rehabilitation of the bridge was completed in October 2001. Since then constant inspections are being carried out. Based on the latest round of inspection, no crack movement or propagation has been observed. In addition, none of the aforementioned defects or imperfections had occurred as the system remains intact. This implicates that the performed retrofit was a success and the selected system of retrofit is a viable one. The bridge, which initially had an estimated remaining life expectancy of less than three years, is now expected to last at least twenty years or longer.

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Reduplicative Pig Latin

This study examines a novel variety of the English ludling (or language game or secret languge) known as Pig Latin. In Pig Latin (PL), words such as 'be' /.bi/ and 'on' /.an/ are transformed into the alternate forms 'e-bay' /.i.be/ and 'on-yay' /.an.je/ respectively. The original rime is trailed by a PL specific morpheme having a CV form, with V being a fixed vowel /e/ and C being variable depending on the initial onset of the target.

Most of the phonological literature report dialects of PL where the PL morpheme is applied exclusively to lexical targets ('ambush'->'ambush-yay'). The consultant in this study spoke a variation where the minimal prosodic word as the target of the ludling resulting in multiple copies of the PL morpheme in words with more than one prosodic foot ('ambush'->'am-yay ush-bay'). All data was collected from a single consultant using a variety of elicitation methods; our sample consists of single words and phrases produced both in isolation and extracted from sentences.

We argue for a reduplicative account of PL where the target of the morpheme is copied and truncated while collaboration between the necessity of having an onset for the PL morpheme and a strong prohibition against alliteration between the PL morpheme and the target force the deletion of word-initial consonants. The account is composed within a framework of parallel Correspondence Theory (McCarthy and Prince 1995) As in Optimality Theory (McCarthy and Prince 1993); violable constraints are ranked hierarchically in order to determine the best possible output from an infinite list of candidate outputs. Care was taken to select only constraints that are attested. The constraints were then ranked in the order that we feel best explains the largest number of tokens and would require a minimum of rearrangement to capture all outputs observed for words with variable output forms.

The constraint hierarchy we champion crucially involves Onset(PG), a constraint requiring the PL morpheme to have an onset, and a version of *Echo, a constraint that prohibits identical copies, ranked above Max-IO, a constraint that prohibits deletion in the output. A series of constraints then control the selection of the target for the PL morpheme; the manipulation of which can produce other attested varieties of PL.

Although the constraint hierarchy used captures the majority of the data, there are a number of outputs that are inconsistent with the proposed constraint ranking. Most of the problems seem to be the result of highly mobile constraints that result in the appearance of alternate outputs for a particular word that make construction of a definitive ranking scheme difficult. However, there are outputs for some words that seem to be unreachable by the incarnation of Correspondence Theory used here and present theoretical problems for our account.

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Higher-Mode Effects in Lead-Core-Ruber Base Isolated Multi-Story Steel Buildings Subjected to Near-Field Excitations

In this paper, a performance of nonlinear lead-core-rubber base isolators (LCR) to control highly-nonlinear vibrations in steel buildings is evaluated. Bouc and Wen equations are used to model the behavior of the lead-core part of the isolator. The members of buildings whose inter-story displacements have yielded are analyzed using a highly-nonlinear material model. The stiffness in the members degrades smoothly following the constitutive rule that was developed to assess the behavior of kinematically strain-hardened materials under cyclic conditions. The control ability of LCR is demonstrated numerically using an algorithm developed and called BISON (Base ISolation in nONlinear time-history analysis). A two story isolated building is excited by an El Centro ground motion and by a non-stationary ground signal used as a near-field excitation. Hysteretic and time-history of an eight-story isolated building that responds at higher-modes of vibration (HME) are analyzed. Two parameters of the isolator which are the total yield force of the isolator and the pre-yield to post-yield stiffness ratio of the lead -core component are varied in order to study the influence of these two parameters to the higher-modes of vibrations of the building. It is found that the inter-story vibrations in the two-story building under El-Centro excitation are very adequately controlled. However, the displacement and velocity demands under near-field conditions are not significantly reduced.

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Glucose Alters Plasma Ghrelin Levels and Its Receptor in the Brain in the Tilapia, Oreochrmois Mossambicus

Ghrelin (GRLN), a novel stomach peptide, is the endogenous ligand for ghrelin receptor (GHS-R1a and GHS-R1b). We have shown that GRLN has a stimulatory effect on growth hormone (GH) release from the pituitary in addition to stimulating feeding in the tilapia, Oreochromis mossambicus. Reports in mammals have shown that GLRN plays a role in glucose metabolism and conversely, glucose regulates plasma GRLN levels. We have preliminary evidence that GRLN stimulates the release of glucose from cultured liver cells. The current study was conducted to investigate the effect of a single injection of glucose (2 mg/g body weight) on GRLN plasma levels and on the growth hormone/insulin-like growth factor-I (IGF-I) axis in the tilapia. Six h post-injection, plasma was collected for the measurement of GRLN, GH, and IGF-I levels as well as liver for mRNA expression levels of GH-R and IGF-I, stomach for ghrelin mRNA expression, pituitary for GHS-R1a mRNA expression, and brain for GHS-R1b, GHS-R1b, and NPY mRNA expression. Glucose treatment significantly increased plasma GRLN levels but did not alter stomach GRLN mRNA levels. GHS-R1a mRNA levels in the pituitary and brain were significantly elevated while GHS-R1b was not; NPY was not altered significantly in the brain as well. Despite an increase in the levels of GRLN in the plasma and GHS-R1a in the pituitary and brain, plasma GH levels were not altered after glucose treatment.
However, glucose significantly reduced plasma IGF-I levels, but did not alter liver mRNA levels of GH-R and IGF-I. These data suggest that an elevation in blood glucose, which occurs naturally during fasting, is one of the metabolic signals that lower blood IGF-I levels and inhibits growth while at the same time signaling the animal to feed.

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Original Picturebooks and Houghton Mifflin Anthologies: A Comparative Analysis

Houghton Mifflin's reading program—A Legacy in Learning—provides student anthologies for each grade level beginning with first grade. In the first- through fourth-grade anthologies, picturebooks comprise the majority of story selections. Houghton Mifflin refers to these picturebook selections as "authentic literature" because they are written in the author's original language and can be found in a library in their original format. In spite of the publisher's claim, the layout of the original picturebooks differs significantly from the story selections in the Houghton Mifflin anthologies. As this study demonstrates, there are several instances where two or more pages of original text are compressed onto one page, and many essential illustrations are deleted.

In order to determine the extent of the alterations to the original picturebooks, the content of each selected picturebook has been analyzed and contrasted with the corresponding story in the respective anthology. The analysis involves four areas: textual layout, font, illustrations, and peritextual features. As this study demonstrates, the alterations to the original picturebook selections in the Houghton Mifflin anthologies are significant. These alterations have not only changed the author's and illustrator's original intent thereby reducing the authenticity of the selections, they may have also negatively affected the reading experience—especially for beginning readers, struggling readers and English language learners—by removing the visual support that can be used to make predictions and inferences, analyze characters and settings, and aid in comprehension.

In 2002, Houghton Mifflin received 80% of the market share for California's textbook adoption; therefore, a significant number of children are reading these abridged picturebooks instead of having access to genuine "authentic literature." Even though the students in California are being exposed to a variety of literature through this reading program, the richness of the literary experience has been compromised.

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An Educational Program for Older Adults: Medication Management/Preventing Falls

Falls are prevalent in the older adult population. In fact, 33-50% of people over age 65 are thought to suffer a fall each year (Reddy, 2006) and according to The National Center for Injury Prevention and Control, it is estimated in 2002 over 12,800 elders > age 65 died due to falls (CDC, 2006). A medication regimen that consists of multiple medications can cause an increase in side effects (Prince, Goetz, Rihn, & Olsky, 1992). Adverse drug reactions of medications are a contributing factor to falls (Miller, 2002). Therefore, "The likelihood of [adverse drug reactions] rises with an increase in the number of medications taken." For example, if an older adult is taking eight medications, this increases his/her risk of having an adverse drug reaction to 100% (Curry, Walker, Hogstel, & Burns, 2005).

Assessment of a medication regimen will reveal the possibility of some risks of falls among the older adult population such as: adverse drug reactions if the older adult is on many medications, and a knowledge deficit of their own medications (i.e. not knowing why they are taking a particular medication). One way to address the issue of falls related to medications is through education regarding medication management.

The issue of sufficient medication management will be addressed amongst a group of older adults (>65yrs of age) who are participants of the current Fall proof program, a program designed to reduce falls in seniors. A series of classes comprised of information concerning: common medications used by participants related to falls (i.e. heart medications), their purpose and side effects, biological and physiological changes occurring in the elderly, and ultimately a tool that will serve the purpose of easier medication management.

Older adults need to be informed of the side effects of their medications, biological and physiological changes occurring in the elderly, and management of medications. These topics are of great interest since they all can keep the older adult informed (Curry, Walker, Hogstel, & Burns, 2005). The goal is to inform and ensure that older adults understand their own medication regimen (including understanding why they are taking a particular medication, side effects) so that ultimately falls amongst the older adult population will significantly decrease.

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The Identification of Brachyuran Megalopae of the San Francisco Bay Estuary

In 1992, the Chinese mitten crab, Eriocheir sinensis, was discovered in the San Francisco/Delta system. Since its invasion, the Chinese mitten crab has become a nuisance species. If population explosions can be predicted, preparations can be made for the negative effects caused by the down stream migration of mitten crab juveniles. Year-class strength of juveniles may be predicted by megalopae abundance, in correlation with temperature, salinity and tidal currents. Megalopae abundance can be determined with light traps and plankton tows. There was no mechanism to identify the megalopae species in the San Francisco Bay/Delta system. The objective of this study was to create a dichotomous key of the brachyuran megalopae species of the San Francisco Bay system, thus allowing us to identify and quantify E. sinensis megalopae.

Using characteristics obtained from published literature, a key was generated to identify 13 brachyuran species. Illustrations of each megalopae species was obtained from published literature. Larval light trap samples were obtained from the Smithsonian Environmental Research Center. The light trap samples were taken from areas in the San Francisco Bay Estuary (N 37°45', W 122°26') including Point San Pablo, McNear's Beach, and Point Pinole Regional Shoreline during March 2007-June 2007. Plankton tow samples taken during January 2006-December 2006, were acquired from the U.S. Fish and Wildlife Service from areas between San Pablo Bay and Suisun Bay. Ten species of Brachyuran zoeae and three species of megalopae were collected from light trap and plankton tow samples and keyed to species to determine abundances. Point San Pablo possessed the highest number of E. sinensis megalopae. Four Eriocheir sinensis megalopae were found in light trap samples taken during April 2007-May 2007. Light trap sampling will be continued in 2008.

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The Reliability of a Computerized Measurement Tool (Dartfish) to Document Three Resting Calcaneal Stance Positions in a Sample of Adolescent Females

PURPOSE: The incidence of injury to the anterior cruciate ligament (ACL) in the female athlete has increased exponentially over the past 20 years. One contributing factor to injury may be the presence of increased rearfoot valgus in the female athlete. Before this clinical question can be addressed, a standardized procedure to document rearfoot valgus angles must be established. This study's purpose was to determine the test–retest reliability of measuring resting rearfoot positions, across three calcaneal stance positions: double limb support (DLS), single limb support (SLS) and single limb support squat (SLSS) in a sample of adolescent females.

SUBJECTS: Thirty-three healthy, female volunteers between the ages of 10-18 years participated in this descriptive study.

METHODS AND MATERIALS: Digital images were taken of each participant's left and right rearfoot in three positions (double limb stance, single limb stance, single-limb stance with squat). Rearfoot position was operationally defined as the angle formed between the bisection of the calcaneus and a line perpendicular to the floor. The images were imported into a computer, and manually measured using the computer program (Dartfish) to determine rearfoot position. The images were re-measured one week later by the same investigator.

ANALYSES: Intra-rater reliability was established using Intraclass Coefficient analysis (ICC) of the two measurements of rearfoot position, across the three calcaneal stance positions

RESULTS: All measurements of rearfoot position had good to excellent test-re-test reliability. ICC's calculated ranged from .81 to .94. (DLS right .94; DLS left .94; SLS right .89; SLS left .81; SLSS right .91 and SLSS left .89)

CONCLUSION: Rearfoot position measurements using digital images manually measured using the computer program (Dartfish) had good to excellent test-re-test reliability over a one-week time span. 282/300.

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Emperic Treatment for Cocci Could Decrease Mortailty in HIV Patient

BACKGROUND: AIDS patients hospitalized with pneumonia are treated empirically for common opportunistic infections pending a definitive diagnosis. In the central valley region, however, coccidioidomycosis is a common infectious cause of pneumonia and empiric treatment for this is not recommended in AIDS treatment guidelines. Our goal was to determine if adding empiric treatment for coccidioidomycosis at the time of presentation with pneumonia would improve outcomes for AIDS patients.

METHODS:
HIV infected patients who were admitted with pulmonary infection who died within 30 days post-hospitalization were were identified by review of discharge diagnosis of all patients hospitalized at UMC, CRMC or Clovis between 2000 –2007. A total of 591 HIV infected patients were identified, and chart review extracted data on empiric antibiotic use, antifungal use, steroid use and final diagnosis and outcome.

RESULTS
Out the five hundred ninety one patients, 98 patients (32%) died within one month post-hospitalization of which 13 Patients (13%) died from severe worsening pulmonary coccidioimycosis. None of these 13 patients were treated for coccidioidomycosis empirically on admission; therapy was only begun after a definitive diagnosis had been made.

CONCLUSION.
In the San Joaquin Valley area, we found that 13% of deaths from pneumonia in HIV infected patients over a seven year period were due to coccidioidomycosis. In many patients the time to diagnosis and treatment of coccidioidomycosis is delayed 4-7 days pending the results of diagnostic testing. Our results suggest that addition of antifungal therapy to the initial empiric treatment of pneumonia in HIV infected patients could significantly impact mortality in these patients.

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Prevalence of Hepatitis B Virus (HBV) Infection among Hmongs in the San Joaquin Valley

Introduction: Chronic hepatitis B infections cause 80% of all primary liver cancer worldwide. The prevalence of HBV infections among most Asian American groups have been well documented, however, little is known about the prevalence of HBV infection among Hmong immigrants in the United States. The Central California has the largest Hmong population (about 85,000) in the United States; the majority (about 65,000) being settled in the Fresno County.The aim of this study was to determine the prevalence of HBV infections among Hmongs in the San Joaquin Valley. This is the first HBV screening study among Hmong immigrants in the United States.

Methods: 534 Hmongs aging ¡Ý18 years were randomly recruited at various popular Hmong locations throughout Fresno County. Blood samples were collected, centrifuged on-site, and serums tested at the local laboratory for hepatitis B surface antigen (HBsAg) by enzyme-immunoassays.

Results: 289 females and 245 males Hmongs (mean age, 43.93) were screened. Among these, 89 (41 males and 48 females) were tested positive for HBsAg, which accounts for a prevalence of 16.7% (95% C.I. 13.5-19.9). The majorities of HBsAg + were ¡Ý40 years (64.2%), married (66.7%), born in Laos (87.3%), and had lived in the United States ¡Ý20 years (62.5%). Only 37.5% of the participants reported having primary care physicians.

Conclusions: Approximately one out of six Hmongs in the San Joaquin Valley is currently infected with HBV, thus representing a very significant reservoir of infection in this community. The majority of these patients have no primary physicians to provide further treatment, screening for liver cancer, or offer vaccination to their families. Development of a national program for the prevention, control and medical management of hepatitis B is desperately needed at present.

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Effects of Diesel Exhaust Chemicals on Aggressive Behavior in a Mouse Model

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

Diesel exhaust chemicals have been linked to the exacerbation of many health conditions, including heart and respiratory diseases. Our lab previously reported the presence of PQ in cerebral spinal fluid of animals exposed to high doses of PQ, demonstrating that PQ is capable of penetrating the blood brain barrier and may display neurological effects. This study was designed to determine whether PQ would alter the social behavior of chronically exposed mice in a controlled environment.

Normal lepr+/- mice were exposed to high levels of PQ (150 mg/kg/d oral) in utero and throughout their lifetime. Mice were grouped by gender at 5 weeks (pre-puberty) and assessed at 12 weeks. Behavioral analyses included indicators of aggressive behavior (missing whiskers or fur, bite marks) within grouped communities and during monitored neutral territory encounters between non-grouped, same-sex animals (biting, attacking). Blood samples were collected from the tail vein under mild anesthesia and serum testosterone analyzed. While no significant differences in testosterone levels were found between PQ exposed and non-exposed mice, aggressive behavior within community groups (missing whiskers) and during monitored non-grouped encounters (biting) was significantly increased in PQ exposed animals.

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Rate of Metabolism of Methyfarnesoate by MF Esterase Enzyme in Tadpole Shrimp (Triops longicaudatus)

Methyl farnesoate (MF) is an unepoxiated form of juvenile hormone Ш (JHIII), which controls reproduction in crustaceans, (Laufer et.al. 1992). The physiological roles of MF in crustaceans are not completely understood, but its functions may be parallel to the functions of JHIII in insects (Borst et al, 2001). This study helps to investigate the factors regulating MF titer in the hemolymph of crustaceans, since the hormonal titer (JHIII) is maintained by altering the rate of biosynthesis and metabolism (Hammock et al, 1985). In crustaceans as in insects, MF is hydrolyzed by carboxylesterases into farnesoic acid in peripheral tissues. The aim of the experiment is to find the rate of metabolism of MF by assaying for methyl farnesoate esterase (MFE) by radiochemical partition assay in the tadpole shrimps Triops Longicaudatus(Tadpole shrimp). Our study helps to determine change in the activity of MFE enzyme in tadpole shrimps when that are fed with diet containing MF. If MFE activity increases to metabolize excess MF then there may up-regulation of MFE which may indicate development of resistance against MF. To find rate of metabolism of MF by MF esterase in Triops, their mandibular glands are used in the MFE experiments using established procedures (Homola & Chang, 1997). Our preliminary data on Sycyonia ingentis suggests an increase in MFE rate in hepatopancreas by feeding different concentration of MF pellets and mean control ~1.174 ng MF/μg protein/min, 0.0001% MF ~ 1.338 and 0.001% MF 1.375. We investigated that mandibular gland of Triops have lower MFE rate compared to MFE rate in hepatopancreas of Sycyonia. In Triops means MFE rates of control ~ 0.00357 ng MF/g protein/min, 0.0001% MF ~ 0.00525 and 0.001% MF ~ 0.01041.

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The Effects of Lawful Multi-Sensory Concordance on Visuo-Spatial Adaptation

Organisms perceptually adapt to the changing environment in order to effectively perform functions critical to survival. There has been over 100 years of research into the nueropathological, perceptual and general cognitive implications of perceptual adaptation. This process often involves multiple perceptual systems and can be described as the process by which one system adjusts the way it interprets stimuli so that it can come into agreement with other perceptual systems. This process seems to require that the multi-modal stimuli be lawfully concordant, meaning that they all describe the same event, yet the importance of a high degree of concordance has not yet been found. The current study is examining how different degrees of concordant multi-sensory stimuli affect perceptual adaptation. We recruited 130 participants from CSU, Fresno undergraduate Introduction to Psychology courses. To reliably produce adaptation we used a variation of the basic PAT (Prism Adaptation Table) apparatus used by Paulsen, Butters, Salmon, Heidel and Swenson (1993). Participants experienced one of four levels of laterally displaced sound and light stimuli. We expect that the participants who were exposed to highly concordant stimuli will experience the greatest magnitude of adaptation. Upon analyzing the data we have collected we will be able to determine how much lawful sensory concordance is required in order to produce perceptual adaptation. These findings will have implications for the developmental, biomedical and perceptual applications of this phenomenon.

Reference:
Paulsen, J.S., Butters, N., Salmon, D.P., Heindel, W.C. & Swenson, M.R. (1993). Prism adaptation in Alzheimer's and Huntington's disease. Neuropsychology, 7, 73-81.

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The Sound and its Aesthetic Counterpart, or Your Whiteness

The Sound and its Aesthetic Counterpart, or Your Whiteness is a sculptural, installation art piece. In creating this installation piece, it was my intention to immerse the viewer in a blanket of stimulation, creating complex feelings that add to the visual experience. This 30-piece installation takes over the gallery space it inhabits by way of white noise sound and texture. The purpose of this piece was to comment on how the stimulation of modern technology has been integrated into the lives of many people.

The Sound and Itâ€™s Aesthetic Counterpart, or Your Whiteness, deflects over stimulation by surrounding the audience with a white noise sound effect. This sculptural installation consisted of thirty, one-foot cubes made of white plexiglass. Each box was mounted to a white, steel, stand, and filled the entire gallery space with a white noise sound effect. The sound was soothing for some and disconcerting for others as it was felt as well as heard as it vibrated from within each box. Strobe lights also projected from each box, which pulsated to the rhythm of the sound. The boxes appeared to be spraying the aesthetic representation of the white noise sound onto various surfaces. A plaster texture spray was used to highlight the focused areas of the sound on the walls and ceiling.

While this installation was canceling out most sounds in the gallery space, it added stimulation in the form of light and texture. This art piece took on a more physical form by flashing a strobe light and projecting its own aesthetic onto various surfaces throughout the gallery space. Ironically, the white noise machines created more stimulation than they deflected as the audience was completely surrounded with both visual and audio stimulation.

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"I'm Just Your Typical Anti-Stereotype Female": An Exploration of Females Living on the Streets of San Francisco

I argue that the standpoint which sees homeless female youth as passive victims is one-dimensional and does not grant these women any agency at all. Rather, these are stereotypical views of the dominant culture which associates females with domesticity and assumes that they are submissive victims of circumstance. I suggest that female street youth who are a part of a punk- influenced subculture reject the social norms of gender and home to breakdown sexist stereotypes about women, and as a way to cope with homelessness.

The purpose of this study is twofold: to understand the lifestyle of homeless females living in a punk-influenced lifestyle, and to explore the changing constructions of gender within different social settings. The importance of this study is to both understand the experience of female homeless youth who freely live their lifestyle, and to suggest that these females are not merely victims of circumstance, but youths who use their lifestyle as a form of resistance to victimization. More importantly this information can help shape and create social programs that will utilize the strengths that these females have acquired while on the streets; and used as a catalyst for possibly exiting street life.

Through this research three important themes emerged: Firstly, that these youth exercise an immense amount of agency in their lives; secondly, the importance of social networks and coping skills for survival; and thirdly, the reconstructed meaning of gender for the empowerment of females living on the streets. These themes are important because they are contrary to previous studies on female street youth, which portrays these youth as helpless and lacking agency.

Although these females reject conforming to conventional society's norms, they end up take on a new set of social norms of the street culture that can be more constricting due to the possibility of dangerous outcomes if not adhered to.

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The Effects of Type a Pattern Behavior on Aggressive Driving Behavior

The tendency of becoming aggressive behind the wheel is an old issue that recently has become a bigger phenomenon in our society. Evidence indicates that incidents of aggressive driving and related concepts are increasing in frequency and severity. In the United States from the period of 1990 to 1995 cases of road rage rose 7% each year (Deffenbacher et al., 2003). Past research has identified some causes of aggressive driving behavior, however these causes do not account for all the occurrences of aggressive driving behavior. This current project will continue to investigate the possible causes of aggressive driving behaviors.

The purpose of this study is to investigate the influence of Type A pattern behavior and a situational prompt of time urgency on aggressive driving responses. Subjects will take the Jenkins Activity Survey (JAS) to measure Type A and will be placed randomly into one of two conditions. In the first condition subjects receive a prompt of time urgency and in the second condition subjects will not receive a prompt of time urgency. Subjects will view a videotaped scene of a driving situation that was designed to provoke angry and/or aggressive reactions. The validity of this driving situation has been demonstrated by past research (Nesbit, 2006).

Subjects high in Type A are expected to report increased angry and aggressive responses to the driving situations, when compared to those low in Type A. Subjects in the time urgency condition are expected to report increased angry and aggressive responses to the driving situations, when compared to those in the second no time urgency condition. Implications of this study will be discussed, which include increased knowledge concerning the causes of driver aggression. Subjects will receive one experimental credit for each hour of involvement in this study.

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Overgrowth after Femoral Shaft Fractures in Infants Treated with a Pavlik Harness

Introduction: Fractures of the femur in children age 2 to 12 years heal with an expected overgrowth response. However, in infants, age < 1, the overgrowth response is variable and some authors have suggested that overgrowth does not occur. The purpose of this paper is to determine if overgrowth occurs when treating femur fractures in infants using a Pavlik harness.

Methods: The charts and radiographs of 30 patients age less than 1 year old treated with a Pavlik harness for a femoral shaft fracture were reviewed. 7 patients were lost to follow up or had less than 18 months follow up and were excluded from the study. For the remaining 23 patients, a teleoroentgenogram—one film with a single exposure for the entire lower limbs to measure limb lengths--was performed 18 or more months after the injury. In addition each patient was examined for range of motion, rotation, gait, and thigh circumference.

Results: 15 boys and 8 girls were studied. 14 right femurs and 9 left femurs were fractured. The average age at injury was 5 months (range 1d-11 months). The average time in the Pavlik was 26 days (range 14 to 44 days). 12 of 23 patients underwent a NAT evaluation. The average radiographic shortening at injury was 7 mm (range 1-18mm). 10 fractures were transverse and 13 were oblique. The average final radiographic femoral length was 2 mm longer on the injured leg (range 5 mm short to 5 mm long). 14 of 23 fractures demonstrated overgrowth averaging 5 mm (range 1 to 18 mm). Range of knee and hip motion was equal in all patients. Gait was symmetrical for age in all patients. Minor---less than 10 degree—changes in hip rotation were noted in 2 patients and quad circumference differences of less than 5mm were noted in 3 patients.

Conclusions: Overgrowth following femur fractures in infants occurred in the majority of cases. Pavlik harness treatment of femur fractures in 23 infants did not result in significant leg length inequality, gait change, rotational change or quadriceps atrophy.

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Effects of Facial Prominence on Predicted Job Performance

Are predictions of job performance influenced by facial prominence? Does the "type" of job that is paired with a picture matter? Higher facial prominence has been linked to higher ratings on the following traits: intelligence, ambition, attractiveness, dominance, and assertiveness. Some research suggests that facial prominence is less important than gender and occupation when trait judgments are concerned, while archival studies of print media suggest that gender, facial prominence, and perceived occupation status are consistently related.

In the current study, 358 UC Merced undergraduates completed a judgment task designed to test the influence of facial prominence and job type on attitudes about job performance. Results suggest that an incongruence between occupation and facial prominence leads to higher predicted levels of negative work-related behaviors, but not positive work-related behaviors.

When career information (e.g. a résumé) is paired with a picture of a job candidate, facial framing influences predicted work-related behavior. Future research will explore if these effects hold across candidate gender, and to what degree raters' judgment of occupation "physicality" influence these types of behavior predictions.

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Effects of Diesel Exhaust Chemicals on Diabetic Wound Healing and Cellular Proliferation

The management of diabetic wounds is a major clinical challenge. Current research therapies include the use of vasodilators and pro-angiogenic compounds to improve blood flow, as well as antioxidants to reduce ischemia-related tissue damage. While high levels of free radicals (H2O2) generated by neutrophils and macrophage at wound sites have been shown to contribute to lipid peroxidation and cell death, recent studies suggest that low levels of H2O2 stimulate angiogenesis, enhancing wound healing.

Air quality in Fresno is an important issue for many residents. Of particular concern are diesel emissions, which contribute to both particulate matter (PM) and ozone pollution. Diesel-associated PM has been linked to the exacerbation of many health conditions, including heart and respiratory diseases. Specific chemicals associated with diesel exhaust have been found in higher concentrations in ambient air in Fresno than in any other part of the country. Previous studies in cell-free assays revealed that some of these chemicals undergo redox cycling and are capable of generating significant levels of free radicals (H2O2) indefinitely.

This project examined the effects of a diesel exhaust chemical, phenanthraquinone (PQ), on wound healing in a diabetic mouse model. Diabetic (db) mice were acutely (14 days) or chronically (lifetime) exposed to PQ (150 mg/kg/d oral) prior to wounding. Healing rates (wound re-epithelialization) were evaluated 10 days post-wounding. Wound biopsies were taken and immunohistochemistry performed on frozen sections to assess microvascular and granulation tissue formation. Significant differences were demonstrated between exposed and non-exposed mice. In addition, in vitro experiments were performed to examine the effects of PQ on intracellular H2O2 concentrations and cellular proliferation. While high doses of PQ generated considerable intracellular H2O2, which often resulted in cell death, very low doses of PQ were demonstrated to produce detectable increases in H2O2 and appeared to stimulate cellular proliferation.

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Air Quality Analysis for Select Cities in United States

The primary objective of this study is to analyze air quality data obtained from some select cities in United States and determine a possible correlation between the presence of anthropogenic air pollutants and noticeable changes in local weather conditions. Eight U.S. cities, located in different parts of the country, were selected as monitoring sites. The cities include Anchorage (AK), Austin (TX), Chicago (IL), Fresno (CA), Miami (FL), New York (NY), Philadelphia (PA), and Seattle (WA). The primary data used for the analysis are air quality index (AQI) data and the levels of four of the six pollutants regulated by the United States Environmental Protection Agency (EPA), i.e., ground-level ozone (O3), particulate matter (PM2.5 and PM10), carbon monoxide(CO), nitrogen dioxide (NO2), and sulfur dioxide (SO2), for period spanning 1997 to 2006. In review of the AQI summaries for the eight cities, ozone persisted as a main pollutant for a substantial number of days each year in seven out of the eight cities in this comparison; Anchorage being the exception, which can more than likely be attributed to Alaska's low population and consequently less urbanization. Besides ozone, PM2.5 exists at high levels in all eight areas though Anchorage is again the exception;
Anchorage has much higher levels of PM10, though the larger particle pollution is giving way to seemingly increasing levels of PM2.5. The excessive concentrations of greenhouse gasses: ground-level ozone (O3), carbon monoxide (CO), and sulfur dioxide (SO2), are undoubtedly modifying the natural environment.

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Designing and Building the Ultimate World-Class Packaging Automation Laboratory

Manufacturers in the United States continue to see increased pressure from overseas operations that have abundant technology and inexpensive labor rates. In order to remain globally competitive, domestic manufacturers need a workforce trained in automation and industrial control systems architecture. In response to this need, a group of CSU, Fresno students formed a workgroup to design and build a laboratory for the study of these disciplines. Three main objectives immediately surfaced: 1. Define the arena of manufacturing automation to develop. 2. Define and develop the control system architecture. 3. Build the system.

Packaging technology arose as the most likely arena to study, since processing and finished materials handling are dependent on local variables like market conditions and raw materials availability. To define packaging needs, the workgroup turned to ISO 9000 quality systems requirements and the Open Modular Architecture Control (OMAC) Packaging Workgroup's "Guidelines for Packaging Machinery"(2006). The basic functions of packaging were identified as: sealing, inspection, tracking (traceability), cartoning, palletizing, and inventory control measures.

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Facts from the Fallout: Making a Documentary about the Human Health Research in the Wake of the Chernobyl Disaster

Why should you care about Chernobyl? Given our country's need for energy, and especially clean energy, understanding the details of the worst nuclear accident might be helpful in considering nuclear power. Knowing that the levels of radiation that the Chernobyl disaster produced are very similar to those projected in the case of an attack on an urban area with a dirty bomb is also strong motivation.

The objective of the study was to make a documentary revealing what the health effects of the disaster were and to discover the research methods which the scientists used to determine the effects. Additionally, the author wanted to show what effect the disaster had through the eyes of the public and through the eyes of the researchers. This was to be a collaborative effort via video postings on a blog (chernobylresearch.blogspot.com).

The author contacted the Research Center for Radiation Medicine in Kiev, Ukraine and set up a two month internship and an agreement to allow to author to make a documentary there. Interviews were conducted with various people and an inside look was given to various research processes at the Center.

Many different methods were employed to estimate radiation dose received by people such as information about the person's whereabouts at the time of the disaster, Electron Paramagnetic Resonance Spectroscopy (similar to MRI) of tooth enamel, Whole Body Counter measuring internal radioactivity. Continued epidemiological studies are seeking to differentiate the radiation-induced health effects from the stress-induced health effects. Many victims suffered solely from stress induced health effects similar to post-traumatic stress disorder. There are economic and governmental obstacles in obtaining further results.

The Chernobyl Disaster is not understood by most. Understanding how it happened and what the effects are is vital to many decisions we need to make. The health effects at this point seem to be primarily stress induced with the exception being those individuals who put out the fire in the reactor and built the sarcophagus. Less than 50 deaths have been proven to be radiation related deaths. This is important to consider in a debate about nuclear power. It is also indicative that if the public is better educated about the effects of radiation on the body, there would be a significantly lower impact on human health in the event of a dirty bomb. The documentary is still in the editing phase and likely will be for approximately the next several months. Selected video clips are available for viewing at chernobylresearch.blogspot.com

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The Last Right: Access to Land as a Human Right

This research questions whether there is a universally attainable human right to property vis-à-vis land as customarily interpreted. Three southern hemisphere democracies' indigenous populations are reviewed: the Aborigine of Australia, the Maori of New Zealand, and Black South Africans.

Historical contexts in each political venue are introduced and evolving land law with regard to each is analyzed in order to assess the feasibility of this asserted human right being universally applicable. Issues related to different relationships with land and whether land is considered to be held in common or individually are explored with respect to indigenous peoples versus setters, and their descendants.

A comparison of similarities and distinctions in these cases indicate consistent findings. Because of competing claims among settlers with several generations of interest in land and variations in how land is viewed either as a commodity or an extension of the individual, not all may be able to have this human right to land provided for.

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Pre and Postprandial Effects on the Ghrelin Receptors in the Mozambique Tilapia (Oreochromis mossambicus)

Ghrelin (GRLN), a gut hormone produced by stomach cells acts as an endogenous ligand for the growth hormone secretagogue receptor (GHSR) in tilapia. The GHSR gene codes two separate transcripts (GHS-R1a and GHS-R1b) which appear to be differentially regulated in response to short-term feeding in tilapia. Expectation of feeding, a psychological factor, and metabolic status stimulates the release of GRLN from the stomach. A unique fatty acid modification (acylation) on the third amino acid residue allows GRLN to cross the blood-brain barrier and bind to the GHSR on neuropeptideY (NPY) neurons. NPY is then produced and acts as an orexigenic signal inducing a feeding behavior. The objectives of this study were to measure the preprandial and postprandial GHS-R1a, GHS-R1b and NPY mRNA levels in the brain and plasma ghrelin levels. Blood and brain samples were collected pre- and postprandially and at the time of feeding from a group of fish acclimated to a scheduled time feeding. Plasma GRLN and mRNA levels of GHS-R1a, GHS-R1b and NPY levels were measured quantitatively. GHS-R1a and NPY mRNA levels in the brain were significantly higher ($P < 0.05$) at 1 h and 3 h preprandially and decreased postprandially in fed fish. In fasted fish, no change was observed in the brain GHS-R1a and NPY mRNA levels at 1 h and 3 h postprandial. No consistent increase or decrease was observed pre- and postprandially in the levels of GHS-R1b mRNA and plasma GRLN. These data confirm a role of GHS-R1a and NPY as orexigenic factors in appetite behavior of tilapia. Furthermore, these data provide evidence that GRLN does not play a role in day-to-day feeding, but may have a role in postprandial metabolism.

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P-Colorability of the Knot/Link (12)^n and (12')^n

The respective ends of a braid may be joined together to form knots or links. A property called p-colorability, where p is a prime number, can then be used to distinguish knot/link-types. In the special case of a particular repetitive braid of three strands, (12)^n and (12')^n), we completely determine p-colorability. The techniques include the use of modular arithmetic, combinatorial knot theory and matrix algebra. The surprising result is the unexpected appearance of the Fibonacci and Lucas numbers.

Specific results are:

1. (12)^n is p-colorable if, and only if n is even and p = 3.
2. (12')^n is p-colorable if, and only if
   (i) n is even and p = 5 or p is an odd prime that divides the nth Fibonacci number or
   (ii)n is odd and p is an odd prime that divides the nth Lucas number.

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Control Algorithm for Civil Structures Subjected to Earthquake Loading

A control algorithm for structures subjected to earthquake loading is investigated. The general control algorithm composes the dynamic characteristics of the incoming signal and the application of the pole placement algorithm for the calculation of the required action. The way in which the structure is controlled, is based on the dynamic characteristics of the building and the frequency content of the applied dynamic signal.

In order to use the pole placement algorithm a procedure of selection of poles of the controlled structure is proposed. The right selection of the location of the poles is critical for the success of the algorithm. This selection is an on line procedure based on non resonance theory. On-line FFT of the incoming part of the signal is performed and the main frequencies are recognized. Based on those frequencies, cycles with radii equal to the frequencies are drawn in the complex plane. A region inside and outside of these cycles is specified as an unsafe zone, where the placement of poles of the controlled system should be avoided. The poles of the uncontrolled structure are also located in the complex plane. Based on the relation between the unsafe zone and the poles of the uncontrolled system, the new locations of the poles of the integrated controlled system are chosen. The incoming signal is divided into small parts, and the above procedure is performed dynamically for every part of the incoming signal. Thus, the location of poles of the controlled system can be changed continuously within the duration of the earthquake.

Parametric simulations for earthquake excitations are performed, for a variety of systems. The analysis results show that the dynamic change of the location of poles of the controlled system can lead to better results, in terms of the response and the required control forces, compared to the case where they are predefined and do not change during the application of the signal on the structure.

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Orif of Displaced Lateral Condyle Fractures of the Humerous via the Posterior Approach

Introduction: The posterior approach to the distal humerus provides superb visualization for anatomic reduction of lateral condyle fractures. However, the approach has been criticized by some authors due to the potential complication of AVN stemming from injury to the posterior blood supply to the fracture fragment. The purpose of this paper is to report the results of ORIF of displaced lateral condyle fractures of the humerus via a posterior approach.

Methods: 9 consecutive cases of displaced lateral condyle fractures were reviewed. A sterile tourniquet and the posterior approach were utilized. No additional dissection of the fracture fragment was performed other than that resulting from the traumatic injury. Fixation was performed with multiple smooth K wires.

Results: 8 boys and 1 girl were studied. The average patient age was 7 years old. 5 left and 4 right elbows were injured. All 9 were Milch type 2 injuries. 5 were Jacob stage 3 and 4 were Jacob stage 2 injuries. The tourniquet time averaged 22 minutes (range 17 – 32 minutes). 2 mm smooth pins were used. In 3 cases 2 pins were used and in 6 cases 3 pins were used. Pins and cast were removed at an average of 5 weeks (range 4-7 wks). The average follow up was 12 months (range 6 mo to 2 yrs). 4 patients lost extension compared to the other elbow by 5 degrees (range 0 to 10 degrees). 5 patients had normal extension. The carrying angle was within 3 degrees of the other elbow in all cases. Radiographs demonstrated union with no case of AVN in all cases. 5 cases demonstrated a small posterior spur. The average scar length was 6 cm and cosmetically acceptable to all parents due to the posterior location.

Conclusions: ORIF of 9 cases of displaced lateral condyle fractures via the posterior approach resulted in excellent visibility of the fracture, minimal postoperative loss of motion, no angular deformity, a cosmetic scar, and no AVN.

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Evaluation of Four Rates of Feather Meal Organic Fertilizer on Yield of Vegetables Subjected to AirJection® Irrigation

Organic farming is one of the fastest growing sectors of agriculture. Rising interests in organic farming in the U.S. especially in California is reflected in 68.3% of the total U.S. organic vegetable production. With increasing population growth and associated increased use of water for domestic and industrial purposes result in reduced water availability for agricultural needs, there is a need for organic farmers to optimize water and nutrient use efficiency.

Evaluating the impact of air via subsurface drip irrigation (SDI) system through the incorporation of high efficiency venturi injectors, referred to as AirJection® Irrigation, has been the focus of our research over the past five years. For conventional cropping systems, we have found that AirJection® Irrigation can increase root zone aeration and add value to grower investments in SDI. In this phase of the research, we evaluated the impact of four nitrogen (N) rates on the yield and quality of organic bell peppers and broccoli when subjected to AirJection® irrigation.

The study was conducted in an organic plot at CSU-Fresno Agricultural Laboratory (UAL) on beds that are 5ft wide and 50ft long. The experiment was a split plot design comprising of eight beds representing four replications of air-injected and no-air treatments (control) as the main treatment, and N rates as subplot treatment. Four rates of nitrogen ranging from 30, 60, 90 and 120 lbs/acre were applied as commercially available organic fertilizer (12-0-0) derived from feather meal.

AirJection® Irrigation resulted in optimum yield increases of bell pepper and broccoli at N rate of 60lbs/acre. For the plants fertilized with 60lbs N/acre, AirJection® Irrigation also increased photosynthetic and soil respiration rates, stomatal conductance, leaf scale water use efficiency, plant tissue nitrate concentrations and shoot and root biomass.

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Latina Middle School Students and Self Efficacy: Opening the Gateway for Change

The purpose of this study is to bring light to the personal stories of unheard Latina middle school students who find themselves at odds with educational institutions. Specifically through a feminist ethnographic approach, this study hopes to uncover how Latina middle schools students view their academic experiences in context to lower educational standards for themselves.

There are four main objectives for this project:(1) Identify significant education experiences influencing higher and lower academic expectations, (2) Define possible reasons for obtaining educational goals (internalized reality), (3) Identify what Latinas know about their local campus community to assist in building positive academic self-efficacy, and (4) Define how educational institutions can better assist Latinas needs as defined by Latinas.

This study is in the process of finalizing data results from interviews. Thus far, a limited number of data collected indicate a need for effective conflict resolution, more academic support and encouragement outside of the classroom, and more exposure to future academic and career projection. The literature review findings are similar to this data; however, few conclusions can be made at this point.

In documenting the personal experiences of these Latina students, it is hoped that a better understanding of how public educational institutions have influenced the acquisition of low self-efficacy is gained and how institutions can address Latina's academic needs effectively.

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Bacterial and Fungal Communities Composition in Aerated Soil

One of the many factors affecting the composition of microbial communities is irrigation. Traditional flood irrigation has a tendency to decrease the availability of nutrients at the root zone of the plants. Irrigation that aerates the root zone of the plants, by the addition of small bubbles of air with the water, increases the oxygen availability for the plants and enhances crop production. The purpose of this study is to determine the microbial diversity in the soil and to examine the composition of this beneficial bacterial population. The benefits of this study include finding methods to enhance good microbial communities that may lead to healthier agricultural products whose production requires less pesticides use.

Agricultural soil was collected at six sites from a vineyard treated with an aerating irrigational system. Six control sites were also collected from the same field treated with conventional irrigation. The soil samples were sieved to remove large particles and stored at 4° C. The DNA of the control and experimental samples was extracted, six different extractions from each site. The DNA concentration was determined spectrophotometrically. PCR was used to amplify the DNA for bacteria and fungus using universal primers fluorescently labeled coding for 16S and 18S ribosomal RNA respectively. The amplification products were digested with two different enzymes: RsaI and HhaI. The terminally labeled amplification products were analyzed on sequencing column to obtain the electropherogram with fragment quantity and size (TRFLP).

The increase in oxygen availability in aerated soils increases root respiration and microbial activity. The results show increase in biomass in the aerated soils with a higher DNA concentration than the control samples. Analysis of the TRFLP data show changes in the community composition, dependant on the irrigation system used. Further analysis of the data indicates a more diverse community, both bacterial and fungal, in the aerated soils. Aeration of agricultural soils enhances microbial numbers and bacterial diversity and this increased microbial biomass is compatible with enhanced crop productivity.

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Prediction of Uncertainty and Confidence Intervals in Thermal Radiative Modeling using the Monte Carlo Ray-Trace Method

The possibility of anthropogenic modification of the Earth's climate has led to an increased interest in understanding the climatological role of the Earth's radiative energy budget. A series of major Earth radiation budget (ERB) studies has been commissioned in an attempt to accumulate the long-term database required to correlate observed trends with human activity and natural phenomena. These programs have led to the development of new instruments and technologies to measure various characteristics of the Earth's ocean-atmosphere system. High-level modeling and analysis of these instruments are essential to defining the accuracy of the data they produce.

This presentation is intended to contribute to the understanding of the results obtained from numerical models of instruments typically used in this effort. Specifically, a rigorous statistical protocol is defined and demonstrated for establishing bounds for the values of the uncertainty and related confidence interval in results obtained from Monte Carlo ray-trace models of radiant exchange.

Numerical models of the thermal radiant exchange in a typical instrument were created using the Monte Carlo ray trace method. Numerical simulations incorporating these models were used to validate the derived equations. The results indicate that the equations successfully predict an upper bound of the uncertainty associated with a Monte Carlo ray-trace mode, based only on the number of interacting surfaces and the number of rays used in the simulation. This is important in that it provides a guideline for the minimum number of rays required in the simulation to keep the results within a certain threshold of uncertainty for a desired spatial discretization.

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Effect of Hematocrit Concentrations on Forensic Blood Alcohol Analysis

Forensic blood alcohol measurements play a critical role in the investigation and prosecution of drunk driving. The validity of these results has been challenged recently based on the argument that an individual's blood hematocrit may affect the measured blood alcohol level. Hematocrit is a measure of the relative amount of red blood cells in a blood sample with a typical range of 35-50% by volume. Drinking alcohol, or ethanol, is distributed through the plasma portion of the blood, but not into the red blood cells. As a result the effective alcohol concentration in the plasma fraction increases as the hematocrit increases. Our laboratory is interested in determining whether the forensic blood alcohol analysis protocol is sensitive to the hematocrit level in a sample.

Experimental work began by using bovine blood as a model system. Samples with a range of hematocrit values were simulated by mixing the red blood cell and plasma fractions of bovine blood to give approximate hematocrit levels of 0 to 90%. Ethanol standard solution was added to give a blood alcohol concentration of 0.08% and then the blood samples were analyzed using the blood alcohol analysis protocol. No statistically significant correlation between measured blood alcohol and hematocrit was observed.

Experimental work has recently extended to human blood. Seven sets of human blood QA samples were obtained from the Department of Justice crime laboratory. These samples were partitioned to form three hematocrit concentrations: plasma (0%), normal (44-52%), and red blood cells (73-85%). Ethanol was added to give a blood alcohol concentration of 0.08% and the samples were analyzed. No statistically significant correlation between measured blood alcohol and hematocrit was observed. A one-way ANOVA showed no statistically significant difference between the measured blood alcohol levels for the different groups.

These results indicate that a suspect's blood hematocrit will not affect the measured blood alcohol level. Future experiments will confirm the bovine blood experiment, address the effect of hematolysis on measurements, and explore why the blood alcohol analysis protocol is not sensitive to a subject's hematocrit level.

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The Use of Mood Induction to Reduce Depression's Negative Effects on Working Memory

Depression is the most common mood disorder among adults in the United States, and the prevalence rates of depression are increasing each year (Kessler, 2002). Depression affects an individual in a number of ways and in this study the focus is on depression's negative affect on working memory. Depression has been negatively correlated with working memory performance due to a depressed individual's tendency to focus on negative material, their shorter attention spans, encoding and retrieval discrepancies and other cognitive factors (Morrow & Nolen-Hoeksema, 1990).

Research to minimize the effects of depression on working memory suggests that the individual's depressive emotions need to be counteracted in some way (Bower, 1981). Specifically, mood induction may be used to elevate the individual's depressed mood and reduce the negative cognition pattern typical of depressed individuals.This study will use musical mood induction to influence the participant's mood; the participants will be in one of three groups: positive mood induction, neutral mood induction, or a silent condition. It is hypothesized that depression and working memory are negatively correlated as supported by the literature, that the mood induction will increase working memory performance, and that the negative correlation of depression and working memory will be altered to reflect better working memory scores despite the presentation of depressive symptomology. Participants' level of depression will be measured using the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and analyzed as a continuous variable. Participants' mood will be measured using the Positive and Negative Affective Schedule (Watson, Clark, & Tellegen, 1988). Participants working memory will be asses using a digit span task (WAIS-III; D. Wechsler, 1997).

Analysis will consist of evaluating the impact depressive symptomology has on working memory. Analysis will also consist of examining the correlation that exits between an individual's BDI score and PANAS score across all three conditions, positive, neutral, and silent. Finally analysis will examine the effect of positive mood induction on the post digit span task to determine if positive mood induction is an effective technique to reduce depressions negative effects on working memory. The implications of this study may include an effective technique to reduce working memory limitations in depressed individuals.

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Eyewitness Evidence and Cognitive Reconfiguration

Recent published research from our laboratory has addressed specific influences on the accuracy of eyewitness identification in standardized, systematically-varied contexts. As in our previous work, the contexts employed depicted armed or unarmed assailants who were shown confronting victims, in scenes which controlled for visual complexity, under systematically-varied conditions of exposure time, weapon type and presence, and perpetrator characteristics. The scenes were well illuminated, and were based on scenarios used in special weapons and tactics (SWAT) training by police departments in California. Data were collected by means modeled on police interviews, and developed with police assistance.

Consistent with the theoretical considerations guiding the research, the results of this work to date have revealed high levels of eyewitness error. The present study continued this research in a classification of physical errors (e.g., clothing and appearance), extrapolative errors (attribution of psychological states, future actions, and "backstory"), and other error types. A statistical analysis of identification protocols from 460 respondents was conducted.
Physical errors related to personal appearance, especially of the perpetrator, were most common. Consistent with the theoretical considerations driving this research, errors concerning surrounding physical structures were less common but highly prevalent, as were errors concerning the presence, absence, and types of weapons observed in different conditions. Extrapolative errors were rarest, consistent with current theory and with older observations of memory reconfiguration; however, such errors were present in sufficient numbers to render this class of error important in real-world investigations and court proceedings. These results contribute to the integration of the dynamics governing eyewitness memory and identification into the larger corpus of current cognitive theory, and also provide potentially important information for modern criminal justice contexts.

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Consumption of News among Various Age Groups: Traditional Media versus New Media

The Internet has changed the way we consume news. This thesis investigates the consumption of news among various audiences and age groups to understand why a particular medium is chosen, and to explore whether younger viewers are turning away from traditional media such as television and newspapers in favor of the nontraditional media such as the Internet.

The method of inquiry for this study was a survey of a representative sample of students, faculty and staff during the Spring 2008 semester at a large public university in the western United States. A paper survey was used in addition to a web-based questionnaire. The survey asked general demographic questions and questions pertaining to the frequency participants consumed different types of news media through traditional and nontraditional sources. Questions were similar to those used in television viewing motives studies. The uses and gratifications theory was incorporated to investigate and explore why and in what manner audiences consume media.

Results from this study indicate participants who previously relied on traditional media such as television and newspaper, now include Internet sources for their news. In addition, younger participants were found to rely more on the Internet than any traditional sources for their news, while older participants still use traditional sources such as the newspaper, but are adapting to other technologies such as the Internet and digital video recorders in an effort to gain more selectivity.

This study found young people are interested in the news, they simply go about selecting their news in nontraditional ways. Research also found that predominantly, people are not watching television to get their news. National and local television news ratings have plummeted over the last decade. Whether the decline can be directly attributed to the Internet, remains to be seen.

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Branching Ratios for the Reaction of Hydroperoxy Radicals with Propionyl Peroxy and Butionyl Peroxy Radicals

The photochemical oxidation of organic pollutants in the atmosphere occurs in a complex sequence of reactions involving oxides of nitrogen (NOx = NO + NO2), ozone, hydroxyl radicals and peroxy radicals. The reaction between organic peroxy radicals (RO2.) and hydroperoxy radicals (HO2.) is important in this process, especially when levels of NOx are low. The "main" product channel has traditionally been viewed as a chain terminating step, leading to the formation of a hydroperoxide. Since hydroperoxides are fairly unreactive, this reaction helps to limit the concentrations of radicals in the atmosphere, preventing the build up of photochemical pollutants. The purpose of this study was to measure other product channels that are believed to occur. The other product channels are important since their products may cause different effects on the atmosphere. For example, one product, a carboxylic acid, plays an important role in the properties of aerosol particles, including their ability to act as seeds for the formation of cloud droplets. This is important because clouds reflect solar radiation back into space, thus reducing the effects of global warming.

Experiments were carried out using a 142 L Teflon-lined, evacuable reaction cell. Six 40 W blacklight lamps are internally mounted within the chamber which generates light in the near ultraviolet region of the electromagnetic spectrum. The cell is also aligned with a Fourier Transforn Infra-Red (FTIR) Spectrometer, which is used to measure the chemical composition of the compounds inside the cell as they change with exposure to the light. Chemical compounds known as aldehydes were used to produce the different organic hydroperoxy radicals.

The results show that as the organic carbon chain gets larger, the yields of the other previously unstudied channels become significant. When the 3 carbon aldehyde was used to make the organic peroxy radical, the 3 channels reported made only 30% of the chain terminating peroxide (which previously was thought to be much larger), and 20% of the carboxylic acid. The product results for the 4 carbon organic peroxy radicals are still in their prelimary stages, yet they seem to show that all the channels are still significant. The previously unstudied high yielding product channels made by these larger organic radicals have never been fitted into any atmospheric model; therefore these results are important in making more accurate models for the reactions that occur in the upper atmosphere.

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Rwanda: Trouble within the Gacaca Courts

The people of the Central African Republic of Rwanda have been subject to torture and fear for more than half a decade. Rwanda experienced a massive campaign of politically inspired and ethnically charged killings from April to July of 1994. This 100 day killing spree by the Hutu majority claimed the lives of an estimated 800,000 Tutsis and Hutu moderates. Today, reconciliation has been attempted by both international players and the local Rwandan system. The transformation by the local gacaca courts into judicial arenas was an effort to try the perpetrators and participants of the 1994 genocide. More specifically the local gacaca system continues to contribute to instability within Rwanda and its potential to lead to recurring violence is examined.

The idea of gacaca comes from the close proximity that Rwandans often lived to one another and where traditionally the system was used as a means of settling small civil affairs (i.e. property disputes and bar brawls). The decision to include the gacaca system as a form of judicial rule, for Rwanda, came from the emphasis on the affordable nature and participatory environment offered by the system. Numerous goals were set by the government included changes necessary for a successful establishment of a more formal system. Within this establishment, many obstructing factors presented themselves, proving just reconciliation and retribution were challenging objectives.

The gacaca courts are a true experiment born of political and financial necessity and a proclaimed desire to deal with the genocide through restorative justice. The harmful violence, division of ethnic groups, deficiency in participation, and corruption plague the gacaca system containing to be a hindrance on the country and people of Rwanda.
Through case studies, the backyard judicial hearings prove to be contributing factors to an increased cycle of violence. The inability of the gacaca system to bring forth justice continues to create questions as to whether the courts will ever be able to legitimately produce truth as an impartial third party.

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North American Tardigrade Project

The North American Tardigrade Project is a collaborative project between Baker University, Bringham Young University and Fresno City College to gather and study tardigrades, a phylum of which little is known about. We have been given a grant of $600,000 that will span four years by the National Science Foundation. Our goal is to collect specimens from LTER locations, code DNA and develop a database that will be home to all of the information about tardigrades in the world.

For the last year, members of the North American Tardigarde project have been collecting samples of moss and lichen, where tardigardes generally make their homes, from all over the globe. In the laboratory at Fresno City College, we are able to process these samples. We make slides for identifying each individual specimen, molecular tubes for DNA sequencing and we also prepare specimens for the scanning electron microscope.

As of this month, we have collected and identified over 4,000 specimens and have created a database specifically for our findings. We will demonstrate the electronic database system and discuss DNA results.

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The Effects of Recreational Dancing on Quality of Life in Older Adults

How do we measure the quality of life? As adults age, the decline of physical health can have a detrimental effect on a person's mental state. Conversely, the mental state of an individual can have a similar effect on a person's physical state. This psychosomatic consequence can have monumental impact on how persons value themselves, how they perceive that others value them, and the value society places on them. These values can affect whether a person feels a sense of worth and value in other peoples' lives as well as in society as a whole. This study examines how older adults use recreational dancing as a method for coping with depression and improving their quality of life. The key research question examined is: What is the perception of how dancing has affected the quality of life in older adults who dance?

Eight individuals were selected from a group called, The New Wrinkles. The eight participants were asked open-ended questions on how dancing has affected their life and to what degree. A latent content analysis was conducted which looked for clusters of words which conveyed similar meanings. From the responses given, themes were developed expressing the different areas in which dancing has influenced their lives.

Four major themes were developed as they pertained to the quality of life defined in the literature review of this thesis. All the participants addressed how dancing had enhanced the physical, psychological, social and environmental aspects of their lives. The participants also suggested that the challenges of dancing and of the socialization involved in this cooperative activity helped them combat the onset of depression.

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Hmong Healthcare Practices in Fresno County: A Pilot Study

Purpose: The objective of this study was to pilot test an instrument designed to investigate Hmong healthcare practices and awareness in Fresno County, California.

Method: Data for this pilot study were collected using a 27 item instrument modified from a previous study developed by the Orange County Health Department. The instrument was written in English, translated to Hmong, and back translated to English. The researchers randomly selected participants attending the Hmong New Year celebration in Fresno to participate in this study.

Results: Data were collected from 51 participants aged 18 and over during the Hmong New Year Celebration in Fresno County. Results from this pilot study indicates a high percentage of the Hmong in Fresno County continuing to use traditional healing practices including shaman and herbal medicines before consulting allopathic providers. The results divulge that over half of the participants are not aware of low and/or free medical services that were available to them in Fresno County.

Conclusions: Understanding the health care practices of diverse cultural groups is the first step in decreasing health care disparities. This finding indicates the need to increase outreach services designed to educate the Hmong population about low cost medical options that are available to them. In addition, the lack of trained personnel to facilitate communication with health care providers also indicates an increased demand of services in the Hmong community.

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Propargyl Bromide as an Alternate Fumigant

To enhance crop production, growers may fumigant fields before planting to kill most of the life in the soil, including, bacteria, fungus, insects, and plants. Propargyl bromide shows promise as a fumigant because it is an effective killing agent, its application is relatively simple, and propargyl bromide does not enter the stratosphere, unlike methyl bromide. The presence of methyl bromide in the stratosphere depletes the ozone layer. Because of ozone depletion, the use of methyl bromide has been restricted. We have isolated ten naturally occurring strains of soil bacteria that degrade propargyl bromide in liquid media.

Fresh cultures were incubated in soil supplemented with minimal media broth containing 100 ppm of propargyl bromide in sealed bottles. Samples were taken every half hour for twelve hours. Gas chromatography was used to assess propargyl bromide concentration in sterilized soil and in soil that had not been sterilized that had been inoculated with each of the ten strains of bacteria. Testing was done at least three times in duplicate. Colony hybridization was used with probes designed from genes identified as necessary for methyl bromide and methyl iodine degradation.

The abiotic soil control averaged a reduction of propargyl bromide of 7% over 8 hours and 2% over 4 hours. Bacterial degradation for the ten strains in sterilized soil averaged a 52% reduction over 8 hours and 42% over 4 hours.
Degradation by the bacteria in soil that was not sterile averaged 50% over 8 hours and 41% over 4 hours. The probe used for Southern hybridization did not hybridize with the bacterial DNA from the ten strains, suggesting the pathway for propargyl bromide degradation may be different from what has been described for methyl iodine or methyl bromide degradation. Bacteria enhance the degradation of propargyl bromide in sterilized soil and in soil that has not been sterilized.

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Potential Impacts of Selenium on California Red-Legged Frog (Rana draytonii)

Amphibian stress response to selenium through the hypothalamus-pituitary-interrenal axis, reflected in corticosterone levels, and its effects on development and growth is unknown. In our current study, Rana pipiens embryos were exposed to selenium treatments (0 μg/L, 1 μg/L, 5 μg/L, and 13 μg/L) and reared in a laboratory until metamorphosis completed at Gosner stage 46. We also examined Lithobates catesbeiana from a selenium contaminated pond and a reference site. We then analyzed the selenium accumulation, corticosterone levels, development and growth in both amphibian species. Lithobates catesbeiana from the contaminated site accumulated higher levels of selenium but had lower corticosterone levels compared to L. catesbeiana from the reference site, which had a significantly higher corticosterone response. Selenium accumulation in R. pipiens tadpoles was 1000 times the selenium exposure, corticosterone response was at control levels and there was no affect on both development and growth. Our study demonstrates that selenium exposure does not elicit a stress response.

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An Investigation of the Relationship between Air Pollutants and Lung Function

Epidemiological studies have correlated air pollution with an increase in adverse health effects. Previous studies have shown that the San Joaquin Valley has high levels of particulate matter (PM) which may exacerbate health problems such as asthma and cardiovascular disease. Quinones are organic chemical species found within PM that are suspected of initiating chemical reactions that may lead to asthma attacks. It is hypothesized that following a viral infection, an individual's immune system may be weakened to the point where exposure to quinones may trigger an asthma attack. To investigate the possible link between air pollution, viral infection, and asthma exacerbation and the exposure of an individual in which the pollutant must be known. One approach to obtain this information is to monitor the levels of the pollutants or their metabolites in the urine of the subject. This provides a convenient and relatively inexpensive method to monitor exposure if the levels of these biomarkers are correlated with the amount of pollutant inhaled.

Experiments were carried out by evaluating urinary quinones as biomarkers for exposure to air pollution and PM. Urine samples were collected from a cohort of 16 patients (8 asthmatic and 8 non-asthmatic). 10 ml of urine of each patient was extracted for quinones. Filter samples were also collected to determine the daily PM mass loadings. Quinones were extracted by sonication using dichloromethane (DCM) as an organic solvent. Urine and filter quinone extracts were derivatized and analyzed by gas chromatography/ mass spectrometry. In separate work conducted by another group, the presence of markers of viral infection is also being evaluated. Spirometer tests and daily symptom diaries are used to simultaneously track the lung function and asthma symptoms of the patients.

Preliminary data indicate that urinary quinone levels correlate with PM mass loadings in some individuals. Several subjects showed an inverse correlation between PM levels and lung function. At this point, there is insufficient data to evaluate whether exposure to quinones alone is associated with a decrease in lung function and/or an exacerbation of asthma symptoms.