26TH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS OF THE 2005 SYMPOSIUM

Convened on

Thursday, April 21, 2005

in the

University Business Center

California State University, Fresno

TWENTY-SIXTH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS

Sponsoring Institutions

California State University, Fresno
Research and Sponsored Programs

University of California, San Francisco
Fresno Medical Education Program

Fresno City College

United States Department of Agriculture
Agricultural Research Service

Children's Hospital Central California
Research Projects and Administration

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

California State University, Fresno

Thursday, April 21, 2005

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PREFACE

Welcome to the *26th 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. 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, 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.
Deborah Stewart, M.D.
Kent Yamaguchi, M.D.
Davin Youngclarke

CALIFORNIA STATE UNIVERSITY, FRESNO

Thomas McClanahan, Ph.D.
Symposium Co-Chairperson

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Mark Arvanigian, Ph.D.
Saeed Attar, Ph.D.
Sharon Benes, Ph.D.
Alejandro Calderon-Urrea, Ph.D.
Amir Huda, Ph.D.
Pamela Lackie, Ph.D.
Karl Oswald, Ph.D.
Brian Tsukimura, Ph.D.
Doug Carey

ALLIANT INTERNATIONAL UNIVERSITY, FRESNO

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CLOVIS BOTANICAL GARDEN

Cynthia Eayre, Ph.D.

FRESNO CITY COLLEGE

Edward Lindley, Ph.D.
Rick Stewart

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Joseph Smilanick, Ph.D.

CHILDREN'S HOSPITAL CENTRAL CALIFORNIA

Robert Wells, Ph.D.

EVENT AND PROCEEDINGS COORDINATORS

Millie C. Byers & Christina Roybal
California State University, Fresno

(insert Welcome Letters)

Plenary Session

University Business Center
Auditorium, Room 191

12:30 Opening Remarks

Dr. Thomas McClanahan, California State University, Fresno

Dr. Joan Voris, University of California, San Francisco
Fresno Medical Education Program

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

12:40 ***Childhood Cancer: Communicative Information Needs of Parents***
Mary Husain, Sally Tannenbaum, Ph.D.

12:55 ***The Role of Multimodal Sensory Feedback in the Perceptual Learning of Speech***
Kevin T. Webster, Lorin Lachs, Ph.D.

1:10 ***Fungicide Resistance in the Pepper Root Rot Pathogen, Phytophthora capsici***
David R. Sischo, Gurmel S. Sidhu, Ebenezer A. Ogudiwin, James P. Prince, Ph.D.

1:25 ***The Origins of Vulcan, Roman God of Blacksmiths and the Consuming Fire***
Doug Favelo, M.A.

1:40-2:00 Break--University Business Center, Gottschalks Gallery

Moderator: Dr. Donna Hudson

Concurrent Session A

University Business Center
Auditorium, Room 191

2:00 ***Aspirations, Mass Media and Conscientization: Rural, Adolescent Latinas of the Central San Joaquin Valley***
Morghan V. Young, James Mullooly, Ph.D.

2:15 ***Defensive Posturing and Group Maintenance in Ethnographic Relief: Fights for Freedom in Post-911 America***
Anne Visser, Elizabeth Campos, James Mullooly, Ph.D.

2:30 ***What is Revolutionary? Women's Agency in Twentieth Century Latin American Revolutions***
Maria Sofia Corona, William Skuban, Ph.D.

2:45 ***From Woman to Goddess: The Story of the Evolution of the Virgin Mary***
Deanna L. Stay, Honora Chapman, Ph.D.

3:00 ***The Dead Sea Scrolls and the People of Qumran***
Elijah M. Freeman, W. Marshall Johnston, Ph.D.

3:15 ***Consent in the Corporation***
Ross Rushton, Roberto Gonzalez, Ph.D.

3:30 **Break -- University Business Center, Gottschalks Gallery**

4:00 **Concurrent Sessions Resume**

Concurrent Session B

University Business Center
Room 192

2:00 ***Successful African-American Women: Influence of Personal, Family, and School Factors in Overcoming "At-Risk" Situations***
Dympna Ugwu-Oju, Karen Carey, Ph.D.

2:15 ***Imbedded Language: Woven Symbols of Political, Social and Religious Significance in the Peruvian Culture***
Cieja Montgomery, Pamela Lackie, Ph.D.

2:30 ***Heavenly War***
Cynthia Oliphant, Steve Yarbrough, M.F.A.

2:45 ***Oppression as a Means to Acquiring a Creative Writing Aesthetic***
Nigel Medhurst, Anthony Michel, Ph.D.

3:00 ***Utilizing Parental Feedback for Summer Lunch Program Needs***
Melissa R. Nale, Constance L. Schneider, R.D., Ph.D.

3:15 ***Effectiveness of Nutrition Education on College Students' Knowledge of Dietary Fat Intake and its Relationship to Chronic Diseases***
Carolina Maldonado, Constance L. Schneider, R.D., Ph.D.,
Diane Golzynski, Ph.D.

3:30 **Break -- University Business Center, Gottschalks Gallery**

4:00 **Concurrent Sessions Resume**

Concurrent Session C

University Business Center
Room 193

2:00 ***Preference for Different E-Learning Course Settings***
John M. Moghaddam, Ph.D.

2:15 ***Telemedicine on Mobile Devices***
Tarek Alameldin, Ph.D.

2:30 ***Bench and Pilot-Scale Testing of a Hydrogen-Based Membrane Biofilm Reactor for Reduction of Nitrate in Contaminated Groundwater***
William F. Wright, Ph.D., Reid H. Bowman, Ph.D.,
Jinwook Chung, Ph.D., Bruce E. Rittmann, Ph.D.

2:45 ***The Meeting with the Compassionate Buddha Kuan-Yin: An Example of Syncretism in Hmong Culture***
Kao-Ly Yang, Ph.D.

3:00 ***Nasopharyngeal Cancer in the California Hmong, 1988-2000***
Jennifer L. Dodge, M.P.H., Paul K. Mills, Ph.D., M.P.H.,
Richard C. Yang, M.P.H.

3:15 ***Obesity and Physical Inactivity among Children and Adolescents in the San Joaquin Valley***
Felicia Greer, Ph.D., Virginia Rondero Hernandez, Ph.D., Petra Sutton,
Kathleen Curtis, Ph.D.

3:30 **Break -- University Business Center, Gottschalks Gallery**

4:00 **Concurrent Sessions Resume**

Concurrent Session D

University Business Center
Room 194 AB

2:00 ***Citrus Tristeza Virus in Central California Navel Orange Trees***
Priscilla Chaffe-Stengel, Ph.D., Louis Whitendale, Ann D. Seymore, Donald N. Stengel, Ph.D., Kathleen Moffit, Ph.D.

2:15 ***Impact of Lagoon Buffering on Ammonia Emissions from Lagoons***
Dave Goorahoo, Ph.D., Charles Krauter, Ph.D., Jim Gregory

2:30 ***Impact of Open Field Carbon-Dioxide Enrichment on Growth and Yield of Strawberry***
Diganta D. Adhikari, Ph.D., Florence S. Cassel, Ph.D., Dave Goorahoo, Ph.D., Anil Shrestha, Shawn Ashkan

2:45 ***Uninsured in the San Joaquin Valley: California Health Interview Survey 2003 Findings***
Marlene Bengiamin, Ph.D., John Capitman, Ph.D., Kathleen Curtis, Ph.D.

3:00 ***Birth Patterns in the San Joaquin Valley: Adequate Care and Pre-term Births***
John Capitman, Ph.D., Marlene Bengiamin, Ph.D., Saeed Iqbal, Kathleen Curtis, Ph.D.

3:15 ***ADHD and Cognitive Factors in Substance Abuse***
Matthew J. Sharps, Ph.D., Jana L. Price-Sharps

3:30 **Break -- University Business Center, Gottschalks Gallery**

4:00 **Concurrent Sessions Resume**

Concurrent Session E

University Business Center
Auditorium, Room 191

4:00 ***Distribution of Brook Trout and Food Sources in Meadow vs. Wooded Areas of Sierra Nevada Headwater Streams***
Nicholas J. Basile, Steve Blumenshine, Ph.D.

4:15 ***Aquatic Insect Emergence in Post-Harvest Flooded Agricultural Fields in the Southern San Joaquin Valley***
Richard C. Moss, Steve Blumenshine, Ph.D., Joe Fleskes, Ph.D.

4:30 ***Monitoring Larval Abundance and Environmental Conditions to Predict Adult Populations of the Invasive Chinese Mitten Crab, Eriocheir sinensis***
Ammon Rice, Deborah Rudnick, Brian Tsukimura, Ph.D.

4:45 ***Influence of Exotic Black Rats on the Reproductive Success of Riparian Woodrats***
Karen L. Sproull, Patrick A. Kelly, Ruth A. Kern, Ph.D.

5:00 ***Characterization of the Wine Spoilage Organism Dekkera/Brettanomyces According to Carbon Source Oxidation and Assimilation***
Linda Baehr, Roy Thornton, Ph.D.

5:15 ***Influence of Organic N Fertilizers and Irrigation on Plant and Soil N Availability under Organic Broccoli Farms in California***
Sajeemas Pasakdee, Gary Banuelos, Ph.D., Weixin Cheng, Ph.D.

5:30 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session F

University Business Center
Room 192

4:00 ***The Effects of a Group-Structured Balance and Mobility Program for Seniors at Risk for Fall***
Lisa Gaitero, Jamie Rogers, Peggy Trueblood, Ph.D.

4:15 ***Coaching Styles of Championship Collegiate Basketball Coaches: A Case Study***
Diana Martinez, Wade Gilbert, Ph.D.

4:30 ***Morphing as a Creative Tool for Camera Phones***
Gaurav Verma, Tarek Alameldin, Ph.D.

4:45 ***Investigating Steganography on Mobile Phones***
Vishal Saberwal, Saeed Iqbal, Tarek Alameldin, Ph.D.

5:00 ***Implementing Distance Learning on Mobile Devices***
Saeed Iqbal, Tarek Alameldin, Ph.D.

5:15 ***Design and Implementation of Groupware Interfaces***
Sridhar R. Duvanthala, Tarek Alameldin, Ph.D.

5:30 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session G

University Business Center
Room 193

4:00 ***Biosynthetic Collagen Nerve Guide Abrogates Neuropathic Pain Associated with Neuroma Formation Following Sciatic Nerve Ligation***
Brittany Stapp, Stephanie Faria, Kelli Donovan,
Tim Tyner, M.S., Kent Yamaguchi, M.D.

4:15 ***Effectiveness of Snowball Educational Intervention to Change Perceptions of Student Behaviors***
Jolene Aki, Lynnette Zelezny, Ph.D.

4:30 ***Effect of Physician's Revealing Uncertainty on Patient Perception***
Marcel Garcia, Paul Price, Ph.D.

4:45 ***Constructing Identifiable Computerized Facial Composites from Memory***
Marjorie Coleman, Karl Oswald, Ph.D.

5:00 ***The Local Gap: The 'Digital Divide' as Manifested within California State University-Fresno***
Guiseppe Getto, Aaron Aguirre, Adam Klawitter, Cathy Ciontea,
Anthony Michel, Ph.D.

5:15 ***The Intriguing Nature of Jerome's Life of Paul of Thebes***
Gabriel Halls, W. Marshall Johnston, Ph.D.

5:30 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session H

University Business Center
Room 193

4:00 ***Family History of Depression, A Predisposing Vulnerability Factor for Tryptophan Depletion Effects in Cognition for MDMA Users: A Pilot Study***
Geoff R. Twitchell, Ph.D., E. V. Malin, T.F. Newton

4:15 ***Vaginal Births after Cesarean in California: 1996-2002***
Susan Hughes, M.S., John Zweifler, M.D., M.P.H.,
Alvaro Garza, M.D., M.P.H., Matthew A. Stanich, M.P.H.

4:30 ***An Analysis of Teen Births in San Joaquin Valley Communities***
Virginia Rondero Hernandez, Ph.D., M.S.W.

4:45 ***Heuristic and Algorithmic Processing in Science Education***
Adam Hess, Matthew J. Sharps, Jana L. Price-Sharps

5:00 ***Early Outcomes of Healthy Steps Program Among Low-Income Latino Families***
Kathleen D. Ramos, Richard L. Brandt-Kreutz

5:15 ***Physician-Initiated Tobacco Control for Latinos with Limited English Proficiency: A Qualitative Study***
Stergios Roussos, Ph.D., M.P.H., Linda Hoskins,
Melbourne Hovell, Ph.D. , M.P.H.

5:30 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students 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) ***Californians Who Access Healthcare Services in Another Country***
Khamphoucanh Southisombath, Alvaro Garza, M.D., M.P.H.,
Matthew Stanich, M.P.H.

(2) ***Consumer Behavior: Factors Influencing Fan Attendance***
Kristin Leon, Peter Simis, D.B.A.

(3) ***Publication of Nonsignificant Results: A Survey of Psychologists' Opinions***
Stephen Reysen, Robert Levine, Ph.D.

(4) ***Healthcare Access among Mexico-California Migrants: Evidence from the California-Mexico Epidemiological Surveillance Pilot***
Matthew A. Stanich, M.P.H., Alvaro Garza, M.D., M.P.H.,
Maria T. Hernandez, M.P.H., Lorena Ayala, George F. Lemp, D.P.H.

(5) ***Facial Prominence: Connections to Gender and Occupational Status***
Justin L. Matthews, Constance J. Jones, Ph.D.

(6) ***Attempts at the Synthesis of a Chiral Cycloruthenated Complex***
Tonya M. Atkins, Saeed Attar, Ph.D.

(7) ***Synthesis and Characterization of New Ferrocene-Based Anion Sensors***
Bao Vue, Saeed Attar, Ph.D.

(8) ***The Role of African Ethnomedicine in Modern Health Care***
Koffi Sosu Afawubo, Lynn Sikkink, Ph.D.

(9) ***The Research Productivity of Small Telescopes and Space Telescopes***
Frederick A. Ringwald, Ph.D., John M. Culver, Rebecca L. Lovell,
Sarah Abbey Kays, Yolanda V. Torres

(10) ***Expression of CED3 Protein in Tobacco Plants Confer Protection Against the Parasitic Nematode Meloidogyne incognita***,
Thihan Padukkavidana, Abdhellatif Bahaji, Yulma Martinez,
Glenda W. Polack, Alejandro Calderon-Urrea, Ph.D.

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

University Business Center
Gottschalks Gallery

(11) ***Stabilizing Forensic DNA Samples Using Trehalose***
Alicia Moe, Andrea Van der Veer de Bondt, Sulekha Coticone, Ph.D.

(12) ***Comparison of Y-STR Multiplexes for Forensic DNA Analysis***
Lora Bailey-Van Houten, Sulekha Coticone, Ph.D.

(13) ***Using Concurrent Therapy in Treatment of Phonologic Disorders***
Jennifer Kerber, Steven L. Skelton, Ph.D.

(14) ***The Effect of Acoustic Transformations on Audio Visual Integration in a Word Recognition Task***
Ashley Jensen, Lorin Lachs, Ph.D.

(15) ***Broad Frequency Band Vibration Based Power Generation-- Analysis, Design and Control***
Po Shuan Wang, Nagy Bengiamin, Ph.D.

(16) ***The Effect of Language Familiarity on Voice Recognition***
Zhanna Bagdasarov, Lorin Lachs, Ph.D.

(17) ***An Analysis of the Institutional Perceptions that Shape the Experiences of Latino Students in Middle School***
Norma Marrun, Marcos Pizarro, Ph.D.

(18) ***Duration of Teacher Participation in an NSF-Sponsored Professional Development Project: Relationship to Students' Mathematics Performance in Grades 2-6***
Naomi S. Kent, Carol F. Bohlin, Ph.D.

(19) ***Effects of Protein CED-4 on Wild Type and Mutant Ced 3, Ced 4 Caenorhabditis elegans***
Carlos Tristan, A. Bahaji, G. Polack, Alejandro Calderon-Urrea, Ph.D.

(20) ***Soil Water Retention Properties of Soils Irrigated with Saline-Sodic Drainage Water***
Kimberly Senatore, Dave Goorahoo, Ph.D., Sharon E. Benes, Ph.D., J. E. Ayars

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

University Business Center
Gottschalks Gallery

(21) ***Support Systems for Undocumented Students and Their Impact on Higher Education***
Alma J. Ortiz, Julia Curry Rodriguez, Ph.D.

(22) ***Placing Women's Health in the Forefront: A Study of Vietnamese Immigrant Women in the U.S. and Their Perceptions of Well Being and Preventive Care***
Van Ly, Peter Chua, Ph.D.

(23) ***Exploring Trust in African American Middle School Students' Relationships with Their School Counselors: Implications for Counseling and Learning Outcomes***
Claire Sham Choy, Ed.D., Bernard W. Arenz, Ph.D.

(24) ***The Effects of Acoustic Information on the Perception of Gender of Musical Instruments***
Taylor Harris, Lorin Lachs, Ph.D.

(25) ***Gender and Acculturation in Anger Expression of Mexican-Americans***
Vanessa Sanchez, Christine Edmondson, Ph.D., Sunde Nesbitt, Dan Cahill, Sarah Horton

(26) ***The Malleability of Moral Judgments Through Schema Change***
Talia L. Shuman, Karl Oswald, Ph.D.

(27) ***Benefits of a New Forage Grass for Controlling Nutrient Levels in Effluent-Irrigated Soils***
Florence S. Cassel, Ph.D., Dave Goorahoo, Ph.D., Morton Rothberg, Diganta Adhikari, Ph.D.

(28) ***Peano's Space-Filling Curve***
Rachelle Sugimoto, Michael Fisher, Ph.D.

(29) ***The Effects of Service-Learning on College Student Development in the Jumpstart Program***
Amy Lukianov, Sharon Brown-Welty, Ed.D.

(30) ***Developing a Hispanic Population Database to Genotype Individuals with Mononucleotide Repeats***
Kijuana C. Hartshorn, Maribel Avalos, Sulekha Coticone, Ph.D.

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

University Business Center
Gottschalks Gallery

(31) ***An Empirical Study of Issues and Trends Affecting the California Raisin Industry***
Jon C. Phillips, Ph.D., April Drukin, Heather Kazmaier, Russell Bassett, Mary-Kate D. Francesco

(32) ***Cohort, Sex and Study Duration Differences in Moral Virtue***
Jenise Caetana, Constance Jones, Ph.D.

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) ***Factors Influencing the Attractiveness of the U.S. Fresh Orange and Grapefruit Industry***
Kimberly Campeau-McAllister, Nicole Campeau-McAllister, Jon C. Phillips, Ph.D.

(2) ***Ammonia Emissions from Fertilizer Applied with Precision Agriculture***
Matt Beene, Charles Krauter, Ph.D., Dave Goorahoo, Ph.D.

(3) ***Fall Into Prevention***
Jarrod Hicks, Patrick Machado, Peggy Trueblood, Ph.D.

(4) ***Soil Moisture Patterns in Sierra Nevada Mixed Conifer Forest***
Ryan P. Lopez, Ruth Ann Kern, Ph.D.

(5) ***Central Valley Algal Biodiversity Study***
Kevin M. Moseley, Steve C. Blumenshine, Ph.D., Frederick W. Zechman, Ph.D.

(6) ***Coenzyme F420 is Involved in the Degradation of Malachite Green in Mycobacteria***
Denise Lopez, Mamta Rawat, Ph.D.

(7) ***Thiol Content of Mycobacteria and Related Actinomycetes***
Todd L. Johnson, Mamta Rawat, Ph.D.

(8) ***Identification of Genes Contributing to Mycobacterium Smegmatis' Resistance to Diamide***
Moises De La Torre, D. Lopez, T. Johnson, R. Chow, V. Cadiz, Mamta Rawat, Ph.D.

(9) ***Cloning the Promoter Regions of tfdR and tfdS***
Michelle R. Davison, Alice D. Wright, Ph.D.

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

University Business Center
Gottschalks Gallery

(10) ***Acculturative and Gender Differences in Anger Definition, Expression and Provocation***
Noemi Vega, Christine Edmondson, Ph.D.

(11) ***Robust Control of Direct Current Voltage Converters***
Yogita Karkhanis, Nagy Bengiamin, Ph.D.

(12) ***Latino Identity and Social Norms Media***
Maria I. Mendez, Lynnette Zelezny, Ph.D.

(13) ***Explicit and Implicit Memory on Talker Variability and False Recognition***
Mari Sanchez, Lorin Lachs, Ph.D., Karl Oswald, Ph.D.

(14) ***Spatial Patterns of Zooplankton Density and Composition in Central Valley Reservoirs***
Jim Kitch, Steve Blumenshine, Ph.D.

(15) ***Relating Water Quality to Storage in Three Central Valley Reservoirs***
Zachary Hoover, Steve Blumenshine, Ph.D.

(16) ***Analyses of Treatment Regimes and Recovery Rates for Mallard (Anas platyrhynchos) and Green-winged Teal (Anas crecca) Suffering Avian Botulism Poisoning***
Jamie Jackson, Paul R. Crosbie, Ph.D.

(17) ***A Phylogenetic Analysis of Sarcocystis neurona from Marine Mammals***
Scott Peat, Jose Soto, Paul R. Crosbie, Ph.D.

(18) ***Restoration of Central Valley Ecosystems: Implications from Studies of Nitrate Reduction***
Ryan Smith, E. Magill, J.V.H. Constable, Ph.D.

(19) ***Differences in Photosynthetic Responses to Light and CO2 in Vegetative and Reproductive Leaves of Podophyllum peltatum (Berberidaceae)***
Satinderpal Dhah, John V.H. Constable, Ph.D.

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

University Business Center
Gottschalks Gallery

(20) ***Soil Type Differentially Affects Growth of Native and Invasive Plant Species***
Emily Magill, N. Ritter, John V. H. Constable, Ph.D.

(21) ***Frequency Distribution and Percent Similarity for Twenty Vernal Pools at the James K. Herbert Wetland Prairie Preserve***
Bobby Kamansky, Steve Blumenshine, Ph.D.

(22) ***Understanding Comorbid Anger and Depression***
Nazia Khan, Christine Edmondson, Ph.D.

(23) ***Symptoms of Pancreatic Cancer in a Population-Based Series of Patients***
Indranushi Chaliha, M.D., M.P.H., Elizabeth A. Holly, Ph.D., M.P.H., Paige M. Bracci, M.S., M.P.H., Manjushree Gautam, M.D.

(24) ***Rush Hour Traffic Noise and the Morning Chorus of Bird Songs***
Craig Kellogg, Genevra Ornelas, Madhusudan Katti, Ph.D.

(25) ***Riparian Vegetation and Microenvironment in Headwater Streams of the Southern Sierra Nevada***
Dana K. Nagy, Ruth Ann Kern, Ph.D., Carolyn Hunsaker

(26) ***Functional Projections and the Initial State of Second Language Acquisition***
Michael Guerra Jr., Brian Agbayani, Ph.D.

(27) ***Living in the City: Resource Availability, Predation and Bird Population Dynamics in Urban Areas***
Madhusudan Katti, Ph.D., John Martin Anderies, Eyal Shochat

(28) ***The Effects of Chronic Stress on Cognitive Performance in C57BL/6 Male Mice***
Dong Nguyen, Cheryl Chancellor-Freeland, Ph.D.

(29) ***The Missing Pages of History***
Shria Watkins, Steven Millner, Ph.D.

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

University Business Center
Gottschalks Gallery

(30) ***Substance Abuse Recovery and Reunification in the Child Welfare System: Mothers' Stories of Success***
Erica Nicole Hasenbeck, Debra Harris, Ph.D.

(31) ***Alternative Foreign Policies for the 21st Century***
Nora Ly, Bill Reckmeyer, Ph.D.

Judges for Undergraduate and Graduate Student Presentations and Poster Presentations:

Dr. Mark Arvanigian	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. Cynthia Eayre	Clovis Botanical Garden
Ms. Marie Fisk	California State University, Fresno
Dr. Dan Griffin	California State University, Fresno
Dr. Robert Hierholzer	University of California, San Francisco
Dr. Donna Hudson	University of California, San Francisco
Dr. Pamela Lackie	California State University, Fresno
Dr. Thomas McClanahan	California State University, Fresno
Dr. Karl Oswald	California State University, Fresno
Dr. Siobhan O'Toole	Alliant International University, Fresno
Dr. Mamta Rawat	California State University, Fresno
Mr. Rick Stewart	Fresno City College
Dr. Brian Tsukimura	California State University, Fresno
Dr. Robert Wells	Children's Hospital Central California
Dr. Alice Wright	California State University, Fresno
Mr. Davin Youngclarke	University of California, San Francisco

Moderators for Oral Presentations:

Mr. Doug Carey	California State University, Fresno
Ms. Marie Fisk	California State University, Fresno
Dr. Donna Hudson	University of California, San Francisco
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
Florence Cassel S., Ph.D., Dave Goorahoo, Ph.D.,
Anil Shrestha, Shawn Ashkan
California State University Fresno
Center for Irrigation Technology
UC, Statewide IPM Program
Kearney Agricultural Center Parlier, CA
AG Gas Company-Hudson WI

Impact of Open Field Carbon-Dioxide Enrichment on Growth and Yield of Strawberry

The rise in atmospheric carbon dioxide (CO2) concentration due to the combustion of fossil fuels is well documented and is expected to continue, as fossil fuels remain the main source of energy worldwide. However, the carbon-dioxide fertilization is real: carbon-dioxide boosts plant productivity and enhances plant water use efficiency. With increasing population and urban areas as well as higher demands for food and fresh water, benefits of enriched atmospheric carbon-dioxide are important. Photosynthesis rate is known to be influenced by light intensity, intercellular carbon-dioxide levels, and leaf temperature. However, limited information is available on photosynthesis responses to these parameters for plants exposed to open-field carbon-dioxide enrichment. The objective of this study was to develop light and carbon-dioxide response curves for strawberries subjected to ambient and elevated carbon-dioxide in open fields using drip irrigation systems. The experimental site was located in Oxnard, CA, where the soils were predominantly sandy loams. Daily levels of atmospheric carbon-dioxide within the plant canopy were monitored using a LicorTM carbon-dioxide Analyzer Model 6262. Photosynthesis rates were obtained for different light (200-1400 µmol m-2 s-1) and carbon-dioxide (300-750 ppm) levels at various temperatures (20-40ºC) using a PP System's CIRAS-2 instrument. Stomatal conductance, transpiration rate, root to shoot ratio, and yield data were also recorded. On-going data analyses indicate that the light and carbon-dioxide response curves follow a logarithmic trend. There was no observable difference in carbon-dioxide and light response curves between plants subjected to ambient and elevated carbon-dioxide. For all plants, photosynthetic rates decreased as temperatures increased beyond 30ºC.

Jolene Aki
joaki@csufresno.edu
Lynnette Zelezny, Ph.D.
California State University Fresno
Department of Psychology
Undergraduate Student Presenter

Effectiveness of Snowball Educational Intervention to Change Perceptions of Student Behaviors

The purpose of the study was to assess the effectiveness of an educational intervention survey to change perceptions of student health behaviors. Studies have shown that college students tend to inaccurately underestimate the healthy behaviors of other students, and overestimate unhealthy behaviors, such as alcohol consumption, and smoking.

This pre-test post-test design measured the change of misperceptions of university students (N=422) after a one-hour active learning classroom intervention (i.e. snowball intervention) in which normative health behaviors were learned. Question items assessed student demographics, study behaviors, safety precautions, and health behaviors related to smoking, alcohol abuse, and sexual behavior. For example, one question asked in the last 30 days, how many days do you think most Fresno state students smoked a cigarette? Another asked of how many drinks do you think the typical Fresno State students had the last time they partied or socialized?

The findings showed that 96% of Fresno State students had misperceptions on cigarette smoking on the pre test and 75% had misperceptions on the post test; an improvement of 21%. In addition 66% of students had misperceptions related to alcohol use on the pre test and 31% had misperceptions on the post test; an improvement of 35%. Finally, on sexual behavior, 86% of students had misperceptions on the pre test and 43% of students had misperceptions on the post test; an improvement of 43%.

These results suggest that the snowball intervention was effective based on statistically significant improvement in the health misperceptions of university students at CSUF.

Tarek Alameldin, Saeed Iqbal
tareka@csufresno.edu
California State University, Fresno
Department of Computer Science

Telemedicine on Mobile Devices

Use of Telemedicine to provide off-site health care has been growing. In the Central Valley numerous hospitals can employ Telemedicine systems to provide better quality of health care services to patients in remote areas and to use specialists' consultations regardless of their location. A very limited number of Telemedicine systems were based on the actual implementation on mobile devices such as cell-phones. The focus of our research is to design, implement, and test the usage of cell-phones as effective tools for providing telemedicine extensions.

We designed and implemented a telemedicine system with mobile extension based on Java 2 Micro Edition (J2ME). Cell phones were used to connect to the healthcare database using the internet. Our system interfaces are divided into three main categories, interfaces used by physicians to perform consultation and verification, interfaces used by nurses to communicate with specialists and/or patients, and interfaces used by patients to receive health care advise on cell-phones. We designed and implemented the above interfaces. In addition, we performed usability and stress testing on the system. Users of the system were carefully chosen to have little or no background of using WAP enabled cell-phones. In our implementation, the concern to the physicians was to provide a way for charging consultations to patients. We are planning to implement and integrate a payment module into our system. From the users perspective, suggestions were made to introduce guidelines on using the telemedicine system, e.g., having a help menu. Other usability tests measured the overall ease of navigation between mobile interfaces, recovery from getting stuck, excessive scrolling, excessive typing, etc.

In our study we had to distribute processing between the cell phones and the servers. This was due to the limitations of processing power and memory on mobile devices. In the future, we plan to implement more functions on the cell phones as their computational capabilities increases. The choice of implementing more functionality on the client-side would mean more dependency on the cell phone models used.

Linda Baehr, Roy Thornton, Ph.D.
lbaehr@csufresno.edu
California State University, Fresno
Department of Viticulture and Enology
Graduate Student Presenter

Characterization of the Wine Spoilage Organism Dekkera/Brettanomyces According to Carbon Source Oxidation and Assimilation

The flavor characteristics of wine are dependent on several factors which include grape variety, winemaking techniques, and aromas imparted by various yeast and bacteria used in the winemaking process. One yeast that is generally regarded as a spoilage organism in the wine industry is the yeast genus Dekkera, referring to the sporulating form, or Brettanomyces, which is the asporogenous form. Brettanomyces spp. often produce volatile phenols when growing in wine. These compounds can result in unpleasant aromas in wine. Although many investigators have studied the production of these volatile phenols, relatively little research has been done on metabolic differences among Dekkera/Brettanomyces species and strains. In this study, a dendrogram, or chart of "relatedness", has been generated using the carbon source oxidation and assimilation patterns of Brettanomyces strains. These data may be used to correlate "metabolic type" strains with "volatile phenol producer" type strains.

Thus far, 23 strains of Dekkera/Brettanomyces were examined using the Biolog system of yeast identification. This system utilizes a 96-well microtiter tray containing various dehydrated carbon sources used in assimilation and oxidation tests. The microtiter trays are inoculated with a yeast culture, and the growth responses are compared to profiles of yeast species in the Biolog database to provide identification. The utilization of the carbon sources have been used to create a dendrogram comparing the growth patterns of the Dekkera/Brettanomyces strains.

Although the complete dendrogram is not shown here, the results of these tests show a great diversity of growth patterns among the Dekkera/Brettanomyces strains. Of the 23 strains tested, all of them oxidized and utilized glucose as a carbon source, but only 52% oxidized sucrose, while 83% of them utilized sucrose. Cellobiose, a sugar found in oak barrels, was oxidized by 52% of the strains, but was utilized as a carbon source by 87% of the strains.

These results, along with the complete dendrogram, show the great diversity in carbon source utilization of the yeast Dekkera/Brettanomyces, and can help point the way for future research of this spoilage yeast.

Nicholas J. Basile, Steven Blumenshine, Ph.D.
nicholasbasile@gmail.com
California State University, Fresno
Department of Biology
Graduate Student Presenter

Distribution of Brook Trout and Food Sources in Meadow vs. Wooded Areas of Sierra Nevada Headwater Streams

Stocked Eastern Brook Trout are now well established in historically fishless small headwater streams in the Sierra Nevada. Although non-native, brook trout have maintained healthy populations since stocking ended 60-80 years ago. Our primary research question was whether brook trout distribution and feeding ecology is influenced by variation in headwater stream habitats and food sources. Stream habitat characteristics and trout demographic data were collected during June and August 2004 from four forested and three meadow sites among five tributaries to Bull Creek in the Sierra Nevada. Both mean fish mass and total fish biomass were greater in forested versus meadow reaches. Macroinvertebrate drift rate did not differ between meadow versus wooded reaches, but was greater in June. However, despite higher fish biomass, trout in forests apparently selected prey from drift whereas trout in meadows were non-selective drift feeders.

We are currently using data from Bull Creek to test the generality of trout production models created by other researchers. We are also beginning a genetic analysis of fish tissue from each research site to see if there are distinct trout populations between sites that are separated by natural barriers.

The results of this research will be used in a larger, collaborative, whole-ecosystem study conducted by the USDA-Forest Service addressing how current forest management practices affect stream ecosystems.

Marlene Bengiamin
marleneb@csufresno.edu
John Capitman, Kathleen Curtis
California State University, Fresno
Central California Center for Health and Human Services
Central California Center for Health Policy Institute

Uninsured in the San Joaquin Valley: California Health Interview Survey 2003 Findings

Introduction: According to the Census Bureau, in 2003 an estimated 15.6% of the population, more than 45 million Americans, lacked health insurance, up from 43.6 million in 2002. Uninsured adults have become a concern in the San Joaquin Valley (SJV) because 1) the proportion uninsured has increased over the past decade; 2) employer-based coverage has declined leaving many working families without access to affordable coverage; 3) Hispanics and other racial/ethnic minorities are more likely to be uninsured, and 4) individuals without health insurance often lack access to health care services and experience poor health outcomes.

Method: Using data from the 2003 California Health Interview Survey (CHIS 2003), we examined the adult, non-elderly population (age 18-64) who lacked health insurance in SJV. We examined the relationships between insurance status and demographic, source of health insurance, labor market and access to care measures.

Findings: In 2003, 28.8% of the adult population, ages 18-64, were uninsured for all or part of the year. This was higher than for California (25.7%) as a whole. In SJV, insurance was most pronounced among young adults between the ages of 18-39 and Hispanics. Many of the uninsured were employed full-time, reporting that they were either not eligible for employer-sponsored benefits or the employer did not offer insurance. SJV workers in private households, agriculture and small businesses were uninsured at higher rates. Uninsured adults reported less access to a usual source of care and more negative health status than those with insurance.

Discussion: These findings underscore that many adults in the SJV, even among those who are employed, lack year-round health insurance. The SJV shows higher rates of uninsured persons and notable disparities in rates of uninsurance. The CHIS data continue to show that lack of health insurance has negative consequences for appropriate healthcare use and health outcomes. The economic and social consequences of having so many who are uninsured need better documentation. Because uninsurance is concentrated in particular employment contexts and socio-economic groups, policy solutions must specifically focus on addressing barriers to affordable coverage for these groups.

John Capitman
jcapitman@csufresno.edu
Marlene Bengiamin, Saeed Iqbal, Kathleen Curtis
California State University, Fresno
Central California Center for Health and Human Services
Central California Center for Health Policy Institute

Birth Patterns in the San Joaquin Valley: Adequate Care and Pre-term Births

Introduction: Prior studies document high rates of low birth weight (LBW) and pre-term births (PB) in the San Joaquin Valley (SJV) compared to California and the nation. Possible explanations focus on poor access to prenatal care associated with insurance, younger maternal age, race/ethnicity, and immigration status. The roles of residence location (county, service area, urban/rural) after accounting for person-level factors have not been examined in this region.

Method: We used the California Department of Health birth records for 2002 and included births to women with SJV addresses. Birth outcome measures were defined following the March of Dimes (http://www.marchofdimes.com/Peristats/alldata.aspx?reg=06) with LBW (weight<2500grams) and PB (live birth before 37 weeks gestation). Adequacy of care was indicated by a) first visit in first trimester and b) at least 9 prenatal visits. Mothers under age 18 were codes as young maternal age, and race as white or other, Hispanic/Latino, African American, Asian and Pacific Islander, American Indian/Alaska Native based on parents' self-reports. Using zip codes, we coded mother's residence into 61 community clusters (Diringger et al, 2004).

Findings: About 24.8% of SJV births had not received adequate care. Person differences in maternal age, payment source, and race/ethnicity were associated with adequate care, even when location measures were included. There were county and community cluster differences in adequate care. The overall regression models while significant explained little overall variance, (r2=.09-.14) in adequacy. The models for LBW and PB explained even less (r2=.02-.03.). About 4 %of SJV births were LBW and 11.6 % were PB.

Discussion: Adequacy of care, person level and community/location measures were all associated with birth outcomes. Adequacy of care varied by county and community cluster and was better explained by demographic and location variables than birth outcomes. We do not know why some SJ Valley counties and community clusters have worse access to prenatal care and worse birth outcomes than others. Future studies could also explore the economic consequences of high rates of LBW and premature births.

Priscilla Chaffe-Stengel
pchaffe@csufresno.edu
California State University, Fresno
Information Systems and Decision Sciences Department
Louis Whitendale, Ann D. Seymore
University of California Agricultural Research Center
Lindcove
Donald N. Stengel, Kathleen Moffitt
California State University, Fresno
Information Systems and Decision Sciences Department

Citrus Tristeza Virus in Central California Navel Orange Trees

Citrus Tristeza Virus (CTV) has been a serious problem globally for over 50 years. The virus attacks citrus trees grown on sour orange rootstock and was responsible for the destruction of much of the citrus industry in Southern California in the 1950's. In the 1960's, a Tristeza eradication program was initiated in the San Joaquin Valley. In 1996, the Tulare County Pest Control District set itself apart from eradication to provide a unique site to study trees infected with CTV. Since 1997 under the sponsorship of the University of California and the Tulare County Pest Control Board, the Economic Impact of Citrus Tristeza Virus Research Project has collected data from over 1,200 trees to document effects of CTV on navel orange trees. Production data comparing CTV negative to CTV positive navel orange trees in the same field have never before been collected.

Project results report numbers of trees, size of annual crops, and value of crops from 1997 through 2003 for trees always CTV negative, always CTV positive, and became CTV positive during the project. We established a standardized fruit price matrix to determine the average crop value for trees two years before positive, one year before positive, the year of positive, one and two years after positive.

Project results establish a crop value of $57.40 per CTV negative trees. Average crop values for trees two years before positive were $6.57 more than always negative trees, suggesting aphids spreading the virus pre-select the most productive trees. Trees the year of positive earned $27.07 more than CTV negative trees. Trees two years after positive continue to outperform CTV negative trees. Trees positive since the project began in 1997 produce on average only $4.13 less than CTV negative trees.

These results provide the world citrus industry with data critical for future decision-making.

Marjorie Coleman, Karl Oswald, Ph.D.
mcarea51@csufresno.edu
California State University Fresno
Department of Psychology
Undergraduate Student Presenter

Constructing Identifiable Computerized Facial Composites from Memory

The primary purpose of this research was to investigate whether novices could create identifiable face composites from memory using the computer software FACES™, designed for forensic use in apprehending suspected criminals. In two separate phases the experiment investigated identification accuracy of target face composites (created from memory) from a photograph line-up of similar faces. In the first phase, 32 subjects were exposed to mug-shot photos and asked to create composites of that photo from memory using the software. Phase two participants (n=92) were simultaneously shown the composite face with a five-photograph line-up and asked to correctly identify the target photograph from the composite. Sixteen displays were presented in total. Compared to chance (20%), results showed that participants were able to correctly choose the target from the line-up (40%). However, participants' confidence in their assessments was not correlated with accuracy. The results demonstrate that facial composite software can, under certain conditions, be effective in creating representations of actual faces from memory. This research has important implications in forensic applications and the validity of eyewitness memory.

María Sofía Corona, William Skuban, Ph.D.
sol4ms@csufresno.edu
California State University, Fresno
Department of History
Undergraduate Student Presenter

What is Revolutionary?
Women's Agency in Twentieth Century Latin American Revolutions

The variety of social groups that have participated in twentieth century Latin American revolutions is evidence of how historically segments of Latin America's population have been politically and socially marginalized. Women experienced many of the same social barriers to political participation experienced by other marginalized groups, only they have also confronted further exclusion based on social and cultural notions of gender roles. Many contemporary scholars have pointed out the shortcomings of Latin American revolutions, arguing that they have done little to change the political and social position of women. The focus of this paper is to examine the various ways in which women have participated in revolutions, their interaction with other revolutionaries, and the impact their participation had on the outcomes of the revolutions.

This study is based on an analysis of three cornerstone revolutions in Latin America. From the Mexican revolution at the turn of the century, to the watershed Cuban revolution of the 1960's, to the unique case of Nicaragua in the 1980's, revolutionary governments have struggled with strategies, with varying degrees of success, to open the political process to more of their citizens. The paper examines the social and cultural dynamics of each revolution, as well as broad regional developments, to reveal regional commonalities. It is the nature of the revolutions' successes and shortcomings in relation to women that the revolutions act as a window to the historical meaning of women's participation in Latin American society.

The participation of women reveals how throughout the twentieth century in Latin America women have been agents in defining their social participation levels. In each of the three revolutions women exhibit agency throughout the revolutionary process. By employing a comparative approach, careful to discern the influence of the local context, variations in women's participation and relationship to other revolutionary participants reveal how similarities in gender cultural notions and social structures throughout the region heavily influenced the way women participated in the revolutionary process.

Jennifer L. Dodge, MPH
jdyer9272@sbcglobal.net
Paul K. Mills, Ph.D. MPH, Richard C. Yang, MPH
Public Health Institute
Cancer Registry of Central California

Nasopharyngeal Cancer in the California Hmong, 1988-2000

Background: Although previous studies document elevated nasopharyngeal cancer incidence in the United States Hmong population, a descriptive analysis is lacking. The present case-series aims to identify important features of nasopharyngeal cancer in the California Hmong.

Methods: From 1988 to 2000, 39 incident cases of nasopharyngeal cancer were identified in the Hmong population through the California Cancer Registry. Cases were assessed to determine incidence and mortality and to make descriptive comparisons between the Hmong, non-Hispanic White (NHW) and Asian/Pacific Islander (API) populations.

Results: Nasopharyngeal cancer incidence was twenty-three times greater in the Hmong than in the NHW. Mortality rates for Hmong, NHW and API were 10.4, 0.2 and 1.7/100,000 respectively. Furthermore, Hmong were more likely to be diagnosed with remote tumors and less likely to seek cancer treatment.

Conclusions: A public health disparity clearly exists regarding nasopharyngeal cancer in the Hmong population. Education on culturally appropriate healthcare and efforts to encourage diagnosis and treatment are necessary to reduce this disparity.

Sridhar R. Duvanthala, Tarek Alameldin, Ph.D.
sridharreddy@csufresno.edu
California State University, Fresno
Department of Computer Science
Graduate Student Presenter

Design and Implementation of Groupware Interfaces

Groupware technology is defined as software that can be used by a group of users who are working on the same information and data but not physically together. This technology is used for communication, cooperation, collaboration, and coordination.

This paper discusses the general architecture of our groupware system. In addition, we study the following issues: a description of multi-user access control, an illustration of flexible groupware and an explanation of task design. We designed and conducted an experiment that compares the performance of two groups of users in order to perform usability testing of our system. The first group accomplished a task using the developed groupware system. We observed that they could post their question and discuss their issues online without altering their schedules. The use of our groupware system not only saved their time but also provided a flexible environment for performing their task. The first group had half the number of conflicts as compared to the second group that did not use our groupware system.

Our study illustrates that designing effective groupware interfaces not only increase the performance of an organization but also create a friendly environment among its members. We plan to enhance our groupware system by providing mobile extensions on mobile phones and PDAs so that any member of the organization can access the groupware system anytime regardless of his/her location.

Doug Favelo
dfavelo@csufresno.edu
California State University, Fresno
Department of Foreign Languages and Literature

The Origins of Vulcan, Roman God of Blacksmiths and the Consuming Fire

From their earliest history, the Romans worshiped Volcanus (in English, Vulcan), a god of destructive, devouring fire and, by extension, of blacksmiths. He was accorded some importance, possessing his own special calendar day and accompanying festival, the Volcanalia, and was worshiped as the chief god of the Roman port city Ostia. Despite having some significance in the Roman pantheon, Vulcan's origins are effectively unknown, for two primary reasons. First, the Romans developed a literary tradition only very late (roughly the third century BC), when Vulcan already had been worshiped for hundreds of years, so his Roman roots were never codified. Second, the archaeological record is also scant: few statues and inscriptions have been found, by which we might have been able to reconstruct some kind of evolution of Vulcan, or at least a migration from elsewhere in the ancient world.

However, modern linguistics affords another method of tracking Vulcan's origins. His name can be linked to deities worshiped by the Cretans and, especially, the Etruscans, who influenced the Romans tremendously. Furthermore, there is a popular and well-supported theory stating that ancient deities are often simply kings or other once-famous people whose reputations grow through the ages, eventually evolving into divine legends and then worship as gods.

Having researched the Etruscan and Cretan cultures, there is ample evidence establishing firmly that both cultures drew some of their religious practices and their language from the peoples of the Middle East, specifically those who inhabited the Levant (Turkey, Lebanon, Israel, and Egypt). One obvious source from this region that contains a variety of fantastic heroes, and thus potential sources for the original figures behind ancient deities such as Vulcan, is the Jewish Old Testament. In the book of Genesis, chapter four, verse twenty-two, we learn of a descendent of Cain named Tubal-cain. He is said to have been the father of all who work with iron and forges, namely, blacksmiths. Most interesting, moreover, is that after examining his name using established rules of language shifts, we find that Tubal-cain is extremely close linguistically to the name Vulcan. This would be a tenuous link at best, except that Tubal-cain and Vulcan share a unique link: they are the patrons of blacksmithing and fire-usage. It is unlikely that this link is coincidental; rather, due to the linguistic and religious links between the Romans, the Etruscans, and the Levantine people (specifically the ancient Israelites), it would appear that Tubal-cain is the model figure that evolved into the Roman god Vulcan.

Elijah M. Freeman, W. Marshall Johnston
dptbulldog@comcast.net
California State University, Fresno
Department of History
Undergraduate Student Presenter

The Dead Sea Scrolls and the People of Qumran

Qumran is a settlement located on a barren terrace between the limestone cliffs of the Judean desert and the maritime bed along the Dead Sea. In December of 1946 a cache of ancient biblical scrolls was discovered in a small section of caves located just outside the Khribet Qumran ruins. In the 1950s Qumran was excavated by Pere Roland de Vaux, a French Dominican, as part of his effort to find the habitation of those who deposited the scrolls in the nearby caves. The scrolls discovered in Qumran are collectively referred to as the Dead Sea Scrolls (DSS) and hold significant importance for first-century Judaic and Christian communities.

With the wealth of new documents that have been released to the public in recent decades, scholars have begun to question the established conclusions of the last generation. With many of the prior conclusions being non-sequiturs, the time is right for new scholarly investigation and analysis. The established theory is known as “The Standard Model.” This theory is a three-legged theory that consists of the "Essene hypothesis," the "anti-Hasmonean hypothesis" and the "Mother house hypothesis.” The standard model stipulates that the Khribet Qumran site was the central headquarters of the Essenic movement and the main dwelling of “The Teacher of Righteousness” and his disciples after their rejection by the establishment. This theory was generated by the de Vaux excavations and has been slightly modified during the last half of the 20th century.

My hypothesis will demonstrate that in fact the Essenes did occupy Qumran during sporadic periods. However, an attempt will be made to show that the scrolls are not exclusive to the Essenic sect and the inhabitants of Qumran. The diversity in the cache of literature will be explained by an alternative hypothesis. This theory will suggest that groups of Jewish zealots known to resist Roman Imperialism during the first century of the Common Era were using fortifications in Jerusalem, Masada and other Judean locations as citadels against the Roman army. These freedom fighters along with priestly zealots engaged Qumran (together with other citadels such as Masada) just prior to the Roman conquest. With them, they brought Jewish scrolls, perhaps from the Jerusalem temple that was already under Zealot control. The evidence is sufficient to suggest that Zealots hid away new scrolls with those that had already been stored in Qumran by the local sect of the Essenes.

Lisa Gaitero, Jamie Rogers
lisalisa@ulink.net
Peggy Trueblood, Ph.D.
California State University Fresno
Department of Physical Therapy
Graduate Student Presenter

The Effects of a Group-Structured Balance and Mobility Program for Seniors at Risk for Fall

Falls are a leading cause of injury and death among adults over the age of 65. The purpose of our study is to assess the effectiveness of the eight-week Fallproof!™ Balance and Mobility classes on community-dwelling older adults through their performance on selected balance activities and tests. The objective of our research is to answer the following four questions: 1) will older adults (over the age of 50) reduce or prevent falls while enrolled in and following completion of an eight-week Fallproof!™ class; 2) what is the minimal number of sessions, out of a total of 16 sessions, that is required to show improvement; 3) are more significant improvements made by individuals who are considered high vs. low risk for falling; and 4) will increased balance confidence correlate with a decrease in number of falls?

The study utilized a repeated measure, quasi-experimental design to examine the effects of a Group-Structured Balance and Mobility class. 87 subjects completed a series of tests and measures to assess balance impairments one week prior to the start of the balance class and one week following completion of the class. Class instructors designed progressive programs to address the multiple dimensions that contribute to balance and mobility.

Results and conclusions will be presented at the research symposium.

Marcel Garcia, Paul Price, Ph.D.
msgarcia@csufresno.edu
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter

Effect of Physician's Revealing Uncertainty on Patient Perception

Clinical uncertainty is an inherent component of medical practice. In interacting with patients, physicians can choose to reveal clinical uncertainty or not. The present study concerned the effects of revealing clinical uncertainty on patient perceptions of physicians.

College student participants watched video clips of simulated interactions between a physician and patient. In one condition, the physicians revealed clinical uncertainty (e.g., that a patient's cough might be a cold or it might be a bacterial infection). In another condition, the physicians did not reveal clinical uncertainty (e.g., did not mention the possibility of a bacterial infection). Participants then rated the physician on several dimensions.

The results were that physicians who revealed uncertainty were perceived to be less certain, less informative, and generally less competent than physicians who did not reveal uncertainty. The implication of these results is that the quality of physician-patient interactions can be affected by the physician's choice to reveal clinical uncertainty or not. Because of the recent Shared Decision Making models which encourage physicians to include the patient by disclosing more information than ever before, it will become increasingly important for physicians to be cautious in the way they communicate medical information.

Guiseppe Getto
ggetto@csufresno.edu
Aaron Auirre, Adam Klawitter,
Cathy Ciontea, Anthony Michel, Ph.D.
California State University, Fresno
Department of English
Graduate Student Presenter

The Local Gap: The 'Digital Divide' as Manifested within California State University, Fresno

The objectives of our study are to identify to what extent the 'digital divide,' or the divide between those who have access to technology and those who don't is manifested within California State University, Fresno along lines of class and gender, specifically pertaining to the usage of the program Blackboard in writing classes. We are focusing on the students in the first year composition courses. Our methods include teacher observations and discourse analysis, and include a methodology borrowed from Jeffrey T. Grabill who asserts that the aims of the society at large (or the infrastructure) are inscribed upon technology interfaces, or the software people use to access technology. The results of our study are that students indeed are affected along lines of class and gender, so that those who have ready access to computers and/or facility with computers at least experience no ill effects from instruction which utilizes Blackboard, whereas students who don't have ready access to computers and/or facility with computers experience several detrimental effects to their learning process. In addition, gender interacts with the Blackboard interface in surprising ways, with some students bending gender norms and others reasserting them between the classroom and Blackboard discussion forums. We conclude that these problems need to be accounted for in administration regarding technology and writing instruction at California State University, Fresno, and furthermore that the overriding assumptions of the current policies regarding technology in the classroom do not account for these problems and need, therefore, to be revised in strategic ways.

Dave Goorahoo, Ph.D.
dgooraho@csufresno.edu
California State University, Fresno
Center for Irrigation Technology
Charles Krauter, Ph.D.
California State University, Fresno
Department of Plant Science
Jim Gregory
Verdegaal Brothers Inc.,

Impact of Lagoon Buffering on Ammonia Emissions from Lagoons

The growing size and number of dairy operations in central California is bringing increased attention to some of the environmental problems dairies regularly face. One of those problems is the efficient handling of effluent - the water and materials leftover after daily flushing of the concrete stalls. Lagoon buffering is a management system for the dairy effluent consisting of: adjusting and maintaining the pH of the effluent stream between 6.8–7.0; addition and re-circulation of fresh water; and aeration.

The overall goal of our research is to contribute to on-going efforts to make dairy operations sustainable by: (a) quantifying spatial and temporal variability ammonia (NH3) emissions on dairy farms in order to identify probable areas that contribute to environmental degradation; and, (b) recommending management practices to mitigate these adverse effects. In this phase of the study we measured NH3 emissions in summer, during lagoon buffering at a large dairy (2000 milking cows) located in the San Joaquin Valley (SJV), CA. Tunable Diode Lasers (TDL) were set at 1.5 meters above the dairy lagoons and continuous concentration readings were taken prior to and during the lagoon buffering management. Weather data was collected from stations set up on site. Gas concentrations were converted into real time gas flux measurements by multiplying the concentrations by the simultaneous wind velocity.

Data collected with the TDL depicted the periods of relatively higher emissions occurring during the day and night times which generally go undetected with the other sampling and monitoring techniques used in our other related projects. Generally, as the pH of the lagoon dropped from 8.0 to 6.5, average NH3 fluxes decrease from approximately 1.6 to as low as 0.5 mg m-2 s-1. Overall, gas fluxes decreased when the dissolved oxygen within the top 30 cm of the dairy lagoon was increased. Based on data analyses to date, it appears that lagoon buffering is a viable best management practice (BMP) for controlling ammonia emissions from dairy lagoons.

Felicia Greer, Ph.D.
fgreer@csufresno.edu
California State University, Fresno
Department of Kinesiology
Virginia Rondero Jernandez,
Petra Sutton, Kathleen Curtis
California State University, Fresno
Central California Children's Institute

Obesity and Physical Inactivity among Children and Adolescents in the San Joaquin Valley

Obesity is a risk factor for many health problems, regardless of a person's age. Children who are overweight however, face a greater risk of health problems than do their non-overweight peers. They may also experience psychosocial problems and overweight in children and adolescents can also be associated with medical care costs, which often extend into adulthood.

This study investigated factors that contribute to the understanding of the prevalence of overweight among children and adolescents in the San Joaquin Valley. Current literature related to childhood obesity was reviewed and publicly available data sets were used to study this problem. The 2001 California Health Interview Survey (CHIS) data on childhood obesity and related factors are the primary data used in this study. These data were analyzed in relationship to age, gender, ethnicity, socioeconomic status and physical inactivity, including sedentary behaviors such as television viewing. Results for the San Joaquin Valley were also examined in relationship to state and national findings.

Based on the 2001 CHIS, almost one in eight adolescents ages 12-17 were overweight, and two out of three adolescents in the San Joaquin Valley did not participate in sufficient moderate physical activity. Differences existed between ethnic groups in both the prevalence of overweight and in physical inactivity patterns; Black and Latino adolescents had higher rates of overweight and higher rates of physical inactivity than did White adolescents. In addition, over one third of adolescents ages 12-17 in the Valley watched more than two hours of television per weekday. Furthermore, one in six overweight adolescents lived in the most impoverished households.

These data indicate that the prevalence of overweight among children and adolescents is increasing at an alarming rate across the nation and in the San Joaquin Valley. To address the magnitude of the problems associated with overweight, immediate attention is needed and broad efforts in nutrition education, physical activity and obesity prevention must be taken.

Gabriel Halls, W. Marshall Johnston, Ph.D.
glh25@csufresno.edu
California State University, Fresno
Department of History
Graduate Student Presenter

The Intriguing Nature of Jerome's Life of Paul of Thebes

This study outlines Jerome's interest in Paul of Thebes, his goal in writing his biography, and how the results had agency in shaping Jerome's life.

There are several similarities between Jerome's biographical text of Paul of Thebes and Jerome's personal habits in life. This similarity could explain Jerome's fascination with Paul. A secondary goal of the biography was to make Antony, (odds-on favorite to be the first hermit) subordinate to Paul, who was older. Jerome's affinity for Paul can be seen as evidence for his motive in writing such a biography.

Results of this study show it is very likely Jerome wrote this biography early in his own life while experimenting with asceticism. His purpose behind writing about Paul was twofold: he wanted to preserve a great Christian's life for posterity, but he also felt compelled to include other issues that he himself was concerned with. It was a soapbox in a way, for a man who at this point in his life, did not have the notoriety he later achieved. He found his voice in Paul of Thebes.

In conclusion, it is clear that Jerome used his talents to put forth his opinions on social issues ranging from asceticism to celibacy. We also find that Jerome was not persuaded to back down from his beliefs in the face of critical pressure.

Adam Hess, Jana L. Price-Sharps
matthew_sharps@csufresno.edu
Alliant International University
Matthew J. Sharps
California State University, Fresno
Department of Psychology

Heuristic and Algorithmic Processing in Science Education

Many college students experience difficulties in mastering concepts in science education. These problems are increasing with time in many segments of the U.S. population. The present study set out to explore the cognitive processes involved.

Two important dimensions of cognitive processing lie in the algorithmic and heuristic realms. Algorithmic processing typically involves direct computation, or direct accessing of non-inferential information. Heuristic processing typically involves general, broad-based processing strategies and inferential understanding to arrive at applicable generalities. Our recent research, in the area of gestalt and feature-intensive cognitive processing, suggests that much of the difficulty students experience in basic skills learning at the college level lies in the realm of heuristic processing, inference, and general strategy acquisition.

The present experiment used our RHA (ratio of heuristic to algorithmic processing) method to address the question of whether similar considerations applied to the area of science education. Performance on a series of questions concerning factual scientific knowledge was evaluated against performance on the RHA instrument used in our previous work. This instrument makes use of a series of mathematics problems and of verbal paragraphs from which information must be extracted. The problems and paragraph questions are constructed to require either algorithmic or heuristic processing as defined above, and ratios of heuristic to algorithmic performance are calculated for math and verbal items.

Fifty-four college students at the first-year level participated. Data were analyzed by means of simple multiple regression. The results showed no significant relationship between science knowledge and verbal RHA. However, a strong significant relationship was obtained with math RHA. These results indicate strongly the need for better heuristic and inferential training in mathematics to improve science success, and highlight the importance of a relatively domain-specific approach to questions of cognition in higher education.

Susan Hughes, MS, John Zweifler, MD MPH
susan.hughes@ucsfresno.edu
UCSF Fresno
Family & Community Medicine
Alvaro Garza, MD, MPH, Matthew A. Stanich, MPH
UCSF Fresno
Latino Center for Medical Education & Research

Vaginal Births after Cesarean in California: 1996-2002

Objective: In 1999, the American College of Obstetricians and Gynecologists (ACOG) adopted more restrictive recommendations for vaginal birth after cesarean delivery (VBAC). The objective of our study was to assess trends in VBAC in California, and compare rates of neonatal and maternal mortality among women with a VBAC or repeat cesarean delivery before and after the guideline revision.

Methods: The 1996 to 2002 California Birth Statistical Master Files were used to identify 386,232 California residents who previously delivered by cesarean and had a singleton birth planned in a California hospital.

Results: Neonatal mortality rates per 1,000 live births for attempted VBAC deliveries were significantly higher than repeat cesarean deliveries among neonates <1500 grams in both the 1996-1999 and 2000-2002 time periods (attempted VBAC: 1996-1999, 253.2; 95% Poisson confidence interval [CI], 197.7-308.6; 2000-2002, 336.8; CI, 254.3-419.4; and repeat cesarean: 1996-1999, 59.1; CI, 48.3-69.9; 2000-2002, 60.5, CI, 48.4-72.5). Neonatal mortality rates for attempted VBAC deliveries were not different than repeat cesarean deliveries among neonates ¡Ý1500 grams in the same time periods. Maternal death rates per 100,000 live births for attempted VBAC deliveries were similar between time periods (1996-1999, 2.0; CI, 0.1-11.0; 2000-2002, 8.5; CI, 1.0-30.6).

Conclusions: Neonatal and maternal mortality rates did not improve in the years following the ACOG 1999 VBAC guideline revision. While our findings suggest women with infants weighing ¡Ý1500 grams can expect similar outcomes with a VBAC or a repeat cesarean, we recommend further analysis of <1500 grams neonatal mortality stratified by elective and precipitous unplanned VBAC deliveries.

Mary Husain, Sally Tannenbaum, Ph.D.
mhusain@csufresno.edu
California State University, Fresno
Department of Communication
Graduate Student Presenter

Childhood Cancer: Communicative Information Needs of Parents

The communicative challenges faced by sick children and their families are unique and interactively complex. In the event of life-threatening illnesses such as cancer, these demands are exacerbated. Virtually no domain in the family's life remains unscathed; childhood cancer shatters the family's world. Although the need for information is consistently cited by parents as their primary concern after receiving the childhood cancer diagnosis, little is known about these needs. The purpose of this research is to illuminate these demands. Methodologically, this relies on a synthesis of information; a comprehensive, multidisciplinary review of the literature and semi-structured interviews (n=8) with self-selected individuals. The respondents were intentionally drawn from divergent standpoints, in order to incorporate varied perspectives of the childhood cancer experience.

The concerns of parents of children with cancer are rooted in communication processes. Both the literature and the interviews highlight the importance to parents of concrete medical/clinical knowledge specific to their child's case in order to more effectively negotiate the challenging role of parent advocate. To fulfill these needs they turn to a variety of sources: physicians, nurses, community agencies, printed material, social comparison and the internet, some of which may be problematic. A number of influences and/or barriers mediate health care providers and families' struggle to meet these demands: shock, educational level, coping style, culture, gender, and institutional factors.

In order to help parents fulfill their informational requirements, this research points to the need for increased utilization of electronic communication and the development of a journal, in conjunction with the binder currently being utilized. An electronic journal option could also be developed; either as a stand alone program or as a component of existing websites.

Saeed Iqbal, Tarek Alameldin, Ph.D.
saeediqbal@acm.org
California State University, Fresno
Department of Computer Science
Graduate Student Presenter

Implementing Distance Learning on Mobile Devices

WAP enabled cell-phones have been widely used in entertainment and business applications. Our goals of this research are to develop effective mobile interfaces for students and to implement mobile extensions to distance learning education and test its feasibility. Mobile implementations will allow students to receive class related information whenever they want and where they want.

Our implementation is based on Java enabled cell-phones and programming of interfaces was in Sun Microsystems's mobile alternative for java, J2ME (Java 2 Micro Edition). Motivation for this project was due to the increase in functionality of these programming languages as well as major media organizations like MSNBC broadcasting news videos on the cell-phones.

Mobile distance learning system is based on three components. 1) Mobile interface for communication and video stream playback, 2) Web based implementation with backend database, 3) Distance learning equipment in the classrooms. Currently we developed and implemented two interfaces, one is for the class announcements called AnnouncementMIDlet (where MIDlet is the common term for mobile interfaces) and the other is LectureVideoMIDlet. The announcement interface allows students to connect to the server and load up the class announcements posted by Professors such as homework announcements or similar.

Lecture video interface allows students to view stream of lecture videos from the server. We have performed usability and stress testing on this system. Playing an MPEG file on the cell-phone uses a good portion of the battery and therefore can only play up to 2 hours of video per average cell-phone. We are studying the use of real-time content analysis and content region detection which will allow us to remove the un-used portion of the Professor's document and enlarge text size in order to make it readable. Other results indicate that the interfaces are usable with an average rating of 3.5/5 from the questioner.

Carolina Maldonado
carolinamald@csufresno.edu
Sandra Witte, Ph.D., Constance L. Schneider, RD,
Diane Golzynski, Ph.D.
California State University, Fresno
Department of Food Science & Nutrition
Graduate Student Presenter

Effectiveness of Nutrition Education on College Students' Knowledge of Dietary Fat Intake and its Relationship to Chronic Diseases

Of the leading causes of death, five are related to nutrition. Diets high in fat and saturated fat increase the risk for chronic diseases. College students present a great challenge for nutritionists. Among this population eating well is not a priority. The purpose of this study was to explore college student's knowledge of dietary fat intake and its relationship to chronic diseases.

Forty students enrolled in an introductory nutrition course (NUTR 53) at California State University, Fresno participated in the study. Twenty-six of the students were enrolled in a general education section and fourteen were enrolled in an honors section of the course. Participation in the study was voluntary. The study included developing and implementing an instrument to assess college student's knowledge of dietary fat intake and its relationship to chronic diseases.

The results of the study indicated that a nutrition course may be an effective method of reaching out to the college-aged populations to raise awareness regarding dietary habits and disease prevention. While some students had some knowledge about the relationship between dietary fat intake and chronic diseases prior to nutrition education, there was still a significant increase in knowledge. The students also showed an interest in modifying their diet to lower their risk for chronic disease. Student's perception of their total dietary fat intake also improved following nutrition education. This may indicate that students are better aware of how much fat they are consuming.

Diana Martinez, Wade Gilbert, Ph.D.
dmartinez@csufresno.edu
California State University, Fresno
Department of Kinesiology
Graduate Student Presenter

Coaching Styles of Championship Collegiate Basketball Coaches: A Case Study

The purpose of this study was to describe the coaching style of championship team sports coaches. This purpose will be accomplished by describing the coaching styles of championship collegiate basketball coaches. There was one participant because this was a pilot study. The participant was Coach Mike Krzyzewski from Duke University. There were three books reviewed to conduct this type of research. The NVIVO qualitative data analysis program was used to facilitate data analysis. Thirty-two themes were identified to describe Coach Krzyzewski's coaching style. Many of these themes are supported in the coaching research literature.

Nigel Medhurst, Anthony Michel, Ph.D.
nigelmedhurst@hotmail.com
California State University, Fresno
Department of English
Graduate Student Presenter

Oppression as a Means to Acquiring a Creative Writing Aesthetic

This research addresses the process of creative writing, both for the student and teacher. Both have become entrenched in a "Starwriter" workshop system which adopts the aesthetical approaches of the successful writer or poet that the creative writing is formed around. This aesthetical approach incorporates and condones a more traditional and romantic approach to a creative writing that believes a writer can improve their writing but a writer cannot be created by a creative writing program. The students come to study and be mentored in an environment that is governed by the Starwriter and his aesthetic taste. The student is not allowed the freedom to explore other aesthetics. This traditional pedagogical approach to creative writing maintains control over what and who the academy accepts as a writer or writing. This will be shown through an auto-ethnographic study of teaching and participation in the creative writing classroom and will show the dominant ideology the student must deal with. This traditional pedagogical approach to creative writing creates duplicates with the aesthetics of the Starwriter. Alternatives that consider and allow different aesthetical approaches and consider the theories that have emerged through history need to be considered.

John (Jahanguir M.) Moghaddam, Ph.D.
johnm@csufresno.edu
California State University, Fresno
Department of Management

Preference for Different E-Learning Course Settings

The higher education institutions, in general, and business schools, in particular, are placing an increasing emphasis on the incorporation e-learning into their curricula. Students are expected to have access to appropriate computer hardware and be able to use various Internet functions and common software. Such prerequisites in conjunction with the rapidly advancing information technology provide an ideal infrastructure for development and use of web-based/web-enhanced course materials.

This study evaluated the effectiveness of e-learning and compared the preference for four different course settings: traditional classroom, web-enhanced, web-based (totally online), and hybrid (a blend of face-to-face and virtual lectures). Eight sections of the Production/Operations Management (POM) hybrid course at California State University, Fresno, provided the frame for the research survey. A total of 255 students constitute the survey group, of whom 236 (92.5%) completed and submitted a web-based research questionnaire.

The findings of this study suggest that students prefer to take courses in the traditional classroom and hybrid settings more than the web-enhanced course setting and far more than the web-based (totally online) setting. The traditional classroom course setting received the highest preference rating closely followed by the preference rating of the hybrid course setting. The web-enhanced course setting secured the third place in order of preference. A majority of students, however, found the hybrid course setting (the POM course format) to be overall either more effective or far more effective in comparison to the courses they have taken in the traditional classroom and web-enhanced settings. Such favorable views were more prevalent with respect to the effectiveness of the POM virtual quantitative lectures in comparison to the students' other quantitative courses and their desire for those courses to provide similar virtual lectures. The web-based (totally online) course setting was identified as least desirable one. Apparently, a great majority of students are not yet ready to take totally online courses.

Cieja Montgomery, Pamela Lackie, Ph.D.
cieja@hotmail.com
California State University, Fresno
Department of History
Graduate Student Presenter

Imbedded Language: Woven Symbols of Political, Social, and Religious Significance in the Peruvian Culture

Objective: In a cultural setting where a language consisting of letters does not exist, a meaningful language can occur through a unique series of symbols. As such, clothing was one medium of communication through woven images. These designs may denote an individual's social status, family lineage, occupation, and in the case of the Inca, absolute authority over his domain. This research project examines the multitude of woven symbols displayed on the royal Inca tunic, a garment richly covered with significant patters. Specifically, the research will document patterns by investigating the mechanisms at work in the creation of the tunic by weavers and other community members.

Summary: My research delved into numerous avenues including but not limited to Latin American history, anthropology, ethnography, archeology, and museum studies. Among the primary sources for the project are museum textile catalogues as well as Guaman Poma de Ayala's striking depictions of cultural world of the Inca. Secondary sources reflect the diverse academic interests surrounding the study of Peruvian textiles.

Conclusion: This paper demonstrates the significance of textiles in the production of culture as well as historical knowledge. As a garment of symbolic meanings and cultural synergism, the royal Inca tunic offers a glimpse into an ancient culture as intense and vibrant as any written language-based society.

Richard C. Moss, Steve Blumenshine, Ph.D.
skip0279@csufresno.edu
California State University, Fresno
Department of Biology
Joe Fleskes, Ph.D.
United States Geological Survey
Graduate Student Presenter

Aquatic Insect Emergence in Post-Harvest Flooded Agricultural Fields in the Southern San Joaquin Valley, California

California's Southern San Joaquin Valley is one of the most important waterbird areas in North America, but has suffered a disproportionate loss of wetlands when compared to other California regions. This project analyzes the habitat value of post-harvest flooded cropland by measuring the emergence of aquatic insects across multiple crop types.

Aquatic insect emergence was sampled from post-harvest flooded fields of four crop types (alfalfa, corn, tomato, wheat), August-October, 2003-2004. Emergence was measured using traps deployed with a stratified random distribution to sample between and within field variation. Emergence rate and emergent biomass was significantly higher in flooded tomato fields. Results from corn fields indicate that flooding depth was correlated (r=0.095) with both diel temperature fluctuation and emergence rate.

Chironomus dilutus larvae were grown in environmental chambers, under two thermal treatments with the same mean but different amplitudes (high: 15°-32°C, low: 20°-26°C) to investigate thermal fluctuation effects on survival and biomass. Larval survival (4x) and biomass (2x) were significantly greater in the low versus high temperature fluctuation treatment.

This research has the potential to affect agricultural management throughout the 12,600 km2 region, increase aquatic insect production and aid in the recovery of declining bird populations.

Melissa R. Nale
carolinamald@csufresno.edu
Carolina Maldonado, Constance L. Schneider, Ph.D., RD
California State University, Fresno
Department of Food Science & Nutrition
Graduate Student Presenter

Utilizing Parental Feedback for Summer Lunch Program Needs

School lunch is often the only nutritious meal children receive. When children are not in school, the risk of hunger and poor nutrition increases. Parents are responsible for non-school day meals, thus they are a customer for summer lunch programs. This research explored parents' needs for their children in a California county where summer lunch was seldom offered.

Four elementary schools, eligible for free school lunch, participated. Of the 3100 surveys sent home with children, 18% (n=555) responded. The majority of parents communicated in Spanish (54%). The majority were interested in summer lunch (74%). Most children (89%) stayed home during the summer. Slightly less than half (47%) indicated children would miss a lunch meal. Parents described a typical home lunch. Only 20% included milk and only 15% included a fruit/vegetable. Provision of protein foods varied: 36% of the lunch menus included a high fat protein and 12% included a lower fat protein. However, 52% of the menus did not include a protein source. The greatest concern parents had about a summer lunch program was adult supervision and/or transportation to a lunch site. The majority of parents preferred a lunch site at their children's school (54%) or at a neighborhood park/community center (34%). The data suggests incorporating feedback assists in projecting potential strengths and challenges when planning and promoting a summer lunch program. Research data was used to assist with community strategic planning.

Cynthia Oliphant, Steve Yarbrough, Ph.D.
cao10@csufresno.edu
California State University, Fresno
Department of Philosophy
Graduate Student Presenter

Heavenly War

Could China`s interrelated history of war and social philosophical development inspire her toward offensive military action today?

War was a primary historical basis for the development of early Chinese philosophical belief systems. In turn, ancient Confucian and Daoist texts indicate war`s influence, as a catalyst for their development. A selected analysis of these texts illustrate the symbiotic nature of military activity and philosophical belief in early Imperial China, and that war as successfully managed using the philosophical concept of a Mandate of Heaven. This key aspect of Chinese philosophy was a tool which facilitated aggressive military action.

The traditional Western view toward these Eastern belief traditions, as largely meditative and tranquil, is thus simplified and incomplete. Rather, I would argue, these philosophies could under Communist rule serve as tools to inspire Chinese soldiers toward a war footing. Together, these two dominant influences on Chinese society – linking its past with its current political rule – are likley to lead today's most populous civilization to attempt an extensive expansion of her borders by force. Tibet and Taiwan are but examples.

This reading of history would seem to provide for such a conclusion, that China likely sees her destiny as a mandate to do so. Such a perspective would encourage her to adopt a war stance. Philosophical traditions deeply embedded within China's social fabric, aspects of which have historically condoned the employment of military force, would seem to indicate that a regional Chinese-Asian war is probable, fueled in part on long-held social belief systems.

Sajeemas Pasakdee
pasakdee@ucsc.edu
Gary Banuelos, Ph.D., Weixin Cheng, Ph.D.
University of California, Santa Cruz
USDA-ARS-Water Management Research Unit
Department of Environmental Studies, Parlier, CA
Doctoral Student Presenter

Influence of Organic N Fertilizers and Irrigation on Plant and Soil N Availability under Organic Broccoli Farms in California

Organic agriculture faces the challenge of supplying adequate nutrients to optimize crop production while also protecting environmental heath because of the restricted uses of chemical inputs. Sufficient nutrients, especially nitrogen (N) is important for irrigated production of high N input crops like broccoli. Soil mineral N availability is influenced by both the form of organic fertilizer applied and the amount of water applied during the growing season. To study these relationships, two three-year field studies were initially established in 2002 at two different regions of California (Central Coast and Central Valley).

These studies examined the effects of organic N fertilizers and water application rates on broccoli yield, N dynamics in plant and soil, and soil water content on organically-grown broccoli fields that were planted during spring season for Central Coast region and fall season for Central Valley region, respectively. A preplant application of compost was applied to all organic N fertilizer treatments with a supplemental amount of organic N fertilizer added twice during the growing season as either; 1) fish powder, 2) Phytamin (blood meal and feather meal mix), 3) seabird guano, or 4) sodium nitrate. Three rates of irrigation water (80, 100, and 150% Etc) were applied to each treatment based on crop growth demand and weather data reported from California Irrigation Management Information System (CIMIS) at a weather station located nearby each field site.

Broccoli biomass (leaf, stem, and floret) increased significantly from additional organic N fertilizer applications compared to adding only compost on both field sites. Preliminary data from both field sites indicate that the average levels of soil nitrate from all treatments were higher than soil ammonium levels at the 0-15 cm, 15-45 and 45-90 cm depths. No significant change in total N concentration was detected in soil at 0-15 cm depth at the end of broccoli's first growing season from all treatments. We noticed, however, a slight increase in total soil C concentration at the 0-15 cm depth after compost was applied at the beginning of the growing season in both field sites. Overall higher levels of soil water content were observed at the Central Valley field site (clay loam soil) compared to Central Coast field site (sandy loam soil). In addition, soil water content was higher at deeper depths at both field sites; however, there was no significant difference among organic fertilizer treatments. Excessive rainfall at both locations minimized the full impact of water treatments. Total N concentrations in broccoli leaf tissue and nitrate concentrations in leaf blade (petiole) were significantly higher in treatments receiving additional organic fertilizers than the compost only treatment. It appears that total N concentration in leaf tissue can be utilized for monitoring the N status in organic broccoli production.

Kathleen D. Ramos
kramos@csufresno.edu
California State University, Fresno
Department of Child, Family & Consumer Sciences
Richard L. Brandt-Kreutz
UCSF Fresno
Department of Pediatrics

Early Outcomes of Healthy Steps Program among Low-Income Latino Families

Introduction: Healthy Steps embeds a developmental specialist in medical primary care offices, offering information, screening, and a helping relationship for families with children aged 0 to 3 years. The purpose of this study is to assess the impact of Healthy Steps on early parenting outcomes in a clinic population.

Methods: Healthy Steps participants surveyed during well-child office visits around child's age of 2 months. Identical survey administered during well-child office visit to comparison group of infants not enrolled in Healthy Steps, but seen in the same pediatric clinic. Survey was orally administered in either Spanish or English, and assessed demographic information in addition to outcome variables. Outcomes included parent report of safety practices, feeding practices, practices that promote development, and Emergency Room usage.

Results: Healthy Steps participants (n=40) and comparison infants (n=25), all less than 4 months old, were largely Latino with low levels of income, education, and marriage. Healthy Steps participants were significantly more likely to be first-born babies and to have foreign-born mothers. There was a trend toward more babies being put to sleep on their backs and less exposure to cigarette smoke in the Healthy Steps group. Healthy Steps babies were more likely to have initiated breastfeeding, and among those who had ceased breastfeeding, it had lasted an average of one week longer in the Healthy Steps group. However, they were no more likely to be breastfeeding by the time of the survey. Healthy Steps infants were less likely to have already received water, juice, and cereal. Those who had received cereal did so an average of 7 weeks later in the Healthy Steps group. There were no differences in the frequency of reading to, talking to, or cuddling baby; very high percentages in both groups did these things very frequently. Healthy Steps infants were far less likely to have been to a hospital emergency department.

Conclusions: The Healthy Steps program appears to have modest effects on some indicators of infant well-being. Small changes early in life have great potential to improve lives of those most in need.

Ammon Rice
amms21@csufresno.edu
Deborah Rudnick, Brian Tsukimura, Ph.D.
California State University, Fresno
Department of Biology
Graduate Student Presenter

Monitoring Larval Abundance and Environmental Conditions to Predict Adult Populations of the Invasive Chinese Mitten Crab, Eriocheir sinensis

The recent expansion of the Chinese mitten crab, Eriocheir sinensis (Crustacea: Decapoda: Grapsoidea), into the San Francisco Bay, Sacramento-San Joaquin Delta system and their watersheds is a cause of widespread concern. The magnitude of the impacts of downstream migrations is greatly related to mitten crab year-class strength. Many aspects of the mitten crab life history are strongly regulated by environmental parameters. Environmental components might be used as predictors for mitten crab population dynamics and year-class strength. We believe adult abundances are controlled at the larval stage. Correlations were seen between adult mitten crab abundances and San Pablo Bay temperatures expressed as % time >12°C. Stronger patterns emerge when comparing planktivore abundances and freshwater discharge abundances to adult abundances 4 years later. Years with high freshwater discharge are mirrored by strong adult mitten crab abundances 4 years later. Conversely, years with low planktivore abundance are followed, 4 years later, with high adult mitten crab abundance. The presence and abundance of zoea is determined using zooplankton trawls. Currently, no key exists to identify crab zoea in the San Francisco Bay Estuary. Zooplankton samples were obtained from the California Department of Fish and Game (DFG) Neomysis plankton surveys, and Clarke-Bumpus samples taken from five sites between San Pablo Bay and downstream Suisun Bay during April 2003-May 2004. Using characters that remain consistent throughout all zoea stages, we devised a dichotomous key to identify 13 species in the families Grapsidae, Xanthidae, Majidae, Cancridae and Pinnotheridae. Using our key to determine zoea abundance, and monitoring temperature, salinity, outflow, and planktivores that affect zoea survival, we may have reliable predictors of adult mitten crab abundances. This will provide information that will assist in better monitoring and control of impacts of the Chinese mitten crab.

Virginia Rondero Hernandez, Ph.D., M.S.W.
virginiarh@csufresno.edu
California State University, Fresno
Central California Children's Institute
Department of Social Work Education

An Analysis of Teen Births in San Joaquin Valley Communities

Introduction: Data show that teen birth rates in the San Joaquin Valley have been decreasing over the last decade. Nevertheless, Valley rates continue to exceed those of the state and the nation. Valley teen birth rates are predicted to increase and remain among the highest in the state because of rapidly changing population demographics and expanding poverty in the region.

Methods: A community-level analysis was conducted using six demographic variables: 1) Latino population, 2) foreign-born population, 3) population who speak a non-English language at home, 4) population without a high school diploma, 5) female-householder families, and 6) families with incomes below the poverty level. These variables were analyzed against the percentages of teen births (live births to women ages 15-19) in San Joaquin Valley communities using data from the California Department of Health Services (2004a) (Number of Live Births by ZIP Code of Mother's Residence By Race/Ethnicity and Age of Mother, Infant Birth Weight, and Mother's Prenatal Care, California 2001) and the U.S. Census 2000 (Community Demographic variables by ZIP code). Data for the 318 ZIP codes in the eight San Joaquin Valley counties (Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare) were aggregated into 61 community ZIP-code clusters. Each community cluster was then ranked by the percentage of births to teen mothers by comparing the total number of teen births to the total number of live births within the cluster. The 61 clusters were partitioned into four quartiles and ranked by the percentage of teen births. A series of one-way analyses of variance (ANOVAs) were performed to analyze the relationship between community cluster percentages of teen births and the six community demographic variables.

Results: The results indicate that Valley communities with higher percentages of teen births also have higher percentages of residents living in poverty, families headed by a single female, low levels of educational attainment, foreign-born residents, and residents who speak a non-English language at home. The results also expand knowledge about local population trends and the direction they are growing and reveal obvious disparities in the prevalence of teen births in San Joaquin Valley communities.

Recommendations: The findings imply that that communities need to examine individual and community risk factors associated with unprotected teen sexual activity and pregnancy when devising interventions to reduce teen birth rates. The findings also indicate that it is essential that prevention and education activities be culturally and linguistically appropriate, as well as and clinically relevant.

Stergios Roussos, Ph.D., MPH
steve@akouo.org
Linda Hoskins, Melbourne Hovell, Ph.D., MPH
Center for Behavioral Epidemiology and Community Health
SDSU/GSPH

Physician-Initiated Tobacco Control for Latinos with Limited English Proficiency: A Qualitative Study

Latinos represent the largest single ethnic group in the U.S. and the fastest growing with an annual growth rate of over 2% a year. Given this population growth, rates of smoking among Latinos may disproportionately contribute to significant tobacco-related morbidity and mortality and associated healthcare costs. Addressing smoking-attributable health and social burdens for Latinos may be particularly important in Central California where approximately 40% of the population is Latino (85% Mexican). Current evidence shows that Latinos, especially those with limited English language proficiency (LEP), are not likely to receive physician-initiated interventions known to control and eliminate tobacco use.

A qualitative study was conducted in Merced County to understand the key features that may facilitate or interfere with physician-led tobacco-control (e.g., smoking cessation and prevention) with Latinos smokers and non-smokers. Two semi-structured focus groups (8 to 12 persons per group) were conducted separately with each of the following groups: LEP Latino smokers, English-speaking Latino smokers, LEP Latino non-smokers, English-speaking Latino non-smokers, primary care physicians, and healthcare interpreters for LEP Latinos. Comments were transcribed and analyzed for common themes within and across groups.

LEP and English-speaking Latinos reported minimal screening and advice regarding tobacco use (e.g., quit advice, methods to avoid environmental tobacco smoke, ETS). Language barriers, even with the use of a healthcare interpreter interfere with screening and subsequent intervention regarding tobacco use and ETS. Latino participants and physicians underestimated tobacco-related harm and the lack of knowledge of tobacco prevention and cessation among Latinos.

Interventions are needed to increase tobacco control activities with Latinos during a healthcare visit. Training physicians how to intervene when an interpreter is present may facilitate intervention with LEP Latinos. Attention to Latino cultural factors that promote tobacco use may facilitate dialogue about tobacco during a healthcare visit.

Ross Rushton, Roberto Gonzalez, Ph.D.
rossrush76@yahoo.com
San Jose State University
Department of Sociology
Undergraduate Student Presenter

Consent in the Corporation

Downtown San Jose is home to the corporate headquarters of Clay Corporate Incorporated. Forbes magazine's annual "Best Companies to Work For" 2004 list, ranked this company in the top ten for its second year in a row. This presentation summarizes the views and experiences of Clay's workers, in order to understand more fully the forces shaping this corporate culture. It will focus particular attention to the ideological nature of this organization as well as the social mechanisms engendering this ideology which seemed to bolster worker's productive capacities.

Participant observation and one-on-one interviews were the primary methods used to obtain data for this qualitative study. Participant observation was done at three different internal sites of the corporation, on three different days. The second source of data for this study was collected through a series of three in-depth interviews.

Findings uncovered how the overall lavish aesthetics of the campus, along with the various amenities and services for employees affect Clay employees. Such visual representations, coupled with the physical and tangible manifestations of an opulent culture, are perceived as gifts from above by employees who equate their surroundings with the belief they are trusted, respected and valued by Clay's senior executives. The internalization of this overall sublime treatment appeared to breed a psychological response, seen in a steady output of labor by an enthusiastically diligent workforce. In summary, I conclude that a distinct form of control and subsequent worker consent exists at Clay Inc.; a psychologically manipulative form of control, apparently unbeknownst to the workers themselves.

Vishal Saberwal
saeediqbal@acm.org
Saeed Iqbal, Tarek Alameldin, Ph.D.
California State University, Fresno
Department of Computer Science
Graduate Student Presenter

Investigating Steganography on Mobile Phones

Enhancements in cell-phone computing have enabled developers to provide multi-media based applications. Furthermore recent cell-phones have the capability of taking photographs and connecting to the internet. Our research, which was partly funded by Edwards Air Force base, analyzes the implementation of steganography on mobile phones. Steganography is the science of hiding secret information into a message in order to prevent others from obtaining the secret information in the transferred message. Steganography on mobile devices has applications in the defense area since it enables officials to secretly transfer information encoded into pictures from one cell-phone to another where it can be decoded.

Mobile implementation of steganography is a novel idea because there has been no such related work with cell-phones. Other handheld PDA's have more computing power so there has been work done in steganography on PDA's. There are two techniques that can be used to implement steganography on mobile devices: (1) execute the algorithms on the remote server using web services or (2) execute the algorithms locally on the cell-phone. In our study we chose the second option. We used Sun Microsystems compact version of Java called J2ME (Java 2 Micro Edition) for our implementation. The steganography algorithm was developed in order to meet the limited computing criteria of cell-phones. LSB (Least Significant Bit) technique was used in our algorithm. We have three main interfaces Authenticate, Combat and Access. Usability testing has been performed on the implementation. Initial results show that the software interface was user friendly and the options worked as intended. Images could be transferred over the GPRS network to different cell-phones with secret messages embedded in them.

Matthew J. Sharps, Ph.D.
matthew_sharps@csufresno.edu
California State University, Fresno
Department of Psychology
Jana L. Price-Sharps
Alliant International University

ADHD and Cognitive Factors in Substance Abuse

The link between attention deficit hyperactivity disorder (ADHD) and substance abuse (SA) behavior is well known. However, little research has addressed the role of cognitive processes in this relationship.

ADHD impairs the ability to sustain attention. Our recent research has shown that this in turn results in diminished feature-intensive processing, which may prevent relevant features of risk, such as those involved in SA behaviors, from being considered in depth. This is true even in the "subclinical" population, those who only have features of ADHD without sufficient symptoms to classify them as having the disorder.

The present study formed a more comprehensive characterization of additional cognitive factors involved in SA behavior. Clinical evidence suggests that additional important influences lie in the ability to initiate and organize the feature-intensive cognitive processing which might tend to insulate against the allure of SA behavior, and in the ability to manage emotional influences surrounding SA behavior and its frequently concomitant lifestyle issues.

We addressed these possibilities with 120 college-aged participants, using the Brown ADD Scales and the Substance Abuse Subtle Screening Inventory. The results of this study were consistent with the hypotheses advanced. Data were subjected to a simple regression analysis. The effects on SA tendencies of diminished sustained attention, diminished cognitive initiation/organization abilities, and diminished abilities to manage affective interference (all as measured by the Brown scales) were significant ($p<.05$), with beta values ranging from .21 to .42.

Although sensation-seeking and deficits in behavioral inhibition are important in the established linkage between ADHD and SA in adults, SA behaviors must ultimately be mediated by cognitive processes. The present research adds to the growing body of evidence implicating specific cognitive factors as contributors to this linkage, and underscores the importance of cognitive approaches to the understanding of substance abuse.

David Sischo
dsischo@csufresno.edu
Gurmel S. Sidhu, Ebenezer A. Ogundiwin,
James P. Prince, Ph.D.
California State University, Fresno
Department of Biology
Undergraduate Student Presenter

Fungicide Resistance in the Pepper Root Rot Pathogen, Phytophthora capsici

The genus Phytophthora is perhaps one of the most famous of plant pathogens, owing this fame to its ability to cause foliage blights, crown, and root rot in a variety of commercially produced crops, including pepper. Phytophthora has gone down in history as the sole cause of a series of potato famines in Europe beginning in the 1840's, starving to death upwards of one million people.

Peppers (Capsicum spp., bell and chile peppers) are infected by Phytophthora capsici. Out of necessity, production of peppers widely relies on the use of fungicides to treat Phytophthora infection. Fungicide build-up can contaminate groundwater and run off into rivers and lakes. In addition there is recent evidence that P. capsici isolates have been adapting to fungicide resistance.

This research will be attempting to further understand the relationship between disease-causing P. capsici and the fungicides used to combat it in the field, specifically metalaxyl, cyazofamide, famoxate, Abound, and Pristine. Each of these has a specific range of effectiveness. Establishment of concentration ranges will involve the use of already existing research and conducting new in vitro trials testing various concentrations. We grow isolates of P. capsici on nutrient rich agar treated with different concentrations of fungicide. After roughly a week, these plates are scored for growth and zoospore production. In vitro studies allow for the characterization of different isolates of Phytophthora capsici, and establish a range of effectiveness for each fungicide. With this data, a more realistic experiment applicable to the field can be carried out. This involves growing peppers of various varieties, pre-treating them with fungicide concentrations established in vitro, and then inoculating them with the pathogen. After a month, the plants are scored for disease and compared to the negative controls. The objective is to cure the plant of disease, find the most effective concentrations of fungicide for preventing infections, and identify any resistant isolates of P. capsici that exist in California.

Current results indicate that different isolates of Phytophthora have varying tolerances for each fungicide, with some fungicides affecting zoospore production, and others affecting mycelial growth. The results found in the fungicide-treated plant experiment will validate the work done in vitro while providing valuable insight to fungicide dosing in the field. Secondly, the in vitro studies will add to the already existing information characterizing isolates of this pathogen.

Karen Sproull
ksproull@csufresno.edu
California State University, Fresno
Department of Biology
California State University Stanislaus
Endangered Species Recovery Program
Patrick A. Kelly
California State University Stanislaus
Endangered Species Recovery Program
Ruth Ann Kern, Ph.D.
California State University, Fresno
Department of Biology
Graduate Student Presenter

Influence of Exotic Black Rats on the Reproductive Success of Riparian Woodrats

The gold rush of 1849 initiated in California a period of settlement and land conversion that continues to this day. In the San Joaquin Valley of Central California, wetland, riparian, and upland communities were largely converted, predominantly for agricultural uses. Riparian woodrats (Neotoma fuscipes riparia) were characteristic of brushy, riparian communities in the northern San Joaquin Valley but by the late 20th century, only one extant population was known, in Caswell Memorial State Park on the Stanislaus River near Ripon, California. Consequently, the riparian woodrat was listed as an endangered species by the U.S. government in 2000. In recent years, biologists have located two other populations of woodrats in the northern San Joaquin Valley but they also documented high population densities of black rats (Rattus rattus) in the areas occupied by woodrats. This observation led to the hypothesis that resource and/or interference competition from black rats may be influencing the distribution and abundance of woodrats. A two-year study of riparian woodrats and black rats was initiated in fall 2002 in Caswell Memorial State Park. Two study sites were selected as far away from each other as possible within the park. Black rats were continuously removed from one of the sites and woodrats were monitored using live-trapping and radiotelemetry at both sites. Black rats were also monitored in the non-removal area. The results suggest that female woodrats have higher reproductive success in the black rat removal area.

Heather Stahl
matthew_sharps@csufresno.edu
Alliant International University
Mattew J. Sharps
California State University, Fresno
Department of Psychology

ADHD and Substance Abuse in Affective Context

It has been shown that tendencies toward attention deficit hyperactive disorder (ADHD) have a strong influence on SA behavior, even in those who do not exhibit sufficient symptoms of ADHD for diagnosis, but who simply have some ADHD characteristics. A related but little-explored question lies in the ways in which affective or emotional processes interact with the hyperactive and impulsive components of ADHD characteristics, among the most important influences on SA behavior.

The present study addressed this question, making use of standard instruments. Forty college students at the first-year level participated. The instrument for the evaluation of SA behavior was the Adult Substance Abuse Survey (ASUS), the "global" scale of which forms a reliable index of SA tendencies. ADHD tendencies, specifically toward impulsivity and hyperactivity, were measured by means of the appropriate scale of the Conners Adult ADHD Rating Scales (CAARS). For this preliminary exploration, the affective characteristics addressed were tendencies toward depression and dissociation. Depression functions frequently as an antecedent and consequence of SA behavior. Dissociative tendencies have been less explored, but they typically result in unrealistic, idiosyncratic world-views which are conducive to SA behavior. These two dimensions were evaluated by means of the Beck Depression Inventory-II and the Dissociative Experiences Scale, respectively.

Regression analysis indicated that both dissociation and depressive tendencies were associated with the hyperactivity/impulsivity dimension measured by the CAARS. Moreover, all three components were significantly related to SA behavior. These results showed that depression and dissociation interact with ADHD tendencies to provide a more comprehensive predictive model of SA behavior, even in populations which do not exhibit diagnosable levels of symptoms on any of these dimensions. The results further suggest the importance of comprehensive consideration of clinical, cognitive, and affective processes in the understanding of substance abuse.

Brittany Stapp
bstapp14@yahoo.com
Brittany Stapp, Stephanie Faria, Kelli Donovan
California State University, Fresno
Department of Biology
Tim Tyner, MS, Kent Yamaguchi, MD
UCSF Fresno
Department of Surgery
Undergraduate Student Presenter

Biosynthetic Collagen Nerve Guide Abrogates Neuropathic Pain Associated with Neuroma Formation Following Sciatic Nerve Ligation

Peripheral nerve damage is commonly associated with a traumatic injury or surgical procedure. The injured (cut) nerve often undergoes random regrowth resulting in the formation of a hypersensitive mass of axon endings intermingled with proliferating fibroblasts, Schwann cells and connective tissue, termed a neuroma. There is currently no universally accepted method for prevention or treatment of neuromas.

In our experiments, we utilized a biosynthetic collagen nerve guide tube (trademarked NeuraGen) in an effort to reduce random axon regrowth and limit interactions with surrounding tissue following neurectomy in a rat sciatic nerve model. Briefly, neurectomy of the sciatic nerve was performed in Control and Experimental (NeuraGen) groups. In the Experimental group, a 1 cm piece of the NeuraGen guide tube was sutured to the resulting proximal nerve stump (small piece of the excised distal segment attached to the distal end of the NeuraGen tube to provide a directional signal for guided regrowth). Control animals received neurectomy only.

For the subsequent eight weeks, animals were monitored daily for presentation of neuroma-like symptoms. Neuroma development was observed indirectly through the application of a modified symptomatic scale developed by Wall et al. (1982). To assess neuroma formation directly, biopsies of the proximal nerve stump were taken and processed for immunohistochemical analysis at the end of the eight-week period.

A significant reduction in neuropathic sensitivity was oberved in the NeuraGen group in comparison to Controls ($p<0.0001$). Tissue histology further showed an increase in linear axon outgrowth and a reduction in neuroma-associated morphologies in the NeuraGen group.

DeAnna L. Stay, Honora Chapman, Ph.D.
dstay@csufresno.edu
California State University, Fresno
Department of Philosophy/Religious Studies
Undergraduate Student Presenter

From Woman to Goddess: The Story of the Evolution of the Virgin Mary

From a continuing project entitled "From Woman to Goddess: The Story of the Evolution of the Virgin Mary," this project further examines the evolution of the ideas and images of the goddess figures from early goddess earth worship into the fully developed and perfected image of the unattainable goddess—the Virgin Mary. The creator-goddesses or lesser goddesses were worshipped for their powers to give life and hope, or because they brought death and pain. These goddesses were linked with agriculture, motherhood, and fertility. It would be these goddesses whose images would be blended and perfected in the Christian tradition with the Virgin Mary. This project continues an historical and theological examination into the life and image of the Virgin Mary. It explores cultural background by taking an in-depth look at ancient cultures.

While a further examination of the earth-goddesses is addressed another important aspect of this project is the development of the picture of Hebraic tradition and women with a look into the Tanakh and mythological/legendary texts of Jewish tradition. Hebrew scripture, commentary and legend all lend themselves to a fascinating picture of women's roles before the Common Era. The characters in this section of the project include, Eve, Lilith, Ruth, Tamar, Bathsheba, and Rahab. Their successes, failures, and sacrifices all play an intrical role in the development of the image of the Virgin Mary.

The last aspect of this project is an exploration of the Virgin Mary's role during the Byzantine Era. The goddess-like nature of the image of the Virgin Mary will continue to evolve to reach a pinnacle in the art of the churches of the time which have elevated her to position of goddess and intercessor while still highlighting her virginity and her motherhood.

Geoff R. Twitchell, Ph.D.
Geoffrey.Twitchell@med.va.gov
VA Central California Healthcare System
UCLA Neuropsychiatric Institute
Department of Psychiarty
E. V. Malin, T. F. Newton
UCLA Neuropsychiatric Institute
Department of Psychiatry

Family History of Depression, a Predisposing Vulnerability Factor for Tryptophan Depletion Effects in Cognition for MDMA Users: A Pilot Study

Objective: Studies indicate MDMA use may cause damage to the serotonergic system and hence cognitive deficits. But little is known about predisposing vulnerability factors for 5-HT dysfunction effects. This study examined the impact of first-degree family history of depression on neuropsychological (NP) functioning in MDMA users via tryptophan (TRP) depletion paradigm.

Method: This is a 2 GROUP (+FamHx vs -FamHx of depression) X 2 CONDITION (Quarter vs Full Strength TRP depletion drink) X 2 TIME (Baseline vs Post TRP depletion assessment) mixed design. Participants were 15 men [Mean Age=22.3(3.85)]. One week after baseline testing, participants completed a NP testing experimental session five hrs after the randomly assigned TRP-free amino acid drink.

Results: Significant Condition X Time interactions emerged for Wechsler Logical Memory I and Rey Auditory Verbal Learning Test-Long Delay. RAVLT-B, RAVLT-Short Delay, and FAS Verbal Fluency had large effects for this same Condition X Time pattern. NP performance improved for quarter strength drink and decreased for full strength drink. A similar pattern emerged for FamHx X Time interactions for Logical Memory I where -FamHx performance improved while it decreased for +Fam Hx. Importantly, there were large effects for the three way interactions for both Logical Memory I and FAS with increases in performance across time for quarter strength for both -FamHx and +FamHx as well as for the full strength drink FamHx, while full strength drink and +FamHx yielded a decrease.

Conclusions: Condition X Time interactions suggest that there was a differential TRP-depletion effect between quarter strength and full-strength. The general results may reflect a presence of practice effects that are attenuated by full strength drink, family history of depression, or both.

Dympna Ugwu-Oju, Karen Carey, Ph.D.
dugwuoju@comcast.net
California State University, Fresno
UC Davis
Joint Doctoral Program in Educational Leadership
Doctoral Student Presenter

Successful African-American Women: Influence of Personal, Family, Community, and School Factors in Overcoming "At-Risk" Situations

Purpose of Study: The primary purpose of this study was to examine influences that impact why some female black students succeed in spite of difficult circumstances such as poverty, single-parent households, racism, lack of parental involvement, parental rejection, teen pregnancy, spousal abuse, substance abuse, and other adversities that are frequently associated with failure. This study tried to provide an answer to the question about African American women, particularly what it takes for them to succeed.

Method: This study was conducted using natural inquiry methods outlined by Lincoln & Guba (1985). Participants, purposefully selected through "snowball" or "chain sampling" (Patton, 1990), were three women of African American descent who had adverse conditions in their lives but are today successful, as defined by at least a college degree from a recognized institution of higher learning and employment. This study uses a triangulation approach or multiple data sources to increase the probability that my interpretations were correct and to increase the trustworthiness of the investigation. Multiple data sources included: 1) interviews, 2) observation, and 3) examination of participants' documents. Data collection began with observations made for two days in each participant's work setting in the spring of 2005 to observe each subject interact with others in her various duties and capacities. Questions for the interview were developed on the basis of research contained in the literature review. Researcher used face-to-face interviews to collect data for the study and verify information gleaned during the observation. The researcher also examined participants' documents, including commendations, recognition letters, recommendation letters, awards, and all documents which demonstrate their success and achievements.

Results: Themes that emerged as factors that created the adverse conditions or fostered resiliency in the subjects were not uniform for all the participants. Their adverse conditions were created by hostile home environments, racism, unsupportive schools, and abusive spouses. The factors that fostered resiliency in the participants included individual characteristics, close bond with a supportive adult, close-knit community, religion, supportive school environment, and racial awareness.

Conclusion: In the present study, the results suggest a strong influence of external authority – teachers, school authorities, and significant adults as well as personal characteristics. Additionally, the strong personal characteristic -- the incredible strength and personal willpower exhibited by these women -- was their strongest unifying denominator.

Gaurav Verma, Tarek Alameldin, Ph.D.
gv_79@hotmail.com
California State University, Fresno
Department of Computer Science
Graduate Student Presenter

Morphing as a Creative Tool for Camera Phones

Mobile phone industry has gone through a complete evolution in the last few years. Mobile phones are no more a mere talking device but rather a multipurpose business and entertainment tool. Embedded camera is amongst the most popular features provided in a mobile phone. Camera phone sales have risen dramatically to over 190 million in the year 2004. Increased demand for the camera phones has forced the development of newer and better functionalities in the embedded camera. So far its use has been limited to taking pictures, assigning them to names, emailing them or creating fun-frames. The purpose of this paper is to design, develop and implement an efficient image metamorphosis application for camera phones.

So far morphing images has required a user to take pictures using a digital camera and transferring the images to a computer. Then image warping is applied to the images and finally images are cross dissolved to obtain the desired image. However, our approach only requires a camera phone, to capture images, and the mobile based morphing application.

Image metamorphosis, also known as morphing, refers to animated transformation of one digital image into another. The process is a combination of warping the images to generate same shapes for the two images and cross dissolve for blending the colors of the two images. Image warping requires establishing correspondence between the two images. Our approach uses the field morphing technique to establish association between the source and destination image. The user draws pair of lines in the images to draw correspondence between the key features of the two images. The mapping of the points in close proximity of the lines is determined by their distance from the line. Due to the fact that there are multiple lines, we need to calculate weighted average of the mappings. Weights are calculated on the basis of distance and length of the lines.

Next, we compute the weighted average to find the best match to the source pixel. Subsequently, weights are assigned depending on the proximity of the pixel to the line. The closer they are to the line, the higher is the value of the weights.

Finally, we implement the morphing algorithm on cell phone cameras, using Java 2 Micro Edition (J2ME) platform. Mobile phones suffer from major drawbacks such as small screen size, limited processor speed, small memory size and certain vendor specific add-ons which underlie the operating system features. J2ME provides the most basic and important aspects of Java that are required to develop and implement applications on mobile phones while keeping in mind the limitations of such devices. We use MIDlet's to implement the morphing program. MIDlet is similar to an applet in Java except it runs on a handheld device.

Anne Visser
avisser@csufresno.edu
Elizabeth Campos, James Mullooly, Ph.D.
California State University, Fresno
Department of Anthropology
Undergraduate Student Presenter

Defensive Posturing and Group Maintenance in Ethnographic Relief: Fights for Freedom in Post-911 America

Throughout history American society has been home to many successful social movements and progressive groups. Now more than ever before, progressive groups are faced with a variety of obstacles and concerns that have affected their ability to successfully organize with the intent to enact change. Freedom Now (a pseudonym), is a non-authoritarian progressive organization in California, which is concerned about issues regarding globalization, the environment, war, capitalism, and human rights. This organization promotes ideas of anarchy, freedom, environmental protection, and advocates for the protection of civil rights and liberties. By employing methods of participant observation (which includes formal and informal interviewing, etc), this paper takes an ethnographic look at the group's meetings, activities, as well as the group's interactions with other progressive groups and the various social patterns that materialized.

Freedom Now has adopted some unique group attributes due to their patterns of behavior, mainstream America's political opinion, and recent acts of government infiltration into other progressive groups. These obstacles have caused Freedom Now to practice covert exclusive membership and it has also created a group dynamic that has developed unique social patterns. Our research looks at this exclusive membership and the social patterns it creates and how aspects of membership recruitment and group maintenance are affected because of these phenomenons. This paper presents data that suggests that the patterns of covert exclusive membership are the result of both a post 911 defensive ideology and contemporary American Society.

Kevin T. Webster, Lorin Lachs, Ph.D.
kevinwebster@gmail.com
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter

The Role of Multimodal Sensory Feedback in the Perceptual Learning of Speech

This experiment examined spoken word recognition during and after perceptual learning of an unusual acoustic transformation of speech. Previous research has found that adults and children receive more benefit from cochlear implants when auditory information is effectively integrated with visual lipreading information. Because cochlear implant users have little, if any, pre-operative experience with auditory information, these findings suggest that perceivers are able to capitalize on already-obtained lipreading skills in order to effectively learn to perceive new acoustic information about speech. This may be due to the fact that auditory and visual speech are lawfully related to the same physical event – a spoken utterance. Alternatively, it is possible that the addition of any relevant stimulus, regardless of its lawful relations with auditory speech, will aid in the process of learning how to deal with new perceptual information. To test these hypotheses, normal hearing participants were trained with 3 different conditions of perceptual input while learning to perceive frequency inverted speech: auditory-alone, auditory with orthographic visual stimulation, and auditory with visual information about the lips and face. The results of this study showed a main effect of training block and a marginal interaction of training block and feedback condition. These results confirmed our hypothesis that lawfully related visual stimuli aid in perceptual speech learning.

William F. Wright, Ph.D.
wfwright@csufresno.edu
Reid H. Bowman, Ph.D., Jinwook Chung, Ph.D.,
Bruce E. Rittmann, Ph.D.
California State University, Fresno
Department of Civil & Geomatics Engineering & Construction
Applied Process Technology, Inc.
Northwestern University

Bench and Pilot-Scale Testing of a Hydrogen-Based Membrane Biofilm Reactor for Reduction of Nitrate in Contaminated Groundwater

The principal objective of the study was to demonstrate on a bench-scale that nitrate from four field groundwater samples collected from the California Central Valley could be treated to below regulatory standards at an economical cost in a hollow-fiber membrane biofilm reactor (MBfR) that uses hydrogen for microbial nitrate removal. Secondary objectives included assessment of the MBfR's capacity to treat other contaminants commonly found in groundwater and to test the technology at a 1-GPM pilot-scale. Bench-scale testing was conducted at Northwestern University on water samples with elevated levels of nitrate (three exceeding 14 mg-N/L) and varying concentrations of naturally occurring and anthropogenic chemicals. In all of the samples, the nitrate was reduced to less than 0.5 mg/L nitrate –N. Other contaminants of concern, including arsenate, perchlorate and dibromochloropropane (DBCP), were also reduced during the bench tests. Pilot-scale testing of the MBfR was conducted in the laboratory of Applied Process Technology Inc. (Pleasant Hill, CA). The MBfR pilot system was operated with an influent nitrate concentration of 50 mg/L (11.4 mg-N/L) for 4-5 months under a variety of conditions. The effluent nitrate concentration was < 0.2 mg-N/L and the nitrate flux was 1050 mgN/m2-day which approaches the theoretical nitrate flux of a biofilm denitrification reactor. The most significant problem encountered during the pilot-scale testing was bio-fouling. An alternate reactor design has been developed to address this problem and its effectiveness is still being evaluated. The MBfR process eliminates costly and difficult waste disposal of salt streams from the competitive ion exchange and reverse osmosis processes. Information from the bench and pilot-scale testing is being directed toward valid engineering scale up evaluations for well-head pilot-scale testing and eventual full-scale demonstration. This will define whether the process can be an economically and qualitatively competitive treatment process for nitrate-containing drinking water sources.

Kao-Ly Yang, Ph.D.
kaoly@sbcglobal.net
Institute for Research on Southeast Asia, France

The Meeting with the Compassionate Bodhisattva Guanyin: An Example of Syncretism in Hmong Culture

The purpose of this study focuses on the borrowing of Buddhist beliefs in Hmong religion throughout the case study of Hmong deity “Kaying” (in Hmong language "*Kab Yeeb*") who has similar features with the Bodhisattva Guanyin, otherwise known as the God of Mercy in Chinese Buddhism.

In defining the relationship that the Hmong deity "Kaying" has with Guanyin, I will demonstrate the superposition of a rich and complex system of beliefs that rules Hmong people's social practices and behaviours as well as health care, childcare and healing rituals. The data used for this study come from existing works on Guanyin, my semi-interviews as well participating observation with informants and Buddhist Monks in Laos, in France and in the US. This study has been conducted since 1996.

As result, the Hmong deity Kaying appears to be the God of Mercy, Guanyin. Hmong people only borrowed some of the features of Guanyin, especially the role of giver of son or “Songzi Guanyin”, "guardian of children" and "conductor of the dead" into the Western Paradise in Mahayana Buddhism. The comparison of Kaying with another Hmong ancient deity, the “Grand-mother of Spirit” or “*Poj dab pog*”, showed that Guanyin has been totally assimilated into Hmong culture: the process of borrowing is integrative and comprehensive.

The ambiguity between Kaying and the deity “Grand-mother of Spirit” highlighted a syncretic superimposition of animist, pre-Buddhist and Buddhist beliefs in Hmong religion.

Morghan Velez Young, James Mullooly, Ph.D.
morghanyoung@csufresno.edu
California State University, Fresno
Department of Anthropology
Undergraduate Student Presenter

Aspirations, Mass Media & Conscientization: Rural, Adolescent Latinas of the Central San Joaquin Valley

The agricultural work force in the Central San Joaquin Valley, today, is over 85% Latino/a and speaks little or no English. The informants in this study are adolescent daughters of non-migrant agricultural laborer families. These families challenge mainstream research generally focused on issues relating to migrancy. The lack of sufficient data on non-migrant families results in misrepresentation, which adversely affects this population with regard to policy design and implementation. Combining ethnographic methods with Paulo Freire's process of conscientization, this study offers data delineating the influence of conscientization on young Latina aspirations and the relationship of their aspirations to mass media. Conscientization is understood to assist the Latina adolescent participants in developing advanced critical thinking skills which impacted their conceptualization of educational and career aspirations as well as the role of mass media. Through the examination of aspirations and mass media this study assists teachers, administrators, and policy makers by providing improved understanding of influences on rural Latinas' contextualized educational and career aspirations.

POSTER PRESENTATION ABSTRACTS

(IN NUMERICAL ORDER BY POSTER BOARD NUMBER)

Khamphoucanh Southisombath
kssmiles12@yahoo.com
Alvaro Garza, MD, MPH, Matt Stanich, MPH
UCSF Fresno
Latino Center for Medical Education and Research
Undergraduate Student Presenter
Poster Session I, Poster Board No. 1

Californians Who Access Healthcare Services in Another Country

Lack of healthcare access is a problem in California. Studies have shown that California residents travel to Mexico for healthcare, however most of these studies have been restricted to populations along the border. To inform policy development in California, an investigation of a broader population is needed to understand the extent of healthcare access outside the state.

We quantified and compared California adults who seek medical care and prescription medicines in other countries, with specific reference to Mexico, using the population based, 2001 California Health Interview Survey "AskCHIS" online query. Outcomes were given as weighted, aggregate estimates of the number and percent of persons for the respective variables with 95 percent confidence intervals.

An estimated 356,000 California residents went to another country for medical care, 74% to Mexico. Approximately 695,000 residents bought medicines in another country; 86% in Mexico. The number and proportion of residents who went to Mexico for medical care or medicines was higher in regions closer to the Mexico border. Rural residents sought medical care and medicines in Mexico in higher proportions than urban residents. Non-citizens sought medical care in another country in the greatest number and proportion, but the U.S.-born bought medicines in Mexico in the greatest numbers (N=336,000). Latinos sought medical care in Mexico in the greatest number and proportion. A nearly similar number of Latinos and whites bought medicines in another country, the majority in Mexico.

A significant number of California residents sought medical care and medicines in another country, particularly Mexico. This behavior was greater among non-citizens, Latinos, rural residents, and those nearer the Mexico border. However, a significant number of U.S.-born and white residents also bought medicines in Mexico. These findings are relevant to health care providers and policy-makers in both California and Mexico, and support further investigation of the phenomena.

Kristin Leon, Pete Simis, Ph.D.
kristinleon@csufresno.edu
California State University, Fresno
Department of Information Systems and Decision Sciences
Undergraduate Student Presenter
Poster Session I, Poster Board No. 2

Consumer Behavior: Factors Influencing Fan Attendance

This study investigates why student attendance for Fresno State men's basketball games held at the SaveMart Center was low in the first season (2003-2004). To that end, this study explores whether factors identified in the fan behavior literature might also explain sporting event attendance. Specific factors examined include identity salience, satisfaction, attachment, and enduring involvement. Other factors are examined as well.

This study is a partial replication of Arnett and Laverie's study (2000). The sample consisted of four hundred fifty Fresno State students. The survey was conducted in various lower and upper division general education courses. Student's participation was voluntary although some courses offered extra credit for participating.

Students were divided into three groups based on their attendance: non-attendees, moderately frequent, and frequent. An examination of the group means revealed some support for the eight hypotheses. Examining past attendance for the 2003-2004 season revealed significance between the non-attendee group and the moderately frequent group and the non-attendee group and the frequent group for all dependent variables. There was no significant difference between the moderately frequent and frequent group for all dependent variables. Examining planned attendance for the 2004-2005 season revealed significance across all three groups for all dependent variables.

Stephen Reysen, Robert Levine, Ph.D.
isoteb@sbcglobal.net
California State University, Fresno
Department of Psychology
Graduate Student Presenter
Poster Session I, Poster Board No. 3

Publication of Nonsignificant Results: A Survey of Psychologists' Opinions

A total of 236 Ph.D. faculty, and 1 M.A. faculty, completed an email survey regarding their opinions with respect to publication of nonsignificant results. Tenured faculty were significantly less likely than non-tenured faculty to write manuscripts for studies resulting in nonsignificance. A majority (69.2%) of respondents indicated conducting at least one study resulting in nonsignificant findings within the last five years. Of those, 68.4% did not write a manuscript to publish those results. However, of those who submitted nonsignificant results for publication, more than half (54.4%) had their manuscripts published. Reasons for not writing a manuscript included a perceived inability to publish the manuscript, time concerns, flawed methods or design, inability to interpret results, and the belief that the results are unimportant. Possible solutions to publication bias are discussed.

Matthew A. Stanich, MPH
mstanich@ucsfresno.edu
Alvaro Garza, MD, MPH, Maria T. Hernandez, MPH,
Lorena Ayala, George F Lemp, Ph.D.
UCSF Fresno
Latino Center for Medical Education and Research
Univerisity of California Office of the President
Universitywide AIDS Research Program
Poster Session I, Poster Board No. 4

Healthcare Access among Mexico-California Migrants: Evidence from the California-Mexico Epidemiological Surveillance Pilot

In California, studies have shown that the prevalence of tuberculosis, STIs, and high-risk behaviors associated with HIV/STI infection, is significant among the Mexican migrant population. The policy development of preventative services requires a better understanding of the relationship between migrants and their healthcare utilization. Our study aimed to describe the utilization of selected preventive healthcare services, and identify demographic, social, and behavioral characteristics associated with receiving services among Mexican migrants in California.

We analyzed data collected between January and December 2004 in Fresno County for the California-Mexico Epidemiological Surveillance Pilot, a survey composed of a venue and housing-based, targeted random sample of Mexico-California migrants using a 35-minute face-to-face questionnaire.

Of 340 respondents, 101 (30%) received health services for HIV/AIDS, STI, or TB within the past 12 months. Approximately two-thirds received services in California. Health services were accessed more by females (35%) than males (25%). Half of MSM (N=11) and all transgender respondents (N=6) received services. Respondents who received health services showed a significant association with some schooling in the U.S. (18% vs. 5%; P<0.001), more years of education (8.9 years vs. 7.1 years; P<0.001), high/medium language acculturation score (51% vs. 23%; P<0.001), attending a health fair in the last year (14% vs. 7%; P=0.045), having access to condoms when needed (41% vs. 26%; P=0.009), and higher HIV transmission-risk knowledge score (85% vs. 74%; P<0.001). Logistic regression analysis showed that accessing healthcare services was associated with high/medium acculturation score (odds ratio [OR], 2.4; 95%CI, 1.3-4.2) and years in school (OR, 1.1; 95%CI, 1.02-1.2).

The Mexico-California migrant population in Fresno receives HIV/AIDS, STI, and TB services primarily in California. Our results suggest that education and acculturation significantly benefited migrant access to healthcare services. Our study supports continuing and expanding health educational and outreach efforts with Mexico-California migrants.

Justin Matthews, Constance J. Jones, Ph.D.
jmatthews@csufresno.edu
California State University, Fresno
Department of Psychology
Graduate Student Presenter
Poster Session I, Poster Board No. 5

Facial Prominence: Connections to Gender and Occupational Status

Media representations of men and women have differed for many centuries with respect to facial prominence (Archer et al., 1983). Differences by nationality (Dodd et al., 1989), race (Zuckerman & Kieffer, 1994), presentation modality (Copeland, 1989), and occupational status (Sparks & Fehlner, 1986) have also been found. The current study examined gender differences in face-to-body ratio, controlling for occupational status, in an attempt to clarify pervasive gender differences found in previous research. Approximately 900 photographs from six popular magazines (Time, Newsweek, Sports Illustrated, People, Fortune, and Money) were categorized by gender and occupation and measured for face-to-body ratio. It was found that individuals depicted in intellectually-focused occupations had higher face-to-body ratios than individuals depicted in physically-focused occupations. Although found in previous research, gender differences in facial prominence in the current study did not reach significance. Results suggest that differing facial prominence could be related to occupational qualities in addition to gender. Methodological issues related to photo selection and facial prominence research are discussed.

Tonya M. Atkins, Saeed Attar
plt4ever@aol.com
California State University, Fresno
Department of Chemistry
Graduate Student Presenter
Poster Session I, Poster Board No. 6

Attempts at the Synthesis of a Chiral Cycloruthenated Complex

Chiral ferrocene-containing ligands which exhibit both central and planar chirality have figured prominently in the area of catalytic stereoselective organic synthesis. In addition, Ru(II) has been shown to be catalytically active in a variety of organic reactions (hydrogenation, oxidation, insertion, metathesis, etc.). In this study, our short-term goal was to prepare a cycloruthenated complex (3) of the known chiral ligand, N,N-dimethyl-1-ferrocenylethylamine (1). In compound 3, in addition to the central and planar chirality, the Ru(II) center (being in a pseudo-tetrahedral environment) adds an extra element of chirality. The long-term goal of this project is to investigate the combined effect of these chirality elements on the stereochemical outcome of a series of organic transformations.

In regards to our short-term goal, we have prepared the enantiomerically-pure (R)-(+)-N,N-dimethyl-1-ferrocenylethylamine (1) based on a published procedure. The ortho-mercurated derivative (2) was then prepared as an orange solid by reacting compound 1 with t-butyl lithium (in dry pentane) followed by the slow addition of a THF solution of HgCl2 at –78 ?C. The synthesis of the ortho-ruthenated derivative (3) was attempted through a transmetallation reaction between compound 2 and the ruthenium(II) dimeric complex [(C6H6)RuCl2]2. The product mixture contained two distinct Ru-containing species (as indicated by 1H NMR), one of which showed the placement of Ru at the ortho position of the ferrocene ring. However, no “cycloruthenated” product could be isolated despite several attempts. The isolated Ru complex of 1 is currently being investigated for its catalytic activity in the stereoselective insertion reactions of small molecules (e.g. CO, RN?C, CH2=CH2, SO2) into the Ru-C bond. Our synthetic efforts, plus the latest results from the latter investigations, will be discussed in this presentation.

Bao Vue, Saeed Attar, Ph.D.
bchennyvue@csufresno.edu
California State University, Fresno
Department of Chemistry
Undergraduate Student Presenter
Poster Session I, Poster Board No. 7

Synthesis and Characterization of New Ferrocene-Based Anion Sensors

In addition to the roles they play in both biological and chemical processes, anions also contribute significantly to environmental pollution. Thus, the design of new and efficient anion complexing agents, i.e. anion sensors, is an area of much current interest. One strategy has been to design neutral organic receptors which bind anions through hydrogen-bonding interactions. A "molecular sensor" is designed in such a way that it exhibits a measurable physical response in the presence of a "guest" anion.

With the above strategy in mind, we have prepared a series of ferrocenylamine derivatives (6-10) by the reduction of their corresponding ferrocenylimine parents (1-5) with NaBH4. The ferrocenylimines 1-5 were, in turn, synthesized from ferrocencarboxaldehyde and one the diamines, 1,3-diaminopropane (a), 1,2-diaminobenzene (b), 1,8-diaminonaphthalene (c), 1,8-diamino-p-menthane (d), and 2,6-diaminopyridine (e). Compounds 6-10 have been investigated for their "sensing" abilities towards a series of anions, introduced as Bu4NX salts (X = Cl, Br, I, PF6, BF4). In the 1H-NMR spectrum of each of the compounds 6-10, the change in the chemical shift of the N-H proton was measured as a function of the addition of molar equivalents of each anion (added as a CDCl3 solution of its salt). Any change in the N-H chemical shift was taken to be indicative of complex formation between each of the receptors 6-10 and each of the anions mentioned. The magnitude of the positive slope of a plot of chemical shift (N-H) versus molar equivalents of X would then be indicative of the strength of complex formation (sensing) by each receptor-guest pair. The results of the synthetic studies as well as those of the NMR investigations will be discussed.

Koffi Afawubo
sosu24@aol.com
Lynn Sikkink, Ph.D.
San Jose State University
Department of Anthropology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 8

The Role of African Ethnomedicine in Modern Health

This research seeks to examine the role of African ethnomedical system within the arena of modern medical pluralism. It focuses on its struggle to co-exist with biomedicine. The research then speculates on possible integration of the two medical systems to help address America's health care issues. The research report describes ethnomedicine as the traditional healing practices of different cultures. It enlightens the reader about medicinal plant characteristics which are nothing but manifestations of the supernatural.

From the dawn of human civilization, human beings have relied solely on plants and herbs for their health care needs. In spite of Western "scientific medicine's" refusal to acknowledge ethnomedicine, millions of people still turn to traditional herbal medicine today.

Ethnographic methods of participant observation, semi-structured, open-ended, and face-to-face interviewing, were some of the methods used for this research. Seven participants with an average age of 55 years, and who have used herbal medicine all their lives, have been interviewed.

The research has successfully addressed its objective--the role of ethnomedicine in modern health care. Many people use traditional medicine because they trust its efficacy from childhood. They find it affordable. And it has supernatural element to it; something lacking in other medical systems.

The research concludes that since our contemporary health care problems are getting out of hand and new and strange maladies for which no cures have yet been found continue to threaten our lives everyday, it's about time we put all our medical resources together in a concerted effort to improve our health care system.

Frederick Ringwald, Ph.D.
ringwald@csufresno.edu
John M. Culver, Rebecca L. Lovell,
Sarah Abbey Kays, Yolanda V. Torres
California State University, Fresno
Department of Physics
Poster Session I, Poster Board No. 9

The Research Productivity of Small Telescopes and Space Telescopes

We present statistics on the research productivity of astronomical telescopes. These were compiled by finding papers in which new data were presented, noting which telescopes were used, and then counting the number of papers, number of pages, and other statistics. The journals used were the Astronomical Journal, the Astrophysical Journal (including the Letters and Supplements), and the Publications of the Astronomical Society of the Pacific. We also compiled citations from the Science Citation Index.

This work was designed to be similar to that of Trimble (1995), except that more recent journals (from 1995) and citations (from 1998) were used. We also did not restrict our sample to large telescopes only: we included all telescopes from which new data were presented, the smallest of which was a 0.1-m. The data were gathered by first-year work-study undergraduates, who were instructed to include data for all telescopes for which they found new data were included in the journals. A by-product of this research was therefore the relative productivity of ground-based versus space telescopes, and the relative productivity of radio and other telescopes across the spectrum, versus optical telescopes.

Thihan Padukkavidana
thihanp@csufresno.edu
Abdhellatif Bahaji, Yulma Martinez,
Glenda W. Polack, Alejandro Calderón-Urrea, Ph.D.
California State University, Fresno
Department of Biology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 10

Expression of CED3 Protein in Tobacco Plants Confer Protection Against the Parasitic Nematode Meloidogyne incognita

One of the goals of our laboratory is to utilize genetic techniques to generate plants conferring resistance to nematodes, in lieu of the current, environmentally destructive, nematicidal techniques. The way we approached this issue was by using a genetic process by which cells may regulate their own death, called Programmed cell death (PCD). Our objective in this experiment was to induce PCD in the plant-pathogenic root knot nematode Meloidogyne incognita. For this purpose we employed the cell death gene Ced-3, of the free-living nematode Caenorhabditis elegans; this was because of its well-documented cell death pathway and the probable evolutionary conservation of the C. elegans PCD genes in M. incognita.

First the cell death gene Ced-3 was introduced into wild type tobacco plants by means of Agrobacterium–mediated transformation. Through the identification of the transgenic plants retaining a single gene copy, followed by genetic analysis of the plants using simple Mendelian genetics, homozygous Ced-3 plants were generated. These plants were measured for their gene expression using Western blotting with an anti-CED3 antibody that was generated against a CED3 peptide. Thereafter the transgenic plants were subjected to M. incognita infections in order to asses the ability of the homozygous Ced-3 plants to tolerate the pathogenic nematode.

The results obtained from the western blots detected that the transgenic Ced-3 tobacco plants were in fact expressing CED3 proteins. There was also a reduction of the nematode gall formations (root knots) in the, M. incognita infected, Ced-3 homozygous transgenic plants.

In conclusion we found that homozygous transgenic plants expressing the Ced-3 cell death gene confer tolerance to M. incognita infestation. One possibility for this is by triggering PCD in the invading nematodes; this, however, awaits confirmation.

Alicia Moe
mozel@csufresno.edu
Andrea Van der Veer de Bondt,
Sulekha Coticone, Ph.D.
Fresno County Sheriff's Forensic Laboratory, Fresno
California State University, Fresno
Department of Chemistry
Graduate Student Presenter
Poster Session I, Poster Board No. 11

Stabilizing Forensic DNA Samples Using Trehalose

In the forensic field, the preservation of DNA samples is very important. At this time all liquid blood samples are dried on filter paper and stored frozen until DNA analysis is requested. The cost to maintain the freezers is substantial and if the DNA can be stored at room temperature then the cost to store the evidence would be reduced. In the present study we have investigated the use of trehalose to stabilize DNA. Trehalose has previously been shown to stabilize proteins; however, its effect on DNA stabilization has not been reported.

To assess the ability to improve the storage of blood and blood stains, trehalose, an osmolyte was incubated with blood samples for various time periods and extreme conditions (e.g. high temperature). DNA extracted from these samples will be analyzed using yield gels. The blood stain samples were subjected to the following conditions: frozen, at room temperature for three years, at room temperature for seven years, at 37oC for three years, or at 60oC for three months. Based on our slot blot results we found that the frozen samples gave the highest total recovery (ng DNA) and samples at 60oC for three months gave the lowest total recovery.

We found that the DNA was less degraded in samples with 10% trehalose added to them compared to the untreated samples, shown by a yield gel. Further studies are being conducted by subjecting blood stain samples to various environments including low humidity (in a dessicator) etc) and higher temperatures to determine the effect of trehalose on long term storage of blood.

Lora Bailey-Van Houten
Lora.baileyvanhouten@DOJ.ca.gov
Department of Justice Crime Laboratory, Fresno
Sulekha Rao Coticone, Ph.D.
California State University, Fresno
Department of Chemistry
Graduate Student Presenter
Poster Session I, Poster Board No. 12

Comparison of Y-STR Multiplexes for Forensic DNA Analysis

Y-STRs are short tandem loci on the Y-chromosome, only present in males. Y-STR technology has the potential to provide male genetic profiles in forensic mixture samples previously impossible to analyze due to low levels of male DNA mixed with high levels of female DNA. This research compared two Y-STR multiplexes, Y-PLEX12 (Reliagene) and PowerPlex Y (Promega). Both multiplexes were equally sensitive, providing complete profiles with 250 pg of male DNA. Both multiplexes had anomalies that could interfere with interpretation. Mixture studies indicated that the limit of detection of the minor component in a male: male mixture was 1:5 for Y-PLEX™12 and 1:2 for PowerPlexâ Y. While PowerPlex Y did not provide a full profile when male DNA was mixed with equal amounts of female DNA, Y-PLEX™12 provided a complete Y-STR profile with one hundred times excess female DNA. To assess the ability of the multiplexes to analyze forensic samples, testing on blood, oral swabs and male-female mixtures as well as previously adjudicated sexual assault samples were performed. Based on these studies, the relative ability of the two multiplexes to successfully analyze a variety of forensic samples were determined.

Jennifer Kerber, Steven L. Skelton, Ph.D.
sskelton@csufresno.edu
California State University, Fresno
Department of Communicative Disorders and Deaf Studies
Graduate Student Presenter
Poster Session I, Poster Board No. 13

Using Concurrent Therapy in Treatment of Phonologic Disorders

Traditional therapy of speech sound disorders involves treating speech sound in a progression from presumed easy teaching tasks to harder tasks. In two studies (Skelton, 2004; Skelton & Funk, 2004) a speech sound was taught in with the presumed easy and hard teaching tasks randomly intermixed (Concurrent Therapy); this resulted in rapid speech sound learning by the children. In the current study, multiple speech sounds were taught using Concurrent Therapy. A multiple-baseline-across-subjects design was used with 3- to 6-year-old participants presenting with phonologic disorder (multiple sound errors with reduced speech intelligibility). Three out of the four participants rapidly acquired the four taught speech sounds and showed generalization within the clinic. The fourth participant also showed rapid progress, but dropped out of the research before generalization could be established. Results further expand the scope of application for Concurrent Therapy to children with severe speech sound disorders needing treatment of multiple speech sounds.

Ashley Jensen, Lorin Lachs, Ph.D.
aljensen01@aol.com
California State University Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 14

The Effect of Acoustic Transformations on Audio Visual Integration in a Word Recognition Task

There has been a recent increase in research investigating multisensory integration in human perception. However, psychology lacks a unified theory of how multisensory channels integrate to yield perception. The current study investigated components of the perceptual process that interact and influence the overall phenomenon of mulitsensory perception.

The current study investigated multimodal integration in the domain of spoken language by examining the effect of acoustic spectral-domain transformations on the recognition of spoken words in noise under audio-alone and audio-visual conditions. Thirty introductory psychology students from Fresno State were tested under 3 signal-to-noise ratios in unimodal and multi-modal perceptual conditions. Participants heard 96 English words under four acoustic transformations. The acoustic transformations were: spectral shifting, in which the spectrum was shifted up by 250 Hz; linear scaling, in which the spectrum was scaled by a constant; nonlinear scaling, in which the spectrum was scaled with respect to a nonlinear function; and spectral inversion, in which the spectrum was rotated around a central frequency. Each participant heard words presented under all of the acoustic transformations, in both audio-alone and audio-visual conditions, and under one of the three signal-to-noise ratios. Participants were asked to type into the computer the words that they had heard.

As expected, we found a main effect of presentation mode, with audio-visual presentation producing greater accuracy than the audio-alone presentations. In addition, we found that as the signal-to-noise ratio decreased that performance decreased. Furthermore, we found a main effect of transformation type. Finally, we experienced differential effects of spectral transformation on the ability to integrate acoustic and optic patterns relevant to speech. The results have implications for the theories of audiovisual speech processing. The results are consistent with the hypothesis that acoustic and optical displays of speech are integrated because they carry articulatory information about the underlying articulatory gestures.

Po Shuan Wang, Nagy Bengiamin, Ph.D.
a929s0216@sbcglobal.net
California State University, Fresno
Department of Electrical and Computer Engineering
Graduate Student Presenter
Poster Session I, Poster Board No. 15

Broad Frequency Band Vibration Based Power Generation -Analysis, Design and Control

Numerous recent everyday electronic applications require developing alternative energy sources to replace batteries or similar conventional energy storage units. These units need to be replaced periodically, which can be costly and undesirable in applications like artificial human organs that require a surgery to be implanted. Recent advances in technology facilitate developing alternative ways to extract energy from the surrounding environment where natural sources of energy can be abundant.

The objective in this study is to develop effective methodologies for extracting energy from natural motions and vibrations that exist in our everyday normal surrounding environments. While humans may feel vibrations like those that are caused by moving trains and trucks for example, other vibrations may not be felt due to their small amplitude and high frequency. This study presents analysis and design methodologies for small electric power generators that can be used in portable electronic gadgets. The main goal is to capture energy from a wide range of vibration sources with different frequencies and amplitudes.

Existing designs utilize a single generator that is tuned to a single source of vibrations, while not being able to interact with many other sources that exist in the same environment. To broaden the range of the power extracting device, this study proposes designing a multi-generator device that is capable of extracting energy from a range of sources rather than depending on a single source. This improves the reliability of the device and facilitates a wider range of applications.

The proposed device is designed and simulated on the computer for its performance. Characteristic curves are shown to demonstrate the device's ability to interact with a wider range of vibration sources. The device proved successful in developing a more reliable self-powered system.

Zhanna Bagdasarov, Lorin Lachs, Ph.D.
ZhannaB20@aol.com
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 16

The Effect of Language Familiarity on Voice Recognition

The present study investigated whether language familiarity aids in identifying voices across sensory modalities. The study aims to shine some light upon audiovisual speech perception and further test the theories that have surfaced on this topic from previous research.

For this study I tested native English speakers who have some familiarity with the Spanish language on their recognition of voices when the stimuli were presented in Russian (a completely unfamiliar language) and Spanish (a familiar language), as well as English, to serve as the control condition. A matching task was utilized in this study. Participants were presented with the "V-A" condition, which refers to the use of a visual-alone movie clip of a talker uttering an isolated Russian, Spanish or English word. Soon after seeing the video display of the talkers, participants were presented with two acoustic signals of the words presented in the visual display. One of the signals consisted of the same talker they had seen in the video, while the other signal included a different talker. Participants were asked to choose which acoustic signal matched the talker they had seen ("First" or "Second") by pressing either "A" for "First" choice or "L" for "Second" choice.

The results of this experiment were statistically analyzed in order to discover whether the data contained any possible main effects or interactions. This analysis revealed no statistically significant differences of voice recognition rates between English, Russian or Spanish languages. It appears that one's level of familiarity with a certain language does not aid in the identification of unfamiliar voices across sensory modalities.

This study illustrates that the actual articulation is highly significant in voice recognition and future research studies need to address this phenomenon from a different perspective in order to eliminate some of the current questions within this domain of psychology.

Norma Marrun, Marcos Pizarro, Ph.D.
normamarrun@yahoo.com
San Jose State University
Undergraduate Student Presenter
Poster Session I, Poster Board No. 17

An Analysis of the Institutional Perceptions that Shape the Experiences of Latino Students in Middle School

Latino students and in particular English learners are at the greatest risk for school failure because they are at various stages of learning to speak, read and write in two languages. The purpose of my research is to present information about bilingual education for English learners, with a particular focus on middle school. The research is based on the experiences and knowledge acquired through classroom observation and interviews with school superintendents, middle school principals and teachers.

In elementary school students have the opportunity to participate in bilingual programs to help them learn English, but students in middle school do not have the same opportunities and access to bilingual programs. Middle school is a critical point in a student's education. The lack of preparation and establishing a strong foundation during middle school can hinder the student's academic success in high school. I looked at the differences in academic success between first generation, 1.5 generation , and second generation.

First generation student's needs are overlooked, are expected to learn English at a rapid pace and at the same time adapt to the American educational system. The 1.5 generation students' needs are unique because they exhibit characteristics of native speakers and non-native speakers. The second generation students have the advantage of been born in the U.S, but their parents may not be able to help their children in school because they either can not speak English or they hold a low education.

Middle schools with programs modified to meet immigrant student's needs is the key to their success by preparing them for high school and to make sure they have gained the necessary skills to academically succeed. Strengthening language skills and academic skills for immigrant students is not always a priority for many schools.

Naomi Suzanne Kent, Carol Fry Bohlin, Ph.D.
nkent@fcoe.k12.ca.us
California State University, Fresno
Department of Curriculum and Instruction
Graduate Student Presenter
Poster Session I, Poster Board No. 18

Duration of Teacher Participation in an NSF-Sponsored Professional Development Project: Relationship to Students' Mathematics Performance in Grades 2-6

In 1998 the National Science Foundation funded a five-year Local Systemic Change project entitled Strategies for Teacher Excellence Promoting Student Success (STEPSS). The goal of the project was to increase the mathematics performance of students in grades K –6 throughout a school district in Central California by providing a sustained program of professional development for all of the districts' elementary school teachers. STEPSS focused on increasing teacher content knowledge in mathematics, providing teachers with alternative strategies for instruction and assessment, and implementing peer coaching in the schools.

The goal of this study was to address the following question: What is the effect of the number of years that a teacher participated in STEPSS professional development activities on their students' performance on statewide mathematics assessments? This question was addressed through an examination of student performance on the mathematics sections of (a) the criterion-referenced California Standards Test (CST) and (b) the California Achievement Test, Sixth Edition (CAT/6), as well as through a cross-cohort comparison of the schools' Academic Performance Index (API) scores and the percentage of schools that met Adequate Yearly Progress (AYP) requirements over a three-year period (2002-2004). A "cohort" consisted of the 3-5 schools beginning STEPSS professional development activities in the summer of a particular year (1998-2002).

Analyses of variance were conducted to determine significant differences and correlations using one- and two-way ANOVAs, Chi-Squares Tests and Tukey LSD post hoc correlation tests.

Analyses revealed that student performance scores indicated significant increases over time and a positive correlation existed between achievement scores and the number of years a teacher experienced STEPSS activities.

Results of this study suggest that duration of teacher involvement in professional development activities promotes the attainment and maintenance of an increase in student mathematics achievement.

Carlos Tristan
catristan@csufresno.edu
A. Bahaji, G. Polack,
Alejandro Calderon-Urrea, Ph.D.
California State University, Fresno
Department of Biology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 19

Effects of Protein CED-4 on Wild Type and Mutant Ced 3, Ced 4 Caenorhabditis elegans

Introduction: The programmed cell death (PCD) in C. elegans is essential for its normal developmental process. As part of its life cycle, approximately 131 cells must undergo PCD leading to a fully developed nematode. Cell death is triggered by the pathway that was largely delineated through genetic studies of Noble Prize winners Sydney Brenner, Bob Horvitz and Jonathan Sulston awarded in 2004. It has been found that CED-4 is a protease-activating factor that acts on a second core protein CED-3. Therefore, activated CED-3 initiates a series of events leading to cell death. We provide evidence that feeding C. elegans: (Ced 3, Ced 4, Wt), with bacteria expressing CED-4 protein reduced the population size in Wt and Ced 4 once compared to Ced 3 mutant.

Methods: Using the E. coli TOP 10 (chem.) transformed by the PBAD-Dest-49 Ced-4 vector we could induce CED-4 synthesis by adding to the bacteria culture 20% of L-(+)-Arabinose once the OD reached 0.5. The induced bacteria are then used to feed wild-type, mutant Ced 3 and Ced 4 C. elegans. The effects of CED-4 ingestion are quantified by population size throughout several generations in all three C. elegans used.

Results: Feeding Ced 3 mutants with bacteria expressing CED-4, the results were as predicted, while in wild-type and Ced 4, over expression of CED-4 produced cell death. Mutant Ced 3 did not show significant decrease in population size due to the disruption of the PCD pathway. Mutant Ced 4 showed the highest mortality rate suggesting that ingestion of CED-4 triggered activation of PCD.

Conclusions: Positive results in mutant Ced 4 and wild-type indicate that the bacteria feeding models may explain the role of CED-4 in PCD. Failure to activate PCD in mutant Ced 3 lead us to deduce, that there may be another mechanism involved in the protection against PCD.

Kimberly Senatore
kodiakkims@csufresno.edu
D. Goorahoo, Ph.D., S. E. Benes, Ph.D.
California State University, Fresno
Department of Plant Science
Center for Irrigation Technology
J. E. Ayars
USDA Parlier, CA
Water Management Research Lab
Poster Session I, Poster Board No. 20

Soil Water Retention Properties of Soils Irrigated with Saline-Sodic Drainage Water

Soil salinity, shallow saline groundwater, and drainage water disposal pose major challenges to agriculture on the westside San Joaquin Valley (SJV). Current research on drainage management for the westside is aimed at utilizing saline drainage water (DW) to irrigate salt tolerant crops and minimize the negative impacts of these saline-sodic waters on soil structure and hydraulic properties. As the demand for fresh water increases in California and other arid regions worldwide, it is likely that irrigation with saline waters will become more common. However, utilization of the saline DW from the SJV will be more challenging due to high levels of sodium which tends to disperse clay particles in soils. This in turn reduces the rate at which water infiltrates and drains through soil, otherwise known as the soil water retention (SWR) characteristics.

Soils from Red Rock Ranch (RRR) on the westside were collected from areas irrigated with fresh-water (FW) and saline DW to determine the saturated hydraulic conductivity and water retention characteristics. Irrigation water salinities ranged from 1 dS/m to 14 dS/m (EC) and soil textures were clay loams. Soil salinities ranged from 2.4 dS/m to 50 dS/m ECe and SARs from 8.6 to 85.4 for FW and DW irrigated soils, respectively.

Saturated flow rates ranged from 1.02 X 10-3 to 7.58 X 10-7 cm/s, for DW-irrigated soils in Stages 1 and 4, respectively. SWR data demonstrated increased soil moisture ($f$ás = 64%) and a reduced air entry index (fÑ = .001) in Stage 4 soils. The pore size distribution (n) increased dramatically, in Stage 4 as well, with values averaging 1.729 demonstrating a greater potential for clogging of the soil aggregates during irrigation. The SWR data obtained for these clay loam soils affected by sodium revealed that they have hydraulic parameters more typical of silts and silty loams.

Alma Ortiz, Julia Curry Rodriguez, Ph.D.
AlmaJanettOrtiz@hotmail.com
San Jose State University
Department of Mexican American Studies
Undergraduate Student Presenter
Poster Session I, Poster Board No. 21

Support Systems for Undocumented Students and Its Impact on Higher Education

This is a qualitative study on the importance of support systems for undocumented students as a prime source of academic and financial networking, political awareness and encouragement needed to attain a higher education.

The research takes participant observation techniques. My findings are based in the active participation of a student coalition composed of undocumented college students based in San José, California. The data reflects formal and informal interviews and record observations of their interactions with one another to assess how participation in the organization benefits their academic enrichment.

Coalitions result as a lack of support at home or in the public institutions students attend. Joining organizations becomes an important source for undocumented students as it reinforces the idea that they are not alone in their aspirations, but rather they can rely on group members for support and guidance; which is something they cannot be granted elsewhere due to their legal situation.

Student support groups facilitate funding needs. To find funding for their education, members resort to long and rigorous hours of scholarship searching, seek employment opportunities or develop fundraising techniques. For this reason becoming an active participant of the organization binds them to finding opportunities to continue their education. With scarce employment and scholarship opportunities these members depend on one another for assistance.

In 2002 California passed an Assembly Bill 540 allowing undocumented residents to apply to community colleges or public universities while paying in state tuition. Undocumented students partake in a series of outreach programs that help understand the policy and forms for incoming students.

In conclusion, the need of undocumented students to participate in organizations where they feel welcomed, encouraged, and learn more about the legal issues that affect their participation in our society is a critical part of their survival and educational attainment.

Van Ly, Peter Chua, Ph.D.
kaylynn_ly@yahoo.com
San Jose State University
Department of Sociology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 22

Placing Women's Health in the Forefront: A Study of Vietnamese Immigrant Women in the U.S. and Their Perceptions of Well Being and Preventive Care

Immigrant women in America face many difficulties and challenges around medical healthcare. This study examines the ways in which these Vietnamese women in the U.S. have trouble receiving or accessing healthcare in preventing breast and cervical cancer. It also explores the obstacles in the in-take process as well as examines the bureaucracy and the structural systems locally. It includes a qualitative study based on semi-structured face-to-face interviews of nine immigrant women in Santa Clara County. They come from a range of ages, educational and socioeconomic level, and martial status.

Conventional studies suggest that the idea of preventive healthcare for first-generation Vietnamese immigrant women in the U.S., oftentimes, are put secondary to their family's well being. The entire issue of breast and cervical cancer prevention becomes problematic. My study, however, focuses on new meanings the Vietnamese women create for themselves, how they maintain their health and what is considered standard procedures for women in America as it pertains to breast and cervical cancer. This study gives us a better understanding as to how immigrant women interpret the meaning of health and preventive care as well as their perspectives of being healthy in Vietnam in comparison to America. This gives us a picture of the larger society in which the different interpretations of health of groups of people conflict with that of our nation's idea of health and the policies involved. This study is significant in that it shows how, women as primary caretakers, going through the processes of obtaining medical care, come to see themselves as important members in their own family and how their health not only affects themselves, but also those around them.

Claire Sham Choy, Ed.D.
cshamchoy@csufresno.edu
California State University, Fresno
Department of Counseling,
Special Education and Rehabilitation
Bernard Arenz, Ph.D.
California State University, Fresno
Department of Curriculum and Instruction
Poster Session I, Poster Board No. 23

Exploring Trust in African American Middle School Students' Relationships with Their School Counselors: Implications for Counseling and Learning Outcomes

Recent figures (2002-2003) on the academic performance of middle and high school students indicate that the academic success of African American (AA) students is a matter of grave concern. In California, 1% of AA students drop out at grade 8 and this percentage increases at each grade. By grade 12, 12% of AA students drop out of school; the third largest dropout rate in the State for any ethnic group.

Studies focusing on improving the academic experiences of students emphasize the role of trust in enhancing these experiences. Trust is regarded as one of the critical ingredients in the counseling relationship and in successful counseling outcomes. However, research on trust between AA students and their counselors shows that these students are generally mistrustful of their counselors. Additional research indicates that AA clients' mistrust of counselors can lead to premature termination of counseling, lower amounts of self-disclosure and more negative attitudes about seeking help from counselors.

In individual and focus group interviews, 25 AA middle school students from schools in Fresno County were asked about their meanings of trust, their experiences with their school counselors, what they look for in counselors they trust, and the kinds of implications a trusting relationship with a counselor can have on their academic success.

Trust was viewed in several ways but the most common was 'having someone you can depend on'. Among other characteristics, trustworthy counselors encouraged and reassured, kept information confidential, avoided making assumptions, and helped students both academically and personally.

Several verbal and nonverbal characteristics including paralinguistic communication were considered indicative of trustworthiness. Findings also revealed the impact of these characteristics on students' academic and personal behaviors. These results suggest that counselors' verbal and nonverbal as well as paralinguistic communication be taken into account in training school counselors in order to help them communicate better with AA middle school students.

Taylor Harris, Lorin Lachs, Ph.D.
Lyric6489@yahoo.com
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 24

The Effects of Acoustic Information on the Perception of Gender of Musical Instruments

While many studies have focused on social factors as reasons why musical instruments are judged as either "masculine" or "feminine," this study investigates the role of acoustic factors – namely, "fine-structure" and "envelope." "Fine-structure" refers to a sound's source (e.g., the reed of a saxophone) whereas "envelope" refers to a sound's resonances (e.g., the body of a saxophone).

Musical scales of different instruments found to be considered "masculine" or "feminine" were recorded; then the fine-structures and envelopes of the scales were exchanged to produce different combinations of new, synthesized scales ("chimeras"). Naïve listeners (n=22) assigned genders to the different chimeras, which sounded unnatural and could be described as "bizarre."

Statistical tests revealed that there was a significant main effect for envelope gender but not for fine-structure. When fine-structures and envelopes of opposing genders were synthesized, participants generally assigned a gender to the new sound that was consistent with the gender of the envelope. This was also observed when fine-structures of white noise were synthesized with the natural envelopes of the instruments. When the envelope was feminine, the average feminine rating for the chimera was 64.27%, whereas the average feminine rating for chimeras with masculine envelopes was 36.49%. Similarly, when the envelope was masculine, the average masculine rating for the chimera was 63.63%, whereas chimeras with feminine envelopes received average masculine scores of 35.73%.

The results of this study support the hypothesis that acoustic envelopes play a crucial role in the perception of gender of musical instruments.

Vanessa Sanchez
curlycutie@csufresno.edu
Christine Edmondson, Ph.D.,
Sunde Nesbitt, Dan Cahill, Sarah Horton
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 25

Gender and Acculturation in Anger Expression of Mexican-Americans

This study examines gender differences among Mexican-Americans in response to angering situations. Knowing how people express their anger is important not only in terms of understanding the nature of anger, but also clinically in terms of client problems and concerns (Deffenbacher, Oetting. Lynch, Morris, 1996). The number of Mexican-Americans in the United States is increasing (2000 census). In a traditional Mexican family, the gender roles of Machismo and Mariansimo are practiced and are likely to influence the manner in which anger is expressed. Machismo, the male gender role, encourages men to protect their families, have a strong work ethic, be a good provider, live up to their responsibilities, and possibly prove manhood through alcohol drinking (Redondo-Churchward, 1998). Marianismo, the female gender role, encourages women to be submissive, take orders from their husband, value marriage and motherhood, and to be modest (Galanti, 2003). We predicted that the Mexican-American males would be more likely to express their anger physically and unlikely to collaborate. We also predicted that the Mexican-American females would be more likely to express their anger verbally and more likely to collaborate.

The participants consisted of college students of Mexican decent attending CSU Fresno. Each participant completed an interview about anger-provoking situations and a questionnaire about anger and anger expression. We conducted series of ANOVAS (Gender by Acculturation) with the questionnaire subscales as dependent variables.

The results showed that there were no significant differences in anger expression across genders. However, there were trends for acculturation with unacculturated group scoring higher on the Trait Anger Scale ($F(1,64)=5.85$, $p<.02$) and with the unacculturated group scoring lower on the Anger Control ($F(1,64)=7.27$, $p<.009$), Physical Aggression Against Objects ($F(1,64)=4.23$, $p<.05$), and Time Out ($F(1,64)=4.70$, $p<.04$) subscales. There was also a trend for gender with men scoring higher than women on the Time Out ($F(1,64)=4.41$, $p<.04$) subscale.

In conclusion, the questionnaires that were used in this study were unable to detect significant gender and acculturation differences in anger expression. In future research, situational factors should be considered when examining gender and acculturation differences in anger expression.

Talia L. Shuman, Karl Oswald, Ph.D.
TLShuman@hotmail.com
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session I, Poster Board No. 26

The Malleability of Moral Judgments through Schema Change

Humans make judgments on a daily basis about the morality or lack thereof of various situations. In addition, it is obvious that the dissimilarities throughout society and over time within individuals are ubiquitous. Modern morality theory, termed the Neo-Kohlbergian Approach by Dr. James Rest, addresses the issues of changing ideas of morality and environmental influences on moral judgment making with the help of schema theory, while still maintaining some of the classical moral theory tenets such as stages and partial versus full reciprocity. Rest and colleagues have theorized that the stages of moral development, Personal Interests Stage, Maintaining Norms Stage, and Postconventional Stage, have corresponding schemas that, when activated by environmental cues characteristic of that stage, elicit moral judgments from the framework of that schema and subsequently that stage of moral development. The current study investigated the malleability of those stages through selective schema activation. The hypothesis was that the subjects who received schema activation for either the Maintaining Norms or the Postconventional Stages, would make moral judgments that were characteristic of that stage.

Sixty Introduction to Psychology students at California Stage University, Fresno participated in the study. Twenty subjects participated in each of the three conditions: Maintaining Norms, Postconventional, and control. In the Maintaining Norms and Postconventional conditions, subjects were shown stimuli in the form of photos with descriptions intended to elicit that particular schema. Then, they completed the Defining Issues Test, a test that determines one's stage of moral development. The subjects in the control condition completed the Defining Issues Test and received no stimulation.

A One-Way Between Subjects ANOVA test revealed no statistically significant differences between the conditions, however there were absolute differences that corresponded with the hypothesis. The lack of statistical significance was interesting to note because the integration of schema theory with moral development theory would indicate that moral stages are malleable and thus a statistically significant find should follow. Consequently, these data suggest that connection between schemas and morality needs to be evaluated more closely and perhaps redefined, though much more research is definitely needed. Nevertheless, this research is widely applicable to the fields of marketing, politics, parenting, and any other area where manipulation of individual or public opinion is attempted. Perhaps our attempts to expose people to circumstances intended to impact their views on certain circumstances are not as effective as previously thought. Future research should include various types of judgment manipulation and schema activation to assess the most efficient forms of moral manipulation.

Florence Cassel S., Ph.D.
fcasselss@csufresno.edu
Dave Goorahoo, Ph.D., Morton Rothberg,
Diganta Adhikari
California State University, Fresno
Center for Irrigation Technology
Poster Session I, Poster Board No. 27

Benefits of a New Forage Grass for Controlling Nutrient Levels in Effluent-Irrigated Soils

Irrigation with effluents waters from dairy and food processing operations can be a major source of water and soil pollution due to accumulation of nutrients, such as nitrate and phosphorus. Therefore, it is important to develop best management practices to reduce the levels of these nutrients. The goal of the study was to evaluate the benefits of planting "Promor A", a perennial forage grass (Pennisetum Sp.), for controlling soil nutrients in effluent-irrigated soils. The grass, commonly known as Elephant grass, is a luxury feeder of nitrogen and phosphorus and has the potential to absorb significant amounts of excess nutrients from soils. The Promor A grass was introduced into California in 1994, and has now been planted in five locations in the State. In this paper we present the research we have been conducted over the past five years to evaluate the benefits of Promor A grass as a bio-filter. Results indicate that the Promor A grass can absorb up to 2000 pounds per acre of nitrates in a 60 day cutting cycle and up to 1500 pounds per acre of phosphorus during the growing season. This indicate that the grass has significant potential and benefits for up-taking large amounts of excess nutrients and can be used as a bio-filter for best management practices in effluent-irrigated soils. Additionally, the stooling growth habit of this grass should provide a secondary benefit through reduction of water velocity and consequent sedimentation of water borne particles when the grass is used as barrier plantings or buffer strips. The results from this research are very important for the agriculture processing and dairy industries as increasingly more strict discharge regulations are being implemented by regulatory agencies.

Rachelle Sugimoto, Michael Fisher, Ph.D.
srasugi@yahoo.com
California State University, Fresno
Department of Mathematics
Graduate Student Presenter
Poster Session I, Poster Board No. 28

Peano's Space-Filling Curve

Peano's space-filling curve is exactly what its name implies – a continuous one-dimensional object that "wiggles" so much that it fills a two-dimensional object (the unit square). The curve was discovered in 1890 (by Peano); it was the first of many to be studied. Many mathematicians of that era regarded it as an anomaly.

Peano's curve can be regarded as a fractal since its Hausdorff dimension (2) is strictly bigger than its topological dimension (1). (Roughly speaking, topological dimension measures the dimension of the object from the perspective of the object and Hausdorff dimension measures the dimension of the object from the perspective of the surrounding space.)

We can think of Peano's curve as a continuous function, p, that maps the unit interval [0, 1] onto the unit square [0, 1] x [0, 1]. Since p takes points in [0, 1] to points in [0, 1] x [0, 1], we can view p(t) as (x(t), y(t)). That is, x(t) and y(t) are p's coordinate functions. Our interest lies in these coordinate functions. We compute the box-counting dimension of x(t) and y(t). (Box-counting dimension is another dimension that can be computed for various objects, and for "nice" objects, it equals the Hausdorff dimension.)

Our method is based on work done by McClure (2003). In his paper, McClure uses a digraph IFS scheme to compute the box-counting dimension of the coordinate functions for Hilbert's space-filling curve.

Amy Lukianov, Sharon Brown-Welty, Ph.D.
amyl@csufresno.edu
California State University, Fresno
Department of Education Administration and Supervision
Graduate Student Presenter
Poster Session I, Poster Board No. 29

The Effects of Service-Learning on College Student Development in the Jumpstart Program

Institutions of higher education are responsible for student learning, promoting character, civic responsibility, and preparing students for future careers. Not only is higher education being held accountable for students, but also for the growing societal problems facing communities. While many colleges and universities are facing difficulty in financial stability, the responsibility for student development is growing more and more challenging.

One way to meet higher education's mission for student development is to engage students in becoming responsible citizens is through effective service-learning. With the growing demand for research in this area, this study addressed the impacts of service-learning on college student development within the Jumpstart program.

With over 50 Jumpstart early literacy sites across the country, the Jumpstart National Education and Training Department continuously conducts research to improve training and development for tutors. In 2001, Jumpstart at Fresno State began a model for tutor training and development by means of a service-learning course. Since 2001, five Jumpstart sites have replicated this model of a service-learning, tutor-training course. While viewed as an ideal model for tutor training within the Jumpstart program, this pedagogy has not been researched to test its effectiveness.

The purpose of this study was to determine if Jumpstart programs with service-learning tutor training courses have a greater effect on college student development as compared to Jumpstart sites with a non-service-learning tutor-training component. Jumpstart measures the impact of the program on the college students who participate as Corps members on an annual basis. The Corps Member Survey was used to collect data, which assesses the effectiveness and growth of college students engaged in the Jumpstart program. This study used data collected for the fall of 2003 and the spring of 2004 at seven universities.

The data analysis will consist of: distribution frequencies and measures of central tendencies, correlations to investigate relationships between demographic characteristics and respondent data, samples will be compared to see if the experimental group and the comparison group are similar, and t-tests will be conducted to see if there are significant differences between the responses of the experimental group and the comparison group. Statistical analysis using SPSS is currently being performed, and findings will be completed by April 21st.

Kijuana C. Hartshorn
epiqueen@yahoo.com
Maribel Avalos, Sulekha Coticone, Ph. D.
California State University
Department of Chemistry
Undergraduate Student Presenter
Poster Session I, Poster Board No. 30

Developing a Hispanic Population Database to Genotype Individuals with Mononucleotide Repeats

In medical diagnostics, microsatellite instability (MI) analysis using PCR utilizes mono and dinucleotide repeats to detect familial forms of colon cancer, and predisposition to gastric, endometrial and ovarian cancer. However, artifacts, specifically "stutter" produced during the PCR amplification complicate the analysis. A small number of organic molecules in nature have been shown to influence the thermodynamic properties of proteins and nucleic acids. These compounds named "osmolytes" provide anti-stress protection without changing the normal metabolic functions. The present study is being conducted to evaluate the effect of osmolytes on the reduction of the stutter artifact thereby improving genotyping methods.

We are developing a Hispanic DNA database to genotype individuals using mononucleotide repeats. The DNA from the individuals is extracted using Chelex. The DNA is then amplified using primers specific for the BAT-25 locus. The BAT-25 locus is a marker used to detect microsatellite instability in colorectal cancer. To assess the ability of osmolytes to reduce stutter, sorbitol, an osmolyte will be used with a fluorescent assay to genotype mononucleotide repeats. The concentration of sorbitol will be optimized to improve analysis of genotyping of mononucleotide repeats.

Jon C. Phillips, Ph.D.
jcphillips@csupomona.edu
April Drukin, Mary-Kate D. Francesco
California State Polytechnic University, Pomona
Department of Food Marketing and Agribusiness Management
Heather Kazmaier, Russell Bassett
California State Polytechnic University, Pomona
Department of Animal and Veterinary Science
Poster Session I, Poster Board No. 31

An Empirical Study of Issues and Trends Affecting the California Raisin Industry

Objectives: The Fresno, California area has historically been the largest producer of raisins in the world. Turkey, a country with impressive capabilities, is challenging our position, however. This challenge paired with the financial importance of the industry makes it a good candidate for strategic research. This study explored the issues and trends affecting the California raisin industry, emphasizing technology and regulation.

Methods: Researchers designed a telephone survey instrument to obtain information from raisin packers in California. Respondents had the opportunity to address relevant issues by answering open-ended questions. Twenty-three packers were identified as potential respondents from which thirteen interviews, lasting approximately fifteen minutes each, were conducted. Upon completion, transcripts were made and a master summary of the responses was created.

Results: Responses differed among packers due to variations in firm characteristics, e.g., size, enterprise mix, and years of operation. The majority of subjects exhibited vertical integration among growing, processing, packing, and shipping. Adverse weather and insect infestations are risks, and can increase costs. Additional risks are fluctuations in market conditions and volume regulations. Respondents indicated that the availability of cheaper labor overseas threatens the domestic industry. However, the U.S. produces higher quality than foreign countries. The increased utilization of mechanized harvesting and sorting processes has enabled U.S. producers to compete internationally and reduce costs, but substantial investments are required. Growers must address regulations/specifications in the following areas: inspection for quality, moisture content, insect damage, and mold; pesticide usage; and grading standards.

Conclusions: We conclude that growers should carefully consider increasing mechanization in order to maintain cost competitiveness. Also, the federal marketing order and other regulations should be reviewed and updated. An issue that requires further investigation is consumer demand. A mail survey of grocery retailers is planned to answer questions regarding the demand and marketing of raisins.

Jenise Caetana, Constance Jones, Ph.D.
jcaetana@csufresno.edu
California State University, Fresno
Department of Psychology
Graduate Student Presenter
Poster Session I, Poster Board No. 32

Cohort, Sex, and Study Duration Differences in Moral Virtue

Ancient Greek society considered moral virtue an important goal in life, a goal that appears not to be shared in modern society. Within the scientific field of psychology, the study of virtues was initially popular, but eventually was replaced by the study of personality traits. Recently, however, the study of virtue has reemerged in the field of positive psychology. This study examined cohort, sex, and study duration differences in moral virtue using California Psychological Inventory data collected from original participants of the Intergenerational Study and their spouses (1920's cohort) and their children (1950's cohort). It was hypothesized that (1) the 1920's cohort would show more moral virtue than the 1950's cohort, (2) women would show more moral virtue than men, and (3) original participants would show more moral virtue than their spouses and children. A total of 364 participants were included in this study. Results confirmed Hypothesis 1: the 1920's cohort showed more moral virtue than the 1950's cohort. Results obtained for Hypothesis 2 were opposite what was expected: men showed more moral virtue than women. Hypothesis 3 was not supported. The cohort and sex differences shown provide information about society that will be of aid to the further study of moral virtue.

Kimberly Campeau-McAllister
luvmuddin32@yahoo.com
Nicole Campeau-McAllister
California State Polytechnic University, Pomona
Animal and Veterinary Sciences
Jon C. Phillips, Ph.D.
California State Polytechnic University, Pomona
Food Marketing and Agribusiness Management
Undergraduate Student Presenter
Poster Session II, Poster Board No. 1

Factors Influencing the Attractiveness of the U.S. Fresh Orange and Grapefruit Industry

Objective: The objective is to analyze the U.S fresh orange and grapefruit i1ndustry environment, focusing on the forces that shape competition within the industry. The study examined competition within the U.S. fresh orange and grapefruit industry as well as the global market.

Methods: Secondary data related to this industry was reviewed. The data was organized according to Porter's Five Forces Model, which specifies factors that determine industry attractiveness. These factors include the power of buyers and suppliers, the threat of entry and substitute products, and the degree of rivalry among existing firms. In addition, key industry informant interviews provided valuable in depth and first hand information regarding internal and external factors affecting the industry.

Results: Applying the model, the results imply the competition between U.S. orange and grapefruit producing firms is very strong among established firms, yet there is little threat of new firms entering due to entry and exit barriers. It is a concentrated market with few buyers, giving them leverage. Among competitors within the U.S. industry, the large firms have bargaining power when dealing with buyers and suppliers of inputs. There is a pattern of stability between existing firms and their buyers. The large firms maintain their size and their buyers while smaller firms create long standing relationships with niche markets. In recent years, consumer preferences have moved toward more convenient foods, thus increasing the threat of substitute products. Despite higher production costs compared to international competitors, the U.S. remains one of the top producers of fresh oranges and grapefruits in the world.

Conclusions: Due to the industry forces mentioned, the fresh orange and grapefruit production industry is not attractive for new entrants. Due to historically stable relationships between producers and buyers, existing firms should be able to maintain a competitive yet secure livelihood.

Matt Beene, Charles Krauter, Ph.D.
mattbeene@csufresno.edu
California State University, Fresno
Department of Plant Science
Dave Goorahoo, Ph.D.
California State University, Fresno
Center for Irrigation Technology
Graduate Student Presenter
Poster Session II, Poster Board No. 2

Ammonia Emissions from Fertilizer Applied with Precision Agriculture

Precision agriculture is the term applied to the use of GPS for location and guidance of farm equipment in the field combined with GIS techniques to vary the application of seed, fertilizer, soil amendments, and pesticides in a site-specific manner. These precision agriculture practices allow the grower to match the yield potential of the soil in areas of the field as small as 10 square meters by adjusting the amount of product applied. The primary advantage is economic, as areas of the field with lower yield potential will only have the seed and fertilizer applied that are needed for those soil conditions. The advantage in regard to air quality is the reduction of the excessive amounts of nitrogen fertilizers being applied that may result in higher ammonia emissions. A nitrogen fertilizer trial in the southern part of the San Joaquin Valley was used to compare variable rate nitrogen application practices with conventional practices. Ammonia sampling was conducted before, during, and after the application, in an attempt to detect differences in ammonia emissions from the different nitrogen rates. The method utilized was active chemical filter packs or denuders at various elevations up to 10 meters. The test was conducted in 2003 and 2004. Levels of ammonia monitored seemed to track with applied amounts of anhydrous ammonia fertilizer. After three or four days ammonia monitored in the plots were close to background levels.

Jarrod Hicks, Patrick Machado
peggyt@csufresno.edu
Peggy Trueblood, Ph.D.
California State University, Fresno
Department of Physical Therapy
Graduate Student Presenter
Poster Session II, Poster Board No. 3

Fall Into Prevention

Background and Purpose: The number of people over the age of 65 is expected to increase from 31 million in 1990 to 68.1 million in 2040. One out of every three individuals over the age of 65 falls each year. These falls are the leading cause of injury related deaths and are the most common cause of injuries and admissions to hospitals for trauma.

Case Description: A power point presentation was assembled for the California Chapter (CCAPTA) of the American Physical Therapy Association (APTA) for fall prevention. The presentation is to inform individuals over the age of 65 about balance and the risks to maintaining balance. The power point lecture was presented to a class of 15 individuals over the age of 65 that were presently taking a balance class to see what information was learned. Face validity for the presentation was obtained by two expert analysts.

Outcome: A pre-test score of 8.25 out of 10 was calculated and a post-test score of 8.67 was calculated. The test scores showed that there was a 4.2% increase in scores.

Discussion: There is no current data on the recall of people over the age of 65 years of age and fall prevention lectures. More research needs to be performed on the level of knowledge already acquired through common means about balance. The small increase in knowledge from pre-test to post-test may be attributed to the fact that these individuals were already in a balance class. Further research needs to address the uniformed, with regards to balance, individual over the age of 65. This presentation is going to be used for the California chapter of American physical therapy association for their “Move California” campaign that is being used to inform the public about safety within their communities.

Ryan P. Lopez, Ruth Ann Kern, Ph.D.
rpl05@csufresno.edu
California State University, Fresno
Department of Biology
Graduate Student Presenter

Poster Session II, Poster Board No. 4

Soil Moisture Patterns in Sierra Nevada Mixed Conifer Forest

The goals of this experiment are to quantitatively describe temporal (seasonal) and spatial (horizontal, vertical) variation in volumetric percent soil moisture of forest soils in Sequoia mixed conifer forests within Sequoia National Park, California. Soil moisture is an important factor in determining overstory and understory species richness, density and pattern within these forests. This experiment was designed to allow testing of hypotheses concerning the patterns of soil moisture availability in forest gaps and understory and how these patterns relate to solar radiation and canopy cover.

Soil moisture was measured in both canopy gaps and along linear transects located within the range of canopy covers found in these forests (closed canopy to open gap). Percent soil moisture was sampled using permanently installed rods and Time Domain Reflectometry (TDR) measurements. Within forest gaps, rods were installed at four depths (10, 30, 60, 95 cm) in six canopy gaps (three < 0.3 ha and three > 0.5 ha) established at 2200 m elevation. Rods were placed as a radial array of transects crossing each gap (N-S, W-E, NW-SE, and NE-SW). Soil moisture under canopy cover was assessed using a total of thirty 50-m long transects (linear transect) with TDR sample points at 5-m intervals established in six plots (five transects per plot) at 1600 m (2 plots) and 2200 m (4 plots) elevation. Soil moisture measurements were made every two weeks throughout the snow-free season. In addition, hemispherical photos were taken at all sample points in gaps and transects for characterization of canopy cover (percent canopy openness) and solar radiation (percent total transmittance).

The draw-down in soil moisture was mostly complete by mid-July in all plots. Soil moisture in the gap center was higher than the gap edge and forest understory, and this difference diminished with increased soil depth. Preliminary results indicate that there is more soil moisture throughout the growing season (May-Oct) in the South, Southwest, West, and Northwest, compared to all other parts of the gap. The magnitude of this difference decreases with distance from gap center. Project results will improve the understanding of forest dynamics in the middle and southern Sierra Nevada and will be useful to forest managers and scientists attempting to preserve this resource.

Kevin M. Moseley
dmoseley11@comcast.net
Steve C. Blumenshine, Ph.D.,
Frederick W. Zechman, Ph.D.
California State University, Fresno
Department of Biology
Graduate Student Presenter
Poster Session II, Poster Board No. 5

Central Valley Algal Biodiversity Study

The objectives of this study are 1) to determine the diversity of algal species found in the San Joaquin Valley (with an emphasis on the Fresno River watershed), and 2) to correlate various water chemistry parameters with species richness within the region. To achieve objective 1 and get a perspective of the overall algal diversity, approximately 200 collections were made from aquatic habitats on the San Joaquin Valley floor and Sierra Nevada foothills from August 2000 to August 2002. Taxonomic identification and vouchering of species was accomplished with a compound light microscope equipped with a digital camera. Representatives of 30 Chlorophyte genera (14 Charophycean, 12 Chlorophycean, and 4 Ulvophycean) were found, along with representatives from 33 genera of diatoms. Other groups, like Pyrrophytes (3 genera) and Rhodophytes (1 genus) were poorly represented in the region. The high diversity of Chlorophytes and diatoms in relation to cyanobacterial diversity found at most sites not affected by agriculture runoff suggests that those regions are not experiencing widespread eutrophication.

To achieve objective 2, ceramic collection tiles were placed at 20 sites within the Fresno River watershed and left in situ for approximately two weeks. This experiment was repeated four times, from June 2003 to March 2004. Temperature, pH, conductivity, dissolved oxygen, nitrogen, salinity, and other physical and chemical parameters of the water were recorded when tiles were placed at the sites. Physical and chemical parameters of the water, as well as the number of species in higher taxa (Cyanophyta, Chlorophyta, Ochrophyta, Rhodophyta, and Euglenophyta), were recorded to estimate species richness and taxonomic diversity. Principal components analysis was performed using CANOCO to determine which environmental parameters most influenced species richness and taxonomic diversity. Initial results are inconclusive, but other tests, along with elimination of redundant variables and transformation of the data may yield more conclusive results.

Denise Lopez, Mamta Rawat, Ph.D.
denisemica@csufresno.edu
California State University, Fresno
Department of Biology
Graduate Student Presenter
Poster Session II, Poster Board No. 6

Coenzyme F420 is Involved in the Degradation of Malachite green in Mycobacteria

Malachite green is a triarylmethane dye that is widely used in the fish farming industry, as it is an extremely effective antiparasitic agent and is relatively inexpensive. Malachite green is also toxic to mammalian cells and is mutagenic and carcinogenic. Due to its solubility and stability in water, malachite green is very difficult to remove once it has been applied. A possible solution to malachite green contamination is bioremediation by organisms like Mycobacterium smegmatis, which can decolorize this toxic dye. Identifying the genes from this Actinomycete involved in the decolorization may facilitate the development of bioremediation strategies to address malachite green contamination.

In order to identify genes from M. smegmatis involved in the decolorization of malachite green, we have developed a high-throughput method to screen a transposon mutant library for mutants impaired in their ability to decolorize the dye. The site of the transposon insertion is identified by utilizing outward-facing primers, specific to the transposon, to isolate the flanking genomic DNA. The disrupted gene is then identified by sequencing this region and conducting a BLAST search.

To date, approximately 5500 mutants have been screened and 8 have been isolated that are impaired in their ability to decolorize malachite green. We have identified the disrupted gene in 4 of them. One of the mutants, DLmal1, is disrupted in a putative fbiC gene, the product of which is essential for the biosynthesis of coenzyme F420. Coenzyme F420 is used as a cofactor by a variety of enzymes and is also responsible for the activation of the experimental anti-tuberculosis drug, PA-824. In order to complement the mutation, a functional copy of the fbiC gene with its native promoter was inserted into the genome of DLmal1. The complemented mutant, DLmal100, regained the ability to decolorize malachite green, confirming that coenzyme F420 is involved in the decolorization of malachite green.

Todd L. Johnson, Mamta Rawat, Ph.D.
johnsont@csufresno.edu
California State University, Fresno
Department of Biology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 7

Thiol Content of Mycobacteria and Related Actinomycetes

Glutathione (GSH) is the predominant thiol found in most living organisms where it plays an important role in maintaining the reducing environment of the cell. Bacteria in the order Actinomycetales do not have glutathione but instead synthesize a unique thiol called mycothiol (MSH). Recent studies have reported the purification of glutathione dependent enzymes from such Actinomycetes as Streptomyces griseus ATCC 13273 and Rhodococcus AD45. Since the thiol profile of these strains was not reported, we analyzed the types and levels of thiols in these strains. We also analyzed the thiol content of another actinomycete, Kineococcus radiotolerans which was isolated from highly radioactive soil. Numerous studies have indicated that thiol status may be a critical factor in cell survival after irradiation and thus the types and levels of thiols in this strain may be an important factor in its resistance to radiation.

Cells were grown in tryptic soy broth media, which contains minimal level of glutathione and harvested during log phase. The cell pellets were lysed and the thiols were labeled with the fluorescent reagent monobromobimane and 7-diethylamino-3-(4'-maleimidylphenyl)-4-methylcoumarin (CPM). In both methods, the labeled samples were separated using High Performance Liquid Chromatography (HPLC) and detected via a flourometer or a spectrophotometer, respectively. Our results indicate that Actinomycetes principally contain mycothiol with few exceptions.

Moises De La Torre
mxd1984@csufresno.edu
D. Lopez, T. Johnson, R. Chow,
V. Cadiz, M. Rawat, Ph.D.
California State University, Fresno
Department of Biology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 8

Identification of Genes Contributing to Mycobacterium smegmatis' Resistance to Diamide

Thiols are ubiquitous in mammalian and other living cells. They have several important functions, including protection against oxidative stress. Treatment with diamide, a thiol oxidizing agent, leads to decreased cellular levels in low molecular weight thiols thus its application can provide a useful experimental model of thiol deficiency as a source of oxidative stress. The aim of this study is to identify genes in Mycobacterium smegmatis, a non-pathogenic saprophyte used as a model system for the study of Mycobacterium tuberculosis biochemistry and physiology, which contribute to its ability to thrive under stressful oxidative conditions caused by diamide. A transposon mutant library of 7000 mutants was generated and screened for mutants sensitive to diamide. Genomic DNA from mutants displaying sensitivity to diamide was isolated and the region flanking the transposon was sequenced. BLAST analysis of flanking DNA sequence lead to the identification of the disrupted genes. Among the genes whose disruption leads to diamide sensitivity are genes involved in lipid metabolism, signaling, and oxidation-reduction.

Michelle R. Davison, Alice D. Wright, Ph.D.
princessbuttercup18@juno.com
California State University Fresno
Department of Biology
Graduate Student Presenter
Poster Session II, Poster Board No. 9

Cloning the Promoter Regions of tfdR and tfdS

Introduction: Pesticides, herbicides, and insecticides are a mainstay of modern agriculture. Two-four-dichlorophenoxyacetic acid (2,4-D) is a synthetic plant auxin used for effective broadleaf plant control. Since its introduction in the 1940's, numerous soil microorganisms have evolved unique pathways to coompletely metabolize 2,4-D into CO2 and H2O. This project will investigate the promoter regions of the regulatory genes, tfdR and tfdS in the model organism Ralstonia eutropha JMP134, to further investigate the evolution of catabolic pathways and expression of the regulatory elements of the 2,4-D pathway.

Methods:
1. Amplification of the promoter regions of tfdR/S by Polymerase Chain Reaction (PCR).
2. Cloning of amplified target regions into a TOPO plasmid vector for sequencing and blue/white selection.
3. Digestion of the TOPO plasmid and subcloning of promoter region into the promoterless pKRZ1 expression vector.
4. Analysis of promoter region activity under induced and uninduced conditions by means of a Beta-Galactosidase assay.

Results: DNA from strain JMP134 was successfully extracted. Using published sequences from previous work, primers were designed to amplify the promoter regions of tfdR and tfdS. Primers were designed with unique restriction enzyme sites BamHi and SalI to allow for directional cloning, and confirmed by sequencing. Both tfdR and tfdS promoter regions have been cloned into pCR2.1-Topo vectors/ The tfdR fragment was sequenced and BLASTed in GENBANK to confirm identity.

Conclusions: The findings of this study will yield insight into the mechanisms of evolution for regulatory elements in catabolic pathways. Questions that will be answered include: Is expression of tfdR/S regulated? If so, then how? As more is understood about the metabolic pathway and how it can be induced, this knowledge can be put to practical use in bioremediation, allowing harmful herbicides to be removed safely and effectively from the environment.

Noemi Vega, Christine Edmondson, Ph.D.
nvega01@csufresno.edu
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 10

Acculturative and Gender Differences in Anger Definition, Expression, and Provocation

Research on anger and acculturation within the Mexican American population is non-existent. The purpose of our study is to begin the process of understanding the relationship, if there is any, between a student's acculturation level and the way they define, express, and are provoked to anger. Participants were recruited from the Psychology 10 subject pool. In order to participate, students must be of Mexican descent (having familial connections to Mexico). Individual interviews were administered to a total of sixty participants, thirty female and thirty male. The interview consisted of open-ended qualitative questions followed by three questionnaires: the Anger Management Strategies Questionnaire, the State Trait Anger Expression Inventory –II, and the Acculturation Rating Scale for Mexican Americans.

Preliminary qualitative analyses indicated that students who scored lower on acculturation levels tended to express their anger in, meaning they kept their anger to themselves. Those students who were lower in acculturation also tended to indicate that machismo would negatively influence the way a male expresses his anger, listing more outward forms of expressions such as excessive yelling or screaming and hitting. Qualitative analyses also indicate that there are no differences in the way men and women as well as lower acculturation and higher acculturation individuals define anger.

Thus far the researchers may conclude that there are differences between the levels of acculturation in regards to an individual's expressions of anger and the way they are provoked to anger. These findings have implications for community mental health centers that deal with issues of anger with Mexican Americans.

Yogita Karkhanis, Nagy Bengiamin, Ph.D.
yogitak@csufresno.edu
California State University Fresno
Department of Electrical and Computer Engineering
Graduate Student Presenter
Poster Session II, Poster Board No. 11

Robust Control of Direct Current Voltage Converters

Introduction: Whether for entertainment, house-hold, medical, or industrial applications, electronic devices are usually powered by a Direct Current (DC) electric power source like batteries or other unregulated voltage sources for high power applications. Often, more than one voltage level is required to operate different parts of the electronics in the same device. Also, holding the voltage level to a specific tolerance regardless of the loading of the power source and depletion of energy storage batteries is an important engineering design task. Large swings in voltage level may cause failure or malfunction of electronic devices.

Converting voltage from of level to another is usually achieved by designing a voltage converter. Several converter configurations are available, where the voltage can be raised (boost) or lowered (buck). The performance of the converter is usually determined by how steady the produces voltage signal is and how fast it changes level when called upon. A feedback controller is then designed to regulate the voltage to its specified tolerance for these converters. Most controllers change performance with the change in operating condition of the device, which causes a corresponding deterioration in the performance of the device.

The objective in this study is to develop a robust controller for the buck converter. This controller should insure no change in performance under different operating conditions, like loading of the power supply or depletion in energy storage sources.

Method: Known for their robust performance, Sliding_Mode Control (SMC) methodologies are adopted in this project. The converter is modeled mathematically and a controller is designed and tested on the computer simulator.

Results and Conclusion: The proposed controller proved successful in minimizing voltage variations under different loading conditions. Presented computer simulation results demonstrate the superior performance of SMC over traditional Proportional Integral Derivative (PID) controllers when applied to Buck Converters.

Maria I. Mendez, Lynnette Zelezny, Ph.D.
chavemendez@csufresno.edu
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 12

Latino Identity and Social Norms Media

This survey assessed the relationship between ethnic identity and believability of social norms media related to student health behaviors at CSU Fresno. Based on past qualitative research, it was predicted that there would be a difference between Latino students and the general population of students on believability of and identity to social norms media. University students (N=148) were asked to view four social norms media posters, and complete two questionnaires: an ethnic identity scale and a self-designed questionnaire that measured the believability of social norms messages. Although not statistically significant, notable patterns emerged with consistency. Latino students identified more with the social norms media than the general population of students. Moreover, Latino students reported higher believability of the social norms media than the general population. These findings were surprising and may suggest that Latino students, who reportedly identify with and believe social norms messages intended for a general student population, do not require specially created social norms media targeted at ethnic identity. Other implications will be discussed.

Mari Sanchez
mari_sanchez_77@hotmail.com
Lorin Lachs, Ph.D., Karl Oswald, Ph.D.
California Stae University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 13

Explicit and Implicit Memory on Talker Variability and False Recognition

This study examined the nature of explicit and implicit memory of spoken word lists on voice retention of talkers and false recognition. This experiment served to replicate and extend the research of Roediger, McDermott, Pisoni, and Gallo (2004). Episodic encoding research suggests that the retention of voice specific information, as a part of episodic memory, provides for cues in the accuracy of recognition. However, the participants in the Roediger, et al. experiment were not able to use vocal cues to increase their accuracy in their investigation of voice effects on false memory. It is hypothesized that these differences may be due to instructional aspects of the experiments, one utilizing implicit means for the retention of voice characteristics and the other drawing on explicit instructions to identify which voices stated the words.

The study utilized a 2 (explicit/implicit instructions) x2 (single speaker/multiple speakers from the presentation to the recognition phase) x2 (same/different speakers of words in the presentation and recognition phase) mixed subjects design. The 'same/different' variable was a within subjects factor. Those in the explicit instructions condition were directed to attend to the voice of the speaker in addition to the word stated, while those in the implicit instructions conditions were only directed to attend to the word stated. Multiple speaker conditions included two speakers: one male and one female. The 24 word lists used in this experiment were derived from Roediger and McDermott's (1995) 15-item false memory word lists. Sixteen lists were tested; the remaining eight were used as filler words during the testing period.

Analyses were performed on both veridical and false memory occurrences across conditions. In regards to accuracy, a significant main effect of same/different speakers of words in the presentation and recognition phase was observed, $F(1,60) = 72.526$, $p = .001$, with a benefit for same speaker. The findings concerning false memories will be discussed. The results of this study have implications for contemporary theories of speech perception (episodic encoding), false memory (activation and monitoring), and explicit and implicit memory.

Jim Kitch, Steve Blumenshine, Ph.D.
jimkch23@csufresno.edu
California State University, Fresno
Department of Biology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 14

Spatial Patterns of Zooplankton Density and Composition in Central Valley Reservoirs

Water quality and quantity are important attributes of water in Central Valley reservoirs. Water quantity is controlled by supply and demand, while more variables can regulate water quality. For example, measures are taken to avoid excess runoff of plant nutrients (such as nitrogen and phosphorus) from watersheds to water bodies. These nutrients can impair water quality by facilitating the growth of phytoplankton, which reduce water clarity and impede water filtration. However, the ability of aquatic herbivores to improve water clarity is often overlooked in reservoirs. The ability of zooplankton to 'graze' down phytoplankton and improve water clarity is well documented in natural lakes however.

As part of a larger study examining factors attributing to water quality variation in Central Valley reservoirs, this study examined spatial variation of zooplankton assemblages within and among reservoirs. We measured zooplankton taxonomic and size compositions as well as density at three stations and depths (3x3) in Eastman, Hensley, and Pine Flat Reservoirs.

Zooplankton densities were lowest in Pine Flat, the reservoir with the clearest water, while the highest densities were found in Hensley, which was the most turbid. This pattern suggests that zooplankton are not likely having a positive effect on water clarity, and that their densities are not limited by food supply. Another indicator of the ability of zooplankton to control water clarity is based on the size distribution of individuals. Larger zooplankton graze more efficiently, since their filtration capacity increases as the square of their body length. Ironically, zooplankton size structure was very similar in Hensley and Pine Flat. Zooplankton size range in Eastman was much higher due to a high proportion of Daphnia (the 'cows of the water column'). This suggests that zooplankton in Eastman may be able to ameliorate the impending 'spring bloom' compared to zooplankton in Hensley and Pine Flat.

Zachary Hoover, Steven Blumenshine, Ph.D.
zakoh@csufresno.edu
California State University, Fresno
Department of Biology
Graduate Student Presenter
Poster Session II, Poster Board No. 15

Relating Water Quality to Storage in Three Central Valley Reservoirs

In recent years, many Central Valley reservoirs have experienced losses in total water storage due to evaporation and water releases exceeding supply. Unfortunately, reduced storage may lead to poor water quality. To test this relationship, annual and seasonal reservoir storage was compared to the Carlson Index, which uses variables such as water clarity, phytoplankton abundance, or available nutrient concentrations. This index ranges from 0 to 100, where low values are desirable and relate to good water quality.

Three Central Valley reservoirs (Hensley, Eastman, and Pine Flat) were sampled seasonally beginning in Fall 2003. Hensley and Eastman reservoirs had Carlson Index scores indicative of a low water quality (64 and 50 respectively). Pine Flat had a moderate value of 43, suggesting relatively good quality. Index values of 30 or less are desirable.

These reservoirs experience the lowest annual storage values during the summer months when water quality is likely impaired. To determine if this was true, summer index values were compared to summer storage volumes for corresponding sampling dates. Index scores for Hensley, Eastman, and Pine Flat were 68.9, 68.8, and 58.8 respectively, and were the highest of any season. These high index scores agree with a relationship between low water volume and decreased water quality. The seasonal scores were then regressed against storage. Hensley values produced the most significant relationship ($r^2=0.9185$) while Eastman and Pine Flat trendlines suggested a less dependent relationship ($r^2=0.4214$ and 0.4585). This implies that Hensley is likely to have consistent water quality problems due to the low variation between parameters.

However, reservoir conditions may improve due to above average precipitation in 2005. This extreme wet year has followed four consecutive drought years and is ideal for testing general relationships between water storage and quality.

Jamie Jackson
jjackson@dfg.ca.gov
California State University, Fresno
California Department of Fish and Game
Paul R. Crosbie, Ph.D.
California State University, Fresno
Department of Biology
Graduate Student Presenter
Poster Session II, Poster Board No. 16

Analyses of Treatment Regimes and Recovery Rates for Mallard (Anas platyrhynchos) and Green-winged Teal (Anas crecca) Suffering Avian Botulism Poisoning

The objective of this study was to evaluate different therapeutic treatments for avian botulism, an often fatal disease characterized by paralysis of musculature and respiratory systems in affected organisms after ingestion of botulinum Type C neurotoxin, produced by the bacterium Clostridium botulinum. The bacterium is an obligate anaerobe and persists in wetlands and soils in a spore form that is highly resistant to heat and drying and is capable of remaining viable for many years. The first symptoms of botulinum poisoning appear within eighteen hours and progression of the disease may continue for six days. As the toxin begins to take effect, birds progressively become paralyzed, ultimately losing complete control of muscular coordination. Death may result from either drowning, as an affected bird is no longer capable of holding its head above water, or suffocation, as the diaphragm becomes paralyzed. The progression of the poisoning process is characterized by five distinct ranked categories, 0-5, with 0 being non-intoxicated and 5 representing death.

In this study, different treatment regimes were evaluated in promoting recovery of infected birds. The study was designed with the defined ranking scheme of intoxication in conjunction with different specified treatments. The four treatment regimes were water and shade, pedialite administration, shade alone, and inoculation with type C specific anti-toxin. Preliminary results indicate a strong relationship amongst groups of birds categorized as 0-3 with the simple treatment of fresh water and shade which was as effective as pedialite, shade, and type C specific anti-toxin (0.98, $p<0.05$). In groups categorized as 4-5, addition of type C specific antitoxin was no more effective than any other treatment (0.18, $p<0.05$).

These results suggest a strong relationship between treatment and recovery rates of birds in categories 0-3, and that birds in groups 4-5 are not likely to recover regardless of treatment.

Scott Peat
speat@csufresno.edu
Jose Soto, Paul R. Crosbie, Ph.D.
California State University, Fresno
Department of Biology
Graduate Student Presenter
Poster Session II, Poster Board No. 17

A Phylogenetic Analysis of Sarcocystis neurona from Marine Mammals

This study assesses the genetic variability of Sarcocystis isolates from Southern sea otters, specifically by sequencing the ITS-1 region of nuclear DNA, and a portion of the Cytochrome Oxidase-1 region of mitochondrial DNA. Apicomplexan protozoa in the genus Sarcocystis are well known as encysted forms in the tissues (chiefly muscle, but also brain) of vertebrates. Fatal protozoan meningoencephalitis (PM) has been recognized in Pacific harbor seals and Southern sea otters from Northern California; the causative agent has been identified as S. neurona, which is also the cause of equine protozoal myeloencephalitis (EPM). The molecular data gathered will be used to test several phylogenetic hypotheses, in particular that there are multiple genetic lineages of Sarcocystis present in marine mammals in California. Phylogenetic analyses will be conducted using parsimony, to determine the relationships of each otter isolate to one another, as well as their relationship to isolates obtained from vertebrate hosts. Preliminary results indicate that all isolates obtained from sea otters are indistinguishable from S. neurona. This study may be crucial in deciding future management actions related to sea otters, which are state and federally listed as threatened with extinction. This project is a collaborative endeavor with the California Department of Fish and Game and the University of California, Davis.

Ryan Smith, John V.H. Constable, Ph.D.
moseph71@csufresno.edu
California State University, Fresno
Department of Biology
E. Magill
California State University, Fresno
Department of Biology
California State University, Stanislaus
Endangered Species Recovery Program
Undergraduate Student Presenter
Poster Session II, Poster Board No. 18

Restoration of Central Valley Ecosystems: Implications from Studies of Nitrate Reduction

Retirement of unproductive agricultural lands has heightened interest in restoration of native plant communities, however, restoration success has been limited by superior growth of introduced species. This study hypothesized that differences in soil nitrogen availability affects growth and the activity of nitrate reductase (NR), the rate limiting step in nitrate assimilation, such that introduced species are favored at high nitrogen availability, whereas natives are favored at low nitrogen availability. A common native species (*Phacelia ciliata*) and an introduced species (*Bromus madritensis* subspecies *rubens*) were grown for three months in sand-culture at low (0.25 mM) and high (1.5 mM) nitrogen availability during which time percent germination, height and *in vivo* NR activity were assessed. Activity of NR in *Bromus* increased by 51% at high nitrogen (1.33±0.16 µmoles $NO_2 \bullet gFW^{-1} \bullet h^{-1}$) relative to low nitrogen (0.88±0.17 µmoles $NO_2 \bullet gFW^{-1} \bullet h^{-1}$). In contrast, the NR activity in *Phacelia* was unchanged by nitrogen availability (0.40±0.08 (low nitrogen) vs. 0.41±0.09 µmoles $NO_2 \bullet gFW^{-1} \bullet h^{-1}$ (High nitrogen)). Despite an elevation in NR activity at high nitrogen in *Bromus* , neither percent germination (~75±9%) or final height (201±4 mm) changed. Similarly, elevated nitrogen did not alter percent germination (50±11%) or final height (162±9 mm) in *Phacelia*. NR activity was also assessed in retired agricultural (R) soil containing residual nitrogen and native soil (N) lacking residual nitrogen, but the results differed from the sand-culture study. *Bromus* displayed little change in NR activity between the soil types (1.14±0.14 (R) and 1.24±0.16 (N) µmoles $NO_2 \bullet gFW^{-1} \bullet h^{-1}$), whereas NR activity in *Phacelia* increased 45% in R (4.67±0.73 µmoles $NO_2 \bullet gFW^{-1} \bullet h^{-1}$) as compared to N (3.21±0.59 µmoles $NO_2 \bullet gFW^{-1} \bullet h^{-1}$) soil. These results suggest that soil nitrogen availability can alter nitrogen physiology of these species, but does not clearly drive differences in growth that could account for the observed growth superiority of introduced species in field restoration trials.

Satinderpal Dhah, John V.H. Constable, Ph.D.
exclusivelygq@hotmail.com
California State University, Fresno
Department of Biology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 19

Differences in Photosynthetic Responses to Light and CO_2 in Vegetative and Reproductive Leaves of *Podophyllum peltatum* (Berberidaceae)

The developmental shift between non-reproductive and reproductive states frequently results in a change in carbon (C) acquisition and partitioning. Each season the understory perennial *Podophyllum peltatum* (Mayapple) produces either a single vegetative leaf or a bifurcated reproductive leaf. These ephemeral leaves initiate development early in the year when light is ~50% of full sun and senesce ~2.5 months later at light levels of ~1-2% of full sun. It was hypothesized that greater C demand by reproductive leaves for flower and seed production elevates the carboxylation efficiency (CE) and maximum light saturated photosynthetic rate (A_{max}) relative to vegetative leaves. Plants were greenhouse grown under ambient conditions and at~ 9-15 days old a portable photosynthesis system was used to measure photosynthetic responses to CO_2 (80-1200 $\mu mol \bullet mol^{-1}$) and light (0-1000 $\mu mol \bullet m^{-2} \bullet s^{-1}$). In reproductive leaves, CE was 14% greater than in vegetative leaves (0.076±0.003 vs 0.087±0.002 $\mu mol \bullet CO_2 \bullet m^{-2} \bullet s^{-1}$ per $\mu mol \bullet mol^{-1}$ CO_2). Similarly, the maximum measured photosynthetic rate at 1200 $\mu mol \bullet mol^{-1}$ CO_2 and saturating light of reproductive leaves exceeded that in vegetative leaves by 13%, 28.2±1.0 vs. 25.0±0.7 $\mu mol \bullet m^{-2} \bullet s^{-1}$, respectively. Reproductive leaves were 14% more efficient in light use (AQE) than vegetative leaves, 0.059±0.003 vs. 0.051±0.002 $\mu mol \bullet CO_2 \bullet m^{-2} \bullet s^{-1}$ per μmol light$\bullet m^{-2} \bullet s^{-1}$ absorbed. Greater respiration (Rd) rates were also found in reproductive (1.6±0.1 $\mu mol \bullet m^{-2} \bullet s^{-1}$) leaves over vegetative (1.0±0.1 $\mu mol \bullet m^{-2} \bullet s^{-1}$) leaves along with a ~50% greater light compensation point (LCP, 15.2±1.5 (vegetative) vs. 22.6±2.0 (reproductive) $\mu mol \bullet m^{-2} \bullet s^{-1}$). The greater C demand for flower and seed production by reproductive leaves resulted in greater CE, A_{max} and AQE relative to non-reproductive leaves. However, the greater Rd and LCP of reproductive leaves also possessed greater Rd and LCP suggesting diminished photosynthetic function in low light environments. Therefore, successful seed production may require more rapid development of reproductive leaves than vegetative leaves to avoid the late-season light limitation that occurs in understory environments.

Emily Magill
amily9@yahoo.com
California State University, Fresno
Department of Biology
California State University, Stanislaus
Endangered Species Recovery Program
N. Ritter
California State University, Stanislaus
Endangered Species Recovery Program
John V.H. Constable, Ph.D.
California State University, Fresno
Graduate Student Presenter
Poster Session II, Poster Board No. 20

Soil Type Differentially Affects Growth of Native and Invasive Plant Species

Effective restoration of native plant communities on retired agricultural land has been problematic due to rapid growth and dominance of invasive species. Using a common native (*Phacelia ciliata*: Great Valley phacelia) and an invasive species (*Bromus madritensis* ssp. *Rubens*: red brome), this study hypothesized that optimal photosynthesis and growth of *Phacelia* and *Bromus* would occur on native (N) and retired agricultural (R) soils, respectively. In November 2004, seeds of both species were planted in a 2x2 experimental design using two soil types (N and R) and two water availabilities (high and low). In January 2005 when plants were small, soil moisture was abundant (40-70% volumetric soil moisture content) and a minimal difference existed between water treatments. At this time, photosynthesis (Pn) of *Phacelia* in R soil was ~300% greater than in N soil (3.3 (R) vs. 1.1 (N) $\mu mol \bullet m^{-2} \bullet s^{-1}$). In *Bromus* a similar pattern existed, Pn in R soil was ~40% greater than in N soil (~7.9 (R) vs. ~5.5 (N) $\mu mol \bullet m^{-2} \bullet s^{-1}$). Differences in Pn due to soil moisture availability were minimal in both species. Growth of both species in R soil was ~200-600% greater than in N soil regardless of water availability. Biomass of *Bromus* was consistently <45% that of *Phacelia*, and had 200-400% greater root-to-shoot biomass ratio (R/S) in both soil types and water availabilities. At elevated water availability, *Bromus* biomass increased in N (+23%) and R (+9%) soils, while *Phacelia* displayed a less consistent pattern, a 61% increase in N soil, but a 36% decline in R soil. Residual nitrogen in R soil likely accounts for differences in growth relative to N soil. However, the dominance of *Bromus* in many field locations may result from the high R/S ratio facilitating water uptake and early season germination which may constrain growth of native species such as *Phacelia*.

Bobby Kamansky, Steve Blumenshine, Ph.D.
bobinator1@csufresno.edu
California State University, Fresno
Department of Biology
Graduate Student Presenter
Poster Session II, Poster Board No. 21

Frequency Distribution and Percent Similarity for 20 Vernal Pools at the James K. Herbert Wetland Prairie Preserve

The vernal pool landscape at the James K. Herbert Wetland Prairie Preserve is dominated by non-native annual grasses, such as Mediterranean barley (Hordeum marinum spp. gussoneanum). The current management plan calls for restoration of native vernal pool grassland species through adaptive management, including monitoring and iterative refinement of treatment method and intensity.

To provide information for management actions, data was needed to describe the existing plant assemblages. Analysis of aerial photographs yielded the location of wetland pools; identified pools were field-checked against previously determined criteria. Pools with similar edaphic and vegetative characteristics were identified by three criteria: 1) a visible clay bottom caused by continual inundation; 2) at least three vernal pool obligate plant species; and 3) a minimum length of at least 40 meters. 40 pools conformed to the similarity criteria. These pools were mapped with GPS to create vernal pool maps with perimeter locations. Each pool was assigned a number and 20 pools were chosen randomly for further vegetation study.

The plant assemblage of each pool was characterized across across a 20-point transect not less than 40 meters in length with the frequency frame method. Each pool and surrounding grassland was documented with a slide photograph from a repeatable location.

Knowledge about co-existing biological communities may thus be gained and treatment response quantified. Pre-treatment monitoring data can then be used to compare to post-treatment data to study community responses to treatment on multiple levels, utilizing biological community parameters as response variables. This approach would be unique among vernal pool studies.

Frequency data ranged from 0.99 to 0.01, this provides a measure of species occurrence across the pools for 2004. Pool frequency data was used to compare pools for percent similarity to determine if pools can be compared. Pool similarity ranged from 6.9 to 87.6 percent; 100 percent similarity would represent identical pools.

Nazia Khan, Christine Edmondson, Ph.D.
nkhan01@csufresno.edu
California State University, Fresno
Department of Psychology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 22

Understanding Comorbid Anger and Depression

Several studies of anger in clinical settings indicate that it is frequently comorbid with depression. The present study attempts to understand comorbid anger and depression by identifying similarities and differences in these syndromes in terms of general psychopathology, affective functioning, and early maladaptive schemas. If personality pathology is the causal mechanism for the co-occurrence, then it is assumed that there would be differences between depressed and angry depressed groups in early maladaptive schemas and general psychopathology with the angry depressed group indicating more significant psychopathology. If angry depression is a manifestation of two emotional disorders, then there would be differences between the group in general affective functioning. If angry depression is a subtype of depression, then the groups would be similar in general affective functioning and merely differ in terms of the manifestation of anger.

A depressed sample from the Anger Disorders Validity Study was used to attempt to understand the mechanisms that account for comorbid anger and depression. Participants completed a structured diagnostic interview and a questionnaire battery. They consisted of the Young Schema Questionnaire, to determine the degree of problematic schematic processing; the Emotional Dominance Inventory, to measure general affective functioning in terms of positive affect, negative affect, and dominance; the State Trait Anger Expression Inventory (STAXI), and the Anger Disorders Scale to measure the manifestations of anger.

A series of ANOVAs were conducted on the dependent measures. Results indicated that there were significant differences between the groups in the manifestation of anger. In terms of anger behaviors, the angry depressed group was more likely to engage in impulsive anger out strategies and the two groups were similar in terms of anger suppression. In terms of motivations for anger behaviors, the two groups were similar in terms of tension reduction, but the angry depressed group was more likely to have coercion and revenge motives. Also, the angry depressed group was more likely to ruminate about anger provocations, feel hurt, and be suspicious about other people's motives.

Implication for the diagnosis of anger and depression and the treatment of comorbid anger and depression will be discussed.

Indranushi Chaliha, MD, MPH
ichaliha@gmail.com
Elizabeth A. Holly, Ph.D. MPH,
Paige M. Bracci, MS MPH, Manjushree Gautam, MD
UCSF Fresno
Pediatrics
Doctoral Student Presenter
Poster Session II, Poster Board No. 23

Symptoms of Pancreatic Cancer in a Population-Based Series of Patients

Background: Pancreatic cancer typically is diagnosed at a late stage when prognosis is poor.

Aim of the Study: To study symptoms experienced by patients before diagnosis of pancreatic cancer to aid in early detection.

Methods: A brief clinical questionnaire was administered to a subset of 120 consecutive population-based patients to determine symptoms related to their pancreatic cancer. These 120 patients were part of a large case-control study of pancreatic cancer. Symptoms were analyzed by duration, sex, tumor location and age 65 and >65 years.

Results: At diagnosis, 67% of patients' tumors were in the head of the pancreas, 23% in the body or tail, and 10% were not otherwise specified(NOS). The most commonly reported symptoms were: jaundice(55%), weight loss(54%), abdominal pain(52%), appetite loss(52%), fatigue(46%), light or tan colored stools(42%) and altered ability to sleep(28%). Upper gastrointestinal symptoms commonly reported included unusual heartburn(37%), unusual bloating(36%), unusual belching(25%) and nausea or vomiting(23%). Lower gastrointestinal symptoms of diarrhea(18%) and constipation(15%) were reported less frequently. Presentation of some symptoms differed by age. Median self-reported symptom duration before diagnosis ranged from 2 weeks for jaundice and dark urine to 20 weeks for altered sleep. 67% of first physician visits were ≤1 month after the self-reported first symptom and 84% of first physician visits were ≤1 month after the occurrence of the symptom that prompted patients to seek medical care.

Conclusions: Early detection of symptoms with appropriate follow-up testing and therapy may improve prognosis and survival for pancreatic cancer patients.

Keywords: Pancreatic neoplasms; signs and symptoms, digestive; adenocarcinoma; pancreatic neoplasms/epidemiology; human; adult

Craig Kellogg
craigkellogg@gmail.com
Genevra Ornelas, Madhusudan Katti, Ph.D.
California State University, Fresno
Department of Biology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 24

Rush Hour Traffic Noise and the Morning Chorus of Bird Songs

The acoustic environment plays a major role in shaping animal communication systems. Animals that communicate vocally (e.g., birds, frogs, crickets) have evolved various physiological and behavioral mechanisms to ensure that their messages get through to recipients given the physical structure and acoustic interference characteristic of most natural environments. For example, many birds sing during the dawn hours (i.e., the morning chorus) because conditions are optimal for good sound transmission in terms of air temperature as well as their daily energy cycles. Humans, particularly in cities, profoundly alter the acoustic structure of their environment, with elevated noise being the most noticeable effect. In most contemporary cities, vehicular traffic is a major source of noise, and it tends to show daily peaks during the morning and evening rush hours. Since rush hour often coincides with the post-dawn window of optimal sound transmission and the morning chorus of birds, we hypothesize that it has a significant effect on the timing of morning singing by birds. Specifically, urban birds near major roads may be forced to sing earlier or later than their counterparts in quieter areas. To test this hypothesis in the Fresno area we compare the hourly frequency of singing birds in contexts with and without rush hour noise, in two ways. We compare: 1) habitats near busy roads during weekday and weekend mornings, and 2) habitats close to and farther away from busy roads during weekday mornings. Here we present preliminary results from comparisons made during spring 2005. Finally, we suggest that cities are fruitful grounds for research on the evolution of animal communication systems, with broader implications for conservation in human-altered environments.

Dana K. Nagy, Ruth Ann Kern, Ph.D.
nagyd@csufresno.edu
California State University, Fresno
Department of Biology
Carolyn Hunsaker
USDA Forest Service
Pacific Southwest Research Station, Fresno
Graduate Student Presenter
Poster Session II, Poster Board No. 25

Riparian Vegetation and Microenvironment in Headwater Streams of the Southern Sierra Nevada

This study investigates the variation in riparian vegetation and microenvironment on four small streams located within the Kings River Experimental Watershed, Sierra National Forest. The questions addressed are: how does microenvironment vary within and among these headwater streams, and how does the composition of riparian vegetation change with the microenvironment and physical features of these streams. To address these questions each headwater stream was segmented into 100 m reaches. Within each segment a 10-m long transect was established perpendicular to the channel extending 5 m on either side of the thalweg. Two 1-m^2 vegetation quadrats were established on this transect line, one along the green line on either side of the stream. Fifty-two transects were established for a total of 104 vegetation plots. All plants within each quadrat are identified to species and percent cover was recorded to the nearest 1%. The % cover of bare ground, sand, rock, litter, and wood was also recorded. Hemispherical photos were taken at each vegetation quadrat to determine light availability. Microenvironment was monitored at five of these transects on each stream. Locations were constrained to include two closed canopy locations, two open canopy, and a meadow site on each stream. Air temperature and relative humidity (measured at 0.5m above ground), soil temperature (top 10 cm of soil depth) and water temperature (deepest part of the thalweg) were measured using HOBO® data loggers. Volumetric soil moisture was measured at a depth of 26 cm using time domain reflectometry. Soil temperature and moisture sampling locations were located along one side of the transect line at 1, 2, 3 and 4 m from the thalweg. Physical variables measured at each vegetation transect include wetted width, bank slope, aspect and height from the water surface to the vegetation plot. A rapid assessment was taken for bank condition, bank angle and bank cover. The role of headwater streams is integral to the function and health of riverine systems within the Sierra Nevada. The results of this study will increase our understanding of the role of riparian vegetation for the Sierra Nevada and its importance as a link between lotic and upland systems.

Michael Guerra, Jr., Brian Agbayani
michaelguerrajr@earthlink.net
California State University of Fresno
Department of Linguistics
Graduate Student Presenter
Poster Session II, Poster Board No. 26

Functional Projections and the Initial State of Second Language Acquisition

The logical problem of second language acquisition – that is, how do second-language speakers possess the grammatical knowledge of the second language with little or no input from either the native language or the second-language are able to produce and understand second-language sentences – has been a controversial issue among researchers. In recent years, researchers have created divergent theoretical frameworks to explain: 1) the initial grammatical knowledge of the second-language learner, 2) growth and development of second-language syntactic knowledge, and 3) to what extent is second-language acquisition similar to first-language acquisition. In the linguistic field, this is commonly known as the "second-language developmental problem." A continuum of competing interpretations concerning the initial-state of second-language grammars involves the issue over how much access second-language learners have to Universal Grammar.

This suggestive study investigates the presence of functional projections in the initial grammars of three Spanish-speaking students enrolled eighth grade at an inner-urban, low-income school in the city of Fresno.

Linguistic data for this study was collected from recordings of a comic strip narrative in an attempt to counter claims made by early hypotheses arguing in favor of the transfer of lexical over functional categories in initial grammar. Transcriptions of the narratives and investigation of the use of functional words were analyzed by a comparison between the three competing hypotheses on second-language grammar acquisition: Minimal Trees, Valueless Features, and Full Access.

The results suggest that projections of functions are present in the initial-grammars of the participating English learning Spanish-speakers. In addition, this study found the role of interlanguage to be limited or negligible at best. Lastly, the results from the study were found to be best explained by the use of the "Full Access" theory in Second Language Syntax.

Madhusudan Katti, Ph.D.
mkatti@csufresno.edu
California State University, Fresno
Department of Biology
John Martin Anderies
Arizona State University
School of Life Sciences
Eyal Shochat
George Miksch Sutton Avian Research Center, Oklahoma
Poster Session II, Poster Board No. 27

Living in the City: Resource Availability, Predation, and Bird Population Dynamics in Urban Areas

Understanding the factors that control population structure and species diversity remains an active area of research interest. We combine elements from both individual and population perspectives to explore the relative importance of top-down and bottom up effects in shaping population structure in a relatively novel environment that has received scant theoretical attention: the city. Urban bird communities exhibit high population densities and lower diversity, a pattern correlated with relatively constant food availability and lower predation. Recently, it has been suggested that in addition to the high density of resources, the highly predictable input of resources to urban environments may be responsible for the high densities of urban populations. This, in turn, leads to urban populations with a few winners and many losers in terms of access to food resources and reproduction. To test these assumptions, we present an individual-energy based model of a population with two phenotypes differing in foraging ability and compare population structure under high predation and fluctuating resources vs. low predation and constant resources. We show that under low predation, equilibrium population structure is skewed in favor of the weak competitor, and vice-versa under higher predation. We also show that fluctuating resources favor the weak competitor at high frequencies and favor the strong competitor at lower frequencies. Thus, increasing the period between resource pulses can generate a shift in population structure from dominance of weak to dominance of strong competitors. Given recent evidence that supports the hypothesis that resources are more constant and predation is lower in urban areas, the model helps shed light on observed urban bird population structure.

Dong Nguyen, Cheryl Chancellor-Freeland, Ph.D.
kdnguyen1717@hotmail.com
San Jose State University
Department of Psychology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 28

The Effects of Chronic Stress on Cognitive Performance in C57BL/6 Male Mice

Previous research has shown that immobile behavior of rodents observed during the Forced Swim Test indicates behavioral despair, the animal model for depression. The cold water forced swim (CWFS) test is particularly stressful, and has been shown to induce a two-fold increase in adrenocorticotrophin (ACTH) hormone levels and adrenal weights following 14 days of stress. Other forms of chronic stress have also been shown to impair cognitive functioning in rodents through stress-induced adrenal glucocorticoid (GCC). Because the hippocampus is especially sensitive to GCC, sustained hypersecretion of GCC is reported to damage areas of the hippocampus necessary for cognitive functioning. This is particularly true for the aging model. The purpose of this study was to examine the effects of chronic stress on hippocampal-dependent cognitive functioning in aging mice. Cognitive performance was assessed in young and aged male mice following 60 days of twice daily CWFS. Behavioral measures during the swim test, in addition to adrenal weights were used to validate our stress paradigm. Contextual Fear testing was used to assess cognitive performance. Results indicated that for the control groups, aged mice showed impaired cognitive performance relative to young mice. For the stressed groups, aged mice showed no difference in cognitive performance when compared to age-matched controls or to stressed young mice; whereas, young mice showed impaired cognitive performance relative to age-matched controls. We also observed that adrenal weights from stressed old mice were reduced relative to the stressed young, indicating reduced stress reactivity for the aged group. These reduced adrenal weights for the stressed old mice were also found to correspond with increased immobility during CWFS. We speculated that the elevated immobility during CWFS was an adaptive response to the stressor and, therefore, served as a buffer to the deleterious effects of CWFS.

Shria Watkins, Steven Millner, Ph.D.
shria.watkins@sbcglobal.net
San Jose State University
Department of African-American Studies
Undergraduate Student Presenter
Poster Session II, Poster Board No. 29

The Missing Pages of History

History is supposed to instill patriotism into individuals, but how can African-American women feel patriotic in a society that doesn't recognize them? U.S. history has continually been written in a way that excludes African-American women and their contributions to American society. My study examines the lack of attention given to African-American women's social, political and organizational contributions often shapes their representation, identity, and culture in modern society. My research attempts to study the lives of African-American women who go unnoticed because history lacks extensive work that addresses the many aspects of their difficult lives and extraordinary contributions. It is important to understand who these women were in order to fully comprehend the complexity of African-American women today. Moreover, it is of equal importance to understand the environment and backgrounds of these influential women and the many factors that contributed to their phenomenal achievements and status despite adversity. American society is based on ascribed, not achieved, qualities. The system is structured to create tension among the masses and historical accounts that highlight the accomplishments of Black women is often ignored or overshadowed. This often leads to society leaving historical accounts inaccurate or incomplete. It is important for Black women today to understand their ancestor's role in change. Black women have the potential to achieve success and have a life that extends beyond the limitations placed upon them as a result of society's expectation of mediocrity.

Erica Nicole Hasenbeck, Debra Harris, Ph.D.
dharris@csufresno.edu
California State University, Fresno
Department of Social Work Education
Graduate Student Presenter
Poster Session II, Poster Board No. 30

Substance Abuse Recovery and Reunification in the Child Welfare System: Mothers' Stories of Success

This qualitative study is based on in-depth interviews with eight mothers who have achieved sobriety and successfully reunified, or were regaining child custody, through Fresno County Child Welfare Services (CWS). Although there were many findings, the most salient themes that emerged regarding how the participants were able to "beat the odds" included: seeing the intervention as a necessary start to sobriety; children needing to be with mothers in treatment; therapy and classes being helpful; a sense of hope and inspiration, in addition to seeing children regularly, played critical roles in their journeys; receiving support from staff at the program made a positive impact; and believing that social workers need increased knowledge of addiction, as well as the essential values of compassion, non-judgment, and support in client relationships. Implications for social work practice in child welfare are discussed and recommendations for further research are suggested.

Nora Ly, Bill Reckmeyer, Ph.D.
nora.ly@gmail.com
San Jose State University
Department of Anthropology
Undergraduate Student Presenter
Poster Session II, Poster Board No. 31

Alternative Foreign Policies for the 21st Century

After the events of September 11, 2001, the critique of America's role in the world has become more significant than ever. Initially in this study, an analysis was taken of how the United States can become a responsible and effective leader for the 21st century in an age of increase globalization, terrorism, cultural conflicts, and rapid changes. The goal was to find ways to improve U.S. foreign policies that will make the world a better place for everybody with the confidence the U.S. would remain world leader.

During the research process, the focus on America's role in the world shifted to a different focus. The suggestions made by majority of pundits tend to have an ethnocentric and Western view of how the world should be. They offer solutions that only perpetuate the existing problems of extreme inequalities that seeks to modernize all developing countries in order to rid the world of the current problems. As a result of the finding, that was not going to meet the set goal, continued research was conducted to find alternative solutions to the traditional take on foreign policies.

Different theoretical approaches were used to compare and contrast this issue. In this study, a multi-disciplinary route was taken by integrating various methods and perspectives, which includes systems science and anthropology. Systems science provides a different viewpoint and way of examining the world that is considerably more effective in today's world, with the incorporation of anthropological knowledge. A mix of scholarly, governmental, and academic was referenced.

The results show alternative capitalist systems are possible. Argentina, which has recently rejected western forms of capitalism and has become an independent country, no longer governed under FTAA, was given as an example. The results raise questions to be evaluated that the current pundits and decision-makers lack to acknowledge.