

*Nineteenth
Annual*

CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

Friday, April 24, 1998

**University Business Center
California State University, Fresno**

Plenary and Poster Sessions — 12:30 p.m.
Concurrent Sessions — 2:30 p.m.
Student Awards & Social Hour — 5:15 p.m.

**NINETEENTH ANNUAL
CENTRAL CALIFORNIA RESEARCH
SYMPOSIUM**

PROCEEDINGS

Sponsoring Institutions

California State University, Fresno
University Grants and Research Office

University of California, San Francisco
*Fresno-Central San Joaquin Valley
Medical Education Program*

California School of Professional Psychology

Fresno City College

Fresno County Health Services Agency

United States Department of Agriculture
Water Management & Horticulture Research Laboratories

Valley Children's Hospital
Research Projects and Administration

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

California State University, Fresno

April 24, 1998

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PREFACE

Welcome to the *19th 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. Through this opportunity for exchange, the continuation of these activities in the Central Valley is encouraged. It is hoped 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 which provided an introduction stating the purpose of the study, a brief description of the methods, a summary of results, and a statement of the conclusions reached.

This year *UCSF Valley Medical Education Foundation* has provided two cash awards for the best symposium presentation by a student—one for an undergraduate student and one for a graduate student. *California School of Professional Psychology and California State University, Fresno-University Grants & Research Office* have provided one cash award for the best symposium presentation by a doctoral student. *Valley Children's Hospital* has provided a cash award for the best poster presentation.

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 and also to stimulate ideas for future work and subsequent symposia.

PLANNING COMMITTEE

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO FRESNO-CENTRAL SAN JOAQUIN VALLEY MEDICAL EDUCATION PROGRAM

Malcolm F. Anderson, M.D.

Symposium Co-Chairperson

Donna Hudson, Ph.D.

Robert Wells, Ph.D.

Kent Yamaguchi, M.D.

CALIFORNIA STATE UNIVERSITY, FRESNO

Thomas McClanahan, Ph.D.

Symposium Co-Chairperson

Andrew Alvarado, Ph.D.

Ethelynda Harding, Ph.D.

Myron Hatcher, Ph.D.

Mark Mayse, Ph.D.

Albert Valencia, Ph.D.

Robert Ware, Ph.D.

CALIFORNIA SCHOOL OF PROFESSIONAL PSYCHOLOGY

Merle Canfield, Ph.D.

FRESNO CITY COLLEGE

Edward Lindley, Ph.D.

FRESNO COUNTY HEALTH SERVICES AGENCY

Bruce Fujikawa, Dr. PH

David Hadden, M.D.

U.S. DEPARTMENT OF AGRICULTURE WATER MANAGEMENT AND HORTICULTURE RESEARCH LABORATORIES

Cynthia Eayre, Ph.D.

Joseph Smilanick, Ph.D.

EVENT AND PROCEEDINGS COORDINATOR

Annette Harvey, California State University, Fresno

University Grants & Research Office



CALIFORNIA
STATE
UNIVERSITY,
FRESNO

April 24, 1998

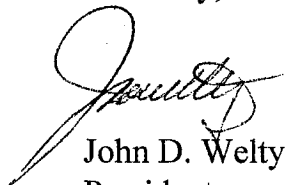
MESSAGE TO ALL RESEARCH SYMPOSIUM PARTICIPANTS

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

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

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

Sincerely,



John D. Welty
President

Office of
the President

Thomas Administration
Building, 103
5241 North Maple Avenue
Fresno, CA 93740-0048

209. 278-2324
Fax 209. 278-4715



SCHOOL OF MEDICINE
FRESNO-CENTRAL SAN JOAQUIN VALLEY
MEDICAL EDUCATION PROGRAM

2615 East Clinton Avenue
Fresno, California 93703
TELEPHONE: (209) 224-3235
FAX: (209) 228-6926

WELCOME

**NINETEENTH ANNUAL
CENTRAL CALIFORNIA RESEARCH SYMPOSIUM
PARTICIPANTS**

I welcome all to the Nineteenth Annual Central California Research Symposium.

The quality of our research activities are testimony to one of our many Central Valley academic resources. Out of the contributions participants have made to this exciting symposium, I am confident will come an informative symposium.

Sincerely,

A handwritten signature in dark ink, appearing to read "H. John Blossom".

H. John Blossom, M.D.
Associate Dean



CSPP

Mary Beth Kenkel, Ph.D.
Chancellor

March 6, 1998

Dear Symposium Participants:

Once again, the Fresno campus of the California School of Professional Psychology (CSPP) is honored to be a sponsor of the 19th Annual Central California Research Symposium.

Learning about the research and scholarship from diverse fields is an enriching experience for everyone. Through symposia such as this, we can both broaden our perspective and base of knowledge in addition to discovering linkages and intersections between our own discipline's research and that of other fields. We look forward to sharing our faculty's and students' psychological research and hearing about the research from the many other disciplines participating in this symposium.

We send our best wishes to all symposium participants for an exciting and informative day.

Sincerely,

Mary Beth Kenkel, PhD
Chancellor

Fresno Campus
5130 E. Clinton Way
Fresno, California 93727-2014

telephone
(209) 456-2777(cspp)
fax
(209) 253-2267



Fresno City College

1101 East University Avenue, Fresno, California 93741

Office of the President
(209) 442-4600

February 20, 1998

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

Dear Symposium Participants:

Fresno City College is pleased, once again, to be a sponsor of the Annual Central California Research Symposium. This cooperative venture not only advances the frontiers of knowledge, but leverages the research resources of each participating institution. Fresno City College is proud to be a partner in hosting this program and extends best wishes to all participants.

Sincerely,

Daniel L. Larios
President

sh



United States
Department of
Agriculture

Agricultural
Research
Service

Pacific West Area
Horticultural Crops
Research Laboratory

2021 South Peach Avenue
Fresno, California 93727
Phone: (209) 453-3000
Fax: (209) 453-3088

March 30, 1998

Symposium Participants
19th Annual Central California
Research Symposium
Fresno, California

Greetings:

On behalf of the USDA, ARS, Horticultural Crops and Water Management Research Laboratories located in Fresno, I would like to extend a welcome to you for the 19th Annual Central California Research Symposium. Fresno now has a large research community made up of scientists from state, university and federal sectors covering a multitude of disciplines (i.e., biological and physical sciences, agriculture, medicine). This Symposium provides an avenue for information exchange and possible lines of cooperative research among these scientists. It also provides an opportunity for the non-scientific community to "find out what's going on." I hope you take advantage of this opportunity to learn about research being conducted in the area. There also will be potential scientists at the Symposium. Who knows, maybe you can steer them towards your area of expertise.

I hope your attendance and participation opens new horizons and provides new opportunities for you and your parent organization. If we can be of any assistance to you on agricultural matters, please do not hesitate to contact us.

Again, welcome to the Symposium and may your scientific endeavors and horizons increase in the future.

With best regards,

PATRICK V. VAIL
Laboratory Director/Location Coordinator
Supervisory Research Entomologist



Valley Children's Hospital

J.D. Northway, M.D.
President and
Chief Executive Officer

February 10, 1998

Symposium Participants
18th Annual Central California
Research Symposium
California State University, Fresno
University Grants & Research Office
Fresno, CA 93726-1852

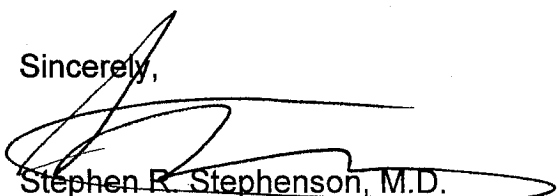
Dear Symposium Participants:

At Valley Children's Hospital, our mission is to provide high quality, comprehensive health care services to nearly one million children in our ten-county region of Central California. Our organization and the many professionals who practice medicine at our facilities are encouraged to participate in research that benefits our patients and families.

On behalf of all our dedicated physicians, staff, and volunteers at Valley Children's Hospital, we are delighted to serve as one of the sponsors of the 18th Annual Central California Research Symposium. This multi-disciplinary forum serves as an excellent example of institutional cooperation, student participation, and community involvement that results in enriching the training of scientists for our community.

We extend our best wishes to all participants.

Sincerely,



Stephen R. Stephenson, M.D.
Senior Vice President, Medical Affairs

sd

12:30 **Opening Remarks:**

Dr. Thomas McClanahan
California State University, Fresno

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

12:40 ***The Role of Genetic Variation in Interspecific
Hybridization in the Genus *Carpobrotus* (Aizoaceae)***
V. Vaughan Symonds, Kristina Schierenbeck

12:58 ***The Relationships Among Measures of Phonemic
Awareness and Language Proficiency Assessments for At-
Risk High School Students of Three Language Backgrounds***
Jennifer K. Cobb, Phyllis Kuehn

1:16 ***Effect of Training System and Soil Type on Growth, Yield,
and Fruit Composition of Cabernet Sauvignon Grapevines***
Christopher Lake, R. K. Striegler

1:34 ***Ethnicity, Gender, and Differences in Anger Across Various
Situations***
Sunde M. Nesbit, Christine Edmondson

1:52 ***Do the Body's Own Antioxidants Change During Oxygen
Stress?***
Ms. C. Mercado, R. J. Stewart, K. T. Yamaguchi, G. Clark,
G. K. Mello, T. Soliz

2:10 - 2:30 **Break - University Business Center Gallery**

Moderator: Dr. Donna Hudson

Graduate Judges: Dr. Cynthia Eayre
 Dr. Bruce Fujikawa
 Dr. Donna Hudson
 Dr. Thomas McClanahan
 Dr. Joseph Smilanick

Undergraduate Judges: Dr. Daniel Griffin
 Dr. Edward Lindley
 Dr. Rick Stewart

Poster Session
12:30 p.m.-4:00 p.m.

University Business Center
Gallery

Authors will be available for questions from 2:00 p.m. - 3:00 p.m.

- (1) *A Conversion of Contact Atomic Force Microscope to Sample "Tapping" Mode*
John Beckman, Christian Vellandi, James Vesenska
- (2) *The Effect of Ethanol on Urea Transport in the Human Erythrocyte Membrane*
Deanne Bell, Lenore Yousef
- (3) *Environmental Attitudes and Behavior Among Young Adults in Australia, New Zealand, and the United States*
Michelle Borré, Lynnette Zelezny
- (4) *Assessing Dusky-Footed Woodrat (*Neotoma fuscipes*) Movements in Oak Woodlands of the Sierra Nevada*
Roberta J. Fargo, William F. Laudenslayer, Jr.
- (5) *Reducing Costs While Preserving Outcome Utilizing a Continuum of Geriatric Care*
Paulette Ginier, Lisa Adams, Paula Hensley, Margie Feramisco
- (6) *An Outpatient Anticoagulation Clinic Consultation Service - A Bridge to Primary Care*
Claire Gallagher, Paulette Ginier, Paula Hensley, Suzanne Venturino, Marilyn Brownell
- (7) *Aortic Valvulitis and Diffuse Aortitis Associated with Juvenile Systemic Granulomatosis*
Michael Henrickson
- (8) *Comparison of Public to Private Sector Care in Regard to the Rise and Fall of Prostate Cancer Therapy 1987-95*
Anthony H. Horan, Koreem Sohrabi, Paul Mills
- (9) *Characterization of Genetic Variation in Garlic (*Allium sativum* L.) Germplasm Collection Using RAPD Markers*
M. M. Jenderek, K. A. Shierenbeck, R. M. Hannan

Poster Session (Continued)
12:30 p.m.-4:00 p.m.

University Business Center
Gallery

Authors will be available for questions from 2:00 p.m. - 3:00 p.m.

- (10) *Mexican American Anger Expression in Family Situations*
Barbara N. Martinez, Christine Bowman Edmondson
- (11) *Comparison of Scanning Probe Microscopy Methods*
Lauren J. Novatne, James Vesenka
- (12) *Meaningful Frameworks for Recall in Young and Older Adults*
Michael A. Nunes, Matthew J. Sharps, Sandy S. Martin,
Michelle Merrill
- (13) *Polymorphic RAPD Patterns of Hibiscus rosa-sinensis and H.
syriacus*
A. J. Olney, M. M. Jenderek, K. A. Schierenbeck
- (14) *Caregiver Satisfaction: Caregivers' for Patients with
Alzheimer's Disease*
Melissa C. Prosch
- (15) *Coping Style and the Experience of Depression, Anxiety, and Anger
in Mexican/American-American College Students*
Maria Elena Sanchez, Christine Bowman Edmondson
- (16) *Progress in Using Genetic Markers to Tag a Root Rot Resistance
Gene in Pepper (Capsicum)*
Pamela Scott, M. Gabriela Couto, Mark A. Massoudi,
James P. Prince
- (17) *Spatial Frameworks for Memory in Young and Older Adults*
Matthew J. Sharps, Brandon T. Foster, Sandy S. Martin,
Michael A. Nunes
- (18) *In Search of the Quasi-Liquid Layer of Water*
Terry Sheehan, James Vesenka
- (19) *Personality Conflict Types*
Todd R. Sheller

Poster Session (Continued)
12:30 p.m.-4:00 p.m.

University Business Center
Gallery

Authors will be available for questions from 2:00 p.m. - 3:00 p.m.

(20) *The Intergenerational Studies: Perceptions of Participation in a Long-term Longitudinal Study*

James Stephens, Carolyn Tellalian, John Thomas

(21) *An Algorithm for a Representation Theorem*

Norman Woo, Todd Kandarian

(22) *Factors in Graduating Medical Students' Specialty Choice*

Irma Arredondo, Jason Tovar, Sean Schafer, Susan Hughes,
Norman Hearst, William Shore, Lloyd French

(23) *Predictors of Control of Non-Insulin Dependent Diabetes Mellitus in a Mexican-American Primary Care Population*

Robert Fernandez, Bruce Hoang, Sean Schafer

Judges: Dr. Barbara Dahl
Dr. Mark Mayse
Dr. Albert Valencia

Concurrent Session A

University Business Center
Auditorium 191

- 2:30 *The Correlation Between the Structuring of Rehearsal Time and Musical Achievement in Three Middle School Instrumental Ensembles*
Kenneth A. Douglas, George DeGraffenreid
- 2:42 *Filial Piety of Second-Generation Japanese Americans or the Nisei*
Shota Sasaki, Serge Lee
- 2:54 *The Effects of Excuses Versus Confessions on Mock Juries*
Robyn L. Williams
- 3:06 *Group Therapy Treatment for Bulimia Nervosa: A Long-term Client Satisfaction Study*
Denise Rebecca Grisez, Sari Dworkin
- 3:18 *The Prevalence of Orofacial Myofunctional Disorders Among Children Identified with Speech and Language Disorders in Grades Kindergarten through 6 in Fresno County*
Christine A. Maul, Erin J. Stevens
- 3:30 *Phonemic Awareness and Literacy Development for Native English- and Native Spanish-Speaking Kindergarten Students*
Linda Boroski, Gail Tompkins
- 3:42 **Break - University Business Center Gallery**
- 4:00 **CONCURRENT SESSIONS RESUME**

Moderator: Dr. Donna Hudson

Graduate Judges: Dr. Cynthia Eayre
Dr. Bruce Fujikawa
Dr. Donna Hudson
Dr. Thomas McClanahan
Dr. Joseph Smilanick

- 2:30 *Influence of Sprayable Mulch Surface Color on Growth and Yield of Eggplant*
Ali Mahmoudpour, James J. Stapleton
- 2:42 *Rational Versus Statistical Models of Neuropsychological Assessment: Actuarial Versus Clinical Prediction Revisited*
Rob Adams, Daniel Stanczak
- 2:54 *Perception of Affect in Children with Attention-Deficit Hyperactivity Disorder*
Blythe Corbett, Daniel Stanczak, Howard Glidden
- 3:06 *The Kaleidoscope as an Effective Distractor in Reducing Acute, Procedural Pain in Children*
Lillian Brown, Melissa Faith Kalodner
- 3:18 *Adolescent Attachment Parenting Study*
Vasilica Vasilescu, Sue Ammen, Ghenaim Al-Fayez, Martha Mossman
- 3:30 *Medical Care is Delayed and Perforated Appendicitis is Doubled in Hmong Patients*
Jun Hu
- 3:42 **Break - University Business Center Gallery**
- 4:00 **CONCURRENT SESSIONS RESUME**

Moderator: Dr. Gary Sells

Doctoral Judges: Dr. Merle Canfield
Dr. Robert Wells

2:30 ***Impact of Managed MediCal on California Family Practice
Residency Programs***

Phiroze Kazi, John Zweifler, Robert Zieber

2:42 ***Organophosphate Pesticide Residues in Urine of
Farmworkers and Farmworker Children in Fresno County,
California***

Paul K. Mills, Shelia Zahm, Richard Stewart

2:54 ***Reliability and Validity of a Functional Measure for
Pediatric Rehabilitation***

Steve Roberts, Robert Wells

3:06 ***Primary Care Physician Use of Opioids in Treatment of
Chronic Non-Malignant Pain: Results from a Survey of
Members of a Practice-Based Research Network***

Sean Schafer, Mary Croughan-Minihane, Michael Potter,
Enrique Gonzalez-Mendez, Antoinette Lopez,
Kenneth Gjeltama, Robert Pedrin, Jennifer Wu

3:18 ***Relapse Research using a Behavioral Model of Memory in
Pavlovian Conditioning***

Cody Brooks

3:30 ***Cryptosporidium parvum in Southern California:
"Regulatory Public Policy"***

Gordon W.O. Oloo-Were

3:42 **Break - University Business Center Gallery**

4:00 **CONCURRENT SESSIONS RESUME**

Moderator: Dr. Kent Yamaguchi

- 2:30 *The Effect of Category Switching on Collaborative Inhibition*
Sean Henry, Michelle Hunsucker, Farrin Scheidt,
Barbara Basden, David Basden
- 2:42 *The Creation of False Memory in Perceived Groups*
Matthew Reysen, Barbara Basden
- 2:54 *A Naturalistic Observation of the Effect of Fear of AIDS Stimuli on Helpfulness*
Albert J. Rodriquez, Poh Chua, Robert Levine
- 3:06 *Natural Product Biosynthesis in the Medicinal Herb Marrubium vulgare (White Horehound)*
Karlo M. Lopez, Roy E. LaFever
- 3:18 *Ice Preventer Control System*
Angel Fernandez, Justin Meloling, Matthew Yen
- 3:30 *Release of Retrieval Inhibition in Directed Forgetting*
Brent Richards, Matt Wright
- 3:42 **Break - University Business Center Gallery**
- 4:00 **CONCURRENT SESSIONS RESUME**

Moderator: Dr. Rick Stewart

Undergraduate Judges: Dr. Daniel Griffin
Dr. Edward Lindley
Dr. Rick Stewart

Concurrent Session E

University Business Center
194C

- 2:30 *Observing the Behaviors of an Expert Basketball Coach*
Rebecca Crumpton, Gordon A. Bloom, Jenise E. Anderson
- 2:42 *Developing a Physical Activity Recall Survey Instrument*
Richard W. Francis
- 2:54 *The Effects of After-tax Wages, Transfer Payments, and Child Care Expenses on Labor Market and Transfer Program Participation*
Scott Houser, Stacy Dickert-Conlin
- 3:06 *Block Programs: Are They a Cost-Effective Answer to High-Quality University Education*
Gerald Jones, Victor G. Panico, David C. Anderson
- 3:18 *Performance Measurement System: An Integral Part of a World-Class Manufacturing Operations*
J. M. Moghaddam
- 3:30
- 3:42 **Break - University Business Center Gallery**
- 4:00 **CONCURRENT SESSIONS RESUME**

Moderator: Dr. Myron Hatcher

- 4:00 *A Trichomonad from Galapagos Tortoises*
Nuria Denis-Arrue, Wallace Harmon
- 4:12 *Comparison of Entamoeba insolita, Entamoeba invadens
and Entamoeba ranarum by Randomly Amplified
Polymorphic DNA*
Julie Utecht, Wallace M. Harmon
- 4:24 *Isolation of Mutants of the Cell Death Protection Gene AT-
DAD1 from Arabidopsis Thaliana*
Jean S. Wong, Alejandro Calderon-Urrea
- 4:36 *Bravo/Teletrend Bringing the ICU to the Internet*
Huy Nguyen, Farzad Buxey, Valeriy Nenov, Walter Read,
Brent Auernheimer
- 4:48 *Implementation of a Reduced Setup Time for Production
Jobs in the Press Department at Grundfos Manufacturing
Company*
David Pierson, Tony Au
- 5:00 **CONCLUSION - PROCEED TO AWARDS & SOCIAL HOUR**

Moderator: Dr. Donna Hudson

Graduate Judges: Dr. Cynthia Eayre
Dr. Donna Hudson
Dr. Thomas McClanahan

- 4:00 *A Recursive Relation Involving Continued Fractions, Fibonacci and Lucas Numbers*
Joy Bjerke, Norman Woo
- 4:12 *Colon Cancer, Serum Cholesterol and Body Mass Index (BMI): A Possible Linkage(s)*
N. Pourian, A. Sohrabi
- 4:24 *Testicular Cancer in the San Joaquin Valley: Incidence and Case-Control Study*
Deborah Riordan, Paul K. Mills, Dan Curran, Jane Breuss
- 4:36 *Minority Women in Academia: An Analysis of the Perceptions and Concerns of Minority Women Faculty and Staff Members at California State University, Fresno*
Donna M. Small
- 4:48
- 5:00 **CONCLUSION - PROCEED TO AWARDS & SOCIAL HOUR**

Moderator: Dr. Gary Sells

Judges: Dr. Bruce Fujikawa
Dr. Joseph Smilanick

- 4:00 *Vent Shaft Excavation - A Case Study*
Chandra S. Brahma
- 4:12 *Developing Reliable Tire Count Estimates for Waste Tire Piles in California*
James K. Crossfield
- 4:24 *Quetzalcoatl of the Aztec/Mexica, in Utah*
Cecilio Orozco
- 4:36 *Motivation and Family Literacy Development*
Hee-Won Kang
- 4:48 *The Criminalization of African Americans: Commodities for the Criminal Industrial Complex - A Quantitative and Qualitative Analysis*
Carl E. Briscoe, Jr.
- 5:00 **CONCLUSION - PROCEED TO AWARDS & SOCIAL HOUR**

Moderator: Dr. Ron Unruh

STUDENT JUDGES

Dr. Barbara Dahl	(VCH)
Dr. Merle Canfield	(CCSP)
Dr. Cynthia Eayre	(USDA)
Dr. Bruce Fujikawa	(HAS)
Dr. Daniel Griffin	(CSUF)
Dr. Donna Hudson	(UCSF)
Dr. Edward Lindley	(FCC)
Dr. Mark Mayse	(CSUF)
Dr. Thomas McClanahan	(CSUF)
Dr. Joseph Smilanick	(USDA)
Dr. Rick Stewart	(VAMC)
Dr. Albert Valencia	(CSUF)
Dr. Robert Wells	(VCH)

Papers will be judged 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.**

ABSTRACTS

(In Alphabetical Order by Presenting Author)

Rational Versus Statistical Models of Neuropsychological Assessment: Actuarial Versus Clinical Prediction Revisited

Presentation Preference: Oral

Rob Adams, Doctoral Candidate
Daniel E. Stanczak, Ph.D. (Faculty Sponsor)
California School of Professional Psychology
5130 East Clinton Way
Fresno, California, 93727
(209) 456-2777

Since its development, the Halstead-Reitan Neuropsychological Test Battery (HRNB) has been considered the "gold standard" against which all other behavioral methods of assessing cerebral dysfunction have been gauged. However, clinicians and researchers alike have long recognized that the HRNB did not assess the full range of cognitive functions necessary for accurate diagnostic formulations. Thus, they have routinely modified the HRNB by including measures of memory, intelligence, and personality. Unfortunately, the content or construct validity of this rational model of assessment has not been subjected to empirical test.

The present study employed structural equation modeling (EQS) to examine the validity of this rational model of neuropsychological assessment. Using measures of intellectual and memory functioning, in addition to the HRNB measures, a statistical model of neuropsychological assessment was constructed. This statistical model differed significantly from the rational, intuitive model typically employed by clinicians.

These results reinforce Meehl's now classic finding that actuarial prediction is superior to clinical prediction. The results also suggest that neuropsychological practitioners must question the "intuitive" or "clinical" inferences they routinely derive from their data. Finally, the results indicate that much remains to be learned regarding the nature of the neuropsychological assessment process and that the practicing neuropsychologist must be as skilled in the scientific method as he/she is in clinical service delivery. By extension, then, the results support the adoption of a Boulder Model, as opposed to a Professional School Model, for training neuropsychologists.

FACTORS IN GRADUATING MEDICAL STUDENTS' SPECIALTY CHOICE

Presentation Preference: Poster

Irma Arredondo CSUF Undergraduate, Biology/ Physiology

Jason Tovar B.S. Biology/Molecular & Cellular

Sean Schafer, M.D., Susan Hughes, M.S.

UCSF-Fresno Family Practice Residency, University Medical Center,
445 S. Cedar Ave., Fresno, CA 93711 (209) 453-5705

Norman Hearst, M.D., William B. Shore, M.D., Lloyd French, M.S.,
UCSF Department of Family & Community Medicine, San Francisco, CA

The U.S. Council on Graduate Medical Education has emphasized the need for more generalist physicians.¹ To achieve this goal, we need to identify aspects of medical training which affect the likelihood that graduates will enter primary care. This study was designed to determine components of the medical undergraduate curriculum which are associated with the choice of primary care medical specialties (PC) compared to non-primary care specialties (NPC). Graduating medical students at University of California, San Francisco completed questionnaires after the release of residency match results in 1996 and 1997. Preliminary analyses were conducted on the 1996 and 1997 samples. Eighty six percent of the graduates enrolled in the residency match completed the survey (n=233). Sixty five percent of those who originally intended to enter PC did so and 77% of those intending to enter NPC did so. Perceived intellectual rigor of the chosen specialty was the most commonly stated positive influence (91%) while poor clerkship experience was the most commonly stated negative influence (66%). Further analyses will be conducted to explore the relationship between curricular components and residency choice. Preliminary results suggest that initial intent to enter PC or NPC specialties is the strongest predictor of this choice. Specific curricular change may alter the career path of a minority of medical students.

1. Council on Graduate Medical Education. Improving access to health care through physician workforce reform: directions for the 21st century. Washington, DC: US Dept of Health and Human Services; 1992:7-10. Third report.

A conversion of contact atomic force microscope to sample "tapping" mode.

Poster Presentation

John Beckman^a (graduate student), Christian Vellandi^b, and James Vesenka^a.
California State University, Fresno ^aPhysics and ^bChemistry Departments,
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With the advent of Atomic Force Microscopy, newer and more appropriate means of imaging have been developed to enhance the technologies' ability to image in a non destructive manner. Tapping mode is one of these newer processes. The concept is one in which the tip or sample is vibrated in order to allow intermediate contact within the sample-tip dynamics during the scan process. The force of contact, frequency of contact, and scan rate will all play a part in the imaging process. This intermittent contact between tip and sample allows for a non destructive means of imaging soft materials such as DNA.¹ This gentle contact will significantly increase resolution and decrease sample and probe damage.² Further-more, under fluid operation³ the attractive tip sample forces are much smaller⁴ and inexpensive common silicon nitride tips work satisfactorily.⁵

We have improved the circuitry of Vellandi et al.⁶, whereby the original image analog signal is mixed with a given sinusoidal signal of a tunable frequency within the feed back loop. This mixed signal is then used to drive the sample stage into a prescribed oscillation. The image signal is then recovered through the use of a lockin amplifier and/or notch filters. It is our hope to facilitate access to this type of imaging through a simple electronic conversion of older AFM's. Such a conversion will help cash-strapped teaching institutions through inexpensive conversion of contact AFM's.

Acknowledgments:

This research is made possible by funds from the CSU Fresno Foundation, the Research Corporation (CC4204) and a National Science Foundation Instructional Laboratory Improvement grant DUE-9750942.

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THE EFFECT OF ETHANOL ON UREA TRANSPORT IN THE HUMAN ERYTHROCYTE MEMBRANE

Poster

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Lenore Yousef

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This study determines the effect of 1% ethanol on the rate of transport of urea across the human red blood cell membrane. Previous studies have shown that phloretin, at concentrations greater than 1 μ M, inhibits urea transport. All phloretin experiments were done in the presence of 1% ethanol due to poor phloretin solubility in water. Thus, phloretin at concentrations equal to or less than 1 μ M in the presence of 1% ethanol showed no effect on urea transport. In order to determine the phloretin dose response curve accurately, an acceleration effect due to ethanol which would cancel an inhibition by phloretin must be ruled out by measuring urea permeability in the presence and absence of 1% ethanol.

A fast flow apparatus was used to determine permeability coefficients of 14 C-urea for human erythrocytes over a series of urea concentrations at pH 6.0 and pH 7.2 in the presence and absence of 1% ethanol.

Urea efflux followed Michaelis-Menton kinetics. Regression analysis of Hanes plots showed that 1% (160 mM) ethanol in saline solution made no difference in urea permeability at pH 6.0 or at pH 7.2. Neither urea concentrations required for half saturation nor maximal urea permeabilities showed any effect from the ethanol.

Ethanol at 160 mM had no effect on urea transport in the human erythrocyte at pH 6.0 or pH 7.2.

$$\frac{F_{(t+1)m}}{F_{tm}} = L_m - \frac{(-1)^m}{L_m - \frac{(-1)^m}{L_m - \frac{(-1)^m}{L_m - \frac{(-1)^m}{L_m - \frac{(-1)^m}{\ddots} - \frac{(-1)^m}{L_m}}}}$$

ABSTRACT

PHONEMIC AWARENESS AND LITERACY DEVELOPMENT FOR NATIVE ENGLISH- AND NATIVE SPANISH- SPEAKING KINDERGARTEN STUDENTS

The purpose of this study was to train native English- and native Spanish-speaking kindergarten students in English phonemic awareness and to investigate how this training affected the children's phonemic awareness, reading ability, and writing ability in English. Before phonemic awareness training, 7 native English- and 10 native Spanish-speaking children were pretested for phonemic awareness, reading ability, and writing ability. After 8 weeks of explicit phonemic awareness instruction, students were posttested for phonemic awareness, reading ability, and writing ability.

Results indicated a significant effect of treatment on the phonemic awareness, reading ability, and writing ability in English of the kindergarten students. Native language was not a significant factor explaining variation of test scores, nor was any significant interaction between native language and phonemic awareness training indicated. Recommendations for teachers include providing students with explicit instruction in English phonemic awareness, regardless of whether students' native language is English or Spanish.

Linda Boroski
December 1997

Environmental Attitudes and Behavior Among Young Adults
in Australia, New Zealand, and the United States

Poster Presentation
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This study explores the relationship between environmental attitudes and behavior among young adults living in New Zealand, Australia, and the United States. Studies have shown that women tend to be more environmentally aware and concerned than men. However, there is limited information on the relationship among these variables in the context of cross-cultural differences.

Fifty participants from New Zealand, 51 from Australia, and 61 from the United States responded to a face to face survey. The study was composed of 50 males and 109 females. Participants answered a 10-item questionnaire on environmental attitudes and behavior. Factorial analysis of variance was used to examine gender and country differences.

Self-rated environmental knowledge was significantly higher in New Zealand ($\bar{M} = 4.0208$) than Australia ($\bar{M} = 3.8000$) and the United States ($\bar{M} = 3.4262$). Gender differences were also found on interest in recycling and the seriousness of environmental problems. Further, females ($\bar{M} = 3.9400$) scored significantly higher ($.01$) than males ($\bar{M} = 3.6304$) on interest in recycling. However, males reported a higher awareness of the seriousness of environmental problems where they live ($\bar{M} = 4.000$) compared to females ($\bar{M} = 3.7596$).

These results show that variation between countries may be related to differences in perceived levels of knowledge about the environment. Further, gender differences were found on some environmental variables. In the current study, females reported more interest in recycling, but males reported more knowledge of the seriousness of environmental problems where they live. Thus, traditional roles of men and women previously held with regards to the concern for and safety and preservation of the environment may be changing.

VENT SHAFT EXCAVATION - A CASE STUDY

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The geotechnical engineering problems associated with construction of vent shaft in rock are complex due not only to the influence of many interrelated technical factors but also to the influence of difficult-to-control contractor behavior. The process of predicting ground conditions with exactitude and of ascertaining appropriate ground control measures is pertinent to such excavation. The control and support of rock during and subsequent to excavation is essential in order to overcome or avoid excessive movement, maintain stability or preserve integrity of the excavation under various loading conditions, handle or prevent excessive water intrusion and hydrostatic pressure build-up, and produce an excavation that is safe and suitable for its intended purpose. The design of temporary support systems for excavations in rock has primarily been, until recently, based upon experience with empirical or semiempirical guidelines which do not lend themselves to thorough analytical calculations giving rise to the desired degree of confidence in design of such system. Consequently, many, if not a majority of support systems, no doubt, are overdesigned.

The primary purpose of this research is, therefore, to briefly outline some of the engineering considerations leading towards the design of ground control systems for a completed near vertical shaft excavation extending to shallow depths in metamorphic rock formation. The selection of temporary support systems, technical aspects of design, and the sequence as well as details of construction are considered. Since excavations for mining purposes or for civil engineering works frequently must pass through highly decomposed, weathered, fractured, sheared or faulted rock masses, the problem of stability or adequacy of ground support systems for such facilities is of general interest in underground engineering.

The rock at the site under consideration is a quartz hornblende plagioclase gneiss. The quality of rock generally increases with depth. The fill and highly weathered rock extend from the ground surface to a depth of thirty five feet. The support for the excavation in the fill and weathered rock is provided by soldier pile and lagging walls braced internally with wide flange beams and pipe struts. Below the weathered rock and extending to the final grade of excavation lies rock of excellent quality. The most probable mode of failure in the rock section is by wedges formed by intersecting discontinuity planes sliding in a direction parallel to the line of intersection. Rock wedge size is limited to the geometric intersection between the attitudes of the intersecting planes and the size and orientation of the excavation. Rock anchors to prevent failure of rock wedges, prereinforcement spiles, shotcrete and wire mesh to protect walls against raveling, and a comprehensive field monitoring program are designed to restrict development of large loosened rock wedges so that the composite reinforced/rock or shotcrete/rock structure is subjected to loads from immediate wedges along the peripheral line of excavation.

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ABSTRACT

The Criminalization of African Americans: Commodities for the Criminal Industrial Complex - A quantitative and Qualitative Analysis

Focusing on rational liberal democratic explanations of racism this paper will show that America's preoccupation with crime, morality, and fundamentalisms, disguises normal interpretations of race in new codes used for political capital. This paper will show through a substantive analysis of America's phobia with crime that race and rationality are beneath the "thematic content" of America's culture and provides its fundamental codes. It will answer two hypotheses: 1) If prison development is a new growth industry than it must produce substantial capital. 2) If the majority of prison inmates are African Americans than the Criminalization of African Americans generates market capital.

Franz Fanon tells us that in a racist society the racist sees himself or herself as normal. This paper will clearly show the analytics of power producing the idea of race and sustaining it as a means of exclusion (racism). The use of race as a commodity provides the conditions of possibility for normalizing this method of exclusion. It will be shown by analyzing prison growth rates, prison populations, investment strategies, financing processes, prison legislation, and current political discourses on America's social health, that the criminalization of African Americans is a normal extension of Western rationality.

Currently about 1.6 million inmates are incarcerated in US jails. Prison beds cost from \$22,000.00 to \$78,000.00 to build per inmate. The cost of warehousing a prison inmate is between \$30,000.00 and \$60,000.00 per year. Prison guards are paid between \$21,000.00 and \$35,000.00 per year. Towns and developments spring up around prisons. The interest on borrowed money for prisons ranges in the billions and ancillary businesses generate additional capital. My paper contends that the prison system constitutes a new growth industry - given the national reduction in labor - which warehouses African Americans to generate capital, under neo-nationalistic rationalities. I also contend and will show how this new development produces boundary constraints which concretize identity.

Relapse Research using a Behavioral Model of Memory in Pavlovian Conditioning

Oral

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Abstract

Several experiments using rats investigated a relapse-like effect called spontaneous recovery. This effect is the return of a behavior which is triggered by an environmental event at a time following the diminution of that behavior through an extinction or "exposure" treatment. The experiments enhance our understanding of spontaneous recovery and test procedures that reduce this relapse-like effect. Pavlovian conditioning methods were used to study the memory processes underlying spontaneous recovery. Using an appetitive conditioning method, a repetitive searching response came to be triggered by a tone that signaled food. The response was then extinguished by presenting the tone alone. During extinction a visual cue also occurred, which was to be correlated in memory with the extinction treatment. Several days after extinction, the tone alone again triggered responding strongly (spontaneous recovery). However, presenting the cue with the tone reduced the spontaneous recovery effect. Analogous results were found using an aversive conditioning method (taste-aversion learning). An aversion to saccharin was conditioned by following its consumption with a lithium chloride injection. The aversion was extinguished by allowing saccharin consumption without additional lithium chloride. During extinction an auditory cue also occurred, which was to be correlated in memory with extinction of the saccharin aversion. Several days after extinction, the aversion to saccharin alone strengthened (spontaneous recovery), but that effect was reduced by the cue that occurred during extinction. In both methods, additional experiments eliminated several explanations of the cue's recovery-reducing effect. The overall pattern of results in both appetitive and aversive motivational systems suggests that spontaneous recovery results from a failure to retrieve information stored during extinction.

THE KALEIDOSCOPE AS AN EFFECTIVE DISTRACTOR
IN REDUCING ACUTE, PROCEDURAL
PAIN IN CHILDREN

Presentation Preference - Oral

by

Melissa Faith Kalodner, M.A. - Doctoral Candidate

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This study examined the effects of distraction on perceived pain among 50 boys and 50 girls (5 to 10 years of age) during immunization procedures. Upon completion of the medical procedure, the nurse asked the child to point to a face on each of two pain scales that described how much hurt the child experienced. Children looking through the kaleidoscope during the immunization procedure ($N=50$) reported significantly less pain than control group children ($N=50$). Girls and boys did not differ significantly in their reports of perceived pain.

A chi-square analysis revealed a statistically significant preference in terms of pain scales. Strikingly, identical number of boys and girls ($N = 33$) preferred the Wong-Baker FACES Pain Rating Scale (1988) over the Faces Pain Scale (Bieri, Reeve, Champion, Addicoat & Ziegler, 1990). In the control group, but not in the experimental group, a significant correlation emerged between parents' reports of child distress experienced during the last immunization and the child's current self-report of pain. Specifically, 17% of the variance in pain reports was accounted for by parental description of previous pain.

ABSTRACT

THE RELATIONSHIPS AMONG MEASURES OF PHONEMIC AWARENESS AND LANGUAGE PROFICIENCY ASSESSMENTS FOR AT-RISK HIGH SCHOOL STUDENTS OF THREE LANGUAGE BACKGROUNDS

This study investigated the relationships among measures of phonemic awareness and language proficiency assessments for at-risk high school students of three language backgrounds. Subjects were 86 high school sophomores, Title 1 participants, and the first college-bound members of their individual families. Seventy-one subjects represented three major language groups: English, Spanish, and Hmong. More Hmong speakers were designated LEP (Limited English Proficient) than were Spanish speakers, who were mostly redesignated FEP (Fully English Proficient).

Moderate positive correlations were found between some measures of phonemic awareness and the other language assessments (standardized test scores and an academic language performance assessment). Native English and Spanish speakers scored significantly higher than Hmong on several of the subtests. The results show that adolescents with low-level English proficiency also have low phonemic awareness scores.

Jennifer K. Cobb
May 1998

Perception of Affect in Children with
Attention-Deficit Hyperactivity Disorder

Oral

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Neuropsychological investigations have suggested a right hemisphere dysfunction in attention-deficit hyperactivity disorder (ADHD). Right hemisphere dysfunction has been implicated in deficits of attention, motor impulsiveness, and processing emotion-laden stimuli. The current study investigated the ability of ADHD children to perceive emotional stimuli in the form of facial expressions and speech intonation. All subjects were administered a verbal and a nonverbal instrument in each of the following domains: attention, perception of affect, and behavioral disinhibition (impulsivity). The subjects consisted of 37 ADHD and 37 control children ages 7 to 12 years. Factor analysis yielded a three-factor solution consisting of attention, perception of affect, and impulsivity factors. It appears that ADHD children demonstrate mild to moderate deficits in the perception of affect. The results lend support for the notion that the right cerebral hemisphere plays a critical role in the inappropriate social behavior exhibited in ADHD.

DEVELOPING RELIABLE TIRE COUNT ESTIMATES FOR WASTE TIRE PILES IN CALIFORNIA

Presentation Preference: Oral

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ABSTRACT

The inability to precisely estimate the number of waste tires at waste tire sites throughout California has become a serious issue. Precise counts are needed to facilitate cleanup activities administered by the Tire Unit of the California Integrated Waste Management Board. A two year study designed to develop a technique for estimating the number of tires in waste tire piles has been completed. The results of a comprehensive test at the Fresno County American Avenue Landfill are revealed. The total tire pile volume was precisely measured using a five foot square grid pattern. The pile was divided into five and ten foot wide swaths. Each tire, including car, truck and tractor types, was removed and counted from each swath. Swath counts and volumes were tabulated and compared. These data were used to develop a predictive model that relies upon statistical sampling of the pile. Completely counting any one swath for example generated a car tire count estimate, 1 sigma, that is within 17% of the actual car tire count. Truck and tractor tire estimates would be less precise because these tire occur much less frequently. Measuring and counting four, non adjacent well distributed swaths cuts this expected uncertainty in half. The results of various stacking and density studies are presented. The inability of researchers to make consistent reliable tire count estimates is chronicled. Finally a series of recommendations are provided to those who must estimate the number of tires in waste tire piles.

Proposed Topic for the 19th Annual Central California Research Symposium

Observing the Behaviors of an Expert Basketball Coach

Oral presentation

Rebecca Crumpton

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Winning is an important component of the competitive sporting arena. Society in general seems to be inspired by successful winning teams, coaches, and athletes, and is typically interested in how this success is accomplished. The present investigation involved the use of a systematic observation scale designed to observe the teaching practices of an elite college basketball coach.

Jerry Tarkanian, head basketball coach of a Division I men's program agreed to participate in the study. Coach Tarkanian had accumulated a 667-145 win/loss record at the time of the study, placing him second in most career wins of all Division I men's basketball coaches. A revised Coaching Behavior Recording Form was created to observe Coach Tarkanian throughout the course of the 1996/97 regular season. Twelve behaviors typically used in coaching were observed and coded by two researchers throughout the basketball season.

Tactical instruction, used for teaching cognitive strategies such as plays, offensive and defensive formations, was the most frequently coded behavior comprising 29% of the total observation time. Hustles, which are verbal statements that activate, intensify, or energize athletes was coded as second highest (16%), and was followed by technical instruction (13.9%). Technical instruction refers to the skill-based dimension of instruction using the pedagogical aspects of coaching.

The results of this study concur with previous research in the field, but also offers new insights pertaining to the importance of tactical instruction. In particular it can be concluded that expert basketball coaches need to have a solid foundation of the cognitive components of their sport.

A Trichomonad from Galapagos Tortoises

Presentation Preference: Oral Presentation

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Faculty sponsor: Wallace M. Harmon

Trichomonad infections in tortoises have long been known. In 1937, Geiman and Wichterman first described the organism of the present study as a member of the genus *Trichomonas*. In 1951, Honigberg reported it as a member of the genus *Tritrichomonas*. The organisms studied by these earlier authors were from taken from tortoises in the Philadelphia Zoo and the San Diego Zoo respectively. Our isolate was obtained by Paula Davenport-Mulligan from Galapagos Tortoises at the Charles Darwin Research Station. Her organism has been maintained in culture at California State University, Fresno. Organisms from the cultures were examined by both traditional and advanced microscopic techniques, including x-ray and confocal microscopy.

The results of this study indicate that this organism is the same as that described in the previous studies and reported as a member of either of the above mentioned genera in the family Trichomonadidae. The present study shows clearly, however, that the organism is not a member of this family but rather the family Monocercomonadidae. While the genus *Hypotrichomonas* of the Monocercomonadidae has so far been reported only from snakes, the present organism from the Galapagos Tortoise is probably a member of this genus.

I am grateful to Mr. Dennis Margosan of the USDA and Dr. Cathleen Magowan of the Lawrence Berkeley Laboratories for use of their specialized equipment.

ABSTRACT

THE CORRELATION BETWEEN THE STRUCTURING OF REHEARSAL TIME AND MUSICAL ACHIEVEMENT IN THREE MIDDLE SCHOOL INSTRUMENTAL ENSEMBLES

This study investigated the influence of the directors rehearsal structure on the musical achievement of the students of instrumental music ensembles in three demographically similar middle schools located in the California's central valley. The independent variables considered were: time spent in music instruction (verbal and nonverbal,) time spent in non teaching activities (i.e. set up, initial teacher talk, school or class business, discipline, and dismissal,) grade, and gender. The dependent variables were specific scores obtained from the Music Knowledge Assessment Profile, Form A (George DeGraffenreid, 1997.) Of the schools selected no statistical difference was found between the students scores on the musical achievement test ($p > .05$) The time analysis found that the three schools structure rehearsal differently and spend considerable time engaged in different teaching and non teaching activities.

Kenneth A. Douglas
26 March 1998

Assessing dusky-footed woodrat (*Neotoma fuscipes*) movements in oak woodlands of the Sierra Nevada

Presentation preference: Poster

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Nocturnal small mammals, such as dusky-footed woodrats (*Neotoma fuscipes*), play an important role in the environment, serving both as a food source for many predators, such as the California spotted owl (*Strix occidentalis occidentalis*), and also affecting their own resources, such as dispersal and distribution of seeds. To better understand the relationship between these animals and their environment, it is essential to obtain information on their behavior and microhabitat use. From 1993 to 1995, I used a standard two-dimensional trap grid and mark-recapture methods to study dusky-footed woodrats in oak woodlands of the southern Sierra Nevada. Initially, I was unable to capture any woodrats on the grid. Capture success increased when traps were positioned both in trees and on the ground at woodrat houses. These trapping results and visual observations upon release of the woodrats, indicated that they restricted their movements to particular routes. I attempted direct visual observation of woodrats using night-vision goggles with little success. Finally, I incorporated the use of light-tags and fluorescent powder to track woodrats. Captured woodrats were dusted with fluorescent powder, equipped with battery operated light-tags, and released, after which they were observed throughout an evening and all locations and activities were recorded. The evening following observation, fluorescent powder trails were tracked and positional information was recorded. The combined use of light-tags and fluorescent powder provided valuable and detailed information on woodrat movements and microhabitat use within their environment. Light-tag tracking supported early indications that woodrats repeatedly used specific travel routes.

Ice Preventer Control System

Presentation Preference: **Oral**

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Outdoor walking areas can become a dangerous place during cold seasons. Snow and ice formation can easily cause slip-and-fall accidents. De-icer control systems have been designed to melt ice formation, maintaining much safer public paths. The objective of this project is to develop an automatic control system, which activates an embedded heating element to prevent ice formation. The modular anti-slip slab and control system has been designated to retrofit surfaces such as residential driveways, walkways and stairways.

A prototype was constructed for this purpose and field-tested. An empirical study has been conducted. An automatic control system was developed to drive a stairway's heating elements and collect power consumption and surface temperature. It was tested at approximately 10°F, provided by a local walk-in freezer. Relative humidity percentage was simulated and measured by spraying water around the stairs. Wind effect through the stairway surface was generated and measured using an industrial fan. Two tests were conducted: a 24-hour and a week period.

It is more economical to prevent ice formation than to melt ice once it forms, this research discloses a new approach in the field of snow melting: *the concept of ice prevention*. The implementation of an automatic ice-preventer is more reliable than manually turning on/off a switch. In many instances the concept of prevention was shown to be effective during the tests. However, irregularities were found with ice sensor. Further studies in ice sensor technology are required. The reliability of the sensor is crucial for the success of the project.

Predictors of Control of Non-Insulin Dependent Diabetes Mellitus in a Mexican-American Primary Care Population

Presentation Preference: Poster

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Diabetes Mellitus (DM) is 2-5 times more prevalent among Mexican-Americans than among non-Hispanics.¹ Non-Insulin Dependent Diabetes Mellitus, Type 2 DM, is the 8th leading cause of death among California Hispanics and a well established risk factor for cardiovascular disease, the leading cause of death.² However, little descriptive information is available about the level of disease severity among Mexican-Americans who receive their care in community health centers. This study is a cross-sectional study designed to identify predictors of control among a Mexican-American clinical population with Type 2 DM. Existing medical records of 300 Mexican-American patients with Type 2 DM seen in community health centers affiliated with the UCSF-Fresno Family Practice Residency Program are being reviewed. The predictors considered include: demographic data (age; gender; insurance status); measures of duration, severity, and existence of known complications and co-morbidities of Type 2 DM; measures of primary health care provided (gender, ethnicity and Spanish fluency of primary physician; frequency of clinic visits; ratio of visits with primary care provider to total physician visits); and specific diabetes medications and total number of medications. Degree of disease control will be measured by glycosylated hemoglobin and average random capillary blood glucose. Preliminary results will be presented. Results will provide descriptive data about disease severity in Mexican-American patients with Type 2 DM treated in community health centers. Identification of predictors of disease severity will suggest specific subgroups for future behavioral or pharmacologic interventions.

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DEVELOPING A PHYSICAL ACTIVITY RECALL SURVEY INSTRUMENT

Oral

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ABSTRACT

Physical activity survey instruments are important to the study of the relationship between health and an active lifestyle. Several physical activity recall instruments have been developed (Kriska, A. M. & Caspersen, C. J., June 1997), however, the validity of these instruments is very low -- .28 to .38.

The purpose of this study was to develop an improved seven day physical activity survey by revising the Godin Leisure-Time Exercise Questionnaire. The Francis Seven Day Recall Physical Activity Survey (FSDPARS) was designed to correct three deficiencies. Godin's scoring system only differentiated between lower and moderate levels of physical activity even though the three sections were strenuous, moderate, and mild continuous activity. Also, the final score was not based on a regression equation. Finally, no differentiation was made between continuous and discontinuous activity.

The FSDPARS was enhanced by the separation of continuous and discontinuous activity. In addition, the subjects listed their average workout time each day and the number of times per week. All activity times were requested, including going to and from class. Finally, the scoring system was developed by using the regression coefficients from the validity study.

Validity was established using multiple regression ($N = 43$, $r = .66$). The criterion variable was 1-mile run time and the independent variables were five levels of physical activity. The reliability was determined using a seven day test retest ($N = 22$, $r = .77$).

The FSDPARS is an important improvement over previous seven day recall instruments.

Kriska, A. M. & Caspersen, C. J. (1997). A Collection of Physical Activity Questionnaires for Health-Related Research. *Medicine & Science in Sports & Exercise*, 26 (6), S1-S205.

AN OUTPATIENT ANTICOAGULATION CLINIC CONSULTATION
SERVICE - A BRIDGE TO PRIMARY CARE

Poster

Claire Gallagher (Undergraduate Student)

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Paula Hensley, R.N.

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In recent years the number of patients on oral anticoagulation has increased markedly. We tested the efficacy of an Outpatient Anticoagulation Clinic Consultation Service (OACCS) to transfer care of such patients into the primary care setting.

Ninety patients were seen by the nurse practitioner in OACCS within one week of beginning warfarin. The patients were stabilized and educated, then randomized to continued care by OACCS or returned to their primary care physician for management of anticoagulation. An individualized, guideline based consultation addressed reason for anticoagulation, duration and goals of therapy, and monitoring strategies. Both groups of patients were similar in terms of demographics, reason for anticoagulation, and comorbidity. Maintenance of therapeutic anticoagulation was assessed by the International Normalized Ratio (INR). Patients followed by OACCS were maintained in the therapeutic range as measured by the INR $37\% \pm 3(\text{SEM})$ of the time vs $50\% \pm 4$ ($p = 0.02$) for those followed by their primary care physician. The percent of time the INR was above therapeutic range was not significantly different between the groups. Clinical outcomes in terms of bleeding and thrombotic events were not different between the groups.

We conclude that an OACCS is an effective bridge to primary care for the management of anticoagulation therapy.

REDUCING COSTS WHILE PRESERVING OUTCOME UTILIZING A CONTINUUM OF GERIATRIC CARE

Poster

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A positive clinical outcome can be realized, while reducing costs, by providing a continuum of geriatric care. Two treatment episodes were analyzed for cost, safety and clinical outcome in the care of a home bound elderly male with recurrent urinary tract infections and multiple medical problems. We compared his treatment with IV antibiotics in the acute hospital versus a comparable admission incorporated into his respite stay in a nursing home. In the latter situation, care was coordinated by the same physician, clinical pharmacist and nurse who provided Primary Care to the patient at home. The patient's clinical condition was similar in both episodes. Home IV therapy was not an option due to his caregiver's inability to monitor the infusions.

A similar seven day course of treatment showed a total savings of 71% when carried out in the nursing home respite setting. Major reduction was in bed cost (\$288/day versus \$1,046/day), but substantial savings were also seen with a 52% reduction in laboratory costs and a 22% decrease in medicine costs. There were 35 written orders in acute care versus 12 orders during his respite stay.

When a continuum of care is provided by the same team costs, and outcome are positively impacted.

ABSTRACT

GROUP THERAPY TREATMENT FOR BULIMIA NERVOSA: A LONG-TERM CLIENT SATISFACTION STUDY

Group therapy treatment has been found to be effective in the treatment of the chronic eating disorder Bulimia Nervosa. This study examined client satisfaction of one group therapy treatment program that utilized a combination of cognitive-behavioral, psychodynamic, and interpersonal/insight-oriented therapeutic approaches. Questionnaires were given to former clients of the program, some of whom also participated in face-to-face interviews. The participants identified what aspect of treatment was most helpful, and what aspect was least helpful. Additionally, participants described the current status of their eating disordered behavior, and what treatment, if any, they had received since leaving the program. Findings suggested that the interpersonal factors of treatment were most helpful, and factors unrelated to the interpersonal nature of group were least helpful. Findings also suggested that this treatment program was effective in increasing client understanding of feelings and interpersonal interactions, and in reducing, but not extinguishing, eating disordered symptomology.

Denise Rebecca Grisez
December 1997

**AORTIC VALVULITIS AND DIFFUSE AORTITIS ASSOCIATED WITH
JUVENILE SYSTEMIC GRANULOMATOSIS**

Presentation preference: Poster

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This case report describes an 11 year old African-American girl (CM) with an unusual manifestation of "sarcoid" vasculopathy. She presented with a 5 month history of an afebrile, non-productive cough, progressive dyspnea and the acute onset of extensive perihilar and bibasilar interstitial pneumonia. Further, she acutely developed palpitations and tachycardia, congestive heart failure, and respiratory distress with hypoxemia, necessitating intubation and intensive care. She had a two year history of chronic anemia and an idiopathic unilateral upper eyelid and retrobulbar mass, which was biopsied and diagnosed as a pseudotumor. This extraocular mass was successfully treated with two corticosteroid courses lasting 6 months in duration. The patient's paternal grandfather had the onset of congestive heart failure at age 11 years, and a paternal second cousin died in her early twenties from heart failure. CM had a gallop rhythm, a wide pulse pressure (BP 167/32), and two upper sternal border murmurs, including a II/VI blowing diastolic murmur and a II/VI short systolic murmur radiating to the apex. Articular and ocular examinations were normal. Laboratories revealed leukocytosis, anemia and a Wintrobe erythrocyte sedimentation rate of 57 mm/hr. ACE, ANCA and ANA were normal; blood cultures were negative. An echocardiogram demonstrated aortic regurgitation (diastolic gradient 46 torr) with focal valvulitis of one aortic cusp, decreased myocardial contractility (fractional shortening 24%), and a dilated cardiomyopathy. Pulmonary biopsy revealed non-caseating granulomas; fungal, mycobacterial, bacterial and viral cultures of this tissue were negative. After 10 months of prednisone and afterload reduction therapy, she had an aortic valve replacement. Despite this, a follow-up echocardiogram showed further decreased myocardial contractility (fractional shortening 11%) and marked dilation of her ascending aorta (diastolic diameter 40mm). MRI revealed dilation of her subdiaphragmatic aorta (diameter 25mm) to the renal arteries.

"Sarcoid" vasculopathy/aortitis in childhood is rare. Ten prior publications exist describing large, medium and small vessel vasculitis. One report cites four family members over 3 generations with a familial granulomatous arteritis. This present case features 3 family members over three generations with early onset heart disease, suggesting an autosomal dominant-appearing inheritance. This is the first reported case of vasculopathy in juvenile systemic granulomatosis describing discrete cardiac valvular involvement, adding to the spectrum of recognized aortitis sequelae.

THE EFFECT OF CATEGORY SWITCHING ON COLLABORATIVE INHIBITION

Oral

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The present study investigated recall comparing three-person collaborative groups and nominal groups (three individuals' pooled results). The hypothesis was that forced category-switching, requiring participants to recall from a new category on each turn, would reduce recall. This hypothesis was based on the experiment by Basden, Basden, Bryner, and Thomas (1997) which proposed that category switching may underlie collaborative inhibition, i.e., poorer recall in collaborative than in nominal groups.

In order to test our hypothesis, collaborative and nominal groups were tested under three conditions: forced category switching, forced nonswitching (each category was exhausted before recall for another category was given), and free (any category at any time was allowed). A six category word list (with each category containing 15 words) was used. Members of the collaborative groups took turns during recall.

The results of this study did not support the hypothesis. Collaborative groups, as well as nominal groups, were hardly troubled when forced to switch categories. However, collaborative inhibition did not occur in the nonswitching condition, a result that is inconsistent with those reported by Basden et al. (1997).

It was concluded that collaborative inhibition results from a process other than category switching.

COMPARISON OF PUBLIC TO PRIVATE SECTOR CARE IN REGARD TO THE RISE AND FALL OF PROSTATE CANCER THERAPY 1987-95. Anthony H. Horan, (209) 225-6100 Ext. 5112, Koreem Sohrabi, VAMC Fresno 2615 E. Clinton, and 93704, Paul Mills, California Health Collaborative 1625 East Shaw, #155, Fresno 93710.

Introduction: The correlation over time of private sector practice with public sector practice has not been reported in regard to prostate cancer therapy.

Method: Data on procedures per year from the Central California Cancer Registry for six local, American College of Surgeon hospitals were examined for the years 1987-95. Correlation coefficients for patients treated per year for the two sectors were calculated on Statview 512.

Results: The correlation coefficients were .7 for surgery, .9 for radiotherapy (delivered by a local private practice group on a 'fee-basis'), and .4 for hormonal therapy. V.A. practice as to age at year of diagnosis correlated well at .86 in the median age range but less so in younger and older age groups. V.A. pathologic grade correlated well at .8 for grade II but poorly for grade I and grade III, at a correlation coefficient of .4.

Conclusions: (1) The public sector follows private patterns of care most closely when it is contracted out. (2) The public sector was more accurate in its presurgical staging. (3) Public sector conformity to private patterns is impacted by periods of understaffing. (4). Significant differences in the grading of prostate cancer histology exist between the public and private sector.

The Effects of After-tax Wages, Transfer Payments, and
Child Care Expenses on Labor Market and Transfer Program Participation

Presentation Preference: *Oral*

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Abstract

In recent years the federal government and the states have tried a variety of strategies to increase the number of families who participate in the labor market and to reduce the number of families who participate in transfer programs. The effectiveness of these policies depends, in part, on how people respond to changes in incentives. This paper examines the degree to which after-tax wages, benefit guarantees, child care expenses, and other factors affect labor market and transfer program participation.

Using data from the 1993 Survey of Income and Program Participation, we carefully model the budget constraints that families face under different employment scenarios. We include benefits from major transfer programs, federal and state income taxes, payroll taxes, and child care expenses. We then estimate an empirical model of labor market and program participation. Because studies have found that transfers affect single-parent families and two-parent families differently, we estimate the model separately for different types of families.

Finally, we use the results of the estimations to perform a variety of policy simulations that provide insight into the labor market and transfer participation effects of the 1996 welfare reform and other proposals that affect child care expenses such as tax credits and direct subsidies.

Note: The final stages of the research are still in progress and will be finished by March 17, 1998, for presentation at the Population Association of America annual meetings.

Medical Care Is Delayed And Perforated Appendicitis Is Doubled In Hmong Patients

Oral Presentation

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The social and cultural contexts of Hmong have direct effects on health care. The objective of this study is to evaluate their clinical consequences. Using a three-page questionnaire, the investigator reviewed 69 Hmong patients who underwent emergency appendectomy in Valley Children's Hospital (VCH) between January 1, 1994 and December 31, 1997. An equal size of Caucasian sample was selected randomly as a control group.

Results indicate that medical care is delayed and perforated appendicitis is twice as high in Hmong patients. When compared to 33% perforation rate in the Caucasian sample, Hmong patients have 68% perforation ($p < 0.01$). While Caucasians are hospitalized 4.19 days, Hmong patients have 6.59 days of hospital stay ($p < 0.01$). Delayed medical care seems to be responsible for the high rate of perforation in Hmong patients. On the average, from onset of symptoms to the Emergency Room (E.R.), Caucasians have 2.14 days of delay whereas Hmong have 3.77 days ($p < 0.05$). After entering the health care system, surgery is also delayed for Hmong patients. From triage in the E.R., it takes 9.18 hours for Hmong and 6.29 hours for Caucasian patients to be ready in the Operating Room (O.R.) ($p < 0.05$). Detailed analysis of the period indicates that principal delay occurs in obtaining consent from Hmong parents ($p < 0.10$). The researcher concludes that the historical reliance of Hmong on shamanistic healing, their cultural beliefs in ancestor worship, strong community bonding, and lack of exposure to and pervasive mistrust of Western medicine contribute to the delayed health care and cause serious health consequences.

Table: Comparison of Hmong and Caucasian patients in VCH from 1994 - 1997

	PERFORATION RATE OF APPENDICITIS	LENGTH OF HOSPITAL STAY	ONSET OF SYMPTOMS TO THE E.R.	TRIAGE TO THE O.R.	OBTAINING CONSENT FROM PARENTS
Hmong Patients	68%	6.59 days	3.77 days	9.18 hours	4.31 hours
Caucasian Patients	33%	4.19 days	2.14 days	6.29 hours	1.82 hours
P value	< 0.01	< 0.01	< 0.05	< 0.05	< 0.10

Characterization of genetic variation in garlic (*Allium sativum* L.)
germplasm collection using RAPD markers.

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Poster

Maintenance of garlic (*A. sativum* L.) germplasm collections is based on year to year vegetative propagation of individual accessions. Several accessions in the USDA germplasm collection are phenotypically similar and often originate from the same region of the world, but have been collected by different people at different times. These accessions are currently maintained as separate and unique samples however they may represent genetic duplications in the collection. The purpose of this study was to assess the level of genetic variability between selected *A. sativum* L. germplasm accessions and to identify potential duplicates.

DNA was extracted from young leaves of 43 garlic Plant Introduction accessions grown in the USDA collection in Pullman, WA. RAPD products were generated in 38 cycles (94° C, 30 sec.; 38° C, 1 min.; 72° C, 2 min.) using 100 ng genomic DNA, 40 different primers. Amplified samples were separated in 1.5 % agarose gel and RAPD bands were scored as present or absent at a given loci.

A few distinguishing markers were established for the material analyzed. An UPGMA phenogram based on Nei's similarity coefficient classified the accessions into distinct groups and did not indicate presence of any duplications. The classification needs to be proven by further genetic observations.

BLOCK PROGRAMS: ARE THEY A COST-EFFECTIVE ANSWER TO HIGH-QUALITY UNIVERSITY EDUCATION

Oral

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This research was focused on an alternative approach to university education as a possible answer to meeting the increasing national and regional demand for improving educational quality. It used a case-study approach to examine the evolution, implementation successes and costs of a nationally known Block Program. The Block Program studied was a junior-level seminar consisting of four courses taught four hours per day, three days per week to a class of not more than 21 students selected from applicants. Results suggest the program was superior to traditional classes in developing student self-discipline and confidence as well as speaking, planning, organizing, interpersonal and leadership skills. Graduates were found to perform better than counterparts in later courses and held a disproportionately greater number of student leadership positions, including the top student leadership position for its associated school. Graduates were also found to develop stronger bonds with their professor and school which, evidence suggests, may later manifest itself in greater alumni giving. Student costs of the Program included providing a block of time for class attendance and fewer students and professors with whom to interact and learn. Professorial costs included greater time commitments for student recruitment, administration, and student counseling. The Program was found to be increasingly costly *vis-a-vis* regular classes to the extent the latter are larger in size. The research concludes that block programs are effective for students pursuing a career in business but become increasingly difficult to support given increasing class sizes and institutional emphasis on research relative to teaching.

Motivation and Family Literacy Development

Oral Presentation

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Established at an elementary school in Fresno to teach first language literacy skills to adult Hmong parents as a precursor to teaching second language and literacy skills, the Hmong Literacy Project sought to gather information on Hmong adult learning strategies and behaviors, motivations of Hmong adults for developing literacy in the Hmong language and any effect that parental participation in the project would have on home literacy and parents' involvement in their children's education. The latter two research goals, motivation and effect on family literacy, are the focus of this presentation.

Data was collected through interviews, extensive classroom observations, and a Q-sort activity. The main findings regarding motivations of Hmong parents to develop L1 literacy skills were the preservation of Hmong culture, the desire to teach Hmong language and literacy to children, and communication with Hmong people in other areas. The data also indicated an increase in the opportunities for children to be exposed to literacy events in the home, more opportunities to study with their parents, and increased interest of children to develop Hmong literacy.

These findings provide a broader rationale for helping Hmong adults develop first language literacy skills beyond that of transference of first language literacy skills to development of second language literacy skills. They underscore the importance of maintenance of language and culture and parental involvement in family literacy development as ways for Hmong adults to help ensure the future of their children.

ABSTRACT

Title: Impact of Managed MediCal on California Family Practice Residency Programs

Presentation Preference: Oral

Author: 1. Phiroze Kazi, M.D., Post-graduate student (Family Practice resident)

2. John Zweifler, M.D., M.P.H.

3. Robert Zieber, M.D.

Introduction: Medical education programs have traditionally been involved in providing care to inner-city and indigent populations. An important source of health insurance for these populations in California is MediCal. MediCal has entered into managed care contracts. The growth of Managed MediCal (MMC) and other changes in health care finance including increased competition for MMC patients has provided MediCal patients with more options for obtaining health care. Our purpose was to find out how the introduction of MMC has impacted Family Practice Residency Programs (FPRP's) in California.

Methods: The impact of MMC on FPRP was analyzed. All 38 FPRP's in California were asked to fill out a questionnaire requesting information regarding the impact of MMC. Questionnaires were distributed by the California Academy of Family Physicians in the fall of 1997. Programs which had not responded after November 15, 1997 were contacted by phone. Questions included: Total number of FHC patients, indigent patients, and MediCal patients before and after MMC; assignment of MMC patients; and impact on patient acuity, administrative work load, and marketing.

Results: Responses were received from 23 programs (59%). Two provided incomplete statistics. Five of 21 programs were not involved with MMC. Indigent patients were 20% of patients seen in FPRP's without MMC, and 25% in FPRP's with MMC patients. The introduction of MMC did not result in lower numbers of patients in the FPRP's. Most MMC patients were assigned to faculty members, then cared for by residents. MMC resulted in increased administrative costs for most FPRP's. Most were seeing sick or more difficult patients.

Conclusion: Most FPRP's who responded to the questionnaire are caring for MMC patients. The advent of MMC does not appear to have adversely impacted total number of patients seen in FPRP FHC's. At the same time, there does appear to be an increased administrative burden and a lack of understanding of the role of residents in MMC.

EFFECT OF TRAINING SYSTEM AND SOIL TYPE ON GROWTH, YIELD, AND FRUIT COMPOSITION OF CABERNET SAUVIGNON GRAPEVINES

Oral Presentation

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The goal of modern viticulture is optimization of vineyard management systems. In addition, vineyard site factors such as soil type can influence development of optimal vineyard management systems. This experiment evaluated the effect of training system and soil type on yield, fruit composition, and vegetative growth. Cabernet Sauvignon grapevines were planted in a San Joaquin Loam soil (a low capacity soil), and in a Columbia Silt Loam soil (a high capacity soil). Training system treatments were: Cordon-trained with spur pruning (control); head-trained and cane pruned; Hudson River Umbrella; machine pruning with hand follow-up; machine pruning without hand follow-up; and minimal pruning. Training system had a significant effect on yield and components of yield. Yield was highest for the minimal pruning and the machine pruned-with no hand follow-up treatments and lowest for head trained - cane pruned treatment. Minimally pruned vines had the greatest number of clusters and the lowest cluster weight, berry weight, and number of berries per cluster when compared to the other treatments. Soluble solids and pH were lower for vines which were minimally pruned while titratable acidity was higher. Vines planted in San Joaquin Loam soil had significantly higher soluble solids, lower pH, and greater anthocyanin content than those planted in Columbia Silt Loam soil. In general, the choice of training system will be dictated by the goals of the grower. High yields and comparable fruit quality were observed in this experiment for the minimal pruned and machine pruned vines grown in a low capacity soil type. These preliminary results suggest that viticultural management systems can be improved by selection of appropriate training systems for specific soil types.

Natural Product Biosynthesis in the Medicinal Herb *Marrubium vulgare*
(White Horehound)

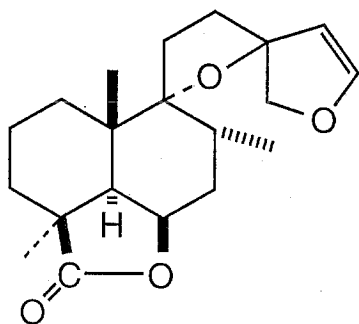
Oral Presentation

Karlo M. Lopez
Undergraduate Student

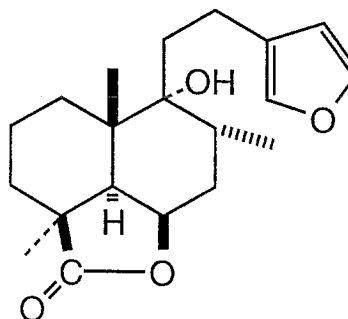
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The diterpenoids are an important class of secondary metabolites in plants that have been used extensively for a variety of products. Marrubiin (**I**) and premarrubiin (**II**) are natural products found in perennial herbs of the mint family such as white horehound. Extracts from the horehound have been used in folk medicine for centuries and have been shown to possess antibiotic and anti-inflammatory activity. These preparations have a reputation as an expectorant and are used to treat bronchitis and cold symptoms. Several diterpenoids have been isolated from horehound extracts, however, little is known of the biosynthetic sequence which gives rise to marrubiin. The objectives of this work included the evaluation of the marrubiin producing potential in several cultivars of horehound as well as closely related species, to identify the site of marrubiin production in the plant, and to characterize the first enzymatic step in the proposed biosynthetic sequence.



Premarrubiin (**II**)



Marrubiin (**I**)

A large scale purification of marrubiin was carried out in order to obtain a standard for our analysis. The individual cultivars and plant species were then analyzed using a combination of gas chromatography and mass spectrometry revealing three groups of marrubiin production ranging from trace quantities (less than 10 µg/g tissue) to 1.4 mg/g tissue. The site of marrubiin biosynthesis was established as the secretory glands located on the leaf surface by directly sampling the contents of these glands and subjecting it to GC/MS analysis. Additionally, a procedure for the isolation of these glands and production of a cell free protein extract was developed and the first enzymatic step responsible for this unique structural form was characterized.

Influence of Sprayable Mulch Surface Color on Growth and Yield of Eggplant

Presentation Preference: Oral

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Various mulches have been used historically in agricultural practices. The main objectives of this application have been water conservation and earliness of crop production. New pigmented mulches have diversified these objectives by yield increase and improving pest management strategies. To study the effect of reflecting mulches on productivity of the eggplant (*Solanum melongena* L., cv. 'Millionaire'), 102 cm beds were treated with sprayable synthetic latex film, which conditioned the soil serving as a mulch base. Oil-based pigments in black, white, red, blue, yellow and silver were sprayed on the mulch base to provide differential coloration. Each experimental unit included three rows of 7.3 meters with eight plants per row. Each treatment was replicated in four blocks at two sites in 1995 (Kearney Agricultural Center, and CSUF), and replicated once again in 1997 (KAC site only).

Similar results were obtained in all replicates. Plants grown on silver-pigmented beds produced significantly greater fruit numbers and total fruit weight than other treatments. After eight harvests, up to 236% yield increase in fresh weight was observed in silver plots compared to the control. Initial flower and fruit set formations before harvest were significantly higher in silver plots compared to other treatments. Nonsignificant differences were observed with measurements of plant height and total dry weight of shoot and root within the treatments. It is assumed that altering microenvironment around the plants by mulch surface-color is responsible for this variation. These effects include changes in photomorphogenesis response, influence in insect population, and fluctuation in soil temperature.

MEXICAN AMERICAN ANGER EXPRESSION IN FAMILY SITUATIONS

Poster Presentation

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Introduction. It is important to consider the context of anger when evaluating the effectiveness of anger expression. In particular, different types of anger expression may be appropriate for different types of anger provocations. This study explores anger expression toward family members in Mexican Americans.

Method. Thus far, 29 Mexican American and 26 Caucasian undergraduates have completed acculturation and familism scales. In addition, participants listened to nine family vignettes and rated anger intensity, anger duration, and the likelihood of using each of nine anger management strategies for each vignette. The anger expression variables of interest were: Anger Intensity, Anger Duration, Think Before Acting, Violent Expression, Negotiate, Ignore with Inaction, Obsession with Inaction, Hurt Indirectly, Cope Without Expressing Anger, and Expression of Feelings.

Results. The data collected thus far were analyzed with a 2 (ethnicity) by 2 (gender) by 9 (situation, a repeated measures factor) ANOVA. For Anger Intensity, there were significant main effects for ethnicity ($F(1,51)=9.79, p<.005$) and situation ($F(8,408)=9.14, p<.001$), and a significant gender by situation interaction ($F(8,408)=2.405, p<.05$). For Anger Duration, there was a significant situation main effect ($F(8,416)=20.63, p<.001$), and significant gender by situation ($F(8,416)=2.09, p<.05$) and gender by ethnicity by situation ($F(8,416)=2.29, p<.05$) interactions. There were significant effects for several other variables and the roles of acculturation and familism were explored to understand these ethnic differences.

Discussion. The significant main effects and interactions for the situation variable demonstrate the importance of the use of situations when assessing anger expression. These results have important implications for the assessment of anger in ethnically diverse populations.

The Prevalence of Orofacial Myofunctional Disorders
Among Children Identified with Speech and Language Disorders
In Grades Kindergarten through 6 in Fresno County

Oral

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Graduate students at the time the research was conducted (1996-1997)

The prevalence of orofacial myofunctional disorders (OMD) has been investigated in several populations, including the general population, orthodontic patients, preschool children, and elementary school children. However, a systematic study of the prevalence of OMD among school children receiving speech and language services through the public schools has not been conducted.

Therefore, the present study was designed to: 1) provide data regarding the prevalence rates of OMD among children identified with speech and language disorders in grades kindergarten through 6, and 2) investigate possible correlational relationships between the presence of various components of OMD with each other and with the presence of speech and/or language disorders. Two hundred children in grades kindergarten through 6 from various school districts in Fresno County were tested for the presence of various OMD components through examination of the orofacial complex.

The resulting data was subjected to statistical analysis to determine the percentage of occurrence, and the possible relationships among various OMD variables were explored through cross-tabulation and the Pearson Chi-square formula. Abnormal at rest tongue position was present in 59% of total subjects and was the largest percentage of abnormal ratings among all variables observed. Tongue thrust swallow was found to have statistically significant relationships with abnormal at rest lingual posture, open bite positions, and abnormal production of alveolar consonants /t/, /d/, /s/, and /z/. Abnormal at rest lingual posture was also found to have a statistically significant relationship to dental malocclusion.

DO THE BODY'S OWN ANTIOXIDANTS CHANGE DURING OXYGEN STRESS?

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Oxidants are reactive molecules that damage tissue. Oxygen is one of the most common sources of oxidants. In order to contain the damage, the body produces enzymes that act as antioxidants. Superoxide dismutase (SOD) and catalase (CAT) are two of these enzymes. SOD functions by converting oxygen free radicals into hydrogen peroxide. CAT then takes over and converts the hydrogen peroxide into water and oxygen. The purpose of this study was to examine the change in levels of SOD and CAT during different levels of oxidative stress induced by oxygen at high pressures.

Subjects received three levels of oxygen exposure. A control group did not receive supplemental oxygen. The subjects were divided into groups according to the oxygen pressure. Each group was subdivided into two more groups: 1) oxygen daily for 3 days and 2) oxygen daily for 7 days. All subjects had blood drawn on a regular schedule. The blood was then analyzed for SOD and CAT.

Results showed that with increased oxygen exposure there were increased levels of SOD. The results also illustrated that in the absence of oxygen pressure the levels of SOD were significantly lower. Catalase also significantly changed in some of the treatments and remained high at greater oxygen exposures. In this study it was concluded varying oxygen pressures altered antioxidant levels. The change in SOD and CAT levels may act as early markers for oxygen toxicity. Measurements of these enzymes may help in increasing safety of oxygen treatments.

Oral Presentation

Ms. Mercado will be a postbaccalaureate student presenter.

ORGANOPHOSPHATE PESTICIDE RESIDUES IN URINE OF FARMWORKERS AND FARMWORKER CHILDREN IN FRESNO COUNTY, CALIFORNIA

Oral

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Animal bioassay and some epidemiologic studies indicate that exposure to certain organophosphate (OP) pesticides may be associated with cancers including lymphomas and leukemia. However, it is difficult to obtain accurate and valid recall histories of pesticide use for epidemiologic studies and biomarkers of exposure are valuable. In the fall of 1997, we tested spot urine samples for six OP metabolites in 27 farmworkers (including 9 farmworker family children) in Fresno County California, the leading agricultural county in the U.S. where OP pesticide use is extensive. Concurrently with specimen collection, a detailed occupational history was obtained using a life-events/icon questionnaire.

Urine samples were tested using a HP 5890 Gas Chromatograph with flame photometric detection. The limits of detection of the six metabolites ranged from 4.8 parts per billion (ppb) to 7.5 ppb and the method limit of quantification (LOQ) was 25 ppb.

None of the metabolites tested exceeded the LOQ. The most commonly occurring metabolites were dimethylphosphate (DMP) and dimethylthiophosphate (DMTP). The frequencies of detections were 37% for DMP and 30% for DMTP and much less for the other metabolites. The mean levels of DMP and DMTP were 6.55 ppb and 13.22 ppb respectively (excluding non-detectable and trace levels). For children only, the frequencies of detection for DMP and DMTP were 44% and 33% respectively and mean values of these metabolites were 8.36 ppb and 13.63 ppb.

These generally low levels of pesticide metabolites may reflect the time of sampling (in the Fall when OP are not being used), dietary intake, or domestic use of OP pesticides. The results agree with recently reported levels of OP metabolites in farmworkers in Washington state. Further studies will correlate pesticide residues in urine with reported histories of exposure using the questionnaire approach.

PERFORMANCE MEASUREMENT SYSTEM: AN INTEGRAL PART OF A WORLD-CLASS MANUFACTURING OPERATIONS

Presentation Preference: **Oral**

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A well-managed, competitive manufacturing operation requires an effective performance measurement system. This study reports findings of a research survey on various characteristics of a performance measurement system. The electronic and other electrical equipment and components industry in the U. S. provided the frame for the survey. The responses of manufacturing firms with five hundred or more employees and \$5,000,000 or more annual gross sales were used to complete this research.

Traditionally, manufacturing firms relied primarily on financial indicators to measure their performance. However, financial indicators are not adequate to effectively measure a manufacturer's success on achieving customer satisfaction/delight and, in turn, securing a long lasting competitive advantage. The new and emerging customer-satisfaction mind set demands innovation in new products, higher quality, higher reliability, greater flexibility (in variety and volume), and better service at a competitive price within a shorter and shorter time interval. Accordingly, a performance measurement system must incorporate measures/indicators capable of facilitating a manufacturing firm's achieving superiority in all of these competitive priorities.

An effective performance measurement system must involve all employees in development and updating of measurements. Such measurements must: have appropriate level of detail and precision, be result oriented, be used in combination (as a group) to evaluate performance, focus on the manufacturing system's performance (vs. the individual), facilitate the achievement of long-term goals, and be understood and accepted by all employees. The measurements results must be available in a timely manner and used by all employees as effective means of feedback to facilitate the continuous improvement process. The measurements and their corresponding rewards must be perceived as compatible. Finally, every attempt should be made to avoid using the measurements as means of finding fault and inducing of unintended (adverse) results.

ETHNICITY, GENDER, AND DIFFERENCES IN ANGER ACROSS VARIOUS SITUATIONS

Presentation Preference: Oral

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Introduction. Edmondson and Conger (1996) have proposed a multidimensional-associationistic model of anger, which defines anger as a multidimensional response, with experiential, cognitive, physiological, and behavioral components. This model also emphasized that it is difficult to evaluate the different dimensions of the anger response without considering the context in which anger occurs. In an attempt to better understand contextual factors in anger experience, the present study was conducted as a replication and extension of Edmondson, Yeo, and Conger (1997). The present study is concerned with differences in the intensity of anger experience due to type of provocation, ethnicity, and gender. It was hypothesized that there would be an interaction between ethnicity and situation type, and an interaction between gender, ethnicity, and situation type.

Method. Caucasian, Hispanic, and African American males and female introductory psychology students participated in the study. Participants responded to an anger provocations questionnaire, and asked to rate each situation in terms of anger intensity, anger duration, anxiety, sadness, vividness, typicality, importance, and difficulty.

Results. The ratings were analyzed using a 2 (gender) by 3 (ethnicity) by 10 (situation type) analysis of variance. Significant ethnicity, gender, and situation type main effects were found for anger intensity and duration variables, as were interactions between ethnicity and gender, and gender and situation type.

Discussion. The present study corresponds to previous research. These results indicate that is important to consider ethnic, gender, and situational factors when evaluating anger experience, behavior, cognition, and physiology.

**Bravo/Teletrend
Bringing the ICU to the Internet**

Presentation Preference: **Oral**

Huy Nguyen, graduate student (1)
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In the Neurosurgical Intensive Care Unit (ICU) at the University California Los Angeles (UCLA), continuously acquired brain wave and vitals data from the bedside are monitored and stored on computers 24 hours a day. However, making this data available in a timely manner is still a problem. Bravo/Teletrend brings this data to the World Wide Web (WWW) for consultation, data analysis and knowledge exploration activities.

Physicians requests for data are sent using Bravo/Teletrend to an information server at UCLA. The server then retrieves the data from the ICU and sends it across the network. Received data is then displayed to the physician in a comprehensible and intuitive visual format in their favorite web browser.

Two studies are performed on a prototype: a test for user friendliness involving usage and system response time, another to analyze security considerations and the efficient use of databases. Preliminary studies show that physicians can use the product intuitively, and that the current database design works well. As for security, many issues are still under consideration for efficiency and feasibility.

The prototype has received strong reviews from the academic community (UCLA Neurosurgery division, Massachusetts General Hospital and Harvard University) and two biomedical companies (Nicolet Biomedical, Inc. and Marquette Electronics, Inc). Based on our current experience and user feedback we conclude that such a system will be beneficial and useful to attending physicians and critical care personnel.

COMPARISON OF SCANNING PROBE MICROSCOPY METHODS

Poster Presentation

Lauren J. Novatne , James Vesenka

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Presenter is a Physics Graduate Student

The study objective is to compare two methods of scanning probe microscopy (SPM), Atomic Force Microscopy (AFM) and Scanning Tunnel Microscopy (STM) methods. SPM is accomplished by scanning a tip close to or in contact with a sample. The tip sends electronic signals to a computer, the signals are processed and viewed on a monitor.

The AFM method uses optically detected deflection of tip sample contact, while the STM method uses changes in the tunneling current between the tip and sample to image topography. Both methods are capable of high magnification, but they have different contrast mechanisms which affect their resolution capabilities. Each of the methods in the study have benefits and drawbacks associated with it. The AFM method has the probe in direct contact with the sample, while the STM method involves a tunneling barrier between the tip and sample.

Both inorganic and biological samples are examined in this study. Gold coated mica is chosen as the inorganic sample, DNA was chosen as the biological samples viewed. Resolution is the parameter of primary interest. The results of the observation reveal that the image environment along with the SPM parameters determine resolution. The study demonstrates that the AFM method is more appropriate when the sample is not only poorly conductive, but is not flat and the sample is soft, while the STM method is best chosen when conductive samples are viewed.

Acknowledgements

This research is made possible by funds from the CSU Fresno Foundation, the Research Corporation (CC4204) and a National ScienceFoundation Instructional Laboratory Improvement grant DUE-9759750942.

Meaningful Frameworks for Recall in Young and Older Adults

Presentation Preference: Poster

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Recent research indicates the presence of an age-related visual processing deficit, for which the elderly may attempt to compensate through the use of relational information. This hypothesis was tested, using the category superiority effect as a model system. The category superiority effect is the tendency of memory to be improved when items are presented contiguously by category. In studies of young adults, the category superiority effect has been shown to be confined to relatively abstract stimulus materials, such as verbal items, and to be absent for pictures. However, it was predicted that, contrary to the data from young adults, a category superiority effect would be present in elderly adults both for verbal and for pictorial stimuli, since the elderly would be expected to utilize category information to compensate for imageric deficits. This prediction was confirmed, consistent with the hypothesis advanced above. It was further suggested that the establishment of a prior framework for recall, based on relational information, would reduce this effect significantly. This prediction was also confirmed. Results are discussed in terms of the cognitive asynchrony theory developed by the authors, which holds that age-related speed loss results in an asynchrony of mental representation, which would in turn be expected to yield precisely the results observed. The results also showed that the memory performance of older people could equal that of college-aged adults under the right combination of experimental circumstances.

This research was supported by Grant AG 11605 from the National Institute on Aging.

Polymorphic RAPD patterns of *Hibiscus rosa-sinensis* and *H. syriacus*.

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Poster

H. syriacus and *H. rosa-sinensis* are ornamental shrubs commonly grown in California. The first species can endure extreme cold and heat but its flowers are modest in size and color intensity. *H. rosa-sinensis*, the tropical hibiscus has bright colored flowers but is unable to withstand the mild winters of Central California. The two species are cross incompatible therefore somatic hybridization which may combine the attractive flowers with cold hardiness was undertaken. The objective of this study was to develop polymorphic RAPD markers distinguishing *H. rosa-sinensis* cv. 'Brilliant Red' from cv. 'Aphrodite' in callus or juvenile plant stage to avoid the expense of regeneration and growing plants to full maturity for phenotype determination.

DNA was extracted from 6 - 8 month old callus derived from peduncles of both species. Amplification was carried out in 20 μ l volume, with 10 to 30 ng genomic DNA, 40 different decanucleotide primers in 45 PCR cycles (94° C, 1 min.; 35° C, 1 min.; 72° C, 2 min.). The RAPD products were separated in 2 % agarose gel, and bands were scored as present or absent.

Scorable bands were produced for 16 decamers. The band size was between 3500 and 344 bp. The most distinguishing polymorphic markers were obtained for OPD-2, OPD-4, OPD-16, OPF-1, OPF-3 and OPF-14 primers. Polymorphic RAPD patterns for both *Hibiscus* species were generated and it is expected that they will aid the screening procedure of hybridized calli.

***Cryptosporidium parvum* in Southern California:
"Regulatory Public Policy"**

(Oral presentation)

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Waterborne disease outbreaks due to protozoan microorganisms have increased recently worldwide. ***Cryptosporidium parvum*** is a coccidian protozoan organism responsible for transmitting notifiable waterborne disease to humans. Humans are affected by ingesting the microorganisms through drinking water, eating food, body contact and by recreational activities in contaminated water.

In 1993, an outbreak of the disease, **cryptosporidiosis**, affecting more than 400,000 persons occurred in Milwaukee, Wisconsin. One hundred (100) of the affected people died during the incident. The Milwaukee outbreak was associated with water obtained from a municipal water plant that was operating within existing state and federal regulations. The outbreak emphasizes the need for improved surveillance and plans for responding appropriately to the threat posed by ***Cryptosporidium parvum***.

The purpose of this study is two fold: first, to provide information which should help public policy makers and the scientific community enforce already existing policy, i.e., the **Surface Water Treatment Rule (SWTR)**. This regulation is intended to prevent water consumers from getting ill as a result of drinking surface and unfiltered water

The second purpose is to develop recommendations for regulatory public policy which should minimize recreational contact with waterborne ***Cryptosporidium***. These recommendations are based on raw data collected from the vicinity of Chino, California

Thanks to Dr. Rob Atwill of The University of California, Davis
Veterinary Research And Teaching Laboratory, Tulare .
for allowing me to use the facility.

QUETZALCOATL OF THE AZTEC/MEXICA, IN UTAH

Audio Visual Presentation

Cecilio Orozco

California State University, Fresno

278-0269

ABSTRACT

This is part of an ongoing study to identify the origins of the ancient Aztec/Mexica civilization or the NAHUATL. The study draws its ideas (hypotheses) from the writings of the presenter's mentor in Mexico, professor Alfonso Rivas Salmón of the Universidad Autonoma de Guadalajara plus the life-experiences of the author in the American Southwest. His explorations plus his amateur archaeoastronomy led him to the discovery of 2000 BC mathematical formulas which put the antecedents of the ancient Venusian American calendars in East central Utah where four (NAHUI) great waters (ATL) come together.

Pictographs found, dated for the Bureau of Land Management in Utah, in Sego Canyon and in the area known as "Head of Simbad" corroborate the author's assertion that the ancient (2000 BC) Nahuatl civilization took place in what today is Utah. Their god, Quetzalcoatl (from quetzal meaning beautiful and coatl meaning year counter) is no other than Venus during its matutine and vespertine apparitions.

Implementation of a Reduced Setup Time for Production Jobs in the Press Department at Grundfos Manufacturing Company

Department of Industrial Technology

Prepared by:

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Mr. David Pierson (Graduate Student)

Industrial Technology

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Presentation Preference: Oral

The main objective of this project was to reduce the time it takes to change dies in the press area at Grundfos Manufacturing. Grundfos Manufacturing was in the process of trying to implement a Just In Time (JIT) environment, which would reduce the overall inventory and operational expense, and increase throughput. Grundfos Manufacturing is currently taking a total 62.1 hours to change all the dies in the press area. The goal of the project was to reduce the 62.1 hours to 16 hours total for all of the dies, by December 15, 1997.

This process was a two-semester project that started in spring 97 semester and continued into the fall 97 semester. The first semester the team researched many different methods to reduce the die set up time. At the end of the semester recommendations were made. The recommendations were to purchase die-staging tables, die press machine staging lights, half turn clamps, die carts and die gurneys. A new facility layout and also new documentation and die storage methods were recommended. The second semester fall 97 the team used a *Process Improvement Roadmap* (PIR) roadmap to implement the recommendations from the spring 97 semester.¹ The PIR has seven main steps which are (1) organize and plan, (2) describe the ideal process, (3) identify critical process parameters, (4) perform measurement system study, (5) perform process capability study, (6) optimize the process and (7) design and implement the control system.

After the recommendations were implemented it was estimated that a 33% reduction in setup time was accomplished. This will increase the profit for the company because inventory, operator expense and cycle time has declined.

¹ Council for Continuous Improvement, Introduction to Advanced Statistical Tools (n.p.), 42.

**Colon Cancer, Serum Cholesterol and Body Mass Index (BMI):
A Possible Linkage(s)**

Presentation Preference: Oral

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Introduction: A number of epidemiologic studies have shown a direct relationship between colon cancer and high fat diet. There is also a developing body of knowledge that shows an inverse correlation between plasma cholesterol level and the risk for colon cancer. The possibility of low serum cholesterol in obese men as a bio-marker for colon cancer has also been reported in the literature. Based on these findings we have tried to study the possible(s) linkage between colon cancer, BMI, and cholesterol level in the Veterans population.

Patients and Method: Our method is a retrospective, case-control study that includes 74 patients with colon cancer diagnosed with the disease over the 1987-1996 period. For the control group, 74 patients with medical problems other than colon cancer were randomly selected during the same time period. In this study, variables such as height, weight, age, blood cholesterol level, type of diagnosis, and ethnicity were recorded for both the study cases and control group. Odds ratio, Chi-square tests were used to test the statistical significance of the tests. p values of 0.05 or less were considered as significant.

Results: Our study found the followings:

1. Colon cancer was significantly related to the serum cholesterol level.
2. There was a relationship between colon cancer and Body Mass Index.
3. A significant relationship was found between colon cancer and ethnicity.

Conclusion: The present study suggests the elderly and middle-aged male with Body mass indices of higher than 28 and serum cholesterol levels of 200 mg/dL or lower have a higher chance of developing colon cancer.

**Caregiver Satisfaction:
Caregivers' for Patients with Alzheimer's Disease**

Presentation Preference: **Poster**

Melissa C. Prosch, M.A.

Doctoral Student

And

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Abstract

The purpose of this study was to obtain caregiver information on various levels of caregiving. A Caregiver Satisfaction Survey was sent out to caregivers from the Alzheimer's Disease Center of Central California-Fresno (ADCCC). The subjects consisted of 43 caregivers' of Alzheimer's disease (AD) patients evaluated at the ADCCC during the years of 1996 and 1997. The subjects were sent a Caregiver Satisfaction Survey consisting of 22 questions, which included items regarding community resources, patient medication and family support. One area the caregivers commented on was that they agreed getting a diagnosis increased support to themselves, helped them keep their loved one home longer, and made residential placement easier. It was indicated that 48% of the caregivers attended AD educational classes at the ADCCC and found the classes to be helpful. Overall, it was found that community resources that were utilized before and after evaluation were very minimal. The information from the survey gives valuable insight into the needs of caregivers and how to plan for future services. It appears that additional information as to why these community services are not being utilized is needed.

The Creation of False Memory in Perceived Groups

Matthew B. Reysen

Dr. Barbara H. Basden

In a number of recent articles, false memories for non-presented words have been demonstrated to occur in a list learning paradigm. The purpose of the current study was to analyze the effects of group influence on this false memory phenomenon. Forty introductory psychology students, participating for partial course credit, viewed 9 12-item word lists. Each list contained one “critical” non-represented item that was not presented with the other words. Immediately following the presentation of each list, the participants’ recall was tested in one of three conditions. These conditions are as follows: 1) a perceived group recall test with the introduction of a non-presented critical item, 2) a perceived group recall test without the introduction of a non-presented critical item and 3) no perceived group recall test. Following each perceived group recall test (and immediately following item presentation in the no test condition) was an individual recall test for every list. As expected, recall of the critical items was highest for lists in which the critical item was presented during the perceived group recall test. Interestingly, false recall was lower in the no perceived group recall test condition than in the condition in which a perceived group recall test was administered, but no misinformation was presented. These results suggest that being in a group in which misinformation is produced increases the chances of later producing false information. However, being in a group in which no misinformation is introduced, decreases the chances producing false information, relative to not being in a group at all.

Release of Retrieval Inhibition in Directed Forgetting

Oral

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Experiment 1a. List-method directed forgetting was measured on an initial recall test. Participants were then re-exposed to 0, 25, 50, 75, or 100% of the studied items within the context of a recognition test or a pleasantness rating task. Re-exposure to 50, 75, or 100% of the studied items released retrieval inhibition, but re-exposure to 0% and 25% of the studied items did not. That is, the 0% and 25% groups showed directed forgetting on a second recall test but the 50% and 75% groups did not. Release of retrieval inhibition was no greater after re-exposure involving intentional remembering (the recognition test) than after unintentional remembering (the pleasantness rating task).

Experiment 1b. The design was similar to Experiment 1a but re-exposure occurred in the context of word-fragment completion, an implicit memory task. As in Experiment 1a, directed forgetting was absent after re-exposure to 50, 75, or 100% of the studied words, but persisted after re-exposure to 0 or 25% of the words.

Experiment 2. Participants completed an initial recall test and then were re-exposed to 0, 25, or 75% of the studied items during a word fragment completion test. They were tested under either experimental (forget List 1 but remember List 2) or control (Remember both lists) condition. Recall of List 2 words as a function of percentage of List 1 words re-exposed was compared for the experimental and control conditions.

The results of these experiments indicate that what determines release of retrieval inhibition is the number of items re-exposed rather than the nature of retrieval (intentional or unintentional) during re-exposure. Thus, the results contradict Bjork and Bjork's (1986) description of release of retrieval inhibition. However, the present explanation is consistent with their findings.

TESTICULAR CANCER IN THE SAN JOAQUIN VALLEY: INCIDENCE AND CASE-CONTROL STUDY

Oral

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An epidemiologic study of the incidence and risk factors for testicular cancer was conducted at the Cancer Registry of Central California. Previous studies of this germ-cell neoplasm suggest that parental risk factors may be important in the etiology of this cancer and that various occupations may be associated with increased risk.

The descriptive epidemiology of testis cancer was examined using age-specific and age-adjusted cancer incidence rates by race/ethnicity, time and geographic location. Incidence rates of this cancer in the San Joaquin Valley are lower than in other areas of the state and do not vary between counties within the Valley. There were no major differences in histology, laterality, or stage at diagnosis in testis cancer in the Valley compared to the rest of the state.

A two phase case-control study was conducted. Present occupation/industry, and demographic factors were evaluated using other cancer patients as controls (matching on sex, race/ethnicity and age at diagnosis). Occupations/industries associated with higher risk included executive, administrative and managerial occupations (O.R.=1.88; 95% C.I.=1.09-3.27) and the manufacturing industry (O.R.=2.11; 95% C.I.=1.26-3.56). No excess risk for farming or agricultural activities was detected.

The second phase involved a cancer registry-birth certificate record linkage study (using birth certificate controls) which evaluated parental occupation, age and farm versus non-farm residence as risk factors for testis cancer. Risk was not elevated for paternal occupation in agricultural industries (O.R.=0.84; 95% C.I.=.52-1.35) although paternal occupation in a professional industry was associated with somewhat elevated risk (O.R.=2.05; 95% C.I.=0.83-5.01). Also, parents of cases tended to be older than parents of controls at the time of birth (for fathers, 28.9 vs 27.9 years, $p=0.10$; for mothers 25.3 vs. 24.4 years, $p=0.07$.) Parental residence on a farm, however, was associated with increased testicular cancer risk (O.R.=2.35; 95% C.I.=1.03-5.15).

These data do not support a strong role for agricultural occupation in the etiology of testis cancer. Rather, occupations associated with higher social class were more closely associated with testis cancer risk. Also, older age of the parents at conception and perhaps some exposure associated with the farm environment early in life appear to increase risk.

Reliability and Validity of a Functional Measure for Pediatric Rehabilitation

Presentation Preference: Oral

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With the increasing demand for measuring functional outcomes in children and adolescents who are hospitalized for pediatric rehabilitation following traumatic and/or neurologic injury, a multi-disciplinary team developed and field-tested a new measure of functional capabilities, the Functional Rehabilitation Evaluation of Sensori-Neurologic Outcomes (FRESNO). This 196 item instrument of functional skills in 5 major content areas: self care, motor, communication, cognition and socialization was developed to measure the functional capabilities of severely injured pediatric patients on admission and discharge to help determine outcomes and to establish individual case goals. All items are rated by observation and scored as absent, emerging or present.

To assess the measure's reliability and validity, it was administered to 39 consecutively admitted pediatric rehabilitation patients at admission and prior to discharge. The FRESNO was independently completed by two interdisciplinary staff members and inter-rater reliability coefficients ranged from .88-.97 ($p < .0001$). The results also provided evidence of concurrent, construct, and discriminate validity. The FRESNO appears to be a reliable and valid developmentally-based functional measure, which can be used to set goals of rehabilitation and to track progress.

A Naturalistic Observation of the Effect of Fear of AIDS
Stimuli on Helpfulness

Oral Presentation

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The fear of contacting the HIV virus (FRAIDS) is as much a pandemic as the spread of the disease itself. A number of studies have identified stimuli that evoke the FRAIDS response. Among these stimuli are perceived homosexuality and the sight of blood. Although useful, the vast majority of these studies have relied on self-report data. Few observations have examined the effects of these stimuli in naturalistic settings. The present study examined the effects of FRAIDS stimuli on helping behavior. We observed a confederate as he approached solo shoppers at a local mall and requested change for a quarter. Help was defined as any searching of pockets or purses. Two variables were systematically varied: whether the confederate in need of help appeared to be gay, and whether the confederate appeared to have a blood injury. Results indicated that neither variable (being perceived as gay or having a blood injury) alone had a significant effect on helping. However, when both stimuli were present, help was given significantly less than when both were absent. These results are consistent with past research that has identified blood and perceived homosexuality as FRAIDS stimuli. However, we have demonstrated that, at least for this sample, the presence of both stimuli has the greatest FRAIDS response. In sum, the blood of a perceived homosexual has been a significant deterrent of interaction. Such a statement should provoke further research on this topic.

COPING STYLE AND THE EXPERIENCE OF DEPRESSION, ANXIETY, AND ANGER IN MEXICAN/MEXICAN-AMERICAN COLLEGE STUDENTS

Presentation Preference: Poster

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Introduction. Hobfoll et al. (1994) described how "rugged individualism" (coping with or solving one's problem without the help of others) is often considered the most effective type of coping. The present study is concerned with exploring the ways in which Mexican and Mexican-Americans cope with their emotions. Rugged individualism is seen as a Caucasian cultural trait, whereas collectivism may be more characteristic of the Mexican/Mexican-American culture. Thus, it was hypothesized that that collectivist coping strategies (social joining and seeking social support) would be negatively correlated with negative emotions because they are likely to act as protective factors for negative emotion in this population.

Method. Participants in this study were 105 Mexican/Mexican-American male and female introductory psychology students. The participants responded to four questionnaires which included: Strategic Approaches to Coping Scale, which measures both individualistic and collectivist forms of coping, State-Trait Depression Adjective Check Lists, Trait Anxiety Inventory, and the State-Trait Anger Expression Inventory.

Results. Anger scores had significant correlations with aggressiveness (.36), indirect coping (.27), and assertiveness (-.21). Anxiety scores had significant correlations with assertiveness (-.39), cautiousness (-.29), and intuitiveness (-.25). Finally, depression scores had significant correlations with assertiveness (-.43), cautiousness(-.24), and avoidance (.23).

Discussion. Unfortunately, the results did not support the hypothesis, however, other significant correlations are of interest. For example, it is possible that the significant correlations between assertiveness and negative emotions were due to our sample being highly acculturated. Future research should investigate the relationship between acculturation, coping and negative emotions.

ABSTRACT

FILIAL PIETY OF SECOND-GENERATION JAPANESE AMERICANS OR THE NISEI

This research explored how the Nisei, or the second generation of Japanese Americans, took care of their elderly parents and how they expect their children to take care of them as they become elderly. Twenty-four Nisei living in Fresno, California were interviewed. The Nisei participants were randomly selected from the membership list of the Nikkei Service Center, which is an agency for Japanese Americans in Fresno County. The findings of this research were that many of the Nisei took care of their parents but many of them do not expect their children to take care of them. The main factor contributing to these findings was the difference between the financial situations of the Nisei participants and their Issei parents. Generally, the Issei parents lacked both financial security and insurance coverage, whereas the Nisei siblings had well prepared retirement plans.

Shota Sasaki
March 1998

Primary Care Physician Use of Opioids in Treatment of Chronic Non-Malignant Pain: Results from a Survey of Members of a Practice-Based Research Network

Presentation Preference: Oral

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Around the clock opioid analgesia is a well accepted treatment of malignant pain. Opioids are a controversial treatment of chronic *non*-malignant pain (CNMP). This study describes primary care physician prescription practices and identifies predictors of opioid prescription for CNMP. Primary care physicians were asked to respond to vignettes about CNMP patients to determine their willingness to prescribe opioids. Responses to the 3 vignettes also provided information about concerns of: tolerance, addiction, physical dependence, and side effects. Participants were surveyed about their general opioid prescription knowledge, practical experience with CNMP patients and concerns about regulatory scrutiny. Surveys were mailed to 163 primary care physician members of the University of California, San Francisco (UCSF) Collaborative Research Network. The sample (n=130) consisted of 84% family physicians 67% of whom were male. Physicians reported that approximately 6% of their patient volume had CNMP. Fifty percent of these CNMP patients were prescribed opioids. Ninety percent of the respondents felt that the vignettes were "realistic" reflecting actual patient encounters. In response to the vignettes more than 92% of participants would prescribe *as-needed* low potency opioids for patients with CNMP who had exhausted other treatments; fewer (57%) would prescribe *around-the-clock* low potency opioids. Only 32% would prescribe high potency opioids as needed and fewer still (26%) would prescribe them *around-the-clock*. In summary, most primary care physicians would prescribe as-needed low potency opioids to patients with CNMP syndromes.

PROGRESS IN USING GENETIC MARKERS TO TAG A ROOT ROT RESISTANCE GENE IN PEPPER (*CAPSICUM*).

Poster

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Phytophthora root and stem rot (PRR), caused by *P. capsici* (Leon.), is one of the most damaging fungal diseases of pepper. Cultural practices and fungicides are only partially successful in controlling the disease. In related fungal species, fungicide-resistant isolates have been identified. We are tagging the resistance gene from *C. annuum* 'Criollo de Morelos 334' (CM334) using RAPDs and AFLPs, through bulked segregant analysis of homozygous resistant and susceptible F_2 DNA pools from the cross *C. annuum* 'Joe E. Parker' (susceptible) x CM334. We have tested 300 random decanucleotide primers in RAPD reactions and found twelve primers (4%) that detect polymorphism between the pools. Of these primers, 6 have shown polymorphism when RAPD analysis was performed on 88 individual F_2 plants. AFLP work has just commenced, generating detectable polymorphism between the two pools. This will continue, with analysis of F_2 progeny through AFLP starting in the near future. Development of a much larger F_2 population is well underway for high-resolution linkage mapping. We currently have 390 plants in this new population, F_3 seed from 125 of these plants for use in inoculation studies to determine F_2 resistance genotypes.

Spatial Frameworks for Memory in Young and Older Adults

Presentation Preference: Poster

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Previous studies have demonstrated that older adults can use visually distinctive cues to enhance their spatial memory performance and their recall of the identities of items located in space. Other research has shown that older adults can also use relational information to enhance recall. The relationship between relational and visuospatial support for memory across the adult lifespan is complex and has been little explored. In the present study, this relationship was examined in tasks which measured free recall for item sets which possessed different degrees of visuospatial and relational support for recall. It was predicted that both types of support would enhance older adult recall relative to that of the young, and that the two types of support would synergize. The results were generally consistent with these predictions, although the synergistic effect was confined to comparatively short latencies, suggesting age-related differences in consolidation. These findings show that older adults can use relatively simple relational or visuospatial support systems to enhance free recall significantly.

This research was supported by Grant AG 11605 from the National Institute on Aging.

In Search of the Quasi-Liquid Layer of Water

Poster Presentation

Terry Sheehan (graduate student), and James Vesenka

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Due to technological limitations, until recently, observations of water on a microscopic scale with nanometer resolution was prohibited. With slight modifications the non-contact atomic force microscope (AFM) can be converted to a non-contact *scanning polarization* force microscope (SPFM).¹ This enables nondestructive imaging of liquid layers. Samples of mica, or highly oriented pyrolytic graphite (HOPG), have been scrutinized and imaged in an environmental chamber at various humidity levels. Results from contact and non-contact AFM imaging show noticeable reduction in resolution typical of non-contact images. Water forms islands on hydrophobic substrates such as HOPG, but tends to uniformly coat the hygroscopic surface of mica.

Surprisingly, little is known about the behavior of thin films of water at this level of resolution.² The primary motivation of this effort is to develop the necessary skills required for the analysis of ice crystals in some future undertaking. Specifically, the illusive liquid-like layer (LLL) associated with ice that seems to have properties other than water.³ Water takes on interesting characteristics as the humidity level increases, such as the formation of island clusters whose image height is reduced due to a measurable reduction in attractive forces.⁴ Understanding the inherent behavior of water at different phase transitions has practical applications at the industrial level such as paints, lubricants, and plant treatment.⁴ SPFM complements our understanding at the nanostructure level.

Acknowledgments:

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PERSONALITY CONFLICT TYPES

Presentation Preference: **POSTER**

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The objective of this study is to introduce personality conflict types to construction management students and to observe their behavior in a stressful environment such as the Associated Schools of Construction (ASC) Twenty-four Hour Marathon Competition. During the twenty-four hour period, teams of five students assemble "real-world" bid and management data that normally takes months for companies to prepare.

In order to assess the amount of conflict that can take place in a stressful environment, the students participated in a standard Managing Conflict Test provided by the USAF Academy of Military Science. This test was chosen over other models based on the amount of questions and the ease by which the students could follow the results. The Managing Conflict Test is designed to assess standard internal conflict personalities based on four areas: (1) Competitive, (2) Collaborative, (3) Avoidance, and (4) Accommodation.

With the test administered three months prior to the competition, a baseline of data was available in order to assess which teams were possibly going to have the best chance of successfully managing their internal conflicts. A summary of the results yielded that the majority of students who placed in the "collaboration" quadrant tended to manage their conflict with a more supportive team structure. The advantages to this were mutual exploration of new approaches, mutual resolutions with a higher team commitment, and permanent solutions to their problems. The disadvantage within the "collaborative" quadrant included that these individual personalities tended to waste time with the requirements of participation from the entire group structure.

In conclusion, the results of testing the construction management students who participated in the ASC Competition on conflict personality types proved to be an excellent starting point for future applications on stress and conflict within team environments.

**Minority Women In Academia: An analysis of the perceptions and concerns
of minority women faculty and staff members at California State University,
Fresno**

Oral Presentation

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Graduate Student

The purpose of this study is to bring to light the perceptions that minority women faculty and staff have in terms of racial and gender diversity, equal treatment in the academic environment, and environmental fit. This study is considered to be significant due to the fact that the lack of diversity is an important issue in most institutions of higher learning.

This study presents three objectives. The first objective is to evaluate the perceptions of minority women faculty and staff members at CSUF as to their needs of racial and gender diversity. The second objective is to examine the perceptions of minority women faculty and staff members in regards to comparable treatment. The third objective of this study is to elicit the responses of the above mentioned target group as to their perceptions on how they fit into the academic environment.

The data collected to facilitate in the analysis of the objectives was through a survey. There are four hypotheses created which are presented and statistically tested. The survey is developed to assess the perceptions of minority women.

The findings from the hypothesis indicated that the minority women faculty and staff members of CSUF perceive that their environment is not one that facilitates equality.

The conclusions to the survey lead to recommendations to the dilemma of the lack of diversity in the university setting. Methods of obtaining diversity and eliminating discrimination are also explored.

The Intergenerational Studies:
Perceptions of Participation in a
Long-term Longitudinal Study

Presentation Preference: Poster

James Stephens (undergraduate)
Carolyn Tellalian (undergraduate)
John Thomas (graduate)

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278-5127

The Intergenerational Studies (IGS) comprise three of the longest-running studies of human development: the Berkeley Growth Study (BGS), the Berkeley Guidance Study (GS), and the Oakland Growth Study (OGS). The BGS and GS both began in 1928 with infants; participants were observed extensively throughout infancy, childhood, and adulthood, and were most recently assessed at age 68. The OGS began in 1931 with fifth graders; participants were observed extensively throughout childhood and adulthood, and were most recently assessed at age 75. Data from the IGS have provided the scientific community with invaluable information regarding normal human development. Normally it is assumed that nonexperimental research has minimal impact on participants, but because the IGS are so extensive and long-running, we recently explored the accuracy of that assumption. In 1996, remaining study members (N=151) were asked to indicate, via questionnaire, if their life was influenced in any way by being a continuing member of the IGS (1="life not at all influenced" to 6="life very much influenced") and, if they felt an influence, how their life was influenced. Results indicate that the most frequent response (38 of 151; 25%) was that the study had no influence. However, others felt the study was impactful ($\bar{X}=3.34$, $SD=1.78$), and, in fact, 21 of 151 (14%) indicated participation was very much influential. Quotes from research participants illustrating both positive and negative impacts will be given. Overall, it appears that research participation, particularly in a long-term longitudinal study, can significantly affect a subset of people.

THE ROLE OF GENETIC VARIATION IN INTERSPECIFIC HYBRIDIZATION
IN THE GENUS *CARPOBROTUS* (AIZOACEAE)

Oral (graduate) presentation

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Despite the prevalence of hybridization in plants, few studies have examined the distribution of genetic variation in multiple geographically-separated hybrid populations formed by the same species pair. Variation in the strength and rate at which factors affect hybridization dictates the potential for variability in patterns of hybrid formation. We describe the distribution of cpDNA and nuclear allozyme variation within and among several hybrid populations formed as the result of interspecific mating between *Carpobrotus chilensis* and *C. edulis* (Aizoaceae). These species co-occur throughout much of coastal California and form several geographical hybrid "populations". Analyses of chloroplast DNA and nuclear allozyme data reveal hybrid populations with wide-ranging levels of variation. Comparisons of the distribution of genetic variation between hybrids and parental taxa suggest that the initial formation of F_1 hybrids may be a rare occurrence, limited to the formation of particular gene complexes where one or both parental species display relatively low genetic variation; this initial barrier may be overcome or circumvented, however, in hybrid populations where greater genetic variation exists.

Comparison of *Entamoeba insolita*, *Entamoeba invadens* and
Entamoeba ranarum
by randomly amplified polymorphic DNA

Presentation Preference: Oral

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Several criteria have been used to identify species of the genus *Entamoeba*. Traditionally they have been grouped by the presence or absence of cysts in the life cycle and the number of nuclei in mature cysts. Other useful characters include host species and cyst morphology. The three species studied here all form cysts with four nuclei. However, *Entamoeba invadens* and *E. insolita* infect reptiles while *E. ranarum* infects amphibians. *E. insolita*, furthermore, is distinct from *Entamoeba invadens* in that it has a thick irregularly shaped cyst wall. This unusual characteristic has also been reported for *E. ranarum*.

The purpose of this study is to determine relationships between these three *Entamoeba* species using the RAPD (randomly amplified polymorphic DNA) method. Results of this study are compared with the results of a riboprinting study done by Clark in 1997 (Journal of Eukaryotic Microbiology, 44: 142-154.)

Axenic cultures of *Entamoeba invadens*, *E. insolita*, and *E. ranarum* were purchased from the American Type Culture Collection and maintained in the laboratory here. A xenic culture of *E. insolita*, isolated from a Galapagos Tortoise in the San Diego Zoo, has also been maintained here for several years. DNA was extracted from these organisms, purified, and subjected to polymerase chain amplification using primers purchased from Operon Technologies, Inc. The PCR products were separated from one another on agarose gels by electrophoresis and photographed for subsequent analysis. Differences between the *Entamoeba* species were observed, but differences between the results of this study and the riboprinting study were also seen.

ADOLESCENT ATTACHMENT PARENTING STUDY

Presentation Preference: ORAL

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Abstract

This study targets one of the major social problems facing our society today: teenage pregnancy and parenthood. CSPP doctoral students with the assistance of case managers from the Adolescent Parenting programs in Kings County, implemented six culturally sensitive 8-week parenting classes. These classes had the following objective - to provide teen parents with enhanced and expanded parenting capacity to attach/bond with their infants in a healthy, positive relationship.

The participants were adolescent mothers with different ethnicities, between 12 and 19 years old. Thirty-two mothers completed both pre-test and post-test questionnaires. The efficiency of program was evaluated with measures designated to assess four areas of parental functioning: 1) Maternal Sensitivity (Empathy scale of Adult-Adolescent Parenting Inventory), 2) Quality of Parent-Child Relationship (Parent-Child Relationship subscale of Parenting Stress Index/SF), 3) Mother's Experience of Stress in Parent Role (Parental Distress subscale of Parenting Stress Index/SF), and 4) Maternal Perception of Child (Difficult Child subscale of Parenting Stress Index/SF).

The analysis of pre-test and post-test scores revealed a significant increase in the teen mothers' sensitivity (empathy) towards their babies ($t(31)=-3.70$, $p<.001$, one-tailed), and a trend towards experiencing the parent-child relationship in a more positive way ($t(31)=1.36$, $p<.10$, one-tailed). There was no significant changes in teen mother's experience of stress in parent role or in teen mother's perception of the child.

These results suggest that the classes are having an effect on the teen parents' capacity to attach/bond with their infants in a healthy, positive relationship.

THE EFFECTS OF EXCUSES VERSUS CONFESSIONS ON MOCK JURIES

Presentation Preference: Oral

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The effectiveness of our current jury system has long been debated. In order to fairly evaluate the system, we must try to understand the effects of linguistic techniques, as used by offenders, on juror's decisions. It was hypothesized that an acceptable excuse given by a convicted criminal at the sentencing phase of a trial would be more effective in reducing criminal responsibility than a confession, which in turn would be more effective than an unacceptable excuse. The study was conducted using a between-subjects design and consisted of 150 participants. Each participant received a packet which contained a questionnaire pertaining to prior jury experience and criminal victimizations, a scenario of a crime, a transcript that contained either an acceptable excuse, an unacceptable excuse, or a confession, and a questionnaire pertaining to the various dependent variables. A series of ANOVAs, multiple regressions, correlations, and path analyses were used to analyze the results. The acceptable excuse was found to be most effective at reducing punishment. It was also found, although not significantly, that the unacceptable excuse was the most effective in reducing responsibility. The findings of this study seem to suggest that jurors are swayed by the quality of what they hear rather than by the facts of the case.

ISOLATION OF MUTANTS OF THE CELL DEATH PROTECTION GENE *AT-DAD1* FROM *ARABIDOPSIS THALIANA*

Oral Presentation

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The *At-Dad1* gene is suspected of protecting cells in *Arabidopsis*. There is only preliminary evidence to its biological role. *At-Dad1* has high similarity to the vertebrate cell death protection gene *Dad1* in humans and hamsters and the *Ce-Dad1* gene in *C. elegans*. My main objective is to give additional support to its cell death protection functions by isolating mutant *Arabidopsis* lines. A loss of cell death protection function in these mutants would provide solid evidence to its biological role.

The mutants will be isolated from a collection of 8000 lines containing the T-DNA mutagen inserted randomly throughout the *Arabidopsis* genome. The mutant lines, produced by insertion of the T-DNA mutagen into the *At-Dad1* gene, will be identified by using a novel polymerase chain reaction (PCR) screening technique. The first step in the screening process is to design primers from both the *At-Dad1* and the T-DNA sequences. Various combinations of primers are used to amplify DNA from pooled sets of lines (we have 80 pools of 100 lines each). Amplification of a product indicates a line within that pool which contains a T-DNA inserted at the *At-Dad1* locus. Subsequent screening of subpools of the initial pool will allow the identification of the specific line. These putative mutants will be grown, and their second filial (F2) generation will be subsequently genotyped by PCR or Southern analysis. The phenotype of the line will be studied morphologically to determine whether or not it has defects in its normal cell death patterns.

An Algorithm for a Representation Theorem
Poster Presentation
 NORMAN WOO and TODD KANDARIAN
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Scientists and mathematicians, in particular, have always been interested in determining whether the equation, $x^n + y^n = z^n$ is solvable where x, y, z and n are positive integers and $n \geq 3$. The question can be rephrased by asking whether z^n can be represented as a sum of two integers, x^n and y^n . We have developed an interesting algorithm for a representation theorem.

Definition 1: A set $\{b_1, b_2, b_3, \dots\}$ of integers is said to be a base for the set of all integers if any integer x can be uniquely represented in the form $x = \sum_{i=1}^{\infty} a_i b_i$, $a_i = 0$ or 1 , and $\sum_{i=1}^{\infty} |a_i| < \infty$.

Theorem 1 Prove that $b_i = (-2)^{i-1}$ is a base.

Proof: Clearly, 0 can be represented where $a_i = 0$ for i .

Note that 1, -1, 2 and -2 can also be represented.

$$\begin{aligned} 1 &= 1(1) + 0(-2) + 0(-2)^2 + 0(-2)^3 + \dots \\ -1 &= 1(1) + 1(-2) + 0(-2)^2 + 0(-2)^3 + \dots \\ 2 &= 0(1) + 1(-2) + 1(-2)^2 + 0(-2)^3 + \dots \\ -2 &= 0(1) + 1(-2) + 0(-2)^2 + 0(-2)^3 + \dots \end{aligned}$$

Case 1: We want to show that every positive even integer can be represented. By using mathematical induction, we can assume that $2k$ can be finitely represented.

$$2k = a_2(-2) + a_3(-2)^2 + a_4(-2)^3 + \dots + a_j(-2)^{j-1}$$

Let us consider $2k + 2$. In the representation for $2k$:

if $a_2 = 1$, then we change a_2 to 0. We are done.
 if $a_2 = 0$, then we change it to 1, and go to a_3 .
 if $a_3 = 0$, then we change it to 1. We are done.
 if $a_3 = 1$, then we change it to 0, and go to a_4 .
 if $a_4 = 1$, then we change it to 0. We are done.
 if $a_4 = 0$, then we change it to 1, and go to a_5 .
 if $a_5 = 0$, then we change it to 1. We are done.
 if $a_5 = 1$, then we change it to 0, and go to a_6 .
 if $a_6 = 0$, then we change it to 1, and go to a_7 .
 if $a_6 = 1$, then we change it to 0. We are done.

Since $2k + 2$ is finite, this process must terminate in a finite number of steps. The three remaining cases are positive odd integer, negative even integer and negative odd integer. With a modification of the above algorithm, similar techniques can be used to show their representations. We will show the proof in the poster presentation.

