Thesis Library
2014-2015 Abstracts

1. Antezana, Luis
   Thesis: The Right to Counsel Should Extend to Unaccompanied Minors
   Faculty Advisor: Martin Adamian

2. Arrastia, Mary V.
   Thesis: The Development And Optimization Of Paper Microfluidic Platforms
   Faculty Advisor: Frank A. Gomez

3. Avoundjian, Alex
   Thesis: Development of Computer-Aided Protection Engineering
   Faculty Advisor: Juan Castaneda

4. Bahman, Oliver
   Thesis: Pedagogical Approaches to Financial Literacy
   Faculty Advisor: Kathryn Hansen

5. Balina, Alexis
   Thesis: Consumer Acceptance Of Healthier, Alternative Raspados Options
   Faculty Advisor: Kathryn Hillstrom

6. Bhandari, Anish
   Thesis: Determining the Tissue Requirements for Wdr68 Function in Zebrafish (Danio Rerio) Craniofacial Development
   Faculty Advisor: Robert Nissen

7. Chen, Donna
   Thesis: Learning Among Trolls: How Negative Commentary Affects Online Lecture Experience
   Faculty Advisor: Ji Y. Son

8. Delgado, Rocio Aimee
   Thesis: The Effect of a Smile on Emotional States
   Faculty Advisor: Joel Ellwanger

9. Diep, Jasmine C.
   Thesis: The Effectiveness of Zero-based Budgeting (ZBB) for CSULA Faculty Advisor: Kathyrn Hansen

10. Escobar, Delmy Y.
    Thesis: The effects of multitasking on learning: Differences between students who can pause online lectures vs. students who cannot pause online class lectures
    Faculty Advisor: Kaveri Subrahmanyam

11. Foti, Cecilia Christine
    Thesis: The Dairies of Los Angeles County, 1910-1940
    Faculty Advisor: Mark Wild

12. Girard, Peter B.
    Thesis: Making Sense of Reconciliation Narratives: Israel and the Occupied Palestinian Territories
    Faculty Advisor: Robert DeChaine

13. Jordan-Zimmerman, Arwen R.
    Thesis: Three Strikes and the Media
    Faculty Advisor: Nicole Smolter

14. Klingenfuss, Melody M.
    Thesis: Los Angeles Times and Undocumented Students: A Content Analysis of Portrayal and Framing
    Faculty Advisor: Kate S. Kurtin

15. Marquez, Moya
    Thesis: Communication First: Finding New Ways to Theorize Community-Based Nonprofit Organizations
    Faculty Advisor: Kamran Afary

16. Masters, Rachel L.
    Thesis: Sustainable Fashion
    Faculty Advisor: Shannon Lindsey-Frugis

17. McDermott, Peter
    Thesis: Ultraviolet Light Exposure Increases Arginine Methylation On Histone H3, H4, And The Gar Motif
    Faculty Advisor: Cecilia Zurita-Lopez

18. Morado, Ephraim Empalmado
    Thesis: Progress Towards The Synthesis And Characterization of a Heterodimer Capsule
    Faculty Advisor: Linda Tunstad

19. Montes, Anna
    Thesis: Predicting the Likelihood of a First-Time Freshman to Attend California State University, Los Angeles
    Faculty Advisor: Marshall Vallelunga

20. Mota, Claudia
    Thesis: “My Mom Gave Me Eleven Money”: Dual Language Learners’ Learning of Mass and Count Nouns
    Faculty Advisor: Kaveri Subrahmanyam

21. Navarrete, Joshua
    Thesis: Food Justice in Boyle Heights
    Faculty Advisor: Choi Chatterjee

22. Peña Ruiz, Cuitlahuac
    Thesis: Economy Comparison between Running Barefoot and Using Running Shoes with Insoles for Flat Feet
    Faculty Advisor: Nazarth Khodiguian

23. Pereira, Nicole A.
    Thesis: Provider Attitudes on Psychosocial Factors can Enhance Diabetes Care for Patients with Type 2 Diabetes
    Faculty Advisor: Beth Hoffman

24. Phuong, Jenny
    Thesis: Riemann’s Rearrangement Theorem and the Convergence of Series With Random Signs
    Faculty Advisor: Michael Hoffman

25. Reyes, Johnn
    Thesis: Los Alamos National Laboratory Material Development Team
    Faculty Advisor: Adel Sharif

26. Russell, Scott Ira
    Thesis: The Wellbeing of African-American and Latino-American Male Veterans in California: A Comparative Study
    Faculty Advisors: Joanne Altschuler and Siyon Rhee

27. Ulloa, Brittany S.
    Thesis: Synthesis of a Multivalent Tumor-Targeting MRI Contrast Agent
    Faculty Advisor: Carlos G. Gutierrez

28. Vilhena, Marina B.
    Thesis: Baianas, a Masked Brazilian Iconography
    Faculty Advisor: Scott Wells

29. Zhu, Pengyi
    Thesis: Regulation of Biofilm Formation by YCK2 in Candida albicans
    Faculty Advisor: Hyunsook Park

30. Zielinski, Alexa C.
    Thesis: FoodFixFinder: An App That Supports Healthy Food Choices
    Faculty Advisor: Anne Larson

ABSTRACT

The Right to Counsel Should Extend to Unaccompanied Minors

By

Luis T. Antezana

Current United States policy bars unaccompanied minors from appointed counsel at the government's expense. Official reports, however, conclude that appointing counsel to immigrants would save the Federal government money. By rethinking the due process given to children seeking-asylum, we can fix the current adversarial immigration court system: child versus judge. Ultimately, appointing counsel to children will save the federal valuable taxpayer dollars.

ABSTRACT

The Development and Optimization of Paper Microfluidic Platforms

By

Mary V. Arrastia

Chapter 1. A brief historical perspective and basic principles are presented on microfluidics. An emphasis is placed on the development of paper microfluidics and its applications in biomedical research. This is then followed by a general introduction to chemometrics and its impact and applications in chemistry research.

Chapter 2. Herein, a novel paper-based microfluidic device (MD) assay is described utilizing a nitrocellulose (NC) membrane to detect immunoglobulin G (IgG) antibodies via a colorimetric analysis. The MDs consisted of layered polyethylene terephthalate and pressure-sensitive adhesives and an NC channel. The biotin labeled IgG antibody was spotted and dried on the NC channel before wicking a series of solutions through it, including a Tris-tween wash and varying concentrations of alkaline phosphatase conjugated to streptavidin (ALP-Strep). Para-nitrophenyl phosphate (pNPP) was spotted at the site of the antibody following these solutions, which results in a vibrant yellow color. The reaction proceeds for 10 minutes before applying the pNPP stop solution. The device was then dried, scanned, and analyzed yielding a linear range of yellow color intensities vs. ALP-Strep concentrations.

Chapter 3. Despite the multitude of studies on paper microfluidics, optimization studies have been minimal as they failed to examine interactions between relevant variables. To resolve this issue, chemometrics was employed using a multivariate approach called response surface methodology (RSM). In this study, a simple Y-shaped

chip was fabricated and solutions of blue and yellow food dyes were mixed within the platform in order to optimize the mixing response. The three parameters that were observed on this platform included the length and width of the channel and volumes of the food dyes. A 2^3 factorial design was applied to measure the contributions and interactions between the previously mentioned variables. The responses were read at 50% of the channel's length. Data analysis through analysis of variance (ANOVA) has concluded that the width and volumes had the greatest contribution and interaction while the length had the least contribution. Using these results, a central composite design (CCD) was used and an optimized model was established with the width of the channel at 2.30 mm, the length at 12.5 mm, and the volumes of each food dye solution at 0.75 μL.

Chapter 4. Environmental mixing and deconvolution studies for potential unknown sample metal analysis were described herein employing paper microfluidics. The platform for the mixing studies consisted of a straight channel design with an inner and outer circular region separated by 10.0 mm for depositing and analyzing samples, respectively. 0.5 μL of increasing concentrations ferric chloride ($FeCl_3$) from 1 mM to 100 mM was deposited in the inner circle and dried. Then, 10 μL of 7.23 mM salicylic acid wicked through the channel and the resulting deep purple complex was analyzed at the outer circle. A linear range of concentrations for Fe^{3+} was observed between 6.25 mM and 75 mM. Proof of concept was established and continuing work is being done to improve sensitivity levels for this particular assay.

Most paper microfluidic studies tend to focus on the response as the result in changing the concentration of one chemical at a time. In the case where various chemicals are present in an unknown sample, such as in a soil sample containing different

metals, a standard method of analysis is needed to easily break down the concentrations of all chemicals, hence providing a need for a deconvolution study. The experimental layout utilized the same chip design and reagents as previously described for the chemometrics study. Varying solutions of 0-1% concentrations of blue and yellow food dyes were mixed by holding one color concentration constant while varying the concentrations of the other color. Their corresponding responses were then obtained and graphed against their respective parameters. To improve the methodology of this study, Beer's law is being implemented to accelerate the deconvolution of food dyes.



Development of Computer-Aided Protection Engineering

Senior Design 2014-2015
Final Report

Student Team Members:
Alex Avoundjian, Christopher Duch, Jairo Guerrido, Heri Sarkisian

Faculty Advisor:
Juan Castaneda

Liaisons:
Willie Thornal, Arturo Torres

June 10, 2015

Abstract:

Southern California Edison (SCE) is a major electrical utility which serves millions of customers in California. SCE uses Computer Aided Protection Engineering (CAPE) software to model electrical power systems and simulate faults. A fault is any failure on the power system which interferes with normal system operation. Some causes of faults include equipment failure, cars hitting electrical poles, or lightning strikes. Faults can result in blackouts and outages that can severely damage the system. The purpose of this project is to model an electrical system on CAPE which can adequately detect fault currents, and prevent them from damaging the system. This report provides an understanding of the importance of power system protection through the analysis of the components of a substation and protective devices.

ABSTRACT

Pedagogical Approaches to Financial Literacy

By

Oliver Bahman

The deficit in Financial Literacy is a growing issue reflected across American society. When faced with financial situations, Americans increasingly make suboptimal decisions that lead to their detriment—both short-term and long-term. Negative consequences have an impact on both the individual and for our economy as a whole. This ever-growing concern has been researched by numerous scholars in the field of socioeconomics. It is known that less than one-third of Americans are financially literate and that the problem is getting worse. However, financial educational practices which will remedy the problem have been less commonly studied.

Many current practices in Financial Literacy education are ineffective. They do not advance social empowerment, the ultimate goal of the initiative. Despite ample technological advancements, extensive online information sharing platforms and countless educational and popular culture websites, financial literacy is continually declining while informational access and coverage is soaring. Why is this occurring?

I argue that the quality and effectiveness of these Financial Literacy platforms and the overall pedagogy of teaching Financial Literacy can and must be improved. First, Financial Literacy education needs to be relevant, practical, and engaging. If it lacks any of these three factors, it becomes ineffective and loses material resonance with learners. Secondly, many individuals have mixed emotions and preconceived notions about finances. They may have had bad experiences which fuel their negative attitudes toward

the discipline. Because of this common social phenomenon, an effective pedagogy must address: learner relevancy, understanding the learner and their mindset, and the exchange of communication, assessment, and feedback. Lastly, I explore how formal, informal, and technological learning platforms can foster both theoretical and practical competency. Improving the way Financial Literacy is taught will improve Financial Literacy.

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

CONSUMER ACCEPTANCE OF HEALTHIER, ALTERNATIVE *RASPADOS* OPTIONS

submitted in partial fulfillment of the requirements for graduation from the

HONORS COLLEGE

by

Alexis Balina

Under the Direction of Dr. Kathryn Hillstrom

For Nutrition 499 Undergraduate Directed Study

March, 20 2015

Abstract

There is a gap in the knowledge concerning snack consumption habits and acceptance of healthier snack options among Latino youth. Often overlooked, street vendors play a prominent role in the food landscape of many urban areas, including East Los Angeles. A popular snack among Latino youth are *raspados*, sugar sweetened beverages which are high in calories and low in nutritional value. The purpose of this study was to investigate the attitudes toward vendor-sold *raspados* and test consumer acceptance of healthier, alternative *raspados* options among adolescents and young adults in East Los Angeles. Two focus groups consisting of a convenience sample of 9 students (5 males and 4 females) and three taste tests consisting of 100 participants were used to collect information. Participants' ages ranged from 14-20 years. Factors perceived as influencing the purchasing of *raspados* included availability, convenience, weather, flavors, nostalgia, size, taste, and appearance. Factors perceived as influencing the acceptance of healthy *raspados* included price, taste, and use of fruit. Data collected from the focus group was used to develop healthier, alternative *raspados* options that were used for the taste tests. Flavors were scored using a 9- point Hedonic scale and resulted in an acceptability rating of 7.12 $\pm$ 2.07 for lemon, 6.83 $\pm$ 1.97 for pineapple, 6.71 $\pm$ 2.18 for mango, 6.64 $\pm$ 2.04 for watermelon, 5.58 $\pm$ 2.11 for cantaloupe, and 4.34 $\pm$ 2.34 for hibiscus. There was no significant difference among the lemon, pineapple, mango, and watermelon *raspados* ($P>0.05$). There was a significant difference between the hibiscus *raspados* and the other *raspados* flavors. Similarly, the cantaloupe *raspado* recipe was significantly different than the other *raspados* options. Our results suggest that Latino students were receptive to the idea of a healthier *raspados* option, as long as taste is taken into account and the cost is not excessive.

Anish Bhandari

Determining the Tissue Requirements for Wdr68 Function in Zebrafish (*Danio Rerio*) Craniofacial Development

Abstract

Wdr68 is a 343 amino acid WD40 repeat domain protein that is highly conserved across diverse organisms. Wdr68 is responsible for dorsal and ventral craniofacial cartilage development in zebrafish, and is known to be required for Endothelin-1 (Edn1) signaling. Edn1 is expressed in the pharyngeal ectoderm and is responsible for cranial neural crest cell (CNCC) patterning for lower jaw development. Many craniofacial syndromes are caused by defects in signaling pathways that pattern the CNCCs along the dorsal-ventral axis. For example, in humans, deletion of the Edn1 ligand leads to Auriculo-Condylar Syndrome, while SOX10 mutations lead to Waardenburg-Hirschsprung Disease. I sought to determine which tissues require Wdr68 activity through experiments using a GAL4-UAS driver-reporter system. I generated an ectoderm-derived epidermis-specific Tg(*krt4*:Gal4-VP16) driver line and a Tg(UAS:GFP-*wdr68*) reporter line. A CNCC-specific Tg(*sox10*:Gal4-VP16) driver line was to be crossed to the Tg(UAS:GFP-*wdr68*) reporter line as well. In addition, I have successfully created and tested the three major mRNA probes, GFP-Fluor, Krt4-DIG, and Edn1-DIG, necessary for In Situ Hybridization to be performed on the multiple driver-reporter pairs. These findings have made progress towards determining whether *wdr68* signaling is required in the CNCCs or the surrounding ectoderm-derived epidermis of the pharyngeal pouch, for edn1 expression.

ABSTRACT

Learning Among Trolls: How Negative Commentary Affects Online Lecture Experience

By

Donna Chen

Although movements such as Massive Open Online Courses (MOOCs) and flipped classrooms have increased the popularity of online video lectures, scant research has been conducted regarding different affordances of this new pedagogy. In this study, we examined the effect of tone in negative commentary on learning and speaker perception. Participants (n = 118) watched an online lecture interspersed by commentary in one of three conditions. Two experimental conditions included negative, critical comments made towards the speaker but differing in tone: crass and polite. A control condition read neutral comments. Afterwards, participants completed questions designed to measure their learning of the content and perception of the speaker. We hypothesized that negative comments would prompt participants to view the speaker more negatively than the neutral comments. We also hypothesized that participants in the crass condition will view the speaker more favorably than those who saw polite criticisms. Furthermore, we hypothesized that exposure to trolling will beget more trolling. Our results show a significant difference in memory for criticisms. Participants in the neutral condition viewed the speaker most favorably. Exposure to trolling did not lead to more trolling.

ABSTRACT

The Effect of a Smile on Emotional States

By

Rocio Aimee Delgado

The facial feedback hypothesis states that muscle activations associated with facial expressions affects a person's emotions. In the present study we examine whether activation or inhibition of the zygomaticus (smile) muscle would influence emotional states. Seventy-five students viewed positive, negative, and neutral pictures from the International Affective Picture System while having their facial muscles manipulated to: 1) activate a smile, 2) activate a frown, or 3) no-manipulation. Students' subjective ratings of the pleasantness of the pictures were not influenced by the facial manipulation elicited during picture viewing. However, consistent with the hypothesis, the acoustic startle reflex was influenced by facial activation ($p<.05$) such that frowning facilitated this defensive reflex compared to smiling. The findings provide partial support for the facial feedback hypothesis.

Keywords: facial feedback, emotions, startle response

ABSTRACT

The Effectiveness of Zero-based Budgeting (ZBB) for CSULA

By

Jasmine C. Diep

California State University, Los Angeles (CSULA) is currently using the incremental budgeting model to plan the budget every year based on prior year's expenditures. However, it is not the most effective approach because it does not factor in one-time expenditures or other variable expenditures that may not be needed for future years. Since 2013, the Budget Department has experimented with several budget models to identify one that can best cater to the needs of the university. In this study, zero-based budgeting (ZBB) is being proposed as an alternative model to help control spending costs while effectively allocating funds in other areas. Zero-based budgeting does not use prior year's expenditures as a base; instead each department begins its budget at zero and funding is provided for university programs and activities based on its needs. Interviews were conducted to gather information specific to CSULA's budgeting system, which will aid in CSULA's decision to implement zero-based budgeting. A zero-based budget template was created to compare the differences to incremental budgeting for the Budget Administration at CSULA. As a small subset of the entire university, zero-based budgeting can be applied to other departments at a macro level. The study concluded that no pure model would work, but rather a hybrid model that consists both incremental and zero-based budgeting would be more effective for the university.

ABSTRACT

The effects of multitasking on learning: Differences between students who can pause online lectures vs. students who cannot pause online class lectures

By

Delmy Y. Escobar

Many college students today are multitasking using social media websites, such as Facebook and Twitter, and also sending text messages during class (Junco and Cotton, 2012). Previous studies have indicated that multitasking in a class lecture setting negatively affects the students' learning. However, research has not found effects of multitasking on learning within a laboratory setting. This may be because students in lectures are unable to revisit the material that they may have missed while multitasking. In order to test whether not being able to go back and review when multitasking may be disrupting a student's learning, participants in this study were able to either pause and review (Pause) or not pause (Not Pause) when listening to a lecture and multitasking. Fifteen students were randomly assigned to the no-pause condition and 15 students to the pause condition. Participants in both conditions watched and listened to the same 40-minute lecture video and were told to send messages to their friends using an iPad. Participants in the pause condition were able to stop, rewind, and pause the video when sending messages on the iPad; however, participants in the no pause condition were not able to do this. Participants were then given an 18-question quiz regarding the content of the video and the iPad was taken away. Results indicated no significant difference between the two conditions. The implications of the results for out of school learning will be discussed.

ABSTRACT

The Dairies of Los Angeles County, 1910-1940

By

Cecilia Christine Foti

Though agriculture has a long history in California, few recognize or remember how significant the industry was in Twentieth Century Los Angeles. In particular, Los Angeles dairy farms were leaders in the nation in terms of profit, quantity, quality, and, increasingly, industrialized operations. This thesis focuses on revealing the process of agricultural industrialization by narrating and analyzing the external forces and internal motivations of Los Angeles dairymen. Supporting elements include analysis of the actions of local famer's organizations and cooperatives, including highlights on organizer Frank Swett's story and the Los Angeles branch of the California Farm Bureau Federation. A brief discussion of the growth and industrialization of diary-related businesses also corroborates Los Angeles dairy as an early model and leader for "modern" dairies across the country. Emphasis on early-industrializing dairies and creameries, like Adohr Stock Farms, demonstrates that the process of industrializing is lengthy and fueled by complex, conflicting motivations, directing readers away from "good versus evil" or "greedy versus benevolent" generalizations. The author argues that this story represents a significant gap in Los Angeles' historical narrative, and that filling such a gap would provide necessary context for modern-day economic, social, and environmental concerns in the city.

ABSTRACT

Making Sense of Reconciliation Narratives:
Israel and the Occupied Palestinian Territories
By
Peter B. Girard

Since Israel's inception, a solution to the ongoing conflict between Israelis and Palestinians has been frustratingly elusive. On both sides, narratives of justification, righteousness, anger, revenge, and fear are increasingly more polarized - constituted by perspectives and actions that dehumanize the other. A formidable backdrop of power inequity, racism, bigotry, intercultural incompetence, social injustice and increasingly brutal violence make peace and reconciliation between Israelis and Palestinians seemingly impossible to imagine, much less create. These problems are fortified and perpetuated by the lack of direct personal communication between opposing factions of the conflict. The imperative to humanize and deconstruct the polarized narratives that propel the ongoing struggle between Israelis and Palestinians demands urgent attention.

This paper examines specific communication processes and practices that generate access to reconciliation, and explores the inherent relationship that personal transformation has with propagating tangible socio-political change. I argue that a politically negotiated solution that produces a lasting peace can only be achieved by effectively building a social framework through inter-personal reconciliation that will support it. Linking outcomes of personal and inter-personal transformation achieved through communication based strategies to sustainable social and political change is central to the purpose of this investigation.

The research focuses on a group of 600 bereaved Israeli and Palestinian families who are engaged in building a community with each other by cultivating empathy and understanding. The Parents Circle Families Forum (PCFF) was formed in 1994 when a group of bereaved families from both sides engaged in face-to-face dialogue to seek reconciliation. This paper qualitatively examines their human experiences and

communication strategies through analysis of narratives culled from articles and documentary film about participants in the group.

These narratives provide encouraging testimony that the most unlikely candidates (bereaved families) can and do actually make progress in moving toward substantive reconciliation. Their stories reveal more about how this communication process works, the type of change it actually produces within those who participate, and encourages further study of how their experiences can be generalized to impact the greater population of Israel and Palestine to bring about a political solution to the conflict, and a lasting peace.

ABSTRACT

Three Strikes and the Media

by

Arwen R. Jordan-Zimmerman

This research explores the relationship between national trends in opinion on crime and the development and implementation of the three strikes law. The three strikes law is a drastic piece of legislation that has had numerous detrimental effects over the years. The basic premise is that any person who is convicted of three felonies is automatically sentenced to twenty-five years to life. This study examines public opinion through a content analysis of newspaper articles from regions spanning the US over a period of five years: 1992 through 1996. *The Los Angeles Times*, the *Chicago Tribune*, the *Dallas Morning News* and the *New York Times* were included in the final sample pool due to their major readership during the time period studied. More than a decade after three strikes was implemented, we have finally developed a relatively solid foundation of research on the three strikes law and its effects. However, little research has been conducted examining the role of public opinion and media on the formation of the law. The findings of this research indicate that there was a relationship between public opinion and the formation of the three strikes law. As overall fear of crime increased, the desire and apparent need for tougher sentencing increased. Fear of crime lead to the creation of the three strikes law and opposition to the law only appeared after the negative consequences of three strikes became apparent.

Los Angeles Times and Undocumented Students: A Content Analysis of Portrayal and Framing

Melody M. Klingenfuss

California State University, Los Angeles

Abstract

The subject of immigration has been heavily debated in the United States since 1985 where one of the leading immigration laws was brought to the attention of the media across the nation, the IRCA. Following this act, the next 15 years in U.S. history were witness to an increased number of immigration reform acts and proposals that both helped and diminished the civil and human rights of immigrants. Many of these reform acts were focused on immigrant youth, such as the DREAM Act and the American Dream Act. Although not approved at a federal level, many states such as California have adopted key provisions of these acts in state legislature. Through the raised awareness of immigrant youth better known as undocumented students and "Dreamers," mass media communication has played a crucial role in the portrayal and framing of this group. The following content analysis reviews 53 articles from 1985 to 2015 in one of the major newspapers in California, the *Los Angeles Times*. Framing theory is used to discuss the possible effects of the manner undocumented students are portrayed in as concluded by the sample number of this research. The study concluded the following: 41% of the articles analyzed portrayed undocumented students in a positive cultural manner, 34% were published in the Main News section, and 76.1% of the key words used to describe undocumented students contained negative connotation. The study offers a discussion on how this overall positive portrayal may still lead to marginalization by framing through negative word choice and viewpoints utilized throughout the selected samples.

Keywords: AB540, DACA, illegal immigrant students, undocumented students

Communication First: Finding New Ways to Theorize Community-Based Nonprofit Organizations

By: Moya Márquez

Abstract:

Despite political, social, and economic hardships, many community-based nonprofit organizations have adapted, survived, and have continued to provide services to their communities. As these smaller nonprofit organizations struggle to operate, sometimes they have to work in nontraditional manners, deviating from their mission for fundraising or engaging in unorthodox division of labor or hierarchies. How do organizational communication scholars theorize and talk about these nonprofit organizations? This paper proposes a new organizational communication framework that is based on communication and emotional labor between clients and employees to theorize how small, community based nonprofits function and work to meet their goals. The paper concludes with a brief application of the new framework at Plaza de la Raza, a culturally and historically significant art education school located in the East Los Angeles neighborhood of Lincoln Heights, that has provided free or low-cost after school art programs for socioeconomically underprivileged youth since 1970.

ABSTRACT

Sustainable Fashion

By

Rachel Lynn Masters

Fashion has long been linked to the identity of a person, being able to convey, through visual messages, one's social status, personality, cultural affiliation. These messages are reciprocal, interpreted differently through the personal experiences of both wearer and viewer. As the consumerism in our society has grown, the fashion identity has also changed. When fast fashion was introduced in the 1990s, quantity became the new quality. Society became more concerned with owning the latest trend, rather than filling their closets with quality garments. This new fashion identity promotes a cycle of overconsumption and waste, which has exceeded the points of sustainability. Resources are being treated as a commodity, not the dwindling luxury that they are. Going against the grain of mainstream fashion, there are many strategies to combat the unsustainability of this industry and change the current fashion identity. In this thesis, sustainable fashion will be explored through the lens of environmental sustainability. A seven-look collection was created using sustainable methods, including zero-waste, natural dyeing, and recycled materials. These garments are versatile and durable, able to be used across seasons and situations. This sustainable collection allows the wearer to express their values in a comfortable and stylish manner. Sustainable fashion is an investment, for both designer and wearer as it requires more time, effort, and a deeper thought process to uphold the high standards of sustainability. However, it also creates opportunities for greater creativity and more unique, one of a kind garments, which will last.

Peter McDermott

Ultraviolet Light Exposure Increases Arginine Methylation On Histone H3, H4, And The Gar Motif

Abstract

Posttranslational modifications (PTMs) are essential to the control of protein activity, and histones are proteins that control the transcription of DNA, so understanding the role PTMs play is paramount to a complete understanding of the human proteome. Methylation is a lesser-studied PTM that is catalyzed by a class of enzymes called protein arginine methyltransferases (PRMT). The most common protein arginine methyltransferase is PRMT1, which is known to play a role in the activation of p53 and other apoptosis-inducing proteins. There is also a considerable precedent for ultraviolet-induced activation of kinases that are responsible for the activation of p53, so it would be highly plausible that the activity of PRMT1 will increase in response to similar ionizing radiation. If so, that would suggest a direct pathway between ultraviolet exposure and cell apoptosis; it would also suggest that one of the primary roles of PRMT1 is cell apoptosis. Further research should be done to conclude PRMT1's activity *in vitro* and *in vivo* on a number of apoptosis-inducing proteins it is known to interact with.

Ephraim Empalmado Morado

Progress Towards The Synthesis And Characterization of a Heterodimer Capsule

Abstract:

The potential applications of molecular enclosures toward molecular recognition, catalysis, sensing, and chemical separation have captivated the interests of scientists. Resorcin[4]arene features a bowl-shaped cavity and often scaffolds for developing cavitands, which are molecular containers that can form dimeric capsules *via* metal coordination, covalent, and hydrogen bonding. Previous capsules designed in our lab have lacked the rigidity required to encapsulate guest molecules. Herein, we report our progress towards the synthesis of a rigid covalently linked capsule. We look to enhance guest binding by improving the capsule's conformational switching capabilities triggered by external impetuses such as pH, solvent, and temperature. Understanding the capsule's structural behavior and guest binding will lead to the development of more sophisticated covalently linked vesicles. Well-established organic methods were used to generate the capsule precursors in fair yields, and were characterized by ^{1}H-NMR and IR spectroscopy.

Anna Montes

Predicting the Likelihood of a First-Time Freshman to Attend California State University, Los Angeles

Abstract

California State University, Los Angeles is a public 4-year university located in Southern California. There are approximately 20,000 undergraduate students and 4,000 graduate students. In recent years, there have been roughly 30,000 applications from first-time freshmen with an approximate 10% matriculation rate. This paper studies four variables that potentially affect and predict application progression and ultimately enrollment rates: GPA, distance of high school from campus, ethnic group, and sex. Using database queries, descriptive, predictive, and prescriptive analytics were explored using Fall 2012 data. The most significant factor in predicting ultimate enrollment was GPA. Distance was only a moderate predictor, ethnic group was less significant, and sex was almost irrelevant. Predictive models used Fall 2012 data and were tested back on Fall 2012 and Fall 2013 data with a 70% accuracy rate. Prescriptive analytics identify the need to decisively expand or constrict entry into the university.

ABSTRACT

"My Mom Gave Me Eleven Money": Dual Language Learners' Learning of Mass and Count Nouns

By

Claudia Mota

The mass and count distinction in English noun phrases is important in children's early vocabularies (Marcia and Furman, 1983). This study examines the acquisition of mass and count nouns in English by Spanish-speaking dual language learners (DLLs). Both Spanish and English distinguish between these two kinds of nouns, but there are discrepancies in whether semantically equivalent lexical items are treated as mass or count in either language. Thus, it is important to examine whether DLLs show an acquisition pattern similar to monolingual English-speaking children. Spontaneous speech samples were collected from 20 children aged $M = 3.80$, at time point 1 and $M = 4.98$, at time point 2. Preliminary results revealed that count nouns accounted for 88% of the children's noun use at T1 and there was a significant increase in the proportion of correctly used count nouns from T1 ($M = .79$, $SD = .12$) to T2 ($M = .90$, $SD = .07$), $t(19) = 3.98$, $p < .01$. Similar to English monolinguals (Subrahmanyam, 1993), our participants produced more count nouns at both time points. They did not significantly improve in mass nouns, suggesting that they may have difficulty with this aspect of English noun phrases. Results can inform theoretical questions relating to language transfer and practical questions regarding strategies to enhance DLL's oral language development in English.

Food Justice in Boyle Heights

Joshua Navarrete

Dr. Choi Chatterjee

Abstract

Los Angeles is a city with a history of rapid and thriving development but there are neighborhoods like Boyle Heights are often left behind. While most of Los Angeles history is focused on the overall goodness of its development and achievements like, the taming of Los Angeles River and Owen's Lake, or the creation of Los Angeles Harbor, we have very few accounts of the history of food, or food justice. The primary focus of this project has just as much to do with showing the lack of food justice of neighborhoods like Boyle Heights as much as it has to do with brave efforts to solve it. The truth is that Boyle Heights is not the only minority community that suffers from the lack of food justice; South Central, East Los Angeles, Compton, etc. are also suffering from the same issue. However, I believe that Boyle Heights has the resources and the capability to start a food justice movement that would inspire other communities to act against unhealthy food options, because it already has a hidden food justice movement that many do not know. This paper will help bring that movement to the public eye and with it I hope to inspire the people of Boyle Heights to change their neighborhood for the better.

Abstract:

Introduction: Pronation of the foot causes an excessive inward roll, therefore every impacted step taken while running is absorbed on the inward portion of the foot, past the point needed for shock absorption. The body is forced to compensate for the change in areas of impact, causing pain felt in the ankles, lower leg muscles, knee joints, and hips. Will running barefoot help improve the running economy of an individual with flat feet, while strengthening the foot and possibly reducing risk of injury more than running with insoles? **Methods:** A metabolic cart will record the steady-state oxygen consumption. The participants will run on a treadmill set at 6 mph for 8-12 minutes once with the running shoe and insole, and again barefoot. After the testing period is concluded, there is a cool-down period of 1-3 minutes to slow down the participant's heart rate. Only the final minute of the testing period for steady state oxygen consumption (Vo2 ml/kg/m) and minute ventilation (Ve L/min) of the testing period in increments of 15 seconds. **Data:** The ventilation volume (Ve) expressed conflicting readings with each trial, with the first two participants inputting lower data values for both trial settings. The third participant performed at a lower ventilation volume for both barefoot trials, suggesting lower CO_2 production and O_2 consumption for the working muscles during these trials. The oxygen consumption (Vo2) values were all shown to be lower during the barefoot trials for every participant. **Conclusion:** The data **suggests** that overall less oxygen is being consumed during the barefoot trials.

Economy Comparison between Running Barefoot and Using Running Shoes with Insoles for Flat Feet

By

Cuitlahuac Peña

ABSTRACT

Provider Attitudes on Psychosocial Factors can Enhance Diabetes Care for Patients with Type 2 Diabetes

By

Nicole Ann Pereira

Purpose: To examine provider attitudes and perceptions of patient psychosocial factors as predictors of better provision of diabetes care for patients with type 2 diabetes.

Methods: We conducted a cross sectional analysis of one hundred and one primary care providers that were part of an ongoing study evaluating medical home performance for awareness and attitudes on patient psychosocial factors associated with diabetes. Physician attitudes were measured using the Diabetes Attitude Scale. We measured provision of diabetes care, particularly in the area of patient self-management using a previously validated 7-item provision specific scale. Cross-sectional regression analyses were conducted to predict enhancement of provision of diabetes care.

Results: Provider attitudes were strongly associated with provision of diabetes care in two specific areas: advising weight loss and discussing the importance of taking medication regularly. A one point difference on the total provider attitude score was associated with a 1.99($p=0.05$) increase in advising weight loss and a 3.87($p=0.00$) increase in discussing medication adherence for patients, after adjusting for study covariates.

Conclusions: Reported provider attitudes on patient psychosocial factors appear to predict enhancement of care in two critical areas contributive to successful diabetes self-management. A better understanding of provider attitudes regarding the effects of psychosocial factors can make providers more attuned to diabetic patients' experience in managing their disease and ultimately lead to better patient outcomes and a refined approach of providing diabetes care services.

ABSTRACT

Riemann's Rearrangement Theorem and the Convergence

of Series With Random Signs

By

Jenny Phuong

Riemann's Rearrangement Theorem states that it is possible to rearrange the terms of a conditionally convergent series, with the terms tending to zero, to sum to any real number. The idea behind the proof is to show that there exists a sequence of $+,-$ signs that makes a series $\sum_{1}^{\infty} S_k a_k$ converge, when the sequence tends to zero, either absolutely or to an arbitrary number. Specifically, my thesis question examines when a sequence of real numbers is in ℓ^1. In that case, a series converges absolutely for any choice of signs. Moreover, if the sequence is not in ℓ^1, we can conclude that there is at least one sequence of $+,-$ signs in which the series converges. We extend this thesis question to include complex numbers. Particularly for a sequence of complex numbers in ℓ^1, any sequence of real angles makes a series converge absolutely. When not in ℓ^1, the series can be made to converge to an arbitrary point in the complex plane.

Furthermore, we will look at Rademacher series of the form $\sum_{1}^{\infty} \varepsilon_k u_k$, equivalently $\sum_{1}^{\infty} \pm u_k$, where ε_k are $+, -$ signs. We see that ε_k is simply S_k, which corresponds to the real numbers a_k. In this case, we use ε_k for the vectors u_k. We want to think of the choice of $+, -$ signs probabilistically. That is, the random choice of signs has a probability of $\frac{1}{2}$. After looking at sequences in ℓ^1, we then explore sequences in ℓ^2, denoting that a square summable series

converges to a finite number and thus does not diverge to infinity. We can state that a series converges with probability one if the square summable series is less than infinity and diverges with probability one if equal to infinity.

June 7, 2015

Los Alamos National Laboratory Material Development Team

Elizabeth Connelly
Daniel Hernandez
Johnn Reyes
Benny Yin

Advisor: Dr. Adel Sharif
Liaison: Dr. Doan Nguyen

Senior Design 2014-2015 **Final Report 2015**





ABSTRACT

Los Alamos National Laboratory (LANL) approached the California State University, Los Angeles (CSULA) Mechanical Engineering Department Professional Development Program to create a new composite wire for them. Using the requirements provided by LANL, a series of methods were researched and tested in order to develop a fabrication process for the final product. The literature and patent search was conducted to minimize the amount of time spent on failures and to follow a process that was proven to work. Many of the articles and processes used were not suitable for creating wire and modifications were implemented to suit our needs. Some initial conceptual designs were drafted to help understand how the copper to graphite interface would bond. The five concepts were the guitar string, stack & roll, electroplating, electroless, and alloying. A trade table was made to determine whether we would continue plating with electroless or electroplating. The trade table shows that ideally electroless would be the clear choice, but in the final product it was found that the versatility of plating materials from electroplating was more important. From these five concepts, only three were chosen and only two were used in the final product. The final fabrication process utilized only electroplating and the line draw machine. Electroless was eliminated as a potential coating process for its inability to coat copper. Our results were promising and through the use of SEM, we were able to verify several samples that showed signs of bonding. Further testing will be used to verify if bonding occurred uniformly in the sample and will be sent to Los Alamos for verification.

ABSTRACT

The Wellbeing of African-American and Latino-American Male Veterans in California:

A Comparative Study

By

Scott Ira Russell

Although there are numerous organizations trying to help veterans gain skills for the workforce, give homeless veterans shelter, assist veterans in achieving sobriety, and facilitate referrals to resolve legal issues, one may wonder, 'does each veteran have the same life issues?' In this paper, the author delves into what is being done for veterans who come from ethnic backgrounds not of the dominant culture, who are often the bearers of exclusion and discriminatory practices. This study examines how ethnicity impacts African-American and Latino-American male veterans' economic, physical, and mental wellbeing. Once the measures of wellbeing are established for African-American and Latino-American male veterans, the author examines the quantifiable levels of difference between the two sample populations' wellbeing and quality of life.

ABSTRACT

Synthesis of a Multivalent Tumor-Targeting MRI Contrast Agent

By

Brittany Soleil Ulloa

We aim to test the notion that enhanced MRI visualization will be achieved through the use of a divalently anchored Gd(III) MRI contrast agent. We hypothesize that the deliberate inclusion of tumor-targeting domains at these anchorage points will cause a reduced intramolecular rotational motion of the MRI contrast agent, which will increasing its overall relaxivity, and will lead to improved imaging quality. We describe here work on the use of the biotin-avidin ligand-receptor relationship for this specific targeting purpose. The biotin-avidin ligand receptor pair is proposed, since they have one of the highest natural known ligand-receptor affinity for each other. We have designed a bis-biotin Gadolinium (Gd)-based MRI contrast agent **1**, and will compare its effects on MRI intermolecular rotation and visualization to a mono-biotin Gd-based MRI contrast agent **2**. Our objectives lay in the development of MRI contrast agents capable of specific targeting and visualization of tumor cell surfaces.

Marina B. Vilhena

Baianas, a Masked Brazilian Iconography

Abstract

Baianas are one of the most classic Brazilian national iconographical characters that not only symbolize Brazilian history, but also its people. Yet, their values and symbolisms are promoted very little, neglecting the image of such an important Brazilian culture. With an impartial formal analysis of what their self-presentations invoke, the target of this thesis is to emphasize how Baianas speak for their own traditional and gentrified culture in and out of their circles. The examples of versions and adaptation of Baianas are extensive, proven that indeed its culture born into the slavery sites centuries ago in Brazil, developed into a national representation of Brazilian culture. From Candomblé to Acarajé, Tia Ciata to Carmen Miranda, Baianas are no longer limited to represent an Afro-Brazilian identity but instead, collectively, they all collaborate to shape a more iconic Brazilian identity. Baianas are today a representation of historical marks, syncretism, social, economic, and even fashion of Brazil. It is true that its main characteristics rely on African culture, which runs cohesively throughout the country's history. And even from its main international interpretation by Carmen Miranda, who extended and popularized Baianas nationality and internationally, her skin color did not deny the honor of African influences which is a perfect blend that shows the current face of Brazil that, possibly, breaks not only into a Brazilian and most specific Afro-Brazilian stereotype, but perhaps helps other similar cultures of the world to also follow the same pattern. Through a formal analysis of this curiously very famous but little researched sect, the purpose is to emphasize what Baianas speak for in their traditions and cultures in and out of their circle. By presenting historical facts and evidence to produce an educational and systematic discussion, this paper aims to analyze and discern the differences of the

most notorious Baianas' cultures, via their self-appearance and arrangement in society to provide a proper unbiased formal analysis of the culture, roots, and history that can portray a perception of a more accurate Brazilian identity.

ABSTRACT

Regulation of Biofilm Formation by *YCK2* in *Candida albicans*

By

Pengyi Zhu

Microbial biofilm, a community of bacteria with varying structures and morphologies surrounded by an extracellular matrix, can form on indwelling plastic devices and is well known to be associated with healthcare-related infections. *Candida albicans* is an opportunistic fungal microorganism. Typically a part of the normal mucosal microbiota, *C. albicans* has the ability to form biofilm and change from yeast to filamentous forms, hyphae and pseudohyphae, leading to candidemia and candidiasis. Yet, the regulatory pathways controlling *C. albicans* biofilm formation is still unclear, particularly the role of yeast casein kinase (*YCK2),* a plasma membrane bound Ser/Thr kinase. Previous studies have shown that the *yck2Δ/Δ* mutant strain exhibits pseudohyphal morphology and upregulation of *UME6*, a filament development regulator, under non-filament inducing conditions. It is hypothesized that the constitutively high expression of *UME6* in *yck2Δ/Δ* mutant strain of *C. albicans* is associated with increased biofilm formation under non-biofilm inducing conditions and upregulated gene expression of *UME6* downstream targets, *SUN41* and *HGC1*. In this study, *yck2Δ/Δ* strain exhibited increased biofilm formation in non-biofilm inducing conditions. Furthermore, qRT-PCR analysis showed an increase of *SUN41* gene expression, but no change of *HGC1* gene expression in *yck2Δ/Δ* strain. The results suggest a correlation between *YCK2* and biofilm formation. Further recognition and understanding of the role of *YCK2* in *Candida* biofilms will help in the clinical application to treat candidiasis.

ABSTRACT

FoodFixFinder: An App That Supports Healthy Food Choices

By

Alexa Catherine Zielinski

Understanding why people make the food choices they do is a complicated process influenced by a myriad of factors. This paper explores the different factors that influence food choices, including emotional, social, cultural and economical influences. The topic of food/eating is on the forefront of healthcare in the United States due to the increasing prevalence of obesity. The U.S. is an obesogenic environment in which over one third of adults over the age of 20 in the U.S. are obese. People continue to make food choices that are detrimental to their health even though they know the repercussions because the integrity of food has shifted from a survival habit into a pleasurable addiction. In order to decrease the obesity epidemic in the United States, there is a need for intervention. With the increasing integration of technology into everyday life, healthy food applications have been the target for healthful food intervention aids. However, the existing mobile applications have failed to provide objective health benefits. This paper proposes a grocery store application, FoodFixFinder, that begins to aid in decreasing the obesogenic environment in the U.S. The application will incorporate many different factors that influence food choice and translate this information into an aid that will help people in making healthy food decisions. The basis of this application creates a grocery store list equipped with a store locating GPS, an aisle-by-aisle store map, as well as provides individualized meal plans for each individual mobile application user.

Keywords: Obesity, obesogenic, food choices, healthcare