Thursday, February 13, 2020

Biological and Agricultural Sciences, UNDERGRADUATE

Session II

Biological and Agricultural Sciences, UNDERGRADUATE
Session II

Erik Martinez
Identifying Gene's essential to E coli. In long term stationary phase
Faculty Mentor: Karin Kram

Escherichia coli can adapt to live in an environment without any additional nutrients for long periods of time. When E. coli grows in an environment where nutrients are scarce, they enter long term stationary phase (LTSP). Cells in LTSP experience a heterogeneous, complex, and stressful environment that is likely more analogous to the natural environment than normal laboratory conditions. In order to identify nonessential genes that play a role in survival during LTSP, we competed mutant strains in the KEIO collection against a wild type (WT) E.coli cells. The KEIO collection is a set of E. coli strains, each with a single-gene deletion of a nonessential gene. The KEIO collection represents all non-essential genes – with a total of 3985 strains. Cell growth was observed after one, five, and ten days of incubation in LB Agar plates containing antibiotics. 102 genes when deleted had an effect on the cells ability to compete with the WT. 29 deletions increased fitness, whereas the remaining 72 decreased fitness when competed against the WT. Moving forward, transposon mutagenesis will be performed to identify essential genes in LTSP by knocking out genes at random. Tn-seq will then be used to analyze the insertion sites. The results from transposon mutagenesis and Tn-seq will expand our knowledge on essential and nonessential genes in E. coli in LTSP.

Ann Lobo
Assessing the function of genes involved in aromatic compound metabolism in ¬Escherichia coli survival
Faculty Mentor: Karin Kram

Studying the evolutionary mechanisms of bacteria, such as Escherichia coli, under laboratory conditions allows for the ability to determine the role of genes in this process. The growth curve of E. coli has been separated into distinctive phases known as lag, log, stationary, death and long-term stationary phase (LTSP). Cells that have survived through the other four phases into LTSP possess mutations that are potentially beneficial to their survival and growth during LTSP. Only a few genes necessary for survival into LTSP have been identified, so there are likely additional genes that play a role in the cells' ability to survive through death phase and grow during LTSP. We previously identified one gene, feaR, which is essential for survival in LTSP when cells missing this gene are competed with wild-type cells. FeaR, the protein product of fear, controls the expression of two genes: tynA and feaB. These genes, in addition to feaR, are involved in the degradation of potentially toxic aromatic compounds and synthesis of phenyl acetate from phenylethylamine. Because feaR is a positive regulator of these genes, we hypothesized that the loss of tynA and/or feaB would produce a similar phenotype to that of feaR—. Through rounds of competition between each gene knockout and wildtype, it is evident that the loss of the genes results in the wildtype out-competing the mutants; however, the phenotype is not as extreme as that of feaR—. Future directions of this experiment include synthesizing a mutant strain that has both tynA and feaB removed to assess whether the loss of both genes will produce a similar phenotype to feaR—. We will then try to determine which functions of these genes are necessary for E. coli survival and adaptation.

Joshua de Vera
The Evolution of the PRDM9 gene in Lizards and Snakes
Faculty Mentor: Sonal Singhal

Recombination is the process by which genetic material is exchanged during meiosis by crossing over between a pair of chromosomes at certain points in the genome. In vertebrates, PRDM9 codes a protein, which determines recombination hotspots within the genome. Recombination hotspots are areas in the chromosome that have a high probability of being the area at which recombination will start and are keypoint in what genes and genetic data is going to be exchanged during meiosis. In mammals, previous studies have shown that PRDM9 evolves quickly, leading to rapid turnover in recombination hotspots. In this study, we analyze the evolution of PRDM9 across 647 phylogenetically-diverse lizard and snake species. To do so, we identified the PRDM9 exons within each individual by comparing them to a set of eight reference exons. We then aligned the PRDM9 sequences and inferred a phylogeny, which allowed us to determine how the gene has evolved across species. Through this, we gained further insight into the molecular evolution of the PRDM9 protein.

Mayra Padilla Flores, Liz Solis
Hybridization in the Encelia (Asteraceae) family
Faculty Mentor: Sonal Singhal

Due to changing resources and environments, species can undergo adaptive radiation. The radiation of desert shrubs in the genus Encelia resulted in several morphological and physiological differences across the species, with each species suited for a different environment. In nature, members of Encelia can interbreed to form hybrids. E. ventorum hybridizes with E. palmeri and at a separate ecotone with E. asperifolia. At a given ecotone, viable hybrids form; however, those hybrids are restricted to ecotones since they cannot survive in either of their parents' environments.
Our study analyzes the genotypes and phenotypes of the hybrids (N = 112 for E. palmeri - E.ventorum & 91 for E. asperifolia - E. ventorum) collected across each ecotone. We collected genetic data using double-digest restriction aided sequencing (ddRAD), and we collected phenotypic data for leaf size and shape. Collected data will give us a distribution visualization of phenotypes and genotypes across parents and hybrids.
Across both hybrid zones, we see limited introgression beyond the hybrid zone and narrow clines given the effective dispersal of these species. In addition, most hybrids are F1s. Together, these results suggest extremely strong selection is structuring these hybrid zones.

Albert Barrios
Insulin Receptor Isoform IRA/IRB Expression in Breast Cancer Cell Lines & Tumors
Faculty Mentor: Douglas Yee

Breast cancer cells express both Insulin-like Growth Factor Receptor Type 1(IGFR1) and Insulin Receptor (IR) that promote the growth and survival of tumors. IR are composed of two different insulin receptor isoforms; IRA and IRB. We utilized IR isoform specific primers in quantitative reverse transcriptase PCR (qRT-PCR) that was validated using IRA and IRB overexpressing clones of MCF7 cells and normal human tissues. Over 40 breast cancer cell lines and ER+ patient tumor samples, were studied to determine IRA, IRB, total IR, IGFR1, IRS1, and IRS2 expression in cell lines and patient samples. Across the ATCC breast cancer cell lines and ER+ patient tumors, heterogeneity was found between all targeted genes. However, one group of cell lines like ZR-75-30, MDA-MB-468, and HCC1806 commonly expressed low expressions of IFGR1, but high expressions of total IR, where IRA isoform is predominantly expressed. It was also shown that some cell lines like MDA-MB-134-VI, HCC1500, and BT-483 expressed highly throughout all targeted genes, but significantly in both IGFR1 and total IR. In ER+ patient samples, it was commonly found gene expressions levels were comparable between IRS1, IGFR1, and IRA, while some patient samples expressed IRB more than IRA. Utilizing these genes can serve to screen patients for targeted therapy. Some ER+ patients, u11-13031 and k11-1608, can be revisited for further clinical trials to observe if treatments are effective by targeting IGFR1, IRS1, and IRA. Using CRISPR technology, IRS1 was knocked out completely for one clone, and it was confirmed via western blot and qRT-PCR analysis, which resulted in the inhibition of ligand-stimulated growth of cells. In Tamoxifen Resistant MCF7 and Long Term Estrogen Derived Cells MCF7 lines, it was shown that IGFR1 gene expression was absent, and IRS1 expression in low levels. However, further analysis is needed to characterize any prominent cell lines.

Nicholas Anaya-Licea
The organization of the nervous system in a hemichordate species, Saccoglossus kowalevskii
Faculty Mentor: Charlene McCord

Neurotransmitters are essential for nervous system communication across all organisms, and different neurons express different transmitters. We know a lot about the location of these neurotransmitters in complex central nervous systems like in vertebrates; however, little is known regarding their expression in simpler nervous systems like in Hemichordate, acorn worms. Saccoglossus/acorn worm is a good model system to study the evolution of chordate nervous system because it contains attributes of both a centralized nervous system with a ventral and dorsal nerve cords and a diffuse nervous system with an epithelial plexus. This project seeks to understand the positioning of neural cell types by mapping neuro-gene expression throughout the early stages of a hemichordate species, Saccoglossus kowalevskii/Acorn worm. I will perform in situ hybridization of neuro-genes involved in the transport and synthesis of neurotransmitters in the acorn worm at several neuro-developmental stages. By visualizing expression of genes for neurotransmitters, I will be able to determine the location of neuro-cell types and whether this position correlates with chordate expression. I propose that the positioning of specific neurotransmitter cell types at different developmental stages will help get an understanding on how the nervous system is organized. I expect to observe different neuro-gene expression at different regions of the body during embryo and juvenile stages, and neuronal-gene expression in the dorsal cord and proboscis. Studying S. kowalevskii/Acorn worm will give insight into understanding the evolution of the chordate nervous system.

Melissa Guardado, Stephanie Perez, Maricruz De La Torre
Studying cell membrane proteins in zebrafish skin by using in situ hybridization
Faculty Mentor: Fang Wang

Zebrafish are small freshwater fish that are used as model organisms for biomedical research. These fish have high similarity to human at a molecular level, and are also inexpensive to maintain. Gene expression can be detected and manipulated in their embryos and their transparency allows scientists to observe the developmental process easily. Zebrafish have been very useful for modeling heritable human diseases, including various skin diseases. Different disease models can be created by altering zebrafish genome or its gene expression.
We focus on cell membrane proteins enriched in zebrafish skin in this study, since they are involved in cell signaling pathways that are important for skin development and/or function. Currently, we are investigating three cell membrane proteins genes: kidins220a, adam9, and adam19a identified in our previous RNA-Seq analysis. Using whole mount in situ hybridization, we are examining their expression patterns during three early developmental stages –20 somite stage, 52 hours post fertilization (hpf), and 72 hpf. Whole mount in situ hybridization is a technique used to detect specific mRNA within individual cells to provide insight into gene expression patterns in whole animals. Preliminary data has shown that kidins 220a expresses in skin at 20 ss. We are conducting experiments on all three genes at different developmental stages. Ultimately, studying cell membrane proteins that are important for skin development and function will help us understand various skin diseases, such as, skin cancer.

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Creative Arts and Design
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Session I

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Michael Reid
Debt Consolidation PSA
Faculty Mentor: George Vinovich

1. Statement of the Problem: With the ease of today's credit card purchases, many people, especially young adults, find themselves in serious debt with high interest rates. As of 2019, student loans have reached an all-time high of $1.41 trillion, and that number continues to grow. Many people with student loans end up amassing significant debt, which follows them for the rest of their lives and takes a huge toll on their personal finances.

2. Statement of the Purpose of the Project: My production team wanted to produce a television PSA that would: 1) introduce the concept of "debt consolidation" as an affordable means to pay off debt and a way to avoid bankruptcy, and 2) identify a nonprofit organization that can help people with the process. This, my team felt, was an important message to publicize for both students and graduates who are dealing with student loan debt and mounting interest rates.

3. Methodology: My co-producer and I took this project through the entire film production cycle: research on the topic, pre-production (script writing, auditioning actors and narrators, location scouting, storyboarding, and creating shot lists) to production (crew assignments, lighting, art direction, camera placement, and directing actors) and finally to post production (video editing, graphics production, and sound design with sound effects, foley, and original music composition).

4. Discussion of Results: Audiences that have viewed our PSA say that it makes its point effectively and could have a positive effect on helping people with debt consolidation.

5. Conclusion and Future Direction: I plan to enter this PSA in local film festivals as well as the CSU Media Arts Festival in hopes of garnering some critical acclaim for our work. I also plan to have my PSA distributed online and broadcast on local cable and television channels.

Jessie Bustillo, Enrique Lopez
"Toys for Tots"
Faculty Mentor: George Vinovich

Statement of the Problem: Each year, many parents are unable to bring the joys of the holiday season to their children due to financial hardship, but there is a nonprofit organization that can help. "Toys for Tots" provides gifts to needy children at a time that is very important in their lives. However, the organization needs donations each year in order to buy toys for the children.

Statement of the Purpose of the Project: Our production team wanted to produce a television PSA that would: 1) inform the public about the emotional impact a gift has on a child's wellbeing during the holidays, and 2) inform the public about how easy it is to donate money online to "Toys for Tots."

Methodology: Co-producers, Jessie Bustillo and Enrique Lopez, took this project through the entire film production cycle: research on the topic, pre-production (script writing, auditioning actors and narrators, location scouting, storyboarding, and creating shot lists) to production (lighting, filming, and art direction) and finally to post production (video editing, graphics production, and sound design with ADR, foley, and original music composition).

Discussion of Results: Audiences that have viewed our PSA say that it makes its point effectively and could have a positive effect on persuading audiences to donate money to this organization.

Conclusion and Future Direction; We plan to enter our PSA in local film festivals as well as the CSU Media Arts Festival in hopes of garnering some critical acclaim for our work. We also plan to have our PSA distributed online and broadcast on local cable and television channels.

Trina Vargas, Aileen Pena
Smartphone Addiction
Faculty Mentor: George Vinovich

Statement of the Problem: Modern technology is overtaking our daily lives, especially the use of smartphones. Over 56% of Americans own one. Regardless of age, gender, ethnicity, or economic status, most people are now using a smartphone which can provide a wide variety of services from checking bank balances to sharing photos However, many people suffer from anxiety if they lose their phone, even if it's only for a few minutes, while others have become so addicted to their smartphones that they actually prefer smartphone interaction over face-to-face interaction.

Statement of the Purpose of the Project: Our production team wanted to produce a television PSA that would: 1) take a humorous approach to bring awareness about the extent to which smartphones have taken over our lives; and 2) convince smartphone users to reduce time spent on the screen in order to keep a closer connection to socializing with our families and peers.

Methodology: Co-producers, Aileen Pena and Trina Vargas, took this project through the entire film production cycle: research on the topic, pre-production, auditioning actors, location scouting, storyboarding, and creating shot lists to production (lighting, filming, and art direction) and finally to post production (video editing, graphics production, and sound design with ADR, foley, and original music composition).

Discussion of Results: Audiences that have viewed our PSA say that our humorous approach makes it very entertaining to watch, but that it also effectively makes its point about how smartphone use can take over our lives at the expense of social interaction.

Conclusion and Future Direction: We plan to enter our PSA in local film festivals as well as the CSU Media Arts Festival in hopes of garnering some critical acclaim for our work. We also plan to have our PSA distributed online and on television channels.

Elexus Gilliam, Maury Garcia
Obesity
Faculty Mentor: George Vinovich

Statement of the problem: The obesity epidemic in the United States has increased to a point that one third of the American population is now obese. The National Institute of Health defines obesity as having a Body Mass Index of 30 (about 30 pounds overweight). Factors such as sedentary lifestyles and junk food diets have contributed significantly to children, teens, and adults now becoming more overweight than any previous generation. The United States now has the second highest obesity rate in the world. Obesity is a serious condition that increases one's risk for high blood pressure, diabetes, stroke, and heart disease. Obesity is also one of the few diseases that can negatively influence one's social and interpersonal relationships.

Statement of the purpose of the project: Our production team wanted to produce a television PSA that would: 1) bring awareness about the serious health risks associated with obesity, and 2) persuade people to maintain a healthy weight in order to avoid these health risks.

Methodology: Co producers, Elexus Gilliam and Maury Garcia, took this project through the entire film production cycle: research on obesity, pre-production (script writing, casting an actor that would fit the description, location scouting and storyboarding) to production (filming, lighting, and art direction) and finally to post production (video editing, graphics, sound design, and original music composition).

Discussion of Results: Audiences that have viewed our PSA say that it makes its point effectively and could have a positive effect on persuading people to maintain a healthy weight.

Conclusion and Future Direction: We plan to enter our PSA in local film festivals as well as the CSU Media Arts Festivals in hopes of gathering some critical acclaim for our work. We also plan to have our PSA distributed online and broadcast on local television channels.

Joshua Villarreal, Jonathan Ornelas
Drowsy Driver
Faculty Mentor: George Vinovich

Statement of the Problem: NHTSA reports that drowsy driving has claimed 91,000 lives since 2017. Drowsy driving poses just as serious a threat on the highways as driving under the influence or driving while texting.

Statement of the Purpose of the Project: My co-producer and I wanted to produce a television PSA that would 1)provide tips on how to stay awake if falling asleep at the wheel and 2) prevent personal injury and injury to others from traffic accidents on the road.

Methodology: Co-producers Joshua Villarreal and Jonathan Ornelas took this project through the entire film production cycle: research on the topic, pre-production (script writing, auditioning actors and narrators, location scouting, storyboarding, and creating shot lists) to production (crew assignments, lighting, art direction, camera, and directing actors) and finally to post production (video editing, graphics production, and sound design with ADR, foley, and original music composition).

Discussion of Results: Audiences that have viewed our PSA say that it makes its point effectively and could have a positive effect on drivers.

Conclusion and Future Direction: We plan to enter our PSA in local film festivals as well as the CSU Media Arts Festival in hopes of garnering some critical acclaim for our work. We also plan to have our PSA distributed online and broadcast on local cable and television channels.

Sandra Lopez, Aileen Pena, Jessie Bustillo, Sandra Lopez, and Elexus Gilliam
Street Takeover
Faculty Mentor: George Vinovich

Statement of the Problem-In the streets of Los Angeles, hundreds of spectators gather at pre-designated locations in secrecy to witness burnouts, donuts, and smoking trees. This phenomenon which is now attracting larger and larger crowds is known to its fans as Sunday Funday. Through social media, crowds #nd out where and when a street takeover will take place. However, this illegal activity has made street takeovers a controversial issue for local communities.

Statement of the Purpose of the Project-Our production team wanted to produce a documentary #lm that would give viewers an inside look at the illegal yet growing phenomenon of the street takeovers that are taking place at public intersections throughout L.A. The goals of the #lm are to: 1) discuss the dangers of this phenomenon to drivers, spectators, and residents, and 2) inform the public of possible solutions to keep everyone safe.

Methodology Co-producers, Aileen Pena, Jessie Bustillo, Sandra Lopez, and Elexus Gilliam took this project through the entre #lm production process. Pre-production included research on the topic, location scouting, and pre-interviews. Production included going to street takeovers to #lm the acton and interview drivers, spectators, and concerned neighbors. Post production included video editing, graphics, and sound design with original music composition. Discussion of Results Audiences that have viewed our documentary say that it is informative as well as entertaining. The cars performing such incredible stunts along with the massive crowds gathered at the scene create quite a spectacle that most people #nd compelling to watch. The #lm also provides a balanced perspective of the pros and cons of this phenomenon as well as possible solutions to keep everyone safe.
Conclusion and Future Direction. We will be entering our documentary in various local #lm festival as well as the CSU Media Arts Festival

Kenia Figueroa, Kenia Figueroa and Sandra Lopez
Care to Be Aware - Human Trafficking
Faculty Mentor: George Vinovich

Statement of the Problem: Human trafficking is both a domestic and global crime. Every continent in the world is involved with human trafficking and here in the United States the most numerous cases are in Texas, Florida, New York and California. In 2018, the Human Trafficking Hotline was contacted 4,387 times via email, text or phone to report individuals being trafficked. In 2018 alone, over 3,000 victims were identified, over 1,000 traffickers were identified and over 500 trafficking businesses were identified.

Statement of the Purpose of the Project: Our team wanted to produce a television PSA that would: 1) make people aware that human slavery still exists with men, women and children being trafficked every day; and 2) persuade people to report any suspicious activity to the Human Trafficking Hotline. In other words, if you see something, say something by reporting it to the Human Trafficking Hotline which is completely anonymous.

Methodology: Co-producers Kenia Figueroa and Sandra Lopez took this project through the entire film production cycle from pre-production (research on the topic, location scouting and auditioning actors) to production (filming, lighting and art direction) and finally to post production (video editing, graphic design, and sound design with VO, foley and original music).

Discussion of Results: Audiences that have viewed our PSA say that it makes its point effectively and has a positive effect on informing individuals about human trafficking and convincing them to report any suspicious activity to the Human Trafficking Hotline.

Conclusion and Future Direction: We plan to enter our PSA to local film festivals as well as the CSU Media Arts Festival in hopes of garnering some critical acclaim for our work. We also plan to have our PSA distributed online and broadcast on local cable and television channels."

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Creative Arts and Design

UNDERGRADUATE

Session II

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Isai De Los Angeles
Art and Social Inclination
Faculty Mentor: Devon Tsuno

For the past two decades, the city of Los Angeles has been affected by an epidemic which has been infecting a large housing crisis causing gentrification. This once beloved city filled with success, diversity, and entertainment is now the center of a shift in social character and cultural value. Gentrification is a term that was coined by sociologist Ruth Glass around the 1960's and it centers around the displacement of the working class of a certain district or area. In this research I focused on studying the displacement of low income families who were pushed out of specific areas due to a new housing development in South Central. The area in focus extends from the office of this company on the corner of Martin Luther King Jr. Blvd and Figueroa, and travels as far down as Imperial Ave. I photographed the new buildings in question and was able to live in one of these houses for a few years; therefore, I was able to witness first hand the change in ownership of the house, from company to individual investor, and the rent increase in the course of approximately four years. My creative research deals with creating an intimate space that depicts South Central full of culture and small businesses, a city that houses entrepreneurs and hard working families. It also depicts what a future South Central would look like if these houses continue to become abundant and keep pushing people out as well as the new businesses that will spring in South central and cause a loss in cultural value and cultural history.

Jeannette Garcia
"No White Walls Needed"
Faculty Mentor: Devon Tsuno

The project will consist of three rectangles made of wood that are linked together. These three rectangles address the stages of self-growth within ourselves. This sculpture is created to represent the different stages of life as well as taking time to self-reflect and evaluate who we are as individuals. The purpose of this structure is to get people to engage with the sculpture and for people to create their own personal displays through my outdoor art instillation to activate public art space.

Through this research I want people and other artist better understand the different impacts of Art in public spaces and the importance to activate critical thinking. Public spaces question the routine of everyday life just like an art intervention. The space surrounding us is a perfect canvas for an artist to send a message across. Museums and galleries are design within a white box many times displaying art work with regulations but in public spaces people have the freedom to fully experiment. "

Brianna Correa
Curvaceous Beauty
Faculty Mentor: Greg Mocilnikar

My research aims to the underrepresentation of plus-sized women in the media. Specifically focusing on female news anchors, leading roles, and female love interests depicted in TV shows and movies. By showing these women I want to show how plus-sized women are often ridiculed or pushed aside for their size. Growing up being plus sized and having a lot of my female family members being plus size as well, I felt I could never connect or associate with the women portrayed in the various mediums. So I began making colorful cartoonish paintings of curvy women I could associate myself. By creating these I making the representation I could not find in the media. Which led me to want to focus on cultivating a positive body image for other plus size women. My research aims to challenge beauty standards by putting plus size women at the forefront of the media. Often times we are seen with demeaning attention and no confidence, so I use bright colors in my artwork to indicate emotion, mood, and attitude. These paintings are meant to not only embrace their size but also their sexuality. Their breasts are exposed however there is modesty in the exposure of their genital region. Overall, through my specific style, I want plus size women to feel empowered looking at my artwork, many are discouraged for being bigger, but I want them to feel confident seeing their bodies-- an essence of their being normalized in the public's eye. Alongside my artworks, I will also include a range of artists and photographers such as Tim Kerr, Laura Aguilar, Catherine Opie, and Miranda Tacchia, artists who have inspired me throughout creative art process. I will also include photographed testimonies (method of research/interviewing) from plus-sized women in my family and friends on their experiences and thoughts of seeing themselves within the media, by doing this it will act as a component to the artwork I make and show life as being a plus-sized Woman.

Jose Espinoza
Illustrating Historical Truth Through Visual Research
Faculty Mentor: Devon Tsuno

History is typically written by dictators, presidents and colonizers. Winston Churchill stated "History is written by the victors." So how could an artist help to keep history honest for the sake of posterity? My paintings are visual research that illustrates a more truthful account of the incarceration of immigrant children in the United States. By depicting a more accurate account of the separation of migrant families seeking asylum than the Trump administration might choose to admit, I am directly challenging Donald Trump's version of history. Given the fact that President Trump has proven through his actions and words that he intends to replace truths with "alternative facts," recorded history will likely be misrepresented and future generations might look back to an inaccurate version of history. I am presenting President Trump as a ghoulish demi-god in the aesthetic style of traditional Mayan, Mixtec and Aztec(Mexica) artists, merging the plight of Central American migrants and the colonization of Mesoamerica by Spanish conquistadors. By comparing the xenophobic tendencies of our President with ancient colonialism, I intend to bring awareness to this topic in a historical sense. Since challenging the Trump administration rarely yields positive results, I am foregoing to usual goal of changing minds, rather choosing to simply document the horrors felt by the victims of these draconian policies which treat migrant children as criminals.

Deema Aljibeh
Clay, Colonialism, and the Nike Cortez
Faculty Mentor: Devon Tsuno

Nike commodified gang culture and Spanish colonial history to successfully market and sell the iconic Cortez sneaker. My ceramic sculptures and art installations of the Cortez sneakers are visual research, critiquing the history, cultural appropriation, economic value, and cultural significance of this sneaker. Nike states the Cortez sneaker is "Arguably the most important sneaker in the history of Nike," originally named the Onitsuka Tiger, it was renamed the Cortez in 1967 by Nike co-founders, Bill Bowerman and Phil Knight. Inspired by the Spanish conquistador Hernan Cortez, the shoe's name marks the successful colonization of the Aztecs in 1519 at the "March on Tenochtitlan." My sculptures of Cortez sneakers are replicas, created with the same traditional ceramic processes used by the Aztecs. I use hand building techniques, rolling out clay into slabs to design the form. They become permanently hardened and colored using glazes, and are fired in a kiln. My completed art project is designed to be presented to the public in an exhibition format that includes 20 ceramic sculptures displayed in two rows as repetitive forms. This art installation is visual research – critiquing fashion, and increasing knowledge within the sneaker community that the popularity of the Cortez has a connection to a history that is not frequently acknowledged.

Vanessa Renovales
Takato Yamamoto: Heisei Estheticism and Revival
Faculty Mentor: Kirstin Ellsworth

Takato Yamamoto is a contemporary artist who uses unsettling scenes of life, death, rebirth, and sex to relay intrinsic messages that are deemed controversial in Japan as well as other places around the world. Coming from a country that is deeply rooted in their tradition and culture, Yamamoto develops an art style later coined as "Heisei Estheticism" in which he combines past and beloved Japanese art movements to establish a national pride while retaining an individual perspective as an artist. The lens of the deconstructionist allows the viewer to see past Yamamoto's art as being pornographic or upsetting due to its sometimes sexual nature and gore. By using Deconstruction as a methodology on Takato Yamamoto's work one can decrypt his use of nightmarish settings and dark subject matter to break down hidden meanings of sexuality, mortality, and national identity.

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Engineering and Computer Science
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Session I

Aishwarya Murkute, Aditya Lalchandani
Parking Lot Detecting
Faculty Mentor: Bhrigu Celly

One of the most common problems in metropolitan cities is to find a vacant parking spot. It's often that we just circle around the parking lots just to realize that there isn't a single vacant spot! Moreover, the excessive amount of time-consuming searches to find a vacant parking spot is also frustrating. Also, the existing parking lot detection systems are very expensive and not scalable to be used for industrial purposes. Major cities in California like Los Angeles, San Francisco or Cupertino have many people who drive to work in the cities and due to the ever-growing tech-industries and the working environment, day by day it is getting difficult to accommodate the parking needs of these cities. According to a study, there are roughly 14,000 employees who work in the city of Cupertino, however, there are only 11,000 spots available in the city. Out of which, 4400 spots are reserved spots for parking, hence this alert to an important issue for concern. Also, with the development of residential areas in developed cities like Los Angeles, the development limitations like this impose a 12.5% increase in the rent of housing units, whereas if there are two spots the hike is almost by 25%. Due to parking issues in Los Angeles, the housing is less affordable which contributes to the overall housing crisis in the city.

Most of the current techniques use the counters (Generally fitted at the entrance of the parking lot) to detect the number of vehicles entering the parking lot and count the number of vacant spots in the lot. This results in installing some extra hardware like sensors and increases the cost of the system exponentially.
The proposed system presents various parking lot detection techniques using image processing and OpenCV. The proposed system has three major steps: Detecting lines using edge detection techniques, Marking static co-ordinates and Detecting cars. The proposed prototype of the system requires very less or no human intervention. The system is not fully developed and requires modification to work on live feeds of cameras.
In future works, we want to expand the prototype to real-world examples for more conclusive and performance results. Furthermore, research can be carried out to develop a more robust system and build a system with more accuracy and less processing time.

Jaspreet Singh
Jaspreet Redundancy Check
Faculty Mentor: Bin Tang

In this method, we will send data block of 16 bits which is divided into 4 rows and 4 columns. Then we will calculate the parity for each column and each row. After calculating the parity for both rows and columns, we will XOR both the parities. After XOR-ing the parities, the resultant will be the parity for the whole block which will be sent along with the data.

Lauren Stimson, Susmita Patange
Adaptive Virtual Machine Replication in Cloud Data Centers
Faculty Mentor: Bin Tang

We study how to replicate virtual machine (VM) in data centers to achieve fault tolerance. Existing work considers that different VMs have the same fault tolerance requirements. In this work, we focus on that different VMs have different fault tolerance requirement. In our model, there are p original VMs, VM_1, VM_2, and ..., VM_p, that are initially placed in the cloud data centers. The goal is to replicate R_i copies of VM_i and place them into different physical machines (PMs) in the data centers in an energy-efficient manner. We show that this problem is equivalent to the minimum cost flow problem, which
can be solved efficiently and optimally. Via extensive simulations, we show that our replication strategy achieves energy-efficiency in cloud data centers.

Jaspreet Singh, Angel Jimenez
Cost Efficient Virtual Machine Migration in Heterogeneous cloud Data Centers
Faculty Mentor: Bin Tang

In heterogeneous data centers (HDCs), it contains different platforms of servers with different hardware configurations and physical capabilities such as processing power, bandwidth capacity, and storage capacity. Therefore it takes different cost to migrate from one physical machine to another in HDCs. In this work, we tackle the cost-efficient virtual machine (VM) migration problem in HDCs. We propose a minimum cost flow-based solution and show via extensive simulations that it outperforms the existing work of VM migration.

Ashwini Kumar Singh
Text Extraction using Information Extraction Algorithm for Academic Articles
Faculty Mentor: Jianchao Han

Academic research has been an innate soul to higher studies. CSUDH provides resources to students and faculty for their research. This research work is conceptualization and deployment of information extraction algorithm for academic articles.

This tool accepts the academic articles in pdf format and converts them to txt format. It extracts keywords and respective frequencies from the academic articles. The algorithm selects the keywords based on mean frequency of keywords and it matches the sentences based on the selected keywords. The sentences are structured, and content is converted back to pdf. The generated pdf is available for download.

Health, Nutrition, and Clinical Sciences, UNDERGRADUATE AND GRADUATE Session I

Debbie Kim, Sara Kozakiewicz, Adrien Mangasaryan, Rachel Moore
The Lived Experience of Sleep Among College Students: A Phenomenological Study
Faculty Mentor: Sheryl Ryan

This study sought to gain insight into the lived experience of sleep in college students in order to inform effective occupational therapy interventions that promote rest and sleep throughout the lifespan. According to our literature review on public health, sleep is strongly connected to the prevention and development of mental illnesses among undergraduates. Statistics show, upon matriculation, 25% of college students did not report mental illness. Within two years, the same students reported mental health problems. Because sleep was implicated in these mental health problems, we aimed to expand our understanding of this phenomenon with qualitative research. A phenomenological approach was selected. Participants included college students at a state university in California, ages 18-25. With an interview guide, the researchers conducted semi-structured interviews that were audio recorded and transcribed verbatim. Researchers coded the transcripts individually, formed a group consensus on a final coding scheme, then decided on themes. Research uncovered the following themes: sleep preparation, vague sleep knowledge, knowing but not applying sleep education, and life-stage and contextual factors. Undergraduate participants often slept with the aid of technology, specifically the smartphone. This preoccupation with instant entertainment and social connection appeared to displace nighttime routines involving hygiene and self-care. Although participants recounted some knowledge of healthy sleep habits and routines, choosing not to apply their sleep education was common. Participant data indicated that their life stage as college students and its contextual stressors impacted sleep quality. Occupational therapy intervention can play a role in transforming the tenets of sleep education by integrating technology and adapting sleep recommendations to the individual. Future studies should explore the lived experience of sleep among college students with mental illness, considering that our study found anxious feelings and associated behaviors to be common across participants.

Colton Graham
Association between Orthotic & Prosthetic knowledge and support of pro Orthotic & Prosthetic legislation
Faculty Mentor: Julie Werner

Most practitioners in the Orthotics and Prosthetics field are reimbursed for their services through insurance companies. These insurance companies have made it more difficult to be reimbursed for their services. There has been bills drafted that would make it easier for O&P practitioners to get compensated for their work, but the bills have yet to be ratified into law. If voters knew more about the O&P field, they could make more educated decisions about O&P legislation that would benefit the field and thus the patients. I wanted to determine if there is an association between O&P knowledge and support of current/future O&P legislation. I used a novel survey to determine association between a control legislative bill and a pro legislative bill. There were 10 pre and post questions with short readings about the O&P field interspersed between them. I used a 2-way repeated measures ANOVA test with a 95% confidence interval to analyze the statistical data to determine association. I found that there was a significant interaction between pre/post scores with no significant interaction between knowledge level and no significant interaction between the knowledge tiers and pre/post scores. We see that regardless of knowledge tier the average score increased from pre to post scores after learning more about the O&P field and legislation. We also see that each tier voted subsequently higher the more knowledge they started out with. To further this research more surveys would need to be completed and a test to validate the self-generated survey. With more surveys completed and a test to validate the self-generated survey we can be more confident in the conclusion that more knowledge about the O&P field is more power to pass O&P affirmative legislature.

Lois Jeon, Kelsey Hardeman, Isabella Acosta, Elena Bovetti
The Experiences of Occupational Therapists When Communicating with Clients with Speech Aphasia
Faculty Mentor: Heather Kitching

The purpose of this study was to explore the experiences of occupational therapists when working with clients with speech aphasia, utilizing a multiple case study design. Aphasia is a communication impairment most commonly caused by stroke. Previous research shows that aphasia has an impact on everyday life and that due to communication difficulties people with aphasia are often excluded from research. It also shows that many healthcare professionals struggle in communicating with people with aphasia; even speech language pathologists report feelings of anxiety and lack of confidence when communicating with people with aphasia. Therefore, this research study looked at the communication experiences of occupational therapists when working with clients with aphasia. Participants were recruited through convenience and snowball sampling with four individual case subjects included in the final study. The method of data gathering used was semi-structured in-depth interviews with the participants. The final results included four overarching themes analyzed from the interviews. The occupational therapists interviewed used a variety of communication strategies, expressed unique challenges finding balance when working with clients' families, worked to create meaningful relationships despite the communication challenges, and conveyed experiencing a diversity of challenges while working with clients with speech aphasia.

Ciara Nagao, Kelsey Santos, Madison Werchowsky
Experiences of Occupational Therapists Working with High-Needs, High-Risk Youth
Faculty Mentor: Heather Kitching

High-needs, high-risk youth are at an increased risk for experiencing future negative outcomes such as drug use, gang violence, school dropout and crime. Occupational therapy is a discipline that has demonstrated positive impacts on serving these youth and promoting mental health through client-centered, occupation-based interventions. However, there is no current literature outlining the perspectives of these occupational therapists in providing their services. As occupational therapy further expands into community and mental health settings, it is important to identify factors that influence practitioners' ability to provide services to these youth in order to better inform the future of this practice. A phenomenological approach was used to understand the unique experiences of occupational therapy practitioners providing services to high-needs, high-risk youth. Data was collected through hour-long semi-structured interviews with seven occupational therapists who have worked with this population for at least two years. The interviews were transcribed, coded, and reduced to the four most salient themes. The themes identified within the data included: prioritization of the therapeutic process over the outcome, using unconditional positive regard, an unequivocal belief in the uniqueness of occupational therapy, and an inherent passion that fuels their persistence. In conclusion, this phenomenological study demonstrated that the practitioners who are currently in the field carry a unique fervor and dedication towards the clients and the future direction of the profession, which ultimately motivates them past their daily challenges. However, since this research focused on practitioners working with this population in a variety of settings, further research detailing the individual experiences of practitioners within more specific settings may be explored.

Christina Gaser Rozaliya Farberov, Kimberly Flores, Becky Hua
Practitioners' Perceptions of Sensory Needs in School-Based Practice
Faculty Mentor: Sheryl Ryan

Objectives: Of the 102,500 occupational therapists (OTs) in the workforce, about 21.6% work in the school setting (AOTA Occupational Therapy Compensation and Workforce Study, 2010). While there is an increased amount of OTs present in this setting, the literature demonstrated a gap in regard to the perceptions of OTs implementing sensory services in schools. OTs can play a pivotal role in improving classroom functioning for students who may struggle with sensory processing and integration issues. The purpose of this study is to look at OTs' perspectives on sensory-based services in order to inform school-based practice and better understand the current needs of OTs in schools. Methodology:The research utilized a multiple case study format with semi-structured interviews, and were conducted and recorded with six California school-based occupational therapists. Data analysis included individual coding, group consensus, and thematic analysis. Results and Discussion: The themes that emerged from the study included team collaboration, eligibility for services, justifications for sensory-based interventions, and barriers to service implementation. These themes reflected the daily experiences of occupational therapists working in school-based practice. The research showed that OTs were confident in their capacities to address sensory needs, but rather addressed more concerns about each student's eligibility to receive services. Conclusions and Future Directions: This research affirmed that sensory-based interventions are effectively being utilized by school-based OTs with minimal barriers for those students who qualify for eligibility. A potential direction for future research can focus on more availability for sensory interventions at school for students that don't qualify for special education.

Jonathon Holte
Cellulitis: Mimic and Antibiotic Stewardship
Faculty Mentor: Lauren Outland

Statement of Problem: Misdiagnosis of cellulitis is reported to be 30% nationwide (Arakaki et al, 2014). As cellulitis only appears bilaterally in very rare cases, the common unilateral presentation of cellulitis is one of the key assessment findings. When patients present with bilateral lower extremity erythema and edema, in the absence of other signs/symptoms of infection, a differential diagnosis of a "cellulitis mimics" needs to be considered. Misdiagnosis of cellulitis leads to inappropriate use of antibiotics contributing to multidrug resistant organisms, increased rates of nosocomial infections, increased financial burden, and increased morbidity (Morgan & Talan, 2017).

Method to Address Problem: For an 18 month period, emergency room physicians will refer all adult patients with a diagnosis of lower extremity cellulitis to the wound care department for a focused assessment. After consultation they will discuss their findings/recommendations with the attending physician and offer differential diagnosis and alternate treatment options including de-escalation of antibiotics when appropriate.

Description of Innovation: Research shows that early dermatologist consultation increases diagnostic accuracy, reduces unnecessary admissions, and reduces rates of antibiotic prescribing (Li et al., 2018). However, dermatologists are scarcely available in the hospital setting and the current fee-for-service model makes it difficult to retain those that are available (Ko, et al., 2018). This intervention aims to determine if a certified wound ostomy continence nurse (CWOCN), readily available in most hospital settings, can reproduce similar outcomes to a dermatologist. Data measurements will include: percent of antibiotics discontinued, percent change in diagnosis from cellulitis to a differential diagnosis, change in average length of stay, and percent of times physicians accepted the CWOCN recommendations. All measures will be compared to pre-intervention data.

Implications for Research: If the outcomes can be replicated, then hospitals will be able to put similar evidence based practices in place that are sustainable and effective."

Zionne Kowlessar
Effect of Lower Extremity Flexibility and Strength on Squat Performance
Faculty Mentor: Gioella Chaparro

Squatting is a functional movement that individuals do every day without realizing it due to how natural it comes to some. Sitting in a chair, car, work desk, or even rollercoaster are examples of when this movement occurs without even thinking about it. In other people's cases, it is a movement hard to accomplish due to medical history or lack of physical activity. The aim of this research project was to examine how strength and flexibility affect squat performance. Thirty participants (23.13 ± 5.42; 20 males , 10 females) were included in the study. Participants were all recruited from a local gym. Prior to any testing, all participants performed a quick warm-up period that did not include any active stretching. For each participant, researchers measured the angle at the knee joint using a goniometer when the participant got into a squat position. Once fixated in their squat position, a timer was used to see how long the individual was able to hold their squat. Factors that were considered in the analysis included: BMI, age, sex, physical activity per week (time), the squat angle, and the squat time. There were no significant differences on the effects of how lower extremity flexibility and strength effected squat performance. While the data showed no significant differences or correlations, it is important to note that the sample size included in this study were healthy active young adults. Future research should aim to examine middle to older age populations in order to better understand how strength and flexibility affect squat performance.

Deborah Han, Sarah Chacon, Kawal Dhaliwal, Jenna Califano
Community Reintegration of Formerly Incarcerated Individuals
Faculty Mentor: Sheryl Ryan

Introduction: As the incarceration rate in the United States consistently ranks as the highest in the world, individuals who have completed their sentences are reintegrating back into society at a similar rate. The current research literature on community reintegration outcomes of formerly incarcerated individuals primarily focuses on recidivism programs and their effectiveness.

Background/Purpose: However, much of the focus in previous literature lacks space for participant involvement to truly embody the lived experiences of these individuals. By utilizing a photo-voice methodology, the participants claimed ownership of the interpretation of their re-entry experience. Thus, this study aimed to answer the following: what is the lived experience of formerly incarcerated individuals when reintegrating back into the community?

Method: Five formerly incarcerated participants submitted photos representing their reintegration experience and discussed their significance in a focus group. Focus group results were analyzed by a process of individual and consensus coding to identify key themes.

Findings and Discussion: Participants' responses to the research study embodied these four themes: identity and achievement, social connectedness, freedom and integrating the past. Respondents' process of community reintegration was characterized by feelings of increased self-efficacy, awareness of social support, new opportunities for engagement with the community, and developing personal narratives.

Conclusion/Future Research: Future research should center on the role of occupational therapy in the interdisciplinary community reintegration process, as well as the development of effective programs for this population. Occupational therapy has the potential to address these needs at all levels of service delivery, especially consultation with community organizations."

Miranda Orosco, Trischa Teodoro, Yolanda Stratman
The Lived Experience of Parents of Adolescent Cancer Patients
Faculty Mentor: Heather Kitching

Every year in the United States, more than 15,000 children and adolescents from birth to nineteen years of age are diagnosed with cancer (Siegel, Miller, & Jamal, 2018). With every diagnosis, a family's life is forever altered and parents' psychosocial well-being is vastly impacted by the various aspects of treatment. There is currently a lack of literature focusing on parents' personal experiences, including their perceptions regarding their child's treatment process and its effect on both psychosocial and physical well-being. This research study explores parents' lived experiences throughout their child's cancer treatment process and post-treatment. A phenomenological approach using a semi-structured interview was utilized to allow parents to freely share their individual narratives, providing researchers with the opportunity to formulate a common phenomenon. Data analysis included individual coding by the researchers to find commonalities among the participants' stories. The researchers then used data reduction via triangulation to identify overarching themes. The lived experience of parents of adolescent cancer patients can therefore be categorized into five themes from the participants interviewed: feelings of isolation amidst social support; role reversal in comfort; altruism as a contributing factor in resilience; pursuit of support; and yearning for emotional connectedness. Parents of adolescent cancer patients undergo a plethora of unique trials that define the common phenomenon of their lived experience. The study outcomes provide insight for occupational therapists and other professionals to successfully meet the overlooked needs of this population. Future research should also focus on the first-hand experience of adolescents. Synthesizing the data from both parent and child will allow professionals to provide holistic and comprehensive support that extends beyond the medical model.

Ashley Mooney
Success Rates of Cranial Remolding Orthoses in Male vs. Females in Cases of Brachycephaly
Faculty Mentor: Jennifer Lucarevic

Cranial remolding orthoses have been used for treating multiple cranial deformities since 1979, when Clarren published his research on using helmets to correct plagiocephaly. In clinical practice, the best time to manage cranial deformity is within the first year of the infant's life, but correction can be obtained up to 18 months old. The purpose of this study was to examine helmet correction in babies, ages 1 to 18 months, who have been diagnosed with brachycephaly. Our hypothesis is that there will be more observed correction in males than in females. A retrospective chart review was performed to examine cranial measurements and scans pre and post-intervention with the Starband and Starlite helmets from Orthomerica. SPSS software was utilized to analyze the data. A repeated measures ANOVA was performed to determine if there was a within subject change in cephalic index after intervention, and differences based on gender. A backward stepwise regression analysis was then performed to determine the main predictors for post-intervention cephalic index. There was a significant improvement in cephalic index seen in participants after intervention ($p<0.001$). However, there was not a significant difference in correction rates based on gender ($p<0.001$). This study found that both male and females had successful outcomes after intervention with cranial remodeling orthoses.

Thursday, February 13, 2020

Health, Nutrition, and Clinical Sciences
UNDERGRADUATE AND GRADUATE
Session II

Health, Nutrition, and Clinical Sciences, UNDERGRADUATE AND GRADUATE
Session II

Dorian Montero
Effects of Bang on Exercise
Faculty Mentor: Gioella Chaparro

Background: Bang is a popular energy drink that is a blend of creatine, caffeine, amino acids, and b vitamins [1]. These ingredients are meant to stimulate protein synthesis, increase muscle function, regenerate energy production (or ATP reproduction), reduce soreness one feels after a workout, and help repair damaged skeletal muscle tissue [2]. Purpose: The purpose of this study was to investigate the effects of a commercially available energy drink on exercise performance. Methods: Thirty participants (18-35 years old) were included in a two-day cross-sectional design study. On day one, participants drank water and completed as many push-ups and sit-ups until failure. On day two, participants drank Bang and an hour later completed the same physical tasks. Independent variables included: height, weight, and age. Results: All subjects experienced a greater difficulty of performing sit-ups after consuming Bang. There were moderate positive correlations between age and push-ups ($p < 1.00$) and age and sit-ups ($p < 1.00$); the older the participant, the lower the amount of push-ups and sit-ups performed. Conclusion: This study found that regardless of consuming Bang,the older one is the lower the physical task performance. Although age did have a major role in this experiment, another major factor that could have contributed could be the amount of exercise per week and the amount of Bang consumed per week. Future research can examine these relationships while controlling for exercise frequency and Bang consumption.

Kyle Roberts, Larissa Santana De Araujo
How reforms in the health care system of Cabo Verde since independence in 1975 have improved the nations overall health despite financial and geographical limitations.
Faculty Mentor: Payman Nasr

This presentation pulls together basic structural information, reviews trends in the growth of the healthcare system, and discusses the major health system reforms in The Republic of Cabo Verde, an island nation spanning an archipelago of 10 volcanic islands in Western Africa. Lacking natural resources, the government has strived to provide accessible health services for the population. The primary healthcare structure consists of six hospitals; two central hospitals in the capital, Praia, and four regional hospitals spanning from the north to the south archipelago. The primary healthcare is augmented with 28 health centers and several private clinics across the island chain. The Cabo Verde population are entitled to a basic package of health services, which covers prenatal care; emergency care; and treatment and prevention for HIV, tuberculosis and malaria. In addition, around 40% of Cabo Verdeans have social insurance through their employers, entitling them to more health services as well as sick pay. As a result, today, Cabo Verde's population is among the healthiest in Africa with greatly improved health indicators. The average life span has increased from 56 years in 1975 to 76.5 years in 2018 and infant mortality has decreased from 108 death in 1975 to 15 deaths per 1000 births in 2018. These gains have come despite spending less than $200 on healthcare per person in 2018. The focus of the current report is to analyze the reasons for such achievement that by far exceeds the achievement of larger and richer African countries. The healthcare structure, health accessibility and the application of modern technology such the introduction of telemedicine to increase access to specialized care are also discussed.

Lluvia Valdez-Ramirez
Physical and Mental Health in The Classroom
Faculty Mentor: Ruby Meneses

This presentation will detail how incorporating a physical and metal health regiment will help with a students academic and overall well being. Academic excellence has always been a focus in our educational system, but with the drastic changes we have seen in the past years there must be a change in how educators aim to help their students. The documentation for this argument will be provided via the data collected during a tutoring period with elementary aged school children at an after school academy. The physical health regiment will include light stretching, breathing exercises, and select movements targeting the heart rate. The mental health regiment will entail dedicating a portion of time set aside for the children to talk about their day and any issues they feel need to be talked about. This will take place both before and after the academic activities, while tracking the progress of both the quality of the academic work and emotional well being. The findings will be presented in a format that can be incorporated into a grade school classroom without extensive training for either teacher or student.

Scott Klein, Danielle Luce, Monique Kleinhans, Kacie Marczuk
Discovering the Lived Experience of Stroke Survivors in a Community Center Program
Faculty Mentor: Sheryl Ryan

Introduction: There is little known about stroke rehabilitation within community center programs nor the exact reasons these programs are beneficial to the individual. The purpose of this research is to explore the lived experience of stroke survivors participating in a community center program (CCP) in order to understand why participation in such a program played a meaningful role in their rehabilitation. In understanding how such a program has impacted the stroke survivor's journey, the authors hope to contribute to a growing body of knowledge which supports the development of CCPs while also understanding how occupational therapy can contribute to the success of these programs.

Methodology: The researchers utilized a qualitative, multiple case-study method to reveal common themes related to the experience of four stroke survivors participating in a CCP in Southern California. Semi-structured interviews were conducted with four participants and their responses were transcribed and analyzed to reveal common themes via cross-case analysis.

Results: After analysis, the researchers identified four major themes related to why stroke survivors benefited from the CCP. According to the participants, this CCP provided a sense of community and a unique relationship with the in-facility occupational therapist, as well as increased accessibility to rehabilitation services and opportunities to participate in occupation-based activities with peer survivors.

Conclusion: The results of this research provide insight into the meaningful aspects of CCPs and can act as a stepping stone for future researchers to learn about the efficacy of occupational therapists in CCPs. Results suggest that this model of a CCP not only provides access to rehabilitation services after insurance coverage concludes, but also provides a mentor-like relationship with the occupational therapist which effectively motivates and empowers stroke survivors to practice rehabilitative techniques at home and strive for fuller recovery.

Angela Ahn, Kendra Codding, Courtney Jarvis
Impact of Anxiety on Occupational Participation of Young Adults with Autism Spectrum Disorder
Faculty Mentor: Heather Kitching

Individuals with autism spectrum disorder (ASD) are at a higher risk for experiencing anxiety than the general population. This qualitative study utilizes a phenomenological approach in order to gain a thorough understanding of how anxiety impacts occupational participation, or participation in daily activities, among young adults with ASD. Participants were recruited through both convenience and snowball sampling. The criteria required participants to be between the ages of 18-26 years, have a documented diagnosis of ASD, and report experiencing symptoms of anxiety. The current literature on this population primarily focuses on second-hand parental reports or one specific area of their life. Alternatively, this study aimed to create a more accurate and cohesive picture through first-person accounts of how their daily activities are affected. Three themes emerged as a result of the findings: success in the face of anxiety, routines as facilitators to daily activity performance, and positive outlook on social participation. The participants expressed that though they experienced anxiety, they were able to utilize coping strategies and displayed resilience to overcome those anxieties in order to engage successfully in their daily activities. This study yields results that can enhance future occupational therapy interventions for this population. Future research should expand upon this study with a larger sample size in order to strengthen and build upon these findings.

Brianna Heath
Measuring Proprioception Changes in Transtibial Amputees
Faculty Mentor: Jennifer Lučarević

Background: Amputation results in traumatic changes to the sensory receptors involved in proprioception. Any significant difference in limb proprioception increases the likelihood of experiencing biomechanical instability, resulting in trips, falls, and serious injury.

Hypothesis: Amputees with unilateral transtibial amputations experience reduced accuracy and consistency of their knee joint position sense in their amputated side compared to their sound side.

Methods: Four subjects with unilateral transtibial amputation had the joint position sense (JPS) of the both knee joints assessed using modified Joint Position Reproduction (JPR) test. Mean difference of standard deviation and variance used to measure and compare JPS accuracy and consistency between sound side and amputated side within subjects.

Results: Amputees with unilateral transtibial amputations experience significantly reduced JPS accuracy in their amputated side when compared to their sound side. No significant difference in JPS consistency between sound and amputated sides was demonstrated.

Conclusions: Transtibial amputation is correlated with a loss of knee joint position sense accuracy; working to improve this loss via prosthetic management and therapy may reduce the risk of falling. More research is needed to investigate the impact of limb dominance, suspension style, socket style, and other factors on JPS.

Amy Vernetti, Hilary Vedder, Kathy Nguyen, Jasmine Okamoto
Through the lens of veterans with symptoms of Post-Traumatic Stress Disorder (PTSD): The impact on perceived quality of life
Faculty Mentor: Heather Kitching

500,000 U.S. troops who served in the Iraq and Afghanistan wars have been diagnosed with post-traumatic stress disorder (PTSD), making it one of the leading causes of disability among veterans (Thompson, 2015). A limited amount of research has sought to understand the lived experience of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans struggling with symptoms of PTSD; specifically how this veteran population interprets the impact their PTSD symptoms have on their habits, routines, and activities of daily living. The consequent decreased quality of life (QOL) among the veteran population has been associated with alcoholism, suicide, homelessness, and impaired interpersonal relationships. Through a qualitative photovoice methodology, we explored the perceived QOL through the lenses of 2 OIF/OEF veterans with symptoms of PTSD. Data was collected through participatory action research, empowering the participants to collaborate with researchers to contribute to a message that provides a deeper understanding of issues for themselves and their peers.

Descriptive coding, thematic analysis, triangulation and member checking revealed the following themes: We're not who we used to be, I feel like we're forgotten, Getting help is a whole different thing, and I feel safer being a volunteer than I do being an employee. Understanding how the veteran population perceives the impact of PTSD symptoms on QOL is important to occupational therapists, who have historically been involved in the rehabilitation of veterans. The research results indicate that PTSD symptoms are perceived to negatively impact the transition from the structure of the military to civilian life. Going forward, occupational therapy practitioners can use these findings to advocate for and establish patterns of positive occupational engagement for veterans struggling with the invisible wounds of mental health conditions.

Katelyn Kahle
Comparison of Professional burnout between Prosthetics, Orthotics, Physical Therapy and Occupational Therapy
Faculty Mentor: Jennifer Lucarevic

Background: Professional burnout is defined as the point when a person reaches mental and physical exhaustion with a feeling of frustration and personal failure (Baloguen, Titiloye, Balogun, and Oyeyemi, 2002). Burnout leads to decreased responsiveness to patients and an increased likelihood for a health professional to leave their job (Devery, Scanlan, and Ross, 2018), as a result, these factors create negative outcomes for patients though decreased client contact and even negative attitudes towards clients (Balguen et al, 2002). Propose: An observational research study was performed to determine if there was a difference between the professions of physical therapy, occupational therapy and prosthetics and orthotics.

Method: Participants took an online survey utilizing demographic questions and the Bergen Burnout Inventory.

Results: Licensed or certified clinicians were recruited, and 209 participants responded: 43% were in PT, 10.5% in OT, and 46.4% in P&O. Outcomes comparing professions were analyzed with ANOVA (for total burnout scores) and chi-squared (for burnout groupings). There is not a significant difference in the total amount of burnout between the three professions, nor in the number of professionals in each grouping (satisfied, observant, or burnout; groupings defined by scoring convention established in the BBI-25, Nordang et al., 2010).

Discussion: Although there was not a difference between the three professions, an alarming rate of participants across the three professions (54%) were at the observed or burnout level. Limitations include the ideal survey not being used, and the survey used may not be cross validated for this population. Future research should seek to determine which factors contribute to burnout within each of the fields and how these factors may be mitigated to protect rehabilitation professionals.

Lindsey Kline
Differences in Quality of Life in Standard versus Ertl Amputation Procedures
Faculty Mentor: Julie Werner

Transtibial amputations are performed with either a standard or Ertl procedure. The standard procedure involves cutting and beveling the tibia, and then cutting the fibula an inch shorter and beveling it as well. The Ertl procedure involves taking either a bone or the periosteum of the bone to create a distal weight bearing surface connecting the tibia and fibula. This study compares the overall quality of life of those with the different amputation types using the SF-36 survey. This study found no significant difference in the overall quality of life when comparing those with Ertl or Standard amputations. Future studies should focus on getting more participants to validate the data collected, and should ask more specified prosthetic questions to ensure that the satisfaction of the prosthesis is similar in all participants.

Adrian Navarro, Vanessa Ortiz, Lorie Park, Kimberly Vu
The Lived Experience of Significant Others of Women With Fibromyalgia
Faculty Mentor: Heather Kitching

In the United States, chronic pain is a highly prevalent condition with many health and economic consequences. One condition that causes widespread pain and other somatic symptoms is the neurological condition of fibromyalgia. It is a condition that affects about 2-8% of the population and affects more women than men. Furthermore, there are difficulties in areas of quality of life and social support. These two key components have been identified as a fundamental in the health and well-being of those with fibromyalgia. Therefore, this study aimed to explore the lived experience of significant others of women with fibromyalgia due to the critical role they play in social support. A significant other is a person one shares an intimate and romantic relationship with who contributes to one's well-being. A phenomenological approach was used to develop a rich description of the shared experience of these significant others and how they experienced being in a committed relationship with their loved one with this condition. The participants of this study included the significant others of women with fibromyalgia. Semi-structured interviews were conducted, which were then transcribed and coded for themes. These themes were identified as understanding of chronic pain, fibromyalgia language, situational maintenance, just love me, frustration and resentment, and self-care. The common experience of the participants focused on constant understanding, communication, and support of their spouses living with fibromyalgia. Given the strength and commitment of these significant others, healthcare practitioners should consider involving them in discussions about their partner's treatment in order to increase their understanding and self-efficacy in their abilities to support their partner. Future studies should include quantitative research with larger sample sizes to gain a wider understanding of how this condition affects significant others and the well-being of women living with fibromyalgia.

Thursday, February 13, 2020

Health, Nutrition, and Clinical Sciences
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Session III

Health, Nutrition, and Clinical Sciences, UNDERGRADUATE AND GRADUATE Session III

David Rand
Applications of the Clinical Laboratory in the Diagnosis of Compound Heterozygosity of Sickle Cell Hemoglobin and β-Thalassemia
Faculty Mentor: Payman Nasr

Thalassemias and hemoglobinapathies such as Sickle cell disease are a diverse group of inherited blood disorders caused by genetic mutations in hemoglobin genes in which the mutations influence hemoglobin expression, function and concentration. The pattern of inheritance in these disorders is often autosomal recessive, which means in order to have the most severe symptoms; both copies of the hemoglobin genes must carry mutations (homozygous individual). Often, the parents of an individual with a severe form of the disease, each carry one copy of the mutated gene (heterozygous carrier), but neither parent typically shows any severe symptoms of the condition and maybe unaware of the condition. Individuals with only one hemoglobin gene mutation develop mild anemia and often specific hematological abnormalities such as hypochromic and microcytic red blood cell accompanied with the abundance of target cells. This presentation is a case study analysis of a 31-year old male patient with a compound heterozygous Sickle cell and β-thalassemia mutations who was presented to the emergency room with constant, severe back and leg pain. Although the patient carries only one genetic mutation for Sickle cell and one for β-thalassemia, which independently have minimal symptoms in heterozygous individuals, the compound heterozygous results in a more severe phenotype than either disease alone. In this presentation we describe the genetic patterns and symptoms of a Sickle cell and β thalassemia compound heterozygous case with the emphasis on the application of the clinical laboratory testing to accurately distinguish the disease variation for diagnostic and prognostic purposes.

Yola Lin, Patricia Ling, Megan Lee, Rianna Machida
Teacher Perceptions of Occupational Therapy Services for Children with ADHD
Faculty Mentor: Sheryl Ryan

Significance and Goals: Approximately 6.4 million children between 2-17 years old have been diagnosed with Attention Deficit Hyper Disorder (ADHD) (CDC, 2018). School-based occupational therapy is a helpful resource to help these children enhance participation and lessen the maladaptive symptoms of ADHD in the classroom. There has not been sufficient research conducted on a multi-disciplinary team's role for a child with ADHD. In order for a multidisciplinary team to be effective, there is a need to understand teachers' perceptions of occupational therapists for this population.

Methodology: This qualitative research was conducted as a multiple case study. Semi-structured interviews were conducted with 5 mainstream elementary school teachers who have worked with students with ADHD receiving occupational therapy services. Data analysis occurred through individual coding, generation of a consensus coding scheme, and thematic analysis.

Results and Discussion: Results generated 3 themes that further promote effective multidisciplinary collaboration: (1) teachers' overall positive perceptions of OT; (2) successful OT interventions; and (3) desire for collaboration. Our findings further support current literature on the importance of communication and collaboration between teachers and occupational therapists to best support student learning in their classrooms. Our research also further delineated some specific strategies for therapists and teachers to use, thereby empowering teachers in their classrooms.

Conclusions and Future Direction: The study outcomes can help increase participation and performance of students affected by ADHD in the mainstream classroom. Effective collaboration between occupational therapists and classroom teachers will create a more inclusive classroom environment and greater communication through the use of setting up collaboration meetings, providing interventions teachers can replicate daily, or problem solving together when strategies stop working.

Ashlyn Coen, Grace Arce, McKenna Heisen, Kady Dunn
Exploring the Lived Experience of Family Caregivers of Individuals with Dementia
Faculty Mentor: Heather Kitching

Dementia is a neurological condition that is projected to affect 135 million people worldwide by 2050 (Prince, Guerchet, & Prina, 2013). Due to the ever-increasing number of dementia diagnoses, there is a growing need for caregivers to help these individuals, especially as the condition progresses over time. Although there is literature on the adverse physical and mental health effects experienced by caregivers for people with dementia (PWD), there is limited literature about these caregiver's lived experiences and the factors that cause these health deficits. This study aimed to examine the lived experience of familial caregivers for PWD. Using convenience sampling, the researchers obtained four participants who met inclusion criteria. Semi-structured interviews were conducted with each participant and transcribed verbatim. Responses from these interviews were coded individually, triangulated among the researchers, and reduced to five main thematic findings: mourning before loss, utilizing past and present social support, caregiving as a gift, fear of the unknown due to the unpredictability of the diagnosis, and role reversal in the mother-daughter dyad. These findings underpin caregivers' impaired physical and mental health, their need to adapt, and their decrease in participation in meaningful occupations . However, caregivers interviewed in this study did not report feelings of stigma as was found in current dementia literature. To further explore the lived experience of dementia caregivers, future research might conduct a study with a larger, more diverse sample of participants from various geographic locations.

Gabriella Nieves, Elisabeth Popoviciu, Margaret Norton, Amber Stober
Understanding Parental Daily Routines Post Neonatal Intensive Care Unit (NICU) Discharge: A Multiple Case Study
Faculty Mentor: Heather Kitching

Many families live with the long-lasting trauma they experienced while their infant was in the Neonatal Intensive Care Unit (NICU). However, little research has looked into how parents' daily routines change post-discharge. Routines are meaningful patterns of life activities. It is important for healthcare practitioners to understand client routines to determine how to better support client needs. This study aims to understand how parents' daily routines change post-NICU discharge using a qualitative, multi-case study design. Data was collected via one-on-one interviews with the parents of infants who were admitted to the NICU for at least five days and have been discharged within the past five years. This study yielded four main themes. First, participants exhibited intensified risk management behaviors and selective prioritization as they tended to avoid typical routines and environments that they engaged in prior to their NICU experience. This was due to concerns for the infant's health and well-being and thus they prioritized their infant's health and needs above their own. Second, a common theme expressed by participants was the influence of shared occupations, or occupations done with others such as family and community members, in providing tangible support and emotional encouragement. This was integral to their resilience and ability to re-establish a routine post-discharge from the NICU. Third, while participants' circumstances were often unexpected and overwhelming, participants found that the challenges they faced were opportunities to uncover their competence and resilience. Lastly, intentionally implementing self-care habits allowed participants to mitigate negative health effects of their circumstances. This study provides a foundation upon which further research can be based, including the exploration of occupational therapy's role with parents' experience and routines post-NICU discharge. Another potential avenue for future research includes the study of single parents' experience post NICU-discharge, as all participants within this study have spousal support.

Dana Green
Correlation Between the Time After Limb Loss and Body Image Acceptance
Faculty Mentor: Jen Lucarevic

Limb amputation is a procedure that is becoming more and more prevalent in present society. (Ziegler-Graham et al., 2008,) Limb loss not only presents with physical changes but psychological and social changes as well. (Holzer et al, 2014) Holzer et al. (2014) describes body image disturbance as the result of social values emphasizing vitality and physical appearance and fitness. (Holzer et al., 2014) The purpose of this study is to determine if there is any correlation between average time after amputation and body image acceptance. After analyzing the TAPES measure, I predict that the longer the time after amputation the more body image acceptance a person will have. In this study I will be using a survey, TAPES, to asses prosthetic user's acceptance to wearing the prosthesis. TAPES measures the psychosocial processes that are linked to adapting to a prosthesis, to activity restrictions associated with wearing a prosthesis, and to satisfaction with prosthesis. Seven (5 males, 2 female) participants that had an average time since amputation that was 22 years and an average TAPES score of 0.0786 were surveyed. The correlational findings were not significant; however, there was a positive correlation found between time after amputation and body image acceptance and a negative correlation found between age and body image acceptance. The clinical implications of these findings give the practitioner gain a better sense of the patients psyche throughout their transition with their amputation.

Nicole Khuon, Madeline Lovern, Megan Johnson
The Effects of Support Animals on the Daily Routines of Veterans
Faculty Mentor: Sheryl Ryan

Significance and Goals: The purpose of this research study is to examine and comprehend the different ways that emotional support animals impact veterans' daily routines. Veterans may face many challenges when transitioning back to civilian life such as depression, post-traumatic stress disorder, and anxiety. When they own a support dog, this transition may become easier and more successful. Methodology: Researchers used a qualitative approach and a narrative methodology to better understand this process, focusing on how the dogs impacted the veterans' daily routines. A narrative methodology was used to allow the researchers to gain detailed insight into the personal experiences of the participants and understand the chronological sequence of events in their lives.

Results and Discussion: Four main themes emerged. The first theme was adding structure to daily routines. Participants stated that having a dog encourages them to follow a more structured schedule, since the dog needs to be walked, fed, and played with. The second theme that emerged was improved mood. All participants described an increase in positive emotions (joy and contentment) when they are with their dog. The third theme was encouragement of exploration of new environments. Participants stated that their dogs encourage them to go out and explore places such as their neighborhoods and dog parks. The fourth theme was increased social participation. Participants stated that having a dog creates more opportunities for conversations and social connections.

Conclusion and Future Directions: In conclusion, the findings suggest that service/support animals can increase overall occupational performance and participation for veterans. Occupational therapists should consider conducting more research on how service/support animals could effectively be used in clinical practice for all populations.

Katrina Champion
Patient Reported Outcomes for Custom Versus Prefabricated Functional Foot Orthotics
Faculty Mentor: Jennifer Lucarevic

While the ability to customize a foot orthotic to address a specific pathology was once considered critical, in recent years the use of pre-fabricated foot orthotics has become more common. It is commonly contended that in the absence of major pathologies or abnormal anatomy, pre-fabricated orthotics can be just as satisfactory as custom orthotics. This study seeks to add to the body of knowledge regarding the difference in patient reported outcomes for custom versus pre-fabricated foot orthotics. It is hypothesized that no significant difference will be found in the FAOQ scores of the two groups of subjects. A survey of the Foot and Ankle Outcome Questionnaire has been distributed to various online forums, and the scores calculated by the AAOS algorithm. Amongst adults 18-65 who wear functional foot orthotics at least four days a week and have no major foot or ankle pathologies, there is no significant difference between the symptom relief provided by custom versus prefabricated functional foot orthoses. These results indicate that unless there is another clinical indicator for custom orthotics, many patients who lack major ankle or foot pathologies would not necessarily experience superior symptom relief with custom orthotics as opposed to prefabricated ones. The primary limitations of this study are construct validity, sample size and selection technique. The clinical implications are that it may benefit both patient and practitioner to offer prefabricated as well as custom orthotics in orthotics and prosthetics practices

Danielle Robins
Cannabis vs Opioids for the Reduction of Phantom-Limb Pain
Faculty Mentor: Jennifer Lucarevic

Undergoing an amputation is a massive life event that affects an individual mentally and emotionally, as well as physically. One possible consequence of amputation is the occurrence of phantom-limb pain; in which the individual feels pain in the now-absent portion of the limb. Phantom-limb pain is not well understood despite increasing research on the subject, and this causes a dilemma for healthcare providers aiming to lessen this pain for these individuals. Opioids are commonly prescribed to mitigate this pain but due to their addictive nature and negative side-effects doctors are often hesitant to prescribe these for phantom-limb pain. Cannabis has been used for thousands of years for its analgesic effects but is not heavily studied in terms of its pain-reducing properties specifically for phantom-limb pain. We hypothesize that cannabis will reduce phantom-limb pain the same percentage as opioids would. To test this hypothesis a modified TAPES-R Part 2 will be utilized to analyze pain reduction trends between cannabis and opioids in subjects who have used both methods. Statistical analyses showed that cannabis reduced pain significantly more than opioids in groups that had less interference from phantom-limb pain while opioids reduced phantom-limb pain more than cannabis in those with more debilitating phantom-pain. Due to the small sample size for this study these results cannot be applied to greater populations at this time.

Elvy Fuentes, Josiah Gibson, Rebecca Hawkinson Gonzalez, Thelma Iwuchukwu
The Experience of Participants in a Community-Based Arts Center
Faculty Mentor: Sheryl J. Ryan

Background: Existing research suggests participating in art-based programming promotes mental health wellness and personal growth, but there is a need for more research that evaluates service delivery models of these programs to understand how they are effective. The purpose of this qualitative study was to describe the impact of involvement in a mental health-focused, community-based arts center on the social participation of its participants.

Methods: Researchers conducted this phenomenological study at a community-based arts center in southern California which explored the meaning of being part of the center for members and staff involved. Eight participants took part in two focus groups:one for community members, one for staff. Researchers used a semi-structured interview guide to lead the focus groups. Audio recordings were transcribed and analyzed through independent coding, group consensus on a final coding scheme, and thematic analysis.

Results: Researchers found that this community center serves as an aid in mental health wellness through the context, environment, and interactions within the center. The community center did not replace mental health services, but it aided the ability to practice social participation, volition, and meaningful occupations. The themes that emerged included: growth, acceptance within a community, flexibility, peer support, belonging, learning, and freedom from stigma.

Conclusions: Findings suggest that community-based arts centers promote social participation. This study adds an understanding of what makes these centers effective: a flexible, stigma-free environment, providing peer support and belonging while also offering a space to practice social interaction. Implications for occupational therapists in community-based mental health practice include addressing needs through consultation and collaboration in creating this culture.

Monique Sanchez, Micaella Salunga, Jocelinne Torres-Lizarde, Michelle J. Wong
The Lived Experiences of Survivors of SCI After a Separation
Faculty Mentor: Heather Kitching

Divorce rates after a spinal cord injury (SCI) have been reported to be one and a half to two and a half times higher than that of the general population (Merghati et al., 2015). Separation has been correlated with a lowered quality of life; thus, with high rates of separation, there is an increased risk of adversities for individuals with a SCI (Khazaeipour, Taheri-Otaghsara, & Naghdi, 2015). Despite the vast literature covering SCI, the experiences of the spouses of those injured greatly outweighs the experiences of the survivors. The focus of this research is on the lived experiences of survivors of spinal cord injury after a separation. Using a qualitative phenomenological approach, we investigated the effects of separation for the survivors' participation in their everyday activities, roles, habits and identity formation. Semi-structured interviews were utilized to capture the experience of 5 male SCI survivors who experienced separation after their injury. Common amongst all participants is the desire to adapt, a continued interest in romantic relationships, prioritizing autonomy, and using routine as a road to recovery. These results suggest that after time individuals were able to adapt to their new life without the support of a partner. When compared to the trauma associated with the SCI, the separation had a minimal impact on their day to day lives. Therefore, the findings reveal the importance of self-sufficiency rather than relying spousal support. Future research may focus on individuals immediately following their separation as participants of this study had experienced separation years before.

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Humanities and Letters

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Session II

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Jordan Darling
The Good the Bad and the Insight: Humanizing Villains Through Contemporary Storytelling in the Media
Faculty Mentor: Brant Burkey

In 2019 Warner Bros. released an origin style movie based on the Batman's arch nemesis the Joker. As a psychological thriller the film delved into the character's mental state and portrayed his mental illnesses and social isolation as causation for his violent tendencies. In doing so it created an empathetic view of the character's actions and provided an explanation for his nihilistic behavior. Traditionally villainous characters are being redesigned in contemporary storytelling to have more relatable and sympathetic backgrounds, often changing the tone of the story and the audiences feelings towards a particular subject. This study will explore this media trend by examining several of the filmic and theatrical examples of traditionally villainous characters through the lens of modern storytelling including the Joker, Maleficent, Elphaba, Darth Vader, and Loki. There is ample literature that has previously examined the humanizing aspect of these arch evil characters but what deserves further exploration is the use of trauma as an explanatory framework for their "turn to the dark-side," to fill this gap this study will use the qualitative research method of textual analysis to elucidate the historical depiction of these characters alongside their modern retellings to better understand the ideological shift in villainous archetypes. The contribution to this research project is to understand the storytelling arch of how modern media is sanitizing traditionally evil characters that have historically been shown through the more simplistic good versus evil lens.

Matthew Hernandez
"Please Don't Kill Me": Racist Violence in Young Adult Literature
Faculty Mentor: Helen Oesterheld

This research project concerns the presentation of racist violence in young adult literature. The novels that were selected for study were written and published after 2015, in the wake of the deaths of Aiyana Stanley-Jones and Michael Brown. These works, Tomi Adeyemi's Children of Blood and Bone and All American Boys, by Jason Reynolds and Brenden Kiely, both deal with fictional locales that are heavily influenced by racism and racist violence. The authors of these works make special note of the many deaths of unarmed people of color at the hands of law enforcement and the dominant society/social class that predicate them. The selection of these novels was made because of the central theme and how it is presented in two very different ways; a fantasy world in which only people of color exist and a realistic and diverse American town, respectively.
The goal of this paper and presentation is, by the examination of these texts through the application of critical race theory and literary criticism, to bring more attention to how these narratives are presented by modern authors and the prevalence (or lack) of pervasiveness and urgency found in them. In studying these works, specifically how such a sensitive topic is presented to readers who live in a world inundated by this type of violence, the author would like to bring special attention to the counter-story often dismissed by critics and the dominate narratives within the genre. This research is also geared toward the type of calls to action present in each text, and how this social action might be taken up by the intended audience. The hope of this paper is that, through this type of study, we might open up new dialogues and stem the rising tide of racist rhetoric and violence in our current American society.

Monesha Munnerlyn
Gender Role Strain and male violence
Faculty Mentor: Margaret Manning

The research question is whether aspects of so-called "natural" manhood precipitate socially maladaptive behavior and result in harm not only to members of society, but also to the men themselves. In the study of social conflict, and how it affects human interaction, communication and understanding between individuals, the topic addresses: the rate of violence in U.S. society, which is rising at an alarming rate, and the reality is that such acts of violence are predominantly perpetrated by the male population; and the dehumanization of males to uphold traditional ideals of masculinity at the expense of their emotional and mental health. The existing theories confirmed that perceived, social disapproval and failure to epitomize sex-linked roles correlates with high levels of stress from gender expectations and the employment of compensensating mechanisms such as hypermasculinity, physical and sexual aggression, and rage. The investigation of gender role stress was conducted from an interdisciplinary perspective of psychological, sociological, and statistical findings with a focus on [male] school shooters to evaluate the relationship between comorbid externalizing behavior and gender role conformity. The subjects are 35 shooters analyzed of an in-depth case study report by the National Threat Assessment Center of the United States. Consistent with the masculine gender role strain paradigm, most attackers were victims of bullying which was often observed by others, experienced psychological, behavioral, or developmental symptoms, nearly every attacker experienced negative home life factors, and all attackers experienced social stressors involving their relationships with peers and/or romantic partners. Traditional, hegemonic masculinity lead males to be vulnerable to physical and psychiatric disorders and to precipitate externalizing behaviors and deviant coping mechanisms. Limitations of this evaluation must be considered as there is no definite profile for school shooters as well as additional, qualitative research on male violence and masculine gender role stress.

Juan De Los Santos
Indigenous Allies of the Spanish: Their Battle for Status after Peace
Faculty Mentor: Doris Namala

For centuries it has been common, and accepted, knowledge that a force of at most a few hundred Spaniards were able to attack and defeat tens of thousands of enemy natives. Matthew Restall, in his book, Seven Myths of the Spanish Conquest, debunks the myth of a small Spanish force conquering Mesoamerica, specifically the Mexica Empire, due to overwhelming Spanish superiority and native ineptness. Instead, Restall argues that scores of indigenous allies were crucial to Spanish victories in Mexico. The Tlaxcalans were among these indigenous allies who used their roles during the Conquest in their campaign for rewards in the post-conquest years. The Tlaxcalans created the Lienzo de Tlaxcala to layout, in order of occurrence, a detailed document of the support they gave to the Spanish with the expectation that they would be rewarded. The natives of Oaxaca and Yucatan also wrote detailed accounts of their roles during the Conquest. They attempted to explain all the supplies, protections, and warriors they gave willingly to support the Spanish efforts in their regions. While the Tlaxcalans ultimately were relatively successful, this proved difficult for many native allies, especially the natives of Analco in Oaxaca, whose settlement was not a pre-conquest altepetl and therefore no candidate for corporate rewards, and many of the natives in the Yucatan, whose internal factionalism ended up preventing a successful campaign for colonial privileges as well.

Zarema Jimenez
A Sartrean Phenomenological Ontology of Relationships with Others in the film Blue Jasmine.
Faculty Mentor: Dana S. Belu

Modern misunderstandings of the projection of love create a contemporary "relationship culture" that is riddled with misguided grand gestures and replete with dating applications that conceal the existential structure of love. The acceptance of another person as a romantic partner is often viewed as a mutual levelling between oneself and another where there is often a lack of equality in the identifiable devotion. This oral presentation will focus on a Sartrean phenomenological ontology of love, masochism and sadism and will identify the respective characters and relationships in Woody Allen's film Blue Jasmine. The goal of this presentation is to help garner an understanding of the dialectical oppositions between freedoms in the existential experience of love, masochism and sadism. Contemporary conversations about love can benefit when each partner is able to more clearly identify their true intentions and those of the other.

Bryan Cantero
Mexican (American) Corridista students: Resisting educational oppression through Corridos
Faculty Mentor: Corina Benavides Lopez

In order to combat the pushout of Mexican (American) males in the U.S educational pipeline, this study seeks to understand how Mexican (American) male college students understand their positionality through their consumption/production of corridos in order to resist educational push-out. Drawing from a corridista consciousness framework (de los Rios, 2017) to analyze oral pláticas (a focus group research method which allows for community knowledge building) (Fierros & Delgado Bernal, 2016), this study centers Mexican (American) male student experiences and interactions with corridos as a form of resistance in higher education. The study frames the research participants as the creators of counter-narratives for their communities in the U.S. in direct response to anti-immigrant sentiments and rhetoric. The research findings provide insight on the importance of culturally relevant programming in higher education to foster Mexican (American) male educational participation and success. This is also a rich opportunity to continue exploring the intersection of corridos, education, and history to demonstrate how students possess and apply abilities gained from experiential knowledge while navigating higher education.

Italie Torres
De-Institutionalizing Racism: An Exploration of the Afro-Cuban Experience, 1950s-60s
Faculty Mentor: Laura Talamante

The Cuban Revolution sought to eradicate class, racial, and gender discrimination, yet under Fidel Castro, rhetoric concerning race became intolerable. Revolutionaries argued that because the Revolution abolished segregation and illiteracy across the island, it, therefore, did not concern itself with color. Leading scholars such as Aline Helg, Esteban Morales Dominguez, Alejandro De La Fuente, and Ada Ferrer have explored social, cultural, and political aspects concerning race and the Revolutionary government. This paper seeks to add to the conversation by analyzing US imperialism under the Cuban Revolution. Why did racial discrimination exist post-Revolution, even though its leaders, claimed its eradication? In what ways did discrimination take form for Afro-Cubans, such as in the workplace and politically? By using historical monographs, speeches, the 1940 and 1976 Cuban constitution, this research will examine the lived experience of Afro-Cubans and how under the Revolution political representation and lucrative job positions in the tourism industry, Afro-Cubans remained underrepresented.

Dante Garcia
Critica Honesta: Analyzing the Rhetoric of The East LA Walkouts
Faculty Mentor: Ana Elizabeth Rosas

The 1960s-1980s were a period of political and social unrest. Movements such as the Civil Rights, Black Power, and Women's Movement were in full swing. Furthermore, international issues like the war in Vietnam which disproportionately drafted people of color and Latin American coups like the one led my military Dictator Pinochet concerned activists in the United States. Within this context, the Chicanx Movement of the 1960s and 1970s emerged as an important catalyst for societal change. Although the Chicanx Movement had various moving parts, this project will focus on the urban Chicanx Movement in East Los Angeles from 1968 to 1970. Through archival research, I analyze student activists' tone and terminology in the language they used to criticize systems of oppression such as the U.S. education system and law enforcement agencies. Between 1968 and 1970, I argue that student activists used aggressive rhetoric with a mix of urban slang to criticize systems of oppression. In doing so, they articulated broader positions about race and ethnicity in U.S. society as they attempted to change their own social conditions.

Porscha Singh
"Oh No You Didn't!": Understanding Sapphireness and Unpacking Media Essentializing of the Angry Black Woman Trope in Television
Faculty Mentor: Ryan Bowles Eagle

In this project, I examine the pervasive use of the powerful trope of the Angry Black Woman (ABW) in popular media culture, especially in two U.S. television shows: Scandal and Love and Hip Hop: Atlanta. These shows differ in genre, form and production context, and thus are useful case studies to explore specific televisual expressions of the ABW trope. I argue that both shows rely on a shared trope, which is the problematic ABW. I situate my project in literature around the sassy and emasculating "Sapphire stereotype," contextualizing the ABW in relation to this historically damaging classification of black women. I will conduct a character analysis of both shows; wherein I examine how media utilizes this trope and repurpose its use in different ways. I will analyze the first three episodes from both series' pilot seasons to make further connections/inferences. I explain how the continued use of this trope across media representations serves to marginalize actual African American women by reinforcing problematic and racist stereotypes in the larger culture, which also can lead to damaging internalized perceptions of these very same black women. At the same time, I am interested in challenging received notions of the ABW as only a "bad" discursive object by recuperating this archetype from the binary understandings of positive versus negative representations of black womanhood. After all, with so many black women fans, I believe there is something these audiences find valuable or pleasurable; So chief among my concerns is why do they watch?

Anthony Amaral
The Negative Consequences of Incarceration on Families and Children
Faculty Mentor: Jose Prado

The purpose of this research is to address and contribute the discussion on the damages of incarceration against families by adding gaps in the literature from shifting the conversation on parental imprisonment towards refocusing our attention to the resistance of children with incarcerated parents. Children are invisible victims when their parents incarcerated. They are often forgotten or ignored by the criminal justice system and rendered collateral damages to incarceration. There are numerous difficulties and consequences experienced by children growing up with a parent incarcerated. For example, children experience trauma from separation of their parent (Miller, 2006). In fact, many children growing up with incarcerated parents are not able to overcome the challenges such as aggression, depression, and incarceration (Wildman, 2010). Additionally, parents' imprisonment is linked to high-risk factors such as behavioral, emotional, and social problems that lead to the possibility of crime, drug abuse, and poor academics (Murray & Farrington, 2008). The purpose of this research is to address and contribute the discussion on the damages of incarceration against families by adding gaps in the literature from shifting the conversation on parental imprisonment towards refocusing our attention to the resistance of children with incarcerated parents.

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Lizbeth Zúñiga
Jotería Resistance: Dismantling Diet Culture in the U.S con Bocados (Mouthfuls).
Faculty Mentor: Benavides López

A cis-heteronormative society is one that defaults to heterosexuality while simultaneously stigmatizing and marginalizing non cis-heterosexual communities and fat bodies, which dually navigate fatphobia and homophobia in restrictive spaces. This work aims at dismantling fatphobia and diet culture, instead promoting fat resistant capital within a fatphobic, cis-heteronormative academic society—in this, we1 reclaim 'the right to remain fat' (Tovar, 2018; Yosso, 2005). The perceived space that fat bodies overspill from is attributed to the 'rupture' that we create when we claim space that has been historically denied to us (Arao & Clemens, 2013). This work acknowledges the added stressor of fat queer Chicanx/Latinx (i.e. jotx/as/os) brown bodies navigating academia as first-generation college students. The continued refusal of the academy to address the needs of first-generation, Chicanx/Latinx fat jotx/as/os is a form of continued colonial violence in education. This study analyzes oral history interview data focusing on the issues of fatphobia, dieting, homophobia, and sexism. The purpose is to demonstrate how academia works to maintain social, economic, gender and sexual binaries, in addition to how fat jox/as/os are able to catalyze their fatness as resistance to the body terrorism and dieting messages received in our everyday student lives (Fox, 2007; Solórzano & Delgado Bernal, 2001; Bernal, 1998; Revilla & Santillana, 2014; Taylor, 2018; Yosso, 2005).

Jasmine Abang
Malintzin: The Buried Voice of the Spanish Conquest
Faculty Mentor: Doris M. Namala

The Mexican Conquest is one of the most significant events in world history. However, for centuries, the dominant narrative has been a Eurocentric portrayal that presumes Hernán Cortés and other conquistadors to be heroic, noble, and able to maneuver through México with little to no opposition. Additionally, it silences Indigenous voices of the Conquest and omits the acknowledgment of Indigenous contributions to Spanish success. Mathew Restall's Seven Myths of the Spanish Conquest pushes against the dominant Eurocentric narrative of the Conquest. The push against the dominant narrative is emphasized in Chapter 5, highlighting the conquistadors' inability to maneuver throughout Central México without assistance. More importantly, Chapter 5 brings an Indigenous woman, Malintzin, the interpreter of Hernán Cortés, to the forefront. With support from translated Nahuatl texts and pictographs and sixteenth-century Spanish sources, Malintzin's voice becomes visible. Two core Indigenous sources that molded Restall's argument are the Florentine Codex, a Mexica source created a generation post-Conquest, and the Lienzo de Tlaxcala, representing an Indigenous ally perspective. Through these sources, Malintzin emerges as a central figure whose linguistic skills become an asset allowing her to make a conscious decision to become Cortés' interpreter. Her multi-skill set of quick language acquisition, ability to navigate high-risk scenarios, interpreting with cultural sensitivity, and the utilization of different linguistic registers makes her indispensable when it comes to Spanish-Indigenous communication during the Conquest.

Makonnen Tendaji
Poetry, Power, and Pistols: Analyzing the Cultural Consumption of Black Male Trauma Expressed in Hip-Hop
Faculty Mentor: Donna Nicol

The hip-hop/R&B genre ended as the largest genre of the year in terms of "total consumption," which includes album sales and album-equivalent streaming figures. Seven of the top ten most-consumed albums of the year came from the hip-hop/R&B genre. The hip-hop industry's support and pushing of narratives that glorify crime, drug use and trafficking, and lawlessness encourages young Black males to take on specific anti-communal and self-destructive personas and perpetuate these narratives in their own quest for attention, fame, and fortune. This reinforcement of culturally hegemonic narratives is a crucial point that I investigate and challenge. My work engages with what I call the three major players in the commercial exchange of Black male trauma delivered through hip-hop music: the music industry elite, the audience, and the artist. This leads to the central question: how is Black male trauma produced, consumed, and challenged through hip-hop? I intend to study how trauma experienced by Black men is produced; then I will look at how this trauma is consumed by audiences. Consuming culture is not a passive act, therefore, the audience is not a passive actor. I will then investigate how trauma experienced by Black males is utilized as a justification to eradicate Black male life, rather than to cultivate agency to change the social conditions that breed environments of poverty, violence, and trauma in the first place. Black male trauma will be defined as will the main factors that cause this form of trauma. What does it say about the expendability of Black male life when the racialized and gendered trauma they experience is built into one of the most commercially viable forms of entertainment in society today? I intend to create space for critical conversations to be had in both academia and public discourse.

Delaney Johnsen
The Role of the Mother in 20th-Century Feminist Utopia
Faculty Mentor: Helen Oesterheld

Feminist utopias address the issue of inequality between men and women, and male and female roles in society, as well as whatever other social ills are the author's concern. One of those prevailing differences revolves around the structure of the family; in a historical context, the "nuclear family" unit functioned as a means of controlling and limiting women. Specifically, the issue of pregnancy, childbearing, and childrearing has functioned as both an explanation as to the source of female inferiority and the means by which to perpetuate it. Therefore, in the course of studying the alternate approaches to the structure of the family in feminist utopias, the role of the family unit in the larger utopian society, and the role of the utopian society in the larger world, the different positioning and priority of the authors in their particular historical and cultural contexts becomes clear.

The fictional works utilized in this essay will consist of The Dispossessed by Ursula K. Le Guin, Herland by Charlotte Perkins Gilman, Parable of the Sower and Parable of the Talents by Octavia Butler, and the short story "When It Changed" by Joanna Russ. Research such as Evie Kendal's essay "Utopian Literature and Bioethics: Exploring Reproductive Difference and Gender Equality" provides vital context in the examination of different approaches to reproduction and family style.

By studying the impact of the family unit on gender equality, and studying the more perfect worlds provided by feminists in a historical context, a modern understanding of successful family units is defamiliarized and decontextualized, allowing for a more complete understanding of the role of the family in women's equality. A postmodern perspective provides a more complete understanding of the issue of feminism throughout history, and specifically the role of the feminist utopia as a "more perfect place.""

Karla Benitez
The Continuing Oppression of Women in Hollywood
Faculty Mentor: Jennifer Brandt

The Hollywood movie industry is often glamorized and romanticized by many who have ordinary jobs, but it can be like any other workplace. Many women have suffered countless forms of abuse that are often forgotten or not talked about, especially when talking about the old Hollywood star system. This time is now seen as the "Golden Age" of cinema and was filled with stories of both sexual harassment and mental abuse. Hearing this in the 21st century, many would think that society as a whole has come a long way with its treatment of women but the truth is far from it. When allegations about film producer Harvey Weinstein were made public by an article published in the New York Times many could not believe the many things he had been getting away with for years. What's worse is that many actors had prior knowledge to what kind of man he really was behind the scenes. He was described as "mean" "pushy" and "a bully". The stories of women who came out and spoke up were hard to hear, but shed a light on the fact that the Hollywood star system has never really disappeared and many producers still think they can get away with that kind of behavior. The #MeToo movement has pushed for many women to come forward and talk about the forms of sexual assault and harassment they have both survived and have had to deal with. This paper discusses that despite the attention to the #MeToo movement, much the treatment of actresses has stayed the same. This is due to the fact that women who do speak out are portrayed as liars and not believed, and the men who are aware of this behavior often look the other way for the sake of their own careers.

Claudia Rodriguez
The Complexities of Children's Literature as presented in J.K. Rowling's Harry Potter series
Faculty Mentor: Jane Lee

Children's literature is, for the most part, seen through a lens of simplicity and innocence. At face value, it is meant to be fodder for children to entertain themselves with and the notion of literature being accessible to children inherently means it is simple and easy to read, with no deeper way to look into it. However, children's literature has always presented itself as featuring a moral or lesson for children to learn, and although some of these lessons may have been as simple as "do not trust strangers" or "listen to your parents", these moral lessons have grown more complex as the years have passed.

J.K. Rowling's Harry Potter series introduces children to the complex notion of racism and classism through the cover of a fantastical setting with magical characters. Through the cover of pure-bloods vs. muggleborn witches (people born of a fully magical bloodline vs. people born of a non-magical bloodline who still have magical powers), Rowling is able to demonstrate the morality behind classism and racism and show younger audiences the dangers and evils both of these concepts can bring. Through this, and several other issues Rowling exposes her young readers to, she demonstrates a capability of educating children while entertaining them through literature, in a way that is far less simple than children's literature is perceived to be. By looking deeper into the Harry Potter series, and seeing the ways in which Rowling disguises lessons, I will be showing how she is pushing the genre of children's literature forward, while also maintaining its roots and teaching important moral lessons to children."

Mikey Vibal
Vernacular as a Vixen
Faculty Mentor: Kirstin Ellsworth

In today's world of fine contemporary art, it is found that there is exclusion and privilege among the high culture that has established an abuse on the low culture arts often associated with customs and values that have thrived and derived from social and economical minorities. Art is a language and a form of expression used to communicate in many diverse ways; however, like any language it can be borrowed from and has roots and cultures that come with it that often become erased or forgotten. Each artist has their unique mother tongue; unfortunately, in the fine art world that is often overpowered when profits and money speak louder than the culture and message of the arts. As a result, many artists of color, low income , female gender, or living with disabilities do not necessarily receive equal opportunities nor do their respective communities even when those of high culture take advantage of their expression. This has created a world where one's own vernacular is used to cut both ways, where it is appropriated for profit and then manipulated to exclude those who are considered a part of low culture despite the fact the high culture conversation originated from them. The artists that will be discussed are Jeff Koons, Chinqpink, KidSuper, and Rihanna.

Roberto Ortega
Empowerment Through Ancestral Roots
Faculty Mentor: Marisela Chavez

Colonization and its legacies raise various questions regarding the relationship between Chicanx culture and identity, and indigenous roots. Such questions include how do indigenous roots influence Chicanx culture and identity? Furthermore, this question augments related inquiries such as what do indigenous roots mean to Chicanx individuals? Similarly, if one does decide to identify with indigenous roots, how is this identity manifested? And what factors prompted one to include indigenous roots in their identity? Using oral history interviews of self-identified Chicanx students currently enrolled in college campuses across Southern California, I explore how contemporary Chicanx students in higher education negotiate their identity and culture as they also identify with indigenous roots. This project suggests that indigenous roots influence Chicanx culture and identity in their rejection of assimilation to American culture, establishing a sense of identity while feeling stuck between U.S. and Mexican society, and challenging heteropatriarchal concepts instilled within U.S. society and Mexican culture.

Bryan Castro
The Importance of Historical Record for the Future Well-being of a Disadvantaged Community
Faculty Mentor: Margaret Manning

This project utilized a variety of historical record, ranging from photographs, newspapers, and interviews with residents to develop a short documentary, which highlights the challenges that a community Environmental Justice activist group, the Del Amo Action Committee (DAAC), faces because of the neglect of federal, state, and county government agencies. The subjects of this documentary were the board members of DAAC, and local residents. This author encountered them during his internship with DAAC. The goal was to illustrate the challenges, and hopes for change in a predominately Latino community, that lacks political representation. Their struggle is important, because they represent a population in the country that deals with the toxic effects of living with the two Federal EPA Superfund sites of Del Amo and Montrose This documentary is inspired by the works of documentarian Hara Kazuo, but it builds on the approaches of Bhaskar Sarkar, and Janet Walker's text Documentary Testimonies: Global Archives of Suffering. The text explores the interdisciplinary approach of documentary filmmaking through the use of historical examination. The authors use trauma theory to analyze the interviews within various documentaries. For example, DAAC's goals are critical to the future well-being of residents, because they deal with the local history of this South Bay area, a legacy that dates back to the original Native American Tongva tribe, followed by the Spanish land grant to the Dominguez family, and ultimately the ignominy of being the stepchild of unincorporated Los Angeles County. This documentary exposes the debilitating effects that living with the harmful effects of two EPA Superfund sites has had, not only on physical health but also on the psyche and aspirations of a minority community. This could never happen in affluent neighborhoods.

Thursday, February 13, 2020

Physical and Mathematical Sciences
UNDERGRADUATE AND GRADUATE
Session I

Physical and Mathematical Sciences, UNDERGRADUATE AND GRADUATE
Session I

Daniel Apt
Modeling range shift of endemic and vulnerable Pseudotsuga macrocarpa (Bigcone douglas fir) in California under climate change
Faculty Mentor: Parveen Chhetri

Global climate models have predicted that California will continue to warm over the next
Century and precipitation will increase in some areas (mostly northern California) and decreases in some parts of the state (primarily southern California). Climate change is likely to have significant impacts on the structure and function of California's ecosystems. These changes in climate have been accompanied by detectable trends in many ecological processes and species dynamics such as increasing wildfire activity, changes in plant phenology, higher tree mortality rates related to warm, and elevational shifts in species distributions. Understanding and forecasting species geographic distributions in the face of climate change is a central priority in biodiversity science. Especially, mountain plant communities are more sensitive to climate-driven range shifts. Few studies have focused on the direct effects of climate change on Pseudotsuga macrocarpa (Douglas-fir). In this study two research questions were addressed: 1) which climatic variables best explain the distributions of Douglas-fir in California? To answer this question, the relationship between the contemporary distributions of Douglas-fir with underlying climatic variables were examined. 2) Will the distribution of Douglas-fir likely expand or contract under future climatic change? We examined how habitat suitability of Douglas-fir shifted under future climate scenarios within California and compared the elevational range of future suitable habitat to contemporary distribution. We identified the suitable habitat of Douglas-fir in California under present and potential future climates. This approach would be useful for an application on other vulnerable tree species from the region."

Michelle Mohr, David Saldana, Gabriel Angulo
Is Basal Area Increment (BAI) more useful than the Ring Width Index (RWI) to study severe drought events?
Faculty Mentor: Parveen Chhetri

The forest ecosystem is responding to climate change worldwide by advancing to higher altitudes, increasing recruitment, and changing radial growth pattern. To understand how the sub-alpine forest ecosystem of northern California is responding, we collected tree-ring cores from Jeffrey Pine (Pinus jeffreyi) sub-alpine forest in the Lake Tahoe Basin, California. We used the standard dendrochronological procedure to surface, cross date, measure, and detrend tree-ring cores samples. Monthly and seasonal climate data of Tahoe city were applied to assess climatic variables controlling ring growth. We developed a 374 year-long (1645-2018) chronology from 48 cores (24 trees). The chronology was truncated to 244 years (1775-2018) based on subsample strength and sample depth. The years 1757, 1782, 1886, 1859, 1876, 1920, 1929, 1977, 1988, 2001, 2002, 2008 exhibited low growth (narrow ring) and years 1747, 1749, 1792, 1828, 1866, 1868, 1913, 1969, 1984 exhibited robust growth (wider ring). No recent increasing trend of ring width was observed in 10 years moving average of ring width index (RWI). However, the transformation of ring width to basal area increment (BAI) showed an increasing growth trend in recent decades. BAI also indicated that 1928-30, 1987-1989, and 2013-2014 were low growth periods associated with extreme drought events. BAI presents a better spatial correlation with monthly climatic variables than RWI. Thus, BAI has an advantage over RWI in studying tree-ring growth and climate response.

Edgar Venegas
Improving the Predictions of Cardiac Resynchronization Therapy Responses by the Utilization Of Machine Learning Methods
Faculty Mentor: Yi Wang

Cardiac Resynchronization Therapy (CRT) treats heart failure and ventricular dyssynchrony effectively by sending electrodes to the heart muscle. However, there are still about 30% of the patients who do not respond to and therefore do not benefit from the treatment. The objective of this project is to study methods that can better predict the CRT response and thus can select patients more effectively. On the other hand, machine learning methods are well known to be able to handle complex data. These methods can discover the optimal diagnostic information and recover the underlying patterns that may have been undiscovered by humans' pure observations. We study clinical, electrocardiographic and echocardiographic measurements collected from 3 different medical centers and apply machine learning methods to analyze them. We are able to provide a new guideline for patient selection which will improve the response rate to the CRT treatment.

Raju Bista
Influence of climate on radial growth of Betula utilis and Abies spectabilis in the subalpine forest of Dhorpatan area in the Nepal Himalayas
Faculty Mentor: Parveen Chhetri

Studies have shown that subalpine forest growth dynamics in the sensitive Nepal Himalayas have been influenced by climate warming. Having insights into interspecific growth performance under ongoing changes has important implications in forest management. We have analyzed the influence of climatic variability in the radial growth of two co-occurring tree species (Abies spectabilis and Betula utilis) from the Ruhakharka area of Dhorpatan Hunting Reserve, western Nepal. Increment cores were collected from both species from the elevation range of 3300-3500 m a.s.l. The cores were processed and scanned with a resolution of 2400 dpi in the Paleoclimate Laboratory at the California State University, Dominguez Hills. Tree ring width was measured with CooRecorder and cross dated with the CDendro computer program. Cross dating quality checks and tree ring standardization were performed using dplR. Climate-growth analysis (response functions) was performed with chronologies created for both species. We found differential responses to climate. While B. utilis showed positive growth response to January and August temperature, the radial growth of A. spectabilis was positively influenced by the growing season (March and April) temperature. Whereas, both species have shown negative summer (July for A. spectabilis and August for B. utilis) precipitation. The information on species performance will help assess tree adaptability and forest management strategies in the context of ongoing and exacerbating climatic variations in the future.

Omar Santizo, Claire Ladan, Justin Hathaway
Hacking Electrochemistry: Improving undergraduate chemistry education analyzing biochemical redox analytes using a student-built potentiostat
Faculty Mentor: Barbara Belmont

Electrochemistry provides a wide variety of quantitative methods for the detection of analytes significant to biochemical processes, pharmacology, environmental analyses, and clinical tests. Current electrochemical methods are costly, fragile, and unavailable to lower-division teaching labs. In fact, it is a scarcely addressed topic in undergraduate studies, despite being an ACS requirement. In this work, equipment typically used by the Maker Community has been modified to bring a cost-accessible electronic instrument into the undergraduate teaching lab. That brings Belmont Research Group's latest project: Potentiometric analysis of a biochemical redox analyte by cyclic voltammetry. Belmont Research Group has successfully developed a robust, low-cost potentiostat, fondly called the Teensystat, capable of detecting potassium ferricyanide, ascorbic acid, and acetaminophen. The Teensystat contains a Teensy microcontroller and Texas Instrument's LMP91000 that is coupled to a Pine Research carbon screen-printed electrode. The potentiostat probes a chemical solution with a voltage that sweeps over a specific range and rate, while monitoring the current flow as a result of the sweep. The resulting cyclic voltammograms characterize and quantify the oxidation-reduction chemistry of the analyte in the test solution. The two-lab period experiment presents students with an interdisciplinary approach to electronic interfacing, analytical electrochemistry, biochemistry, and human health. Via the experiment, students calibrate the device to determine an unknown concentration of a reversible, irreversible or quasi-reversible redox analyte of their choice. Students learn the theory and applications in the lab of redox reactions, cyclic voltammetry, and further make connections to the electrochemical aspect of human health.

Allison Pary, Scarlett Zamora
Waste Audits at CSUDH
Faculty Mentor: Cheyenne Cummings

In the Fall of 2018, a waste audit was conducted to identify which items are being thrown into landfill and to get a snapshot of what could have potentially been diverted out. What was found in our prior audit was an average divertible rate of about 86% per building. Due to recent changes implemented by the China ban some items that were divertible during the last study are no longer considered divertible. Items, such as saran wrap, coffee cups, straws, and plastic cutlery are some of the items that have been reincorporated into the waste category and are ending up in the landfill. According to the new list of divertible materials, we conducted a new series of waste audits. Our results showed an average of about 31% of waste is still considered divertible. Our society takes a step back with this decrease in what is considered recyclable, and our results show as a campus we are still failing at diverting our waste. The original goal was to have the ability to compare 2018 to 2019 after undertaking an extensive recycling education program, yet the Fall of 2018 can no longer be compared to this year's results. While recycling may have changed our diversion rates still needs improvement. Since the policies have changed, recycling education is still deemed important, but we speculate that our education measures need to be focused more on reducing and reusing. New programs recently implemented were put in place to help mitigate waste from going into our landfill. The two main projects are the Toro Token program and the Food Recovery Network. It is through these projects that we are exemplifying how people's behavior can change using campus as an example.

Stephanie Gaston
An Average of Generalized Dedekind Sums
Faculty Mentor: Matthew Young

In the field of number theory, we study a generalization of the classical Dedekind sum that incorporates two Dirichlet characters and develop properties that generalize those of the classical Dedekind sum. By calculating the Fourier transform of this generalized Dedekind sum, we obtain an explicit formula for an average of this sum. Finally, we derive upper and lower bounds for this average with nearly identical orders of magnitude. This research was conducted at the Texas A&M University REU 2019.

David Saldana, Michelle Mohr, Gabriel Angulo
The relationship between Jeffrey Pine growth and climate in Cascade Lake watershed.
Faculty Mentor: Praveen Chhetri

In order to perceive the critical effects of a rapidly warming world in addition to anticipating how future climate trends in the state California will be affected by anthropogenic forcing, it is paramount to study past phenomenon such as drought. Furthermore, measurement of the extent and frequency of such episodes is equally important in order to ascertain severity of these incidents. Dendrochronology, utilizes the variation of ring-widths based on growing conditions recorded by trees. This record permits us to study how different stressors influence tree growth. One such stressor is long-term weather events such as drought. This climatic response which consists of but is not limited to low growth events, can accurately account for duration and density of drought conditions based on a chronology of ring-widths series. We used Geographic Information Systems (GIS) to assess suitability of a potential study site and we chose to explore the dendroecological potential of an underrepresented tree species in order to close the research gap. The study site and species chosen were the Cascade Lake watershed near South Lake Tahoe California and Jeffrey Pine (Pinus jeffreyi). For our analysis we collected 44 cores from 26 trees in order to generate a 370-year chronology to discern past extreme droughts. Standard dendrochronological processing was used to aid cross dating, in addition to using COFETCHA and ARSTAN to calculate correlation coefficient. Data yielded was plotted using R (dplR) As a result of our study we have concluded that there is significant negative correlation in the previous year's growth-climate relationship because of temperatures for May, August, September, and October. Similarly, we found a significant negative correlation for growth-climate relationship in current year's growth due to temperatures in June and July. For expansion of this research, we will compare Ring Width Index (RWI) to Palmer Drought Severity Index (PDSI).

Thursday, February 13, 2020

Roundtable Discussions

UNDERGRADUATE

Session II

Roundtable Discussions, UNDERGRADUATE
Session II

Alma Maldonado
Technologist Perceived Patient Satisfaction in Mammography
Faculty Mentor: Edwin Tilson

I am currently working on a pilot study to measure perceived accuracy of factors that literature claims makes mammographies more comfortable. According to several articles have identified that patient's satisfaction is based on patient room temperature comfort, compression padding, and the patient's ability to assist in the compression. Hence, according to the survey in the article written by International Journal of Woman's Health, the coolness of the compression paddle as well as the length of the compression are some of the areas that technologist and patient's both agree as discomfort factors. For my pilot study I plan on using a likert scale from 0 to 5, with zero being strongly disagree and five being strongly disagree. I would distribute the survey to mammography technologist to measure how they perceive patient satisfaction in mammography specifically to annual exams.

Edward Karacozian
Defining Professionalism in Radiography
Faculty Mentor: Elwin Tilson

Professionalism has evolved and continues to evolve in today's society. In the field of radiography, there are continuous measures to improve professionalism through interactions with patients and peers. While professionalism in radiography is a desired quality, there has not been any consistent set of guidelines and principles that outline professionalism, per se, creating inconsistencies in the execution of professionalism. This inconsistency stems from a lack of a clear and concise definition of professionalism in the workplace. Radiography, like other fields of study, lack a true definition that can be adopted by all in the health care profession. Furthermore, there is very little literature on how radiographers (RTs) view their own professionalism and the professionalism of their peers. Due to the lack of evidence on this topic, more research is needed.

Because of the lack of research in this area, this study will examine RT's perceptions of themselves and their peers. An instrument the study uses to gather data is a survey given to staff radiographers at multiple institutions. The study uses a Likert scale to measure self and peer assessments of professionalism in the workplace. While researching current studies, this instrument is shown to be the most popular method for gathering statistics. The staff RTs will have about forty statements to either agree or disagree with. This measuring instrument will provide quantitative and qualitative data that can be categorized to show general characteristics and anomalies pertaining to their perceived views of professionalism in their workplace. Once the data is analyzed and categorized, and observations made, it can be used to enhance the facilitation of guidelines and procedures for professionalism of RTs, and possibly other professions. Once the data is assimilated, a detailed report outlining general perceptions and areas for improvement and concerns, as well as recommendations, can be formulated.

Taylor Francis, Sarah Smith
What is the appropriate solution to stop the practice of female genital mutilation in Somalia?
Faculty Mentor: Archana Sharma

Female genital mutilation (FGM) is a traditional practice that has been performed globally for over 2,000 years (Unicef, 2019). There have been over 200 million reported cases of girls who have been cut due to the ancient practices in 30 different countries (Victim Support, 2019). Somalia has the highest rate of FGM with 98% of girls have undergone partial or total removal of the external genitalia (Clay, 2017). A study conducted in Somalia by NAFIS states, women who said they had daughters, 58% of the daughters have been victims of FGM. If they had daughters who yet to have undergone the process, 90.5% of mothers said their daughters are still intended to be cut (Dahir, 2019). Negative health consequences due to FGM include infertility, recurring infections, and psychological effects. Eighty-four percent of men state that FGM is a necessary practice in order to deem a girl's worthy for marriage as well as her purity. FGM is motivated by gender inequity and social acceptability among Somalin communities.

A roundtable will discuss the appropriate solution to stop the practice of female genital mutilation in Somalia by empowering women and girls, as well as eliminating harmful gender norms an inequality. There have been successful interventions such as the TOSTAN pilot project funded by Unicef, to end FGM in Somalia. This intervention includes utilizing local community members to lead more gender sensitive lives and empower communities to publicly declare the abandonment of FGM (Tostan, 2018). Our investigation will help identify difficult aspects of the traditional practice FGM including, how to approach community leaders and men with a dynamic approach of unraveling gender norms and educating on the negative health effects of FGM.

Amal Alalim
Arab American are Missed out at CSUDH
Faculty Mentor: Hamoud Salhi

Arab American are missed out from CSUDH curriculum. The purpose of this study is to give statisces about the Arab American, Muslim American and Middle Eastern American psychographics.

Raquel Serrano
All Social, No Justice? A Feminist Critical Analysis of the Performativity of Social Justice on Social Media
Faculty Mentor: Jenn Brandt

Social Justice is a provocative phrase. Claiming the title of "social justice activist" is an identity that means different things to different people. Some practitioners use social justice in a way to relieve populations from the heaviness of social oppression; others, though, are overzealous in their identity, perpetuating a savior complex to achieve a badge of self-righteousness. If social justice carries so much weight in the way we reform humanity, it should also evolve as humanity does.

The purpose of my research is to investigate the performativity of social justice demonstrated through social media; specifically, via the Instagram accounts of @naziejoon (a personal account that posts content regarding social justice, global issues, feminism, and mental health awareness), @Emilys_list (an established organization that promotes and funds women in politics), and @CrunkFeminist (a women of color scholar-activist group). Social justice movements have brought attention and activism to racial, sexist, homophobic, and xenophobic issues. I will analyze social justice through a feminist lens and its performance on Instagram because of the severity of possibilities that are at risk when masses of people are being reached. Through my research, I am exploring the origins of social justice, the language around social justice, its effectiveness, and its performance on social media. In America, not only is social media accessible, it is a platform that is commonly used as a news source and form of activism. I plan to further delve into extensions of social justice such as call out culture and slacktivism, and also explore the potential for social justice to become toxic, disempowering, victimizing, or academically elitist.

Joseline Gonzalez
Forgive Me, Father: Progressive Women in Latinx Literature
Faculty Mentor: Roderick Hernandez

The Catholic Church is a prominent religious institution in Latinx communities because of its historically violent implementation throughout Latin America. The "virtuous woman" trope stems from religious morals that have been further applied through male-led family structures. Helena Maria Viramontes' collection, The Moths and Other Stories, shows women's experiences with these pressures and their reactions to not fitting the definition of "good." Although the women in Viramontes' stories seemingly succumb to gender roles and suppress their sexuality, they also appropriate religious iconography and scripture. They repurpose them by providing modern lenses and making them inclusive, despite the women previously feeling unwelcome. The women need to repurpose iconography because they want to create a modern, feminine, spiritual space.

Viramontes' "The Moths," and "Growing," specifically show young women who show resistance against the wishes of their fathers. The characters struggle to fit feminine roles and uphold religious morality. However, all the young women choose to defy these rules imposed on them and attempt to define their identity. These appropriations are not uncommon in Latinx communities. In Goddess of the Americas, Ana Castillo gave authors a simple task: explain the significance of La Virgen de la Guadalupe in their lives and culture. It is no coincidence that women like Sandra Cisneros repurpose the virgin and dub her a "sex-goddess." These different interpretations are also found in Latinx artists - most notably Ester Hernandez and her interpretation of the virgin and her creation of La Virgen de las Calles. Through this Hernandez and Cisneros show, like Viramontes' characters, the power and pressure of the Catholic Church.

Women's views of religious institutions change because they live in a post-modern United States and refuse to conform to orthodox institutions. However, they do not stray from them either. Instead, women find a balance between spirituality and femininity.

Herman Armstrong
Silicon Valley: the driving force behind the programming of intelligence
Faculty Mentor: Meghna Singhvi

Silicon Valley has become the mecca of business ingenuity. Over the last couple of decades, we have seen many companies that have ultimately become large cap companies birthed from the technology sector. The hub of this growth being Silicon Valley. More recently we see that efficiency is more valued than ever and the end point seems to be the inevitability of automation or artificial intelligence. The purpose of this study is to gain a deeper understanding of the underlying motivations and driving forces behind the movement towards automation. In order to synthesize a proper intellectual opinion, we will explore the psychology of Silicon Valley as well as the byproducts resulting from this culture that necessitates efficiency at an almost superhuman level. Using the descriptive research approach and cross-sectional analysis, this study observed the factors at play in Silicon Valley such as pressure from investors along with analysis of the practices of individuals working in Silicon Valley likely being a direct result of these pressures. It seems to be apparent that the building of Silicon Valley is indeed built on the backs of over-delivering. Findings suggest that individuals apart of Silicon Valley's technology industry will participate in what some would deem extreme behavior such as the pursuing nootropics in order to increase output. High-risk high reward pressures from investors appears to be the catalyst in which drives Silicon Valley. This study begins to build a knowledge base which can be used to better understand the motivation behind Silicon Valley's movement towards automation and the predictive effects that we can assume from it.

Thursday, February 13, 2020

Behavioral and Social Sciences,
UNDERGRADUATE
Session III

Behavioral and Social Sciences, UNDERGRADUATE
Session III

Otilia Marquez
Social Media Implications
Faculty mentor: Brant Burkey

Social media platforms, including Facebook, Twitter, YouTube, Instagram, and Snapchat, have radically altered our communicative landscape, transforming the ways in which people socialize, get news, express political views, and stay connected. However, there is sufficient anecdotal evidence that social media usage is also having pernicious and complicating effects on personal relationships, interpersonal communication, political expression, and maintaining control over one's identity through these personalized networks of "friends" and "followers."

Think of the ways people's whereabouts are shared when they are tagged in photos, checked into places, or can be monitored and tracked by others. Or how romantic relationships can be impacted by whose picture a partner likes, who someone is friends with, or what relationship status means on social media. Or how political views expressed on social media can strain familial bonds, friendships, or even create conflict with complete strangers.

While much research has been devoted to millennials' social media use in terms of consumption habits, user preferences, and online behaviors, there is room for more exploration of young adults' attitudes, perceptions, and practices in particular relation to how social media impacts their interpersonal relationships and notions of surveillance. The primary contribution of this research is to more deeply interrogate this topic through the qualitative methodological approaches of in-depth interviews, participant observations, and thematic analyses of what their digital sharing practices mean to approximately 20 millennial-generation informants.

This research study is also part of an RSCA FRG grant awarded to Dr. Brant Burkey, Assistant Professor of Communications, where I will be assisting in the data collection and analyses phases of this project, as well as presenting our initial findings for Student Research Day 2020. It is our hope that these conclusions will clarify our understanding of just how social young adults think social media actually is.

Violet Quann, Eva Levingston, Jason Hawes
Effects of General Self-Efficacy on the Stress-Sleep Relationship
Faculty Mentor: Erin Merz

Research strongly supports the link between high stress and poor sleep quality. Ethnic minorities are typically more vulnerable to higher levels of stress; specifically those in college. General self-efficacy (GSE), defined as the belief in one's ability to perform difficult tasks and cope with adversity, is a psychosocial resource that can be useful in combating stress. Sparse studies focus on GSE in the context of stress and sleep, and none have focused on minority samples. This study explored whether GSE buffered the effects of stress on sleep in an ethnically diverse sample of young adults enrolled at a 4-year university. Cross-sectional data were collected on 345 participants (68% Latino, 13% Black, 7% Asian, 5% White, 2% Pacific Islander, 5% Multiracial). In a model adjusted for sex and age, greater sleep problems were significantly predicted by higher stress, GSE, and the stress-GSE interaction, $F_{(5, 338)} = 18.08$, $p < .001$, $R^2 = .20$. The main effect for stress was statistically significant ($b = .474$, $p < .001$), but the main effect for GSE was not ($b = .087$, $p = .312$). The significant interaction term ($b = -.02$, $p = .012$, $\Delta R^2 = .01$) was probed at low, medium, and high levels of GSE. All simple slopes were statistically significant ($ps < .001$); the stress-sleep relationship was weakest for those who were high in GSE ($b = .384$), and respectively stronger for those who were average ($b = .474$) or low ($b = .565$) in GSE. These findings suggest that higher GSE may buffer the effects of stress on sleep, and this buffering effect may work on a gradient. These findings are of theoretical interest because they advance the body of knowledge on stress and sleep by exploring the role self-efficacy plays in this relationship. An applied benefit of this study is GSE's potential as a modifiable psychosocial resource.

Elijah Arzate
LGBTQ+ Youth: Parental Health Disparity Mitigation Techniques
Faculty Mentor: Elijah Arzate

The role that parents play in the lives of LGBTQ+ youth—specifically in their acceptance or rejection of their child's LGBTQ+ identity—has the power to dramatically impact their likelihood to experience physical and mental health problems that can last well into adulthood (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Ryan, 2010; McConnell, Birkett, & Mustanski, 2017; Ryan, 2009; Puckett, Woodward, Mereish, & Pantalone, 2015; Needham & Austin, 2010; LaSala, 2007; Saewyc, 2011; Eisenbers, & Resnick, 2006; Snapp, Watson, Russell, Diaz, & Ryan, 2015; Puckett, Woodward, Mereish, & Pantalone, 2015). The health disparities that LGBTQ+ youth are more at risk for include depression, suicide, poor emotional adjustment, HIV and STD contraction, and illicit drug use (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Ryan, 2010).

Remarkably health disparities in the LGBTQ+ population can be greatly reduced when parental acceptance of their LGBTQ+ identities is moderate or high, as opposed to low (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Ryan, 2010; Ryan, 2009). Most importantly: there was not a significant difference in the health outcomes between participants whose parents were moderately accepting of their LGBTQ+ youth's identity when compared to parents that were highly accepting of their LGBTQ+ youth's identity (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Ryan, 2010; Ryan, 2009). In other words, if intervention is put in place to get parents to shift their attitudes a modest amount—from showing low levels of LGBTQ+ acceptance to showing moderate levels of LGBTQ+ acceptance—the LGBTQ+ youth involved can receive all of the protective health benefits that LGBTQ+ youth with highly accepting parents receive, without the prerequisite of complete acceptance towards LGBTQ+ identities. "

Margott Dela Cruz, Gabrielle Makrdichian, Yadira Ramirez, Ceferino Vinas
www.fakenews.you: Cognition's Influence on People's Reactions to False Internet Information
Faculty Mentor: L. Mark Carrier

Online media are influential sources for the general consumption of news-related information. It is important to research the behaviors which form in a technology-dominant society. The objective of this study is to analyze cognitive factors and relate them to the type of behavior from online content, such as producing and consuming false information. Participants (N=1,534), which consisted of college students (n=630) and non-students (n=859) (n=45 declined to state) from the Los Angeles area took an anonymous, online questionnaire through SurveyMonkey.com. The survey included media exposure items and an online news consumption/creation inventory to measure news source and knowledge, behaviors, and attitudes to "fake news." Also, participants completed the Webexec and Need for Cognition (NFC) scales, which measured executive functions (EFs) performance and people's tendency toward effortful thinking and cognition, respectively. Hierarchical regression analyses were used to control for demographic, socioeconomic, and personality factors. The regression models produced good variances-accounted-for: sharing and exchanging false information, $R2=31.1\%$, $F(57,1473)=11.64$, $p<.001$, generation of false information, $R2=30.5\%$, $F(57,1473)=11.35$, $p<.001$, and rare faking behaviors, $R2=22.0\%$, $F(57,1473)=7.27$, $p<.001$. Poor EFs predicted the sharing and exchanging of false information, the generation of false information, other relatively rare misrepresentation behaviors through changes in Internet addiction severity. Poor EFs also directly affected the sharing and exchanging of false information. NFC was not a significant predictor of any of the behaviors related to false information. This research study works to provide a more well-rounded outlook of the spread of misinformation through the usage of technology. This information may serve to raise awareness and further the conversation about how fake news is spread and what individuals may do to avoid misinformation on the Internet.

Kendell Ortiz
Can Restorative Justice be used in Prison
Faculty Mentor: Kendell Robin Ortiz

September 15 2012 changed my world forever. It was the day we became that family. This paper is a culmination of research to better understand incarceration and asks the question why this country has only five percent of the World's population, yet has twenty-five percent of the World's prison population (DOJ, 2018). With an abysmal seventy-seven percent recidivism rate begs the question why does society allow our penal system to operate in failure. This country needs to look at some programs that has shown successful changes in other countries. This paper focuses on one change that has been empirically proven successful, Restorative Justice.
Restorative justice is rooted in the belief that crime effects not only the victim and offender by also the community. Our laws only ask: what laws have been broken, who did it and what do they deserve. It does little to restore the involved parties. In contrast Restorative Justice asks: who has been hurt, what do they need, whose obligation and responsibilities are these to provide, and who has a stake in the situation.
The department of Justice reports an eighty billion dollar a year price tag and a failure rate of seventy-seven percent failure rate coupled with the fact of ninety-five percent of inmates are released back into society should be enough to warrant a dramatic overhaul, yet only the smallest of steps of change has been made. Some other areas of Restorative Justice explored in this paper are the techniques used in the RJ model, the levels used inside a prison setting, the success stories and challenges in implementing RJ. The research found has led this author to ask the question is our criminal system truly about rehabilitation or is it more concerned with retribution and job security?

Michelle Ruvalcaba, Anthony Castellaons, Elizabeth Lopez, Jessica Moron, Reyna Lopez, Kelly Park, Nasim Karimi, Denzyl Collins-Berry, Ruben Gomez
How Traditional Gender Roles Manifests Itself Within the Latinx Community
Faculty Mentor: Steven Frieze

The objective of this study is to determine the extent to which traditional gender roles still influence and impact the daily lives of Latinx community members. An examination of the literature demonstrates that the topic of gender role adherence in the Latinx community is a topic that has not been addressed sufficiently. Strict adherence to these gender roles, may in fact, have a very negative impact on the mental health of the men that enact them. For instance, Latinos that follow traditional gender roles have higher occurrences of negative cognitive-emotional experiences, which is defined as depressive symptoms, cynical hostility, anxiety, and anger (Nunez et al, 2015). Because the Latinx community is expected to grow - they are projected to become one of the largest minority groups in the United States - the researchers strongly believe that it is essential to have cogent and clarifying information on this topic. Machismo, the conventional gender role for males, dictates that men need to be stoic, head of the household, and powerful (Chida and Steptoe,2009). Marianismo, the traditional gender role for women, encourages them to be passive, pure, and loyal to the men in their lives (Nunez et al, 2015). Appropriate traditional gender role behaviors are instilled in individuals from an early age by socializing agents such as family and the social networks associated with the Latinx community. This research will survey the Latinx community with a culturally sensitive questionnaire intended to provide clarifying data on a series of questions aimed at understanding how the traditional gender roles operate in contemporary America. The researchers predict that stricter adherence to traditional gender roles will lead to lower levels of hope, more negative emotions, and difficulty in problem-solving. The researchers believe that the findings of this survey will provide information that is pivotal for the improvement of mental health functioning of the Latinx community.

Josiah Candelaria, Zijun Feng
The Novel Hydroxyapatite Crystal Morphology in the Presence of Special Peptide X
Faculty Mentor: Sen Wang

Recently, concerns have been raised about serious side effects from the long term use of above drugs, such as osteoporosis, bisphosphonates, estrogens, and selective estrogen modulators. We studied the effect on the hydroxyapatite crystal (Hap, the model of bone) morphology in the presence of a special peptide X. The effect from the different concentrations of Xs has been also studied. We identified X, which can decrease spaces in the honeycomb for osteophorosis as potential drugs. Our results will bring new osteophorosis drugs with the least side effects, and provide valuable insights into the mechanism of the key additives for biominerals.

Justin Le, Miguel Esquitin, Raul Casillas
Sentencing Disparity: Analyzing Gender's Effect on Sentencing in cases of Domestic Violence
Faculty Mentor: Zheng Yang

With the population of the United States on the rise, crime is bound to increase. A serious crime across all socioeconomic levels, from poverty-stricken to wealthy, is domestic violence. A majority of citizens believe the United States Criminal Justice program is broken, and we wanted to take a look at incarceration rates of domestic violence offenders and see if disparity exists. The two main things we want to look at are incarceration lengths and their biological gender: male or female. We believe males are incarcerated for longer times than females in domestic violence cases.

Alice Noriega Torres
State self-esteem and academic performance
Faculty Mentor: Thomas J Norman

University students might base their self-worth on their academic performance since it's an important project in their lives. The present study examined the influence of academic performance on the state self-esteem of a hundred and three CSUDH students by using two priming methods. They consist of fictional statements about students, with two conditions positive or negative, and a math quiz at two different levels, challenging or easy. To measure the influence of the priming methods on the state self-esteem of the students, the State Self-Esteem Scale (SSES) was used. There was two significant main effects found, students who received an easy quiz with a positive fact scored the highest state self-esteem, and those exposed to a challenging quiz with a negative fact showed the lowest scores on state self-esteem. This study could help future research about the benefits of priming to influence academic performance since the findings in the study suggest that there is a potential benefit in using priming to influence state self-esteem of students. It could also help educators have a better construct to motivate their students and help them better their academic performance.

Thursday, February 13, 2020

Behavioral and Social Sciences

UNDERGRADUATE

Session IV

Jeremy Quinonez
*Patrice Lumumba, Congo decolonization and Cold War politics from 1940-1961: The most Important
Asassination of the 20th Century*
Faculty Mentor: Bianca Murillo

In 1961, the C.I.A financed a military coup to kidnap and murder Patrice Lumumba – the Congo's first
democratically elected Prime Minister. This paper will focus on the Congo's process of decolonization in
Kinshasa, Brazzaville from 1940 to 1961. It will elaborate on the rise of Western mining interests in the Congo
from 1940 to 1958 while also exploring the reasons why the Congo's process of decolonization differed
drastically to other African countries. The sources gathered are used in a thematic style. Additionally, the paper
will explore labor history, urbanization and Cold War politics which influenced the Congo's decolonization These
factors ultimately carved support for Patrice Lumumba who received a near 90% of votes in the country's first
Democratic Elections. The paper will then backtrack to 1958 and spend the rest of its discourse focusing on
Patrice Lumumba and his political career as the Congo's Prime Minister. His electric speech at Congo's Day of
Independence set forth a chain of geo-political events that culminated in a military coup that claimed his life..
Overall, this paper will argue that scholarship has complicated Congo's history of decolonization in a way that
places Lumumba at the forefront of Cold War politics. The discourse will conclude with a scholarly bridge
between Lumumba's Pan African legacy and the Congo's current day solidarity as well as Western
accountability for the repercussions of neocolonialism.

Andrew Namkoong
Alcohol use Consequences among Mediterranean Youth
Faculty Mentor: Enrique Ortega

Italy's drinking culture is characterized by the predominant consumption of wine which is often accompanied
by meals. The use of alcohol in Italy appears to be highly normative with alcohol being a basic stable at meals.
Recent nationally represented studies have shown that well over 90% of individuals 15 + year olds have
consumed alcohol at least once in their life. Nonetheless, recent studies have reported increases in alcohol
consumption outside of mealtimes, especially among young Italians. Nationally representative studies in Italy
have reported that those most at risk for alcohol use disorders were individuals between the ages of 18-24.
While this percentage appears to be stable over time, the number of Italian youth that have experienced one or
more episodes of drunkenness in the last three months has increased steadily increased since 1993.

This study investigated alcohol use outcome expectancy among Italian young adults; we focused specifically on
participants that indicated feelings of shame and guilt after drinking. The sample consisted of 481 Italian
university students (69% female), ages 18-30 years (mean age = 23 (S.D. = 3.7)). The participants were
representative of the population of young adults attending university in the city of Turin Italy. Bi-variate
correlations were used to explore the associations of among our variables of interest. This investigation employed
secondary analysis investigative methods. Results indicated that participants that indicated higher levels of shame
and guilt after drinking also indicated higher levels of negative physical and cognitive feelings, yet higher levels
of stress reductions and positive social consequences.

Saray Valenzuela Jaime
A Mindful Approach to Improving Work Performance among College Student
Faculty Mentor: Kevin Montes

Working towards a degree requires hard work, dedication, and perseverance; some individuals would even classify their education as a full-time job. Adding paid employment, whether part-time or full-time, to that hefty workload can become overwhelming and even cause detrimental impacts on the health of students. Mindfulness-based interventions offer a holistic and cost-effective approach for assisting in managing symptoms of stress and negative emotions. The purpose of this study is to examine whether mindfulness can be utilized as a tool for college students to help them manage symptoms associated with work-related negative emotions while also improving the quality of their performance in their academic and work lives. For this study, 150 participants were recruited to assess their exposure to mindfulness-based practices. The sample consisted of a population of primarily minority, first-generation, nontraditional commuter students. Mindfulness exposure was compared to a measure of work productivity to examine if students with higher exposure to mindfulness scored lower on negative psychological well-being measures and higher on work productivity. Using a mediation analysis, the path representing the relationship between mindfulness and negative affect was statistically significant, $b = -.463$, $p < .05$. The path representing the relationship between negative affect and work productivity was statistically significant, $b = -.601$, $p < .05$. The path representing the relationship between mindfulness and work productivity was not significant $p > .05$, however, the results yielded a significant indirect effect of mindfulness on work productivity through negative affect, $b = .278$, 95% CI [0.035, 0.592].
Although no direct effect exists between mindfulness and work productivity, the results of this research offer a better understanding of the extent to which mindfulness may alleviate negative emotions while improving work performance through increased productivity, specifically for student workers. This study may contribute to the implementation of mindfulness-based programs directed towards employed students.

George Mendoza
Bored students are S.A.D. (Stressed, Anxious and Depressed).
Faculty Mentor: Larry Rosen

Today's digital social culture involves heavy use of technology as a means to communicate and pass time. One consequence of this communication medium, as reported in the literature, may be an effect on overall well-being. The reliance of smartphone technology is of particular interest. An increase in the need for instant gratification that mobile devices offer may have an effect on brain functioning, communication, attention and memory and other cognitive functions. In the current project, data were collected from 406 California State University Dominguez Hills students. In total, 214 participants completed all relevant variables. The researchers hypothesized, based on previous work by Rosen, et al. (2018) that technological anxiety (often called FOMO or nomophobia), executive functioning and boredom may be correlated with and predict perceived stress, anxiety, and depression. In addition, it was hypothesized that uses of technology might also predict the same. Results indicated that: boredom, social media usage, and executive function were correlated with all three dependent variables of interest. In addition, smartphone usage was correlated with anxiety, total daily technology use was correlated with stress and digital metacognition was correlated with anxiety.
Regression analyses controlled for median income, gender, birth year, type of smartphone, class standing, and ethnicity. The research findings suggest that boredom, executive function and poor metacognition predict depression, with boredom having the strongest effect. However, the research findings suggest that only boredom predicts perceived stress and anxiety. Further studies into the effects that boredom, executive function, and poor metacognition have on overall well-being may be useful. This may help to ensure that proper intervention strategies can be deployed as protective buffers against the negative effects they may have on the psychological welfare of the population.

Bonnie Perez
The influence of cultural differences in attention: a study on preschool children books.
Faculty Mentor: Megumi Kuwabara

Previous research shows cultural differences in perception and attention where individuals from Western countries perceive analytically (e.g., attend to focal objects in the scene) and individuals from East Asian countries perceive holistically (e.g., attend the relationship between the focal object and the context) (see Nisbett & Miyamoto, 2005). These differences have been seen in children as young as three years of age (Kuwabara & Smith, 2016). However, there have been very limited studies investigating the origins of these differences. One hypothesized origin is cultural differences in visual environment. For example, Miyamoto et al. (2006) found that the U.S. street scenes were less crowded (with less objects) than Japanese street scenes (more objects), which also has shown that these differences in visual environment facilitated the perceptual differences observed by different countries. However, previous studies have focused on the visual environments targeting adults or older children. Therefore, this research investigated one of the visual environments that is common among young children – picture books - to see whether there are visual content differences that might align with the attentional differences observed in each country. Based on past research, it was hypothesized that there would be more characters (therefore, the size of each character would be smaller) in Japanese books than the United States books. We selected the picture books that are most recommended for preschoolers by librarians in Japan and in the U.S. The number of characters were counted, and the size of each character was measured. It was found that Japanese books contained more characters and each character was smaller in size than the U.S. books, supporting the hypothesis. This study contributes by filling a gap in the current research investigating the origin of the cultural differences in attention.

Peter Fuqua
Technology and the Third Culture: How Access to Communication Affects Re-entry
Faculty Mentor: Sarah Taylor

Third Culture Kids (TCKs) have various conceptions of "home" due to the liminal and cosmopolitan nature of their upbringings. Some TCKs are brought up in a situation where there is incredibly limited access to their passport country. Others find themselves living emotionally between the two worlds of their location and their passport country, using communication technology to gain a sense of "home". The focus of my research was to investigate how differing access to communication technology affects TCKs as they live abroad and as they re-enter into the society of their passport country. My primary field site was the Internet and the people that I worked with were all TCKs who grew up away from the USA for some portion of their childhood and returned eventually to live in the USA. The main methods I used were interviews and surveys. Additionally, I used auto-ethnography. My findings show that access to communication technology can help TCKs change their sense of home for the time that they use it, whether abroad or within their passport country. Technology moves TCK conceptions of home from their present space into a digital world while they are abroad and helps to ease the tension of their liminality once they have completed re-entry

Elyse Mallonee

An Ethnographic Study of the Irish Community of Los Angeles County
Faculty Mentor: Sarah Taylor

The purpose of this is research is to examine the history and culture of the Irish community in Los Angeles County. Specifically, I will focus on how, when, and why Irish Immigrants traveled from port cities of the east coast of the United States to Los Angeles and how those from Ireland and Irish descendants in LA are networking and creating a community to celebrate their culture and heritage. The main methods employed in this ethnographic study are participant observation and in-depth interviews. Additionally, I use surveys and photo-voice methods to gain an understanding of the aspects of Irish culture in Los Angeles that make members of the Irish community feel connected to their heritage. The results of this study provide a better understanding of the cultural landscape of Los Angeles County, while also providing a list of resources for those who wish to learn more about Irish culture in LA.

Evelin Caballero

Sexual Satisfaction Differences: Men versus Women
Faculty Mentor: Sonja Ulrich

It is important to understand how individuals experience pleasure and sexual satisfaction with their partner because it affects their relationship. This research study will use the mixed methods approach of four interviews and 30 surveys to examine whether sexual satisfaction decreases in relationships over time depending on their gender. This research will discuss how gender and relationship status affects participants' sexual satisfaction. There are different factors to consider; marriage, relationship, and body image. Participants willing to participate in the study will be from the psychology department at California State University, Dominguez Hills. Those who meet inclusion criteria of age and having been sexually active will be included in the study. This research will be conducted in spring 2020 in BEH 490. This research will explore what causes sexual satisfaction to change over time? The hypothesis of this study is that women's sexual satisfaction decreases more than men's sexual satisfaction over time, regardless of the relationship status. The length of relationship status will vary from being single to married.