



Spring 2015

## 2015 URSCA Abstracts

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### Recommended Citation

URSCA. (2015). 2015 URSCA Abstracts. Retrieved from <https://poetcommons.whittier.edu/ursca/2>

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## **2015 USCA Abstracts**

### **Ruby Acevedo**

#### **Influences of Parent Involvement in Middle and High School**

Research has demonstrated that parent influence and involvement have a large impact on the lives of their children. Parents are the most important source of their children's goals and careers and can provide a positive or a negative impact in their children's future. Although parent involvement is critical for child development, nevertheless, it is highly crucial during the middle and high school years. Parents who support their children through monitoring and providing warm affection help create a strong connection with their children and cause positive school engagement. Although parents can be a positive role model for their children, they can also be a negative influence on children, causing them to decline in their school engagement due to lack of monitoring, parent connection, and support. This paper will review 20 empirical studies that support the influences of parent involvement in middle school and high school years. Some studies find that parents who give their child warm affect help create a positive and caring relationship between the parent and the child, others find that psychological distress will create negative emotions, psychological health, behavior patterns and can result to physical illness for the child. This is my senior project for child development, and I find this particular topic to be both interesting and a necessary factor to help with the understanding of child development. I wish to learn more about parent involvement and how they help shape and influence a child's life either positively or negatively.

## **Kellen Aguilar**

### Coloring in the Lines: Locating Race

This study seeks to limn out the extent to which Hemingway's fiction and nonfiction expresses concerns with race. Scholars who have written about Hemingway and race speak from two camps: those who say that Hemingway rhetorically "others" people of color to evade racial issues and those who say that Hemingway uses rhetorical maneuvers to represent the constructedness of race and the mutability of a color line. Drawing on the observations made by Toni Morrison, Ralph Ellison, Amy Strong, Ian Marshall, Josep Armengol Carrera and others, this study makes an effort to reconcile some of the arguments advanced by the two camps while alternately affirming and challenging those arguments. Focusing on a short story ("The Short Happy Life of Francis Macomber") that has received much attention from race scholars in Hemingway studies affords the space to lay out what those scholars have said for comparison and contrast. This study has three sections. The first section points out the similarities and differences between the arguments made by Amy Strong and Ian Marshall and their conclusions regarding race relations in Hemingway's short story. The second section comparatively analyzes "The Short Happy Life of Francis Macomber" and Hemingway's novel, *The Garden of Eden*, to show how the three white characters in both stories form a ménage-a-trois of shifting gender and race. The third section returns to Strong and Marshall's conclusions with additional interpretations concerning how the exploitative nature of whiteness and masculinity in relation to blackness and femininity informs the white and black characters' behavior and demonstrates four separate ways that the ending of the "The Short Happy Life of Francis Macomber" may be read when race is considered as a driving factor in the story's climax.

## **Melissa Alfieri**

### Peer Pretend Play: The Positive Effects on a Child's Development

Research has shown that preschool children who engage in pretend play gain various developmental skills. However, children who engage in pretend play with peers attain skills in language, social competence, and build relationships with others. Children who do not engage in pretend play with their peers do not gain social skill and language development at the same rate. Empirical studies have shown the developmental differences in children who partake in peer pretend play in comparison to children who partake in solitary pretend play. These studies show the expansion of language skills that children achieve during play. Other studies have found that pretend play is crucial for young children in various aspects of development. Pretend play allows children to interact with one another and explore their skills. When children engage in solitary pretend play, they do attain skills, however, not as the same degree as those who engage in pretend play with their peers. This paper will also look at empirical studies that focuses on gender differences, such as how males partake in superhero pretend play and females partake in more realistic pretend play such as playing house. Within gender differences, in regard to pretend play, there are developmental benefits that preschool children gain, such as language, social competence and friendships.

## **Natasha Alhandy-Shaw**

“Postpartum Depression and Its Short- and Long-Term Effects on the Mothers', Fathers' and Infants' Relationships, Interactions, and Family Structure”

Research has shown that Postpartum depression has lasting, negative effects on the family dynamic and relationships within the household. Although postpartum depression has been depicted as only having ill effects on the mother-child quality of relationship, there is data and research that shows other effects. One of the most important is how relationships between the child and both parents are affected as well as the parent's relationship with each other being jeopardized. This paper will delve into how postpartum depression effects the overall family dynamic and the short- and long-term effects it can have on each relationship and the child's cognitive, psychological, social, and emotional maturation. It will review twenty empirical studies that support the influence postpartum depression has in effecting the relationships within a household. Some studies find it most important to focus on the effects it has on the mother-child quality of interactions, but this paper focuses on the relationships between all members of the family and how Postpartum Depression in the mother can cause a domino effect in all familial relationships.

## **Angela Alvarez**

### Academic Achievement for ELLs

Research has shown that academic achievement for English Language Learners is falling below average on subjects such as math, english, science, and history. Nowadays English Language Learners are playing a major role in the population for children who are in school. This paper will review 20 empirical studies that demonstrate how English language learners' academic achievement falls within each academic subject. It will also describe different ways for schools to be structured to benefit ELL students. As ELL's move up in grades, they decrease in their performance of math due to the complexity of the material. English also is a

disadvantage because of the vocabulary, comprehension, and the ability to write in a language that is difficult for them to learn. Other subjects such as science and history require the ability to understand terms and events that are within these subjects. In order to help ELL's with their academics, schools should have important components within their school systems such as daily instruction given in both their native language as well as English to help their language development advance. This is my senior project and I hope to figure out why ELL's are falling behind in school.

## **Laiken Armstrong**

Oh My Goth!

Subcultures are classified as a smaller group of people that share similar beliefs and set of ideals, they tend to have their own slang and ways to identify others of their community such as clothing similar tastes in music and even mannerisms. Goth started as an underground subculture based on hauntingly romantic clothing and music, but, as it has grown, it has come out of the shadows and into everyday life. More and more in movies, TV shows and other pop culture artifacts we are seeing people who identify as Goth, for example the "goth" kids in south park or Monster High. Through its rise in popularity, how has Goth as a subculture become commodified? When talking to those in the subculture I found that many believe that it is becoming commodified but refuse to use the term mainstream. When answering this question, I reached out to the Goth community through online forums for those willing to speak with me. I also compared commercialized products with Goth in the name or those that I perceived to fall under that category between now and several years ago. Some of things I discovered through interviews that there is a disconnect between older and newer Goths, many feel like the subculture is becoming materialized but that it's not necessarily a bad

thing, and several do see a slight increase in the amount of “Goth” products that are sold commercially. My content analysis backs up the interview statements about “Goth” products. While I believe I received a lot of information to answer my question, I do believe more interviews of more varying ages and of those not a part of the subculture could provide me with more well-rounded results. Overall, Goth is a subculture that has been around for 40 plus years now and is ever changing. I believe that as it continues to thrive as a subculture, we will be seeing it used more and more to sell items rather than what it truly is an embracement of the macabre. What my exploration into Goth commodification is showing us is how subcultures as whole become commodified. It starts small with the style becoming more accessible and soon it has warped what it means to be “goth”. When these subcultures change dramatically they become a theme rather than a lifestyle.

## **Daniela Arredondo**

[Combination Therapies for Gout: Life-style Modifications and Targeted Therapy.](#)

Gout is a type of arthritis that affects many people around the world, especially men. Recent studies have shown that shifts in diet and lifestyle such as obesity, certain medications, high purine intake, coffee consumption, and consumption of purine rich alcoholic beverages are modifiable risk factors for gout. Therefore, the relationship between each factor will be evaluated and the risk of incident gout in men. Previous studies have examined these relationships over a time span of 12 years or more and analysis was done using urate-lowering drugs combined with diet and lifestyle changes. Out of the 12 years, men were documented and confirmed with new cases of gout. Results show that high levels of rich purine foods, obesity, coffee consumptions, alcoholic drinks, and advancing age, increases the prevalence of gout. Lifestyle changes

including diet modifications, weight loss, hypertension control, and changes in medication may be the answer to controlling hyperuricemia. Finally, we are also able to observe the molecular process of gout, which can lead to potential targets to treat inflammatory diseases. Little is known about the molecular processes that are involved in monosodium urate (MSU) and calcium pyrophosphate dehydrate crystals (CPPD), which are the mechanisms responsible for acute and chronic inflammation responses in the joints. Macrophages that were deficient in caspase-1, ASC, and NALP3 were collected from mice and showed that they could not induce IL-1 $\beta$  activation, which is responsible for crystal formation. Overall, MSU and CPPD are involved with caspase1 and then activate NALP3 inflammasome, resulting in production of IL-1 $\beta$  and IL-18. The incidence and prevalence in gout is rising significantly suggesting that combination therapies including targeted therapies and lifestyle changes can be a more efficient way of lowering incident cases of gout.

## **Gevork Atoyán**

### **Effectiveness of Hospital Antiseptics Against Pathogenic Bacteria**

The objective of this paper is to achieve an enhanced understanding bacterial pathogenesis to determine more effective preventative measures and lower post-operative infection rate. Pathogenic bacteria common in hospitals such as, Staphylococcus aureus (S. aureus), Staphylococcus epidermidis, Pseudomonas aeruginosa, Klebsiella Pneumoniae, commonly cause infections in hospitals despite stringent preventative measures. Five commonly used antiseptics in hospitals as preoperative preparation, patient to patient interaction and sterilization effectiveness against these four bacteria where explored. In order to measure the highest efficiency out of four different bacterial strains, all four were tested against the five different common commercially prepared antibacterial solutions of

various dilutions with four different dilutions of each antiseptic solution in vitro. The efficiency of the antiseptics was assessed by the survival rate of the bacteria.

## **Lauren Bailey**

### The Marginalization of Dating Violence and Sexual Assault Survivors

Sexual assault and dating violence are still very prevalent crimes on college campuses, despite the many laws passed and educational programs created to keep them from happening. Survivors of these crimes face a lot of challenges and not many people are aware of this. My project aims to bring light to what many survivors deal with when they experience sexual assault or dating violence, as well as educate students on what these crimes really mean and challenge them to think differently about survivors. My research question is: does reporting and/or speaking up about dating violence or sexual assault lead to the marginalization of college students? The variables examined in this study are: students' problems with defining dating violence and sexual assault, a lack of education on these crimes, and an environment created by the college that discourages students from reporting or does not make them feel protected and safe. This is not just a problem faced by college students, it is a major social problem and much of it stems from expectations placed on gender and sexuality. Information was gathered from secondary sources about these issues and was compared to data collected from interviewing students at a small liberal arts college in Southern California. Findings proved that college students who experience either dating violence or sexual assault do in fact experience some form of marginalization, whether it be from peers or from officials at their college.

## **Grace Battista**

### The Millennial Generation and Volunteerism

The United States had a decline of volunteering and civic engagement in the 80s-90s, but that trend is potentially reversing. The literature states that volunteerism is motivated by parents, involvement in clubs or doing mandatory community service and that the most typical volunteer is a white, college-educated female adult, usually middle-aged or older. Generational differences are another factor influencing levels of volunteering, which follow a historical wave of ups and downs across the generations. I want to investigate how volunteering fits into the lives of the current Millennial generation (born 1980-2000) college students and graduates. I seek to discover if Millennials feel a connection to their generational cohort, what being a Millennial means to them, and if their volunteering is merely a stage in their life or something they will continue to do in adulthood. Through 11 open-ended, informal interviews conducted in person, over the phone and through video chat, as well as 30 brief written surveys from the Whittier College student body, I hope to gain these answers from the life histories and personal opinions of Millennials themselves. While my study has limitations in sample size and accurate representation of all American Millennials, and further research is needed to make any widespread claims, preliminary results suggest that avid volunteers can come from all backgrounds and that motivations vary from deeply held values to using service as a launching pad for a career. Additionally, respondents have differing definitions of the Millennial

generation and adulthood, and the connection between these elements and volunteering requires further exploration.

## **Dana Brems**

### **Infrared Carbon Dioxide Detectors as a Means to Quantify Fusarium Verticillioides and Fumonisin Infection in Maize Grain**

The objective of this study was to examine *Fusarium verticillioides* and possible methods to cheaply, easily, and efficiently measure its contamination in maize. The principle method proposed was to detect change in CO<sub>2</sub> respiration using non-invasive infrared (IR) sensors. The validity and usability of the new IR sensor, Photosynq, was confirmed while the experiments were carried out. In an idealized scenario, the concentration of CO<sub>2</sub> in the air should increase with increased fungal concentrations, based on the principle that *F. verticillioides* respire CO<sub>2</sub>. However, this study found that the respiration of maize grain is more complicated than previously believed, because of the diverse interactions between different fungal strains, bacteria and environmental conditions. Even when carried out in a controlled laboratory setting, there is too much uncertainty to be able to quantify fungal contamination with a high degree of accuracy.

## **Priscilla Carmona**

## Reevaluating the choice to be American: American DREAMers in Slam Poetry

“DREAMers” are an important movement at the frontlines of the fight for comprehensive immigration reform. The DREAMer movement is significantly based on narrative. DREAMers are rhetorically savvy activists: they strategically illustrate their experiences through stories. One powerful tactic DREAMers use are viral videos, particularly videos of slam poetry. In this presentation, I will analyze a slam poem by Herrison Chicas. Throughout the poem it is clear that he is engaging in a decision: Chicas weighs the pros and cons of being American. The central question Chicas asks is: who is American and what are the consequences? Chicas both raises the question of belonging and complicates it. Chicas is performing his decision, emphasizing that being American is a choice. Chicas both includes himself with America, because he lives and participates in American culture, but also distances himself, because he understands the violent implications of being American. Nevertheless, Chicas is willing to pay that price. Chicas is willing to make that choice. Ultimately, Chicas’ poetic performance demonstrates the act of decision-making DREAMers engage in: DREAMers choose an American identity.

## **Maria Carpio**

### Health Status and Socioeconomic Indicators Effect on Immunization Rates

In the greater Los Angeles County, and within Whittier itself, communities face the impending issue of disease outbreaks. Public policy and health services promote vaccination, yet outreach efforts often exhibit no effect. Both health status and socioeconomic indicators are correlated with immunization rates for polio and influenza. Statistical data from AskCHIS Neighborhood Local Level Health Data and UCLA Level Policy Research were used to examine these correlations. Immunization rates are

found to vary based on availability of health insurance. In addition, the type of insurance available to individuals helps determine immunization rate. Further research will hope to determine whether socioeconomic status is a determinant of available insurance. Ultimately, the goal of the research is to determine which factors are most important in determining immunization rates, such that public health programs can be developed that will target these factors. In the greater Los Angeles County, and within Whittier itself, communities face the impending issue of disease outbreaks. Public policy and health services promote vaccination, yet outreach efforts often exhibit no effect. The issue stems from health status and socioeconomic indicators with in the population which, are paralleled to the immunization rates for polio and influenza. This interrelationship between health and socioeconomic indicators helps specify which forms of statistical data needs to be observed. Databases such as AskCHIS Neighborhood Local Level Health Data and UCLA Level Policy Research help identify the data between indicators. The raw data is then open for statistical analysis and interpretation between socioeconomic and health status indicators with the rates of immunization and disease outbreaks. In terms of this study, if the immunization rates decrease due to the socioeconomic status then disease outbreaks will become a prevailing issue within Los Angeles County and Whittier and the analysis of the correlations will prove that. Other socioeconomic indicators can also be found in correlation with the availability of health insurance as well as the type of insurance available to individuals to help determine the probability of immunization. Further research will hope to determine whether socioeconomic status is a determinant of available insurance. Ultimately, the goal of the research is to determine which factors are most important in determining immunization rates, such that public health programs can be developed that will target these factors.

**Nicholas Casarez**

## Spermidine and its Effect on Telomerase Activity and Inflammatory Status

Spermidine is a naturally occurring polyamine that may have beneficial characteristics to one's health when supplemented into daily nutrition. This particular nutraceutical is known to be an inducer of autophagy and DNA methylation. Increased autophagy activity correlates to an increased lifespan. Therefore, if spermidine is able to significantly increase autophagy activity, supplementation of exogenous spermidine into a daily diet may be beneficial to one's health in regard to aging. To test our hypothesis, we used as our model system an immortal T cell line called Jurkat cells. Jurkat cell cultures were treated with spermidine at 50, 100, and 500 mg/ml concentrations. Treatments resulted in an 18% increase of growth when treated with 100 mg/ml relative to our control culture at time points of 0 hours and 24 hours. In addition, we analyze spermidine's effect on longevity genes of our cultured cells, specifically the expression of NF-kB, MAPK, DNA methyltransferase and Sirtuin1-7 genes. Expression of our targeted gene was analyzed by using RT-PCR. Our results indicate that there were changes in the gene expression due to spermidine treatment.

## Daniel Chavez

### Conversations with Birds: Re-imagining S.T. Coleridge's 'The Nightingale'

Is Romantic poetry always subjective? According to British Romantic poet Samuel Coleridge, a poet writes from his own perspective, from his own experiences. Coleridge expounds on this subjective point of view in his conversational poem "The Nightingale" (1798). This poem not only describes the concept of Romantic Subjectivity, the observer's physical, spiritual, and psychological encounter with his object, but also touches on subjectivity in regards to the poet and his role in poetry. In the poem, an observer encounters an object, and, through that encounter, the poet

creates poetry. For example, “The Wandering Man” projects his melancholic feelings onto the nightingale thus resulting in “the song” of the nightingale being “a melancholic strain.” In turn, The Maid, as she sits in her isolated tower, encounters a nightingale and projects complex feelings of happiness and longing. What is displayed in this poem is a complex network of observers who are all encountering the same object, and thus creating poetry. To even further complicate this notion, Coleridge himself imaginatively creates these observers, which makes the observers themselves objects of his imagination. Not only does Coleridge, and other characters in the poem, such as “The Wandering Man” and “the Maid”, encounter their object of interest, the nightingale, but they also collectively perceive the same object and demonstrate a network of intersubjectivity. And not only are they perceiving the same object, but they are experiencing the nightingale differently in relation to each other. The complexity of this intersubjectivity, between Coleridge’s “Wandering Man” and Maid, gives us great insight into the type of romantic subjectivity Coleridge may have been contemplating, and shows us much deeper ambiguities and conclusions about a poet’s encounter with his poetry.

## **Hope Cohen**

Swimming Behavior Changes in Zebrafish as a Result of Exposure to Organophosphate Pesticides and the Investigation of a Potential Environmental Cause for Attention Deficit Hyperactivity Disorder

Organophosphate pesticides (OPs) are a group of insecticides that are used in agriculture around the world. While these pesticides are greatly beneficial, they also have many adverse effects. A known neurotoxicant, OPs inhibit acetylcholinesterase and have been linked with many diseases and disorders in humans, including Attention Deficit Hyperactivity

Disorder (ADHD). The aim of this project is to examine how the exposure to pesticides affects the behavior of an organism and forms a possible correlation to exposure to OPs and ADHD. Zebrafish eggs were harvested and exposed to the OP chlorpyrifos one hour after fertilization at concentrations of 4.4 microliters and 0.8 microliters. At six days post fertilization, a swim behavior assessment was done on the fry. To determine how the fry were affected, their swimming behavior was tested by recording the number of times they swam over predetermined lines. The swimming patterns of each group was also noted. For the non-exposed fish, the mean was 2.93 crossovers per minutes (CPM) with a standard deviation of 2.18. The fry exposed at 0.8 microliters of chlorpyrifos had a mean of 2.25 CPM and a standard deviation of 2.66 and the fry exposed to 4.4 microliters had a mean CPM of 4.75 and a standard deviation of 1.84. An anova test was performed to determine if there was statistical significance. The anova test yielded a p-value of 0.0004. These results show a variance in the swimming behavior of the exposed fry and non-exposed fry. While it may not be possible to eradicate the use of pesticides, understanding how organophosphate pesticides may cause ADHD type behavior, it may be possible to reduce their use and implement new pest control methods.

## **Robert Colter**

### **Soft Vs. Hard Science**

Mountains of literature exist on students, professors, social science, and natural science courses. There are few holistic research projects, however, that look at all these factors and their relation to each other. Researchers even go as far as to comment on the lack of holistic research within their respective research papers. The goal of this project is two-fold: first, to explore why a difference exists in teaching social and natural science

courses, and secondly, to compare how the difference effects pedagogical relationships between students and teachers. Understanding these factors can help lead to the more efficient structuring and teaching of classes. In order to accomplish this goal students and professors were questioned in a free form interview guided by a set of relevant interview questions. Questions revolved largely around different methods used to instruct classes, why professors use these methods and how students respond. All interviews were confidential, but many students in the interviews had been in the classes of professors interviewed. This brought about the opportunity to directly analyze how the professor's intended goals of the class are interpreted by the students. Various methods of teaching courses exist, but surprisingly little conventional education is imparted to professors as to how to best teach. Almost every professor has to form their style based on what they liked in their education and by modifying their own style based on aggregated experience. The primary difference between natural and social sciences revolves around the level of discussion in the respective fields. Given that little, to no, formal education exists on teaching styles, why does the schism exist between the sciences and is it actually necessary and positive? Every professor, across disciplines, seemed to gravitate toward discussion-based methods as they found students to be more engaged, but social science professors started with far more discussions and added more discussions more rapidly. Given the limited amount of conventional education for professors on how to best teach and understanding what professors think they are encouraging and what is being encouraged by the students can help understand on how to most effectively teach classes.

## **Halley Cook**

Women's Political Activism: From Sit-Ins to Suicide Bombings

This paper will define, illustrate, and exemplify the spectrum of activism women are taking part in globally in order to address political and social issues. The spectrum necessarily polarizes violent and nonviolent activism, while acknowledging the immediate circumstances, intersecting marginalization and socio-political agency that affect women's options in accessing specific ends of the spectrum. The spectrum is inherently polarized due to the way in which it contradicts established societal gender norms. Specifically, we will be looking at a range of women's political activism from passive demonstrations and sit-ins to acts of political violence, and even suicide bombings. The criteria of the spectrum draw on the work of feminist authors such as Ness (2007), Zedalis (2004), and Bloom (2005), etc. who have written extensively on feminist political activism. The following paper will use informal discussion with a few members of an NGO working for disarmament as case studies and will explore all of the named topics through a feminist lens with a strong foundation in literature written on the topic of women's political activism and its various international manifestations. It is my intention that these discussions will help illustrate some of the main points found in the literature. It is crucial to understand this spectrum and its theoretical frame to better understand women's agency around the world, its pressures and its continued evolution.

## **Sarah Daoudi**

### **Effects of Resveratrol on Human T-Cell Signaling Pathways**

Nutraceuticals are described as being food or parts of food that provide medicinal and health benefits, including the prevention and treatment of diseases. In this study, the compound that is being observed is Resveratrol, which has been identified as being a phytoalexin and a constituent of red wine that conveys both cancer and cardio-protective effects. The purpose

of this study is to compare and determine signaling pathways of different nutraceuticals, specifically Resveratrol, on normal human T-cells and Jurkat cell lines. Through this study, we are identifying proteins that upregulate or down regulate protein activation. RT-PCR was used for measurement of gene expression of differing inflammatory pathways, NF- $\kappa$ B, AMPK, mTOR, and the pathways of Sirtuins 1-7, which is known as a longevity pathway. In addition, measurement of the rate of apoptosis, and telomerase assay were used as a determinant of telomerase length. As a result, we were able to establish a relationship between concentrations of Resveratrol to the upregulation of about 32% of gene expression and a viability drop of 45% of the cells when exposed to the compound with an average of  $1.8 \times 10^6$  cells/mL.

## **Freshteh Davari**

### **The Effects of Resveratrol on Vestigially Mutated Drosophila**

Resveratrol is a highly recognized component in science that generally fosters in the support of a healthy immune system when consumed extensively. More specifically, it is an extremely specialized ingredient in the skin of red grapes that increases the life span of an individual. It does this by mimicking the effects of caloric restriction. This is the process in which prevents an organism from receiving caloric intake, but somehow allows for them to still maintain a good nutritional status. Hence, it ratifies numerous diminishing symptoms that can occur with the increase in age. With Resveratrol being the miracle ingredient that it is, this experiment evaluates the drug on two types of Drosophila: Wild type and Vestigial. Because it is already known that the chemical component will enhance the survival rate of a healthy individual, we want to understand the effects

of Resveratrol on mutated individuals. By doing so, we predict that Resveratrol will benefit the mutated Vestigial flies used in this experiment by aiding in health and essentially increasing the survival rates so that they too can produce offspring. At the same time, we evaluate the effects of ethanol on the flies to further support our claims of Resveratrol as this miracle ingredient. The ethanol in this experiment should affect the flies in an opposite manner, as does Resveratrol. This experiment will essentially open doors to new discoveries on Resveratrol that coincide with its ability to support and aid the immune system of mutated individuals. Not only can it increase the lifespan of healthy individuals, but it can possibly help increase the survival rates of mutated organisms and possibly prevent the recurrence of parent mutation in the offspring.

## **Celia De Haro**

### *Autism and ABA Therapy*

Recent research has shown that autism cases are rising every year with no slowing down; early diagnosis and treatment for the disorder can have long term effects, depending on the severity of the patient. This paper will examine the different literature about Autism Spectrum Disorders (ASD), the history of Autism and the most effective therapy to be used. Applied Behavioral Analysis (ABA) is widely accepted in the United States as the method of treatment for persons with ASD. ABA is most affective when administered to a child very early in development and can have lasting effects. The research will support the idea that ABA therapy is the most effective therapy to use.

## **Alejandra de la Rosa**

### Effects of Bilingualism and Bilingual Education on Latino's Cognitive Development

Research has shown that bilingualism and bilingual education is associated to cognitive outcomes. Although bilingual education could be harmful to learning, studies have revealed cognitive benefits to bilingualism such as having an advantage in attentional control, working memory, metalinguistic awareness, and abstract and symbolic representation skills. This paper will review 20 empirical studies that support the effects of bilingualism and bilingual education on Latinos' Cognitive Development. Some studies have found that bilinguals are more advanced than monolinguals in nonverbal executive control tasks that require high levels of attentional control. Other studies have discovered that children who attended bilingual education at an early age show significant gains in their Spanish language development as well as greater increases in English language proficiency over time. The findings revealed that first language instruction did not impede the learning of a second language and that bilingual education programs are needed to accelerate oral English acquisition to remove the initial disadvantage of low levels of English proficiency. Spanish bilinguals understand both languages in their different forms and structures and how they might be similar and produce meaning. Results trace the bilingual advantage in cognitive control to the bilinguals' experience of controlling two languages in the same modality. This is my senior project for child development, and I find this particular topic interesting because throughout my early childhood I was in bilingual classes, now making me curious about learning the effects of bilingual education and comparing them to my own education.

## **Danielle Deocampo**

### Identifying an Unknown Bacterium as Staphylococcus Aureus

There are situations that present themselves in which identification of unknown bacteria needs to be done in order to resolve the situation, such as a case of an infectious outbreak. In this study an unknown bacteria is given with the purpose of identifying it through various steps. With the guidance of a laboratory manual and Bergey's Manual (a microbiological bacteria identifying laboratory manual) experiments testing the bacteria's physical characteristics (motility, cell shape, gram stain) and chemical characteristics (oxidase, catalase, citrate, lactose) were done to identify the unknown bacterium. A flow chart in the laboratory manual assisted with the tests that should be performed after finding the result of one test. Once physical characteristic tests were performed, their results narrowed down the unknown to a group of genera, Bergey's Manual was then used to further evaluate which genus and species correctly identified the unknown bacterium by performing the chemical characteristics tests. By following the flow chart, referring to Bergey's Manual, and performing the proper tests, it was concluded that the unknown bacteria #18 was Staphylococcus aureus.

## **Jafet Diego**

### Identity Politics in the Meseta Purépecha

The objective of my research is to examine the role that the ethnic identity of the Purépecha community, located in Michoacán, Mexico, has had on the regional political climate. For the purpose of this paper, I will be focusing on imposed and self-selected characteristics of the Purépecha identity and how disputes over land rights throughout the 1970s, the presidential election of 1988, the Zapatista movement in the 1990s, and

the civil insurrections in Cherán in the 21st century, have led to the creation of a Purépecha political identity. Moreover, by exploring the influence of globalization, modernization, and the migration of Purépecha, it will become evident that the Purépecha “identity” is constantly changing. I will emphasize the importance of these shifts in identity and their political consequences.

## **Katryna Dillard**

### *Leisure Time, Technology Time, or Both, That is the Question?*

The changing relationship between technology and leisure time has created a structural shift in daily life today. Though leisure time and technology are both broad topics technology in this study refers to any electronic devices such as televisions, phones, computers, iPods, and electronic games. Leisure time is generally defined as an enjoyable activity removed from the workplace (Giordano 2003) whereas the opposite of leisure is an activity done for pay or profit (Kleemeier 1961), also known as work. Work and leisure have typically been understood as two different areas of time; however, increasing technology use prompts the questions asked in this study: how does technology use affect leisure time for students, staff, and faculty at Whittier College? This quantitative study uses 133 surveys to understand how participants perceive leisure and technology time. The study is limited by the small number of participants, meaning generalizations to the larger U. S. population cannot be made. The research found that 84% of participants use technology while doing work, thus blurring the line between leisure and work time. With the blurred line, the idea that technology is constantly in people’s lives and needed, has re-defined leisure once again.

## **Katryna Dillard**

### **Stage Management: Just As You Like It**

In theatre there are people who are on stage, the faces of the show, and there are people backstage, running the show, all working to create a polished production. A stage manager runs all the backstage crews and the actors onstage. My work as a stage manager is put into the development of a prompt book, which remains in the theatre throughout the production. The document must be organized and legible, so that if an extenuating circumstance were to occur and prevent the stage manager from performing their duties, anyone could open up the book and call the show. Recently, I have had the opportunity to collaborate and work with other stage managers, and attend a workshop presented by prominent Broadway stage manager and Tony Award winner Peter Lawrence, learning that there is not one correct way to create a prompt book or manage all actors and crew members. Thus, in my experiences at Whittier College, working for a professional theatre company, and by participating as a nominee with the Kennedy Center American College Theatre Festival's Stage Management Fellowship, I have developed an approach. By utilizing the approaches I have learned in practical application, I can efficiently approach my work as a stage manager in order to have the most success and an efficient production. Additionally, my responsibilities are to constantly remain in touch with everyone involved and stay organized. Everything from reports sent out to the production team, cast schedules, designs, blocking, light cues, and much more are all documented in my prompt book. With easy access to all the information about the production I am able to answer any question a crew, cast, or production team member has for me. As a stage manager my goal is to be aware of everything happening in the production and keep it running efficiently, effortlessly, and on time.

## **Shani Ekanayake**

### Childhood Obesity: The Role of Food Advertising

Research has shown that exposure to food advertising affects children's eating habits and risk for developing obesity. Childhood obesity has been attributed to multiple lifestyle, environmental, and genetic factors. Exposure to food advertising has been increasingly recognized as a major force because it influences children to develop poor eating habits by encouraging over-consumption of energy-dense, nutrient-poor foods. This paper will review 20 clinical studies that support how increased exposure to food advertising influences children to develop unhealthy eating habits that contribute to weight gain and obesity. Numerous studies find that most food and beverage products advertised to children are high in saturated fat, sodium, or added sugars. Other studies find that childhood obesity leads to both short-term and long-term health issues; despite many obesity treatment and prevention initiatives underway, obesity rates among children continue to rise. Solutions to this public health issue may be found via prevention; emphasis will be placed on the need to increase nutrition education as an intervention to reduce children's susceptibility to food advertising. This paper is my senior project in child development and this topic is of particular interest to me as I plan to pursue my MPH in child health and nutrition.

## **Matthew Emrick**

### Novel Method for Collecting Electronic Cigarette and Vaporizer Aerosol via Manual Extraction and Condensation

Aerosol from electronic cigarettes and vaporizers appear as a dense, airborne chemical mixture originating from liquid starting chemicals containing glycerol, propylene glycol, ethanol, water, chemical

flavorings/extracts, and nicotine. This work presents a novel method to collect electronically generated aerosol from consumer three types of consumer models of electronic cigarettes and vaporizers. The extraction occurs at room temperature and standard conditions, minimizing potential thermodynamic influence or reaction capability of aerosol's chemicals during collection and condensation. Target aerosols are generated by atomizing 100% starting liquid in quantities specific to the consumer device liquid reservoir. In a gas tight multi-chamber system, the aerosol is collected upon activation of the device where the vapor travels through the headspace of each collection chambers to ensure that a maximum recovery of condensed vapor is retrieved. A solvent housed in the collection chamber must be conducive to the tests performed on the condensate and can vary. Quantification of the condensate is calculated by (v/v) parts per thousand, million, or billion depending on the sample size generated. As results will show, this method has success of >98% recovery of aerosol condensate. This method provides a practical and cost-effective large-scale approach to aerosol collection for analysis of chemical composition or drug preparation for introduction into cell culture.

## **Matthew Evans and Matthew Voegtle**

Post-Fire Effects of Terrain Attributes on Soil Organic Carbon Dynamics in Southern California

The Mediterranean climate of Southern California results in a region prone to fires in many locations. Fires occurring in areas of active topography, generally areas with steep and variable slopes, are associated with increased erosion rates partly due to the removal of vegetation cover

by fire. This increase in erosional effects can become an important consideration in urban interface environments where the land is open to public recreational use. Erosion and depositional processes following a fire event have large effect on the soil organic carbon (SOC) pool. Predicting the relationship between terrain attributes specific of areas with active topography and SOC content following a fire is important for planning and restoration purposes. In this study, we aim to further describe the relationship between topographical features and soil C dynamics such in areas impacted by fire. Specifically, samples were collected from 18 separate sites in the Puente Hill Preserve, near Whittier, CA, which were affected by a fire in 2007. Terrain attributes were determined utilizing LiDAR mapping and GIS technology and included slope %, Profile curvature, plane curvature, and catchment area. Slope percentage values for our sample sites ranged from 15% to 45%, and elevation ranged from 185 to 403 feet above sea level. Multiple linear regression analysis was used to correlate SOC dynamics with terrain attributes, where SOC dynamics describe the movement of SOC with the soil. Preliminary results show that slope negatively affects SOC accumulation in the top 15cm of sample depth, with slope effects declining with depth. Even though it was not significant, SOC accumulation was greater at sites located in concave position and smaller for sites located in convex positions. Smaller SOC accumulation was observed at flat locations in relation to plane curvature, but differences were not significant. These results are not surprising in that steep slopes, as in our case, may result in limited SOC accumulating at depositional areas, as the high grade is associated with increased erosion, limiting deposition at a given site. Additionally, Fourier-Transform Infrared (FTIR) was used to investigate the quality of SOC and its level of decomposition across sites and at different depths. Results from FTIR analysis are in progress and they will be correlated with terrain attributes.

## **José Flores**

### Beyond Masculine and Feminine: Changing Views on Gender Expression and Non-Conformity

From the moment we are born, we are put into categories of gender: either boy or girl, man or woman. Throughout our lives we are expected to perform these genders appropriately, according to what society has established as “normal”. Because of this, inappropriate displays of gender are often seen as abnormal and deviant, especially when done by males (Nielsen et al. 2000; Kane 2006; Edwards 2010). This paper explores the notions of gender fluidity and gender non-conformity, and how they are perceived by our society. Through informal interviews and surveys conducted at a small liberal arts college in Southern California, and drawing on my own experience as a person who often goes against traditional gender norms, I plan to find out what students’ ideas are concerning traditional masculine and feminine gender roles and gender non-conformity, and whether factors such as religion and ethnicity influence these beliefs. My research so far indicates that, while some students still hold traditional views on gender roles, many are more open-minded in regard to what they consider appropriate for men and women. More than half of the students, for example, responded that wearing makeup and nail polish was okay for men, and that being a mechanic or a construction worker was appropriate for women. On the other hand, there are others who still hold that playing with Barbie dolls is only appropriate for girls, and that football is only for boys and men. Nevertheless, most of the responses appear to be very positive in terms of tolerance and acceptance of different gender expressions, with a majority of them upholding that men and women should be able to behave and dress however they feel most comfortable, regardless of their gender.

## **Noelle Garcia**

### *Now What? An ExamMANnation of Life After Gang Rehabilitation Programs*

Gang members, due to their lower socioeconomic status, have been socialized to display their manliness through hyper-masculinity because of their disadvantage in society. The changes that happen to masculinity among gang affiliated men through rehabilitation programs has been widely studied. However, there seems to be a lack of empirical research on what these men aspire to do with their new skills in which they display their masculinity. This study aims to understand if the men participating in Homeboy Industries rehabilitation program do so with the intentions of an upward social class shift. Through interviews with ten men currently participating in the 18-month rehabilitation program, this qualitative design aims to seek insight into this gap in the research. Results indicate that the men who apply themselves and dedicate themselves to the program learn to perform masculinity in a new way which fosters family men, emotional intelligence, consistency, and responsibility which then allows them to chase professional opportunities that allow for an upward social class shift.

## **Sophia Genovese**

### *The Status of Refugee and Displaced Children*

Children are the largest and most vulnerable group affected by crises. From violent conflict to natural disasters, children are amongst the hardest

hit and the least able to help themselves. As a result of these conflicts, children make up nearly half of the world's total displaced population. Beyond being forcibly removed from their homes, refugee and displaced children are faced with a number of obstacles that not only create an abnormal childhood, but hinder their ability to create a better life for themselves and often leave them in a perpetual state of vulnerability that is then passed on to subsequent generations. This paper seeks to first introduce the current status of displaced children, by providing statistics and listing relevant legal documents, treaties, and UN Conventions. This will be followed by a brief overview of the projects being implemented in four Level-3 emergencies in 2014 (Syria, Iraq, Central African Republic, and South Sudan). The paper will then conclude with recommendations on how to address these shortcomings and how to better empower the lives of displaced children everywhere.

## **Sophia Genovese**

### **From Dependency to Self-Reliance: A Critical Analysis of Foreign Aid to the Developing World**

At first glance, foreign aid to the developing world seems like a noble idea. It not only has the potential to jump-start economic growth, but the ability to build infrastructure, help create sustainable governance, and encourage the development of human rights. However, as this paper will demonstrate, foreign aid from Western countries to the developing world has not enabled these things but rather, has reinforced imperialistic ideals and left many receiving countries in a perpetual state of dependency. In this paper, I will argue that we ought to restructure Western foreign aid to the developing world if we wish to create an environment in which true sustainable development and eventual self-reliance can take root. By drawing upon a number of academic resources, this paper will first lay out

the current foreign aid system and identify existing problems within the system by providing country-specific examples. I will conclude by presenting a number of strategies that will help to make foreign aid more effective, such as the expansion of micro-financing, long-term and sustainable development planning, creating timelines, inclusion of laypeople, increasing government accountability, and fostering regional integration.

## **Yadira Gutierrez**

### **Factors that Influence Parental Involvement in School**

Research shows that parental involvement in school does not only influence children's academic and social development, but it can also influence their behavioral development. Policies have emphasized the importance of parental involvement in schools. There appears to be certain factors preventing parents from being involved in their child's education. Empirical studies have shown that the following factors: parent's socioeconomic status, parental education and parental involvement. Culture also seems to play a role to how parents are involved in school and the type of involvement they see as a positive outcome towards their child's education. In addition, studies have criticized how parental involvement is only necessary during their elementary school years, but in reality, it is also important during adolescence stage due to the lack of communication can negatively affect the child's motivation towards school. Although parental involvement is critical during the early years, studies have shown how their continuous involvement throughout their school years leads to more positive outcomes such as seeking higher education, positive behavior and positive socialization. This is my senior paper in child development and I find this topic interesting since as a future educator, I want to be able to communicate to my students' parents

how their involvement is critical to their child's development, as well as what better ways they can get involved depending on their situations.

## **Priscilla Gutierrez-Galvan**

### **Cosplay: More Than Meets the Eye**

My project is based on the cosplay community and the enriching culture that envelopes it. Formally known as Costume Play, cosplay is an activity where normal, everyday people attend events such as conventions or gatherings of some sort and dress as a character from a particular movie or show. The point of my project is to try to understand the community and the basis for why people choose to participate in the activity. This research strives to understand what individual participants believe is the culture of cosplay. I feel this is important area of research, because the cosplay community is misunderstood as disconnected from reality, outside of social norms, and downright strange. To understand these people and to understand the culture would shed light on the community and create a better atmosphere for current and new participants. I interviewed participants, performed participant observation, and analyzed field notes. Through this data, I have found that cosplay can be "escapism" for some while it can be a reason to improve crafting skills for others. It can be a system of support for those that need it and help participants expand their social circle. I have come to the conclusion that participants have their reasons for choosing to cosplay and there is an underlying agreement that anyone who chooses to be a part of the community will not be judged or scrutinized and will be welcomed with open arms.

## **Amanda Harrison**

### **Imaging Multiple Datasets to Detect the Faint Structure of TeV Blazars**

We created images of TeV blazars with the data gathered from the Very Long Baseline Array stored in the MOJAVE VLBI database. We examined various ways of combining several datasets of the same sources to extend the jet's dynamic range. Methods included imaging the dataset then stacking the individual images, versus combining the datasets then imaging the large dataset. We were able to detect the faint jet structure easier in the stacked image. No counterjets were found, but limits on the jet-to-counterjet brightness ratio were identified so that limits could be placed on the jet's Lorentz factor. Furthermore, we investigated the transverse brightness of the jet as a function of distance from the core and found it to be complex and not well represented as simple limb brightening models.

## **Zoe Hemenway**

### **Differences Found in Socialization Practices: A Cross-Cultural Comparison of Collectivist and Individualist Cultures**

Research has shown that children's first caregivers, both parents as well as childcare providers, shape how a child comes to learn their role within their families, communities and society at large. This poster will review twenty studies which analyze parenting practices, children's emotional understanding, as well as the child's role within their childcare setting in order to better understand the extent to which these factors affect a child's socialization experience. In comparing Scandinavian practices of socialization to those of the United States, one is able to better understand the impact traditions, attitudes and cultural norms play in the development of socialization in young children. Results indicate that children of individualistic cultures, such as the United States, are often more adept in prosocial skills which are defined by behaviors that are voluntary and which benefit others, while their collectivist counterparts,

such as Scandinavian cultures, are often less proficient (DeRose, Hasting, & Rubin, 2005). A major contributor to these differences is the influences of culture; parenting practices within individualistic cultures are often defined as authoritative, which provide an other-oriented perspective supporting the development of prosocial skills. In collectivist cultures, such as in Scandinavia, parenting practices are defined as authoritarian, in which egocentrism is valued over other-oriented social development. Through analyzing Scandinavia's and the United States' socialization practices with children, one is better able to implement these best practices within their own work in child development.

## **Lucia Hernandez**

### **Barriers Latino families face when diagnosing children with disabilities**

Research has shown that children with disabilities who receive a late diagnosis can result to lifelong problem in learning, behavior, physical and mental health. Although early diagnosis is vital for children with disabilities, Latino families face many barriers that prevent early diagnosis because of the lack of knowledge, service and poverty. Barriers such as, lack of awareness, access to information, cultural/racial negative perception of children, health insurance, family factors, and religion contribute to a late diagnosis. This paper will review 20 empirical studies that support the barriers that Latino families face to diagnose their child with a disability. Some studies find that children who have received early diagnosis can improve their development compared to those who either receive late diagnosis or no diagnosis. A late diagnosis can negatively affect the brain development of children with disabilities, the child will struggle to become incorporated with society. This is my senior project for child development and I hope to find solutions to help Latino families overcome the barriers they face when diagnosing their children with a

disability. I hope to utilize my findings from this study as I pursue my counseling credential and master's degree in grad school and in my future career as counselor.

## **Lisa Hom**

### **The Effects of Curcumin on the Promotion of Longevity**

Curcumin is a compound that is derived from the dried rhizome of a dry perennial herb *Curcuma longa* Linn (which is grown in the tropical regions of Asia and is commonly found in the food spice turmeric). Research has shown that curcumin demonstrates anti-carcinogenic properties and when used in very low concentrations it possesses anti-inflammatory and anti-oxidative properties. The mechanism through which this compound is able to achieve these properties still remains unclear. One thing that is known is that curcumin, much like many known nutraceutical compounds such as resveratrol, have been shown to have an effect on increasing longevity. Longevity is dependent upon the genes controlling the metabolic activity, antioxidant systems, DNA repair, cellular senescence and cell death (Sikora et. al, 2010). In order to determine the curcumin mechanism for life extension, we used a human Jurkat cell line and treated them with various curcumin analogs and concentrations. We then used RT-PCR to quantify gene expression and compared the gene expression to known gene patterns shown to be associated with longevity. Gene expressions tested were: NF- $\kappa$ B, MAPK kinase and Sirtuins (1-7) all of which have been shown to promote longevity. In addition, we show an inhibitory effect of each compound on the Jurkat cells by counting and comparing the number of dead to living cells remaining after treatment. In the future, we hope to implement the use of these nutraceutical compounds to promote longevity in healthy normal human cells.

## **Rachel Inouye**

### **The Effects of Deltamethrin on the Cholinergic Nervous System of C. Elegans**

For my research project we are studying the effects of deltamethrin on the development of the cholinergic nervous system of *Caenorhabditis elegans* (*C. elegans*). *C. elegans* have a simple nervous system, which is easy to study and understand, making them a great model organism for studies on neural development. Deltamethrin is in the pyrethroid pesticide family and is equally important to study because of its presence on the wheat grain that is in the food we eat as well as in the food of the animals we eat. The methods we will use to do this study include culturing the LX929 strain of *C. elegans* that contain green fluorescent protein (GFP). GFP serves as a marker for gene expression. In the LX929 strain, GFP is expressed in all cholinergic neurons. We will then expose the *C. elegans* to different concentrations of Deltamethrin for a certain amount of time in a controlled environment and proceed to observe the worms using high-resolution fluorescent microscopy. Our results will include how much GFP is expressed and how the physical development of the nervous system is affected from the L2 to adult stage based on our observations. We will lastly analyze my results. A study done by Xue et al. shows that the level of synthetic pyrethroid pesticide exposure in pregnant women is negatively related to the neural and mental development of infants. Based on this study, we think that the exposure of deltamethrin to *C. elegans* in their developmental state will have negative effects on their neural development.

## **Jessica Iribe**

### Street Harassment

The ignorance of street harassment is an ongoing phenomenon that is rarely discussed among young individuals. In attempts to share the affects, street harassment has on women, the ideals of our media continuously emphasizing rape culture must come to an end. Women Against Violence Against Women from Rape Crisis Centre explains: “Rape Culture is a complex set of beliefs that encourage male sexual aggression and supports violence against women. It is a society where violence is seen as sexy and sexuality as violent. In rape culture, women perceive a continuum of threatened violence that ranges from sexual remarks to sexual touching to rape itself. A rape culture condones physical and emotional terrorism against women as the norm. In a rape culture both men and women assume that sexual violence is a fact of life, inevitable. However, much of what we accept as inevitable is in fact the expression of values and attitudes that can change.” These are the keys elements that I address in my digital story.

## **Jonathan Jimenez**

### The Shadow in the Background: The Construction, Performance, and Entrapment of Identities

The purpose of this paper is to examine the ways that both former gang members and current police officers create and perform their respective identities. These two groups have historically viewed each other in an oppositional way. Typically, gang members commit a crime, and the

police arrest the gang members so as to maintain social order. However, I believe that beyond notions of justice and order, there are deeper issues when it comes to identity construction and performance of both gang members and police officers. Gang members carry their identity wherever they go, going so far as to purposefully tattoo their gang affiliation on their bodies. Police officers, it is commonly understood, relinquish their identity when they take off their uniforms. I have found, though, that this oppositional dichotomy is not reality. I argue that police officers are prisoners to their identities in the same ways that gang members are confined in their own constructed identities. From the brutalities of the 1960s, to Rodney King and Ferguson, the increasing militarization of police forces has only added to the entrapping nature of identity construction for the modern police officer. In my research, I have found that both gang members and police officers create an identity that they cannot shake off because it becomes who they are, not simply a small piece of who they are. This militarization has led to increasingly disproportionate responses from police officers against the offenses of gang members. This solidifies the oppositional nature of the two groups. The social structures at play strengthen their constructed identities. Using one-on-one interviews with both respective groups provides me with the opportunity to tell both sides of the story—stories that so often go neglected, stories of being trapped and lost in an identity—an identity spun out of control.

## **Mathew Johnson**

Pre- and Post-Synthetic Engineering of Stilbene-based MOFs for Tailored Light Emissions

Metal-organic Frameworks (MOFs) are complexes with strong coordination between the metal ions or clusters and the organic linkers.

The geometry of the metals can be tuned and predicted to some degree, leading to specific solid state structures, which may extend in 1, 2, or 3 dimensions and may include open channels and exhibit solid-state fluorescence. Often, the metal cluster coordination geometry is responsible for the overall shape, but the linker itself can influence the overall shape as a result of ligand binding strength and competition with the formamide solvents, which also function as reactants. Here, we show that stilbene dicarboxylic acid can be used to direct the geometry of the overall structure, resulting in either cubic, porous 3-D Zn-stilbene structures or a series of homologous, 2-D net-like structures with similar light emission properties. Synthesis of similar azobenzene-containing Zn MOF analogues differed, with only the 3-D, cubic structure formed, presumably as DMF does not compete as a solvent with zinc. We have successfully synthesized 2-D analogues with cadmium, however, further indicating that the unique geometry of these ligands directs the structure. We have also explored the use of imidazole to compete with the DMF in 2-D networks to potentially result in new structures. We have post-functionally exchanged the DMF for 1-methylimidazole via solvent-assisted ligand exchange (SALE). SALEs represent a crucial addition to the scientific literature on MOFs, providing a means of adjusting porosity and fluorescence of a specific MOF in a controlled fashion. This has the potential to eliminate the necessity for tedious and repeated trial-and-error MOF syntheses when aiming for specific structural qualities. The emission of stilbenes is highly dependent upon spacing from other stilbenes in the solid state and differences in structures can be clearly seen. The inter-chromophore coupling decreases and the crystal size increases, demonstrating the first use of post-modification to alter the emission properties of a MOF. The synthesis, materials characterization, and steady-state emission of these MOFs will be described.

**Nathan Kleponis**

## Physics in Lacrosse

Video analysis using Dartfish was used in an investigation of a lacrosse shot in an attempt to determine the optimal placement of a player's hands on the stick to help players optimize the velocity of their shot. During a lacrosse shot two forces are exerted on the stick, one from each hand. In order to calculate the forces, position measurements were made on a video of a typical lacrosse shot and the data was analyzed to calculate the position of the center of mass of the stick as a function of time. The angle the stick makes with the horizontal axis was also calculated. Velocities and accelerations were calculated by dividing the change in position, or velocity, of two points by the change in time. The forces that were applied by the hands of the player can then be modeled using these acceleration values. After the forces were calculated we proceeded to adjust the forces and observed what happened to the path of the stick with each adjustment.

## Wilson Ku

### The Alchemy of Campaign Finance Reform: From the Federal Election Campaign Act to Citizens United

The growing issue of campaign financing is significant to United States' democracy as: "If money is free speech, then the wealthiest people in America are those that get to speak the most freely". Campaign Finance Reform began with the 1907 Tillman Act, banning direct contributions to presidential or congressional candidates from corporations and banks. By 1972, the Watergate scandals pushed campaign finance as a forefront issue triggering a chain reaction of federal court cases to try and limit the influence of money in politics to avert quid pro quo. However, since Watergate, money in politics flows at an even more exponential rate and disclosure remains limited. The purpose of this study is to conduct an

analysis of Supreme Court cases, one before Watergate and one in the 21st century, in order to develop an understanding on: how in the midst of campaign finance debates such reforms and legislations come to be enacted? The examination reveals three key historical developments of: 1) legal institution in defining, facilitating, and perpetuating; 2) role of the law; 3) possibilities and consequences in attempt to use law as a remedy. The comparison of both Supreme Court cases yield what was held to be a violation of the Federal Election Campaign Act (FECA) during Nixon's reelection campaign is now legally granted with Citizens United. The 5-4 decision eliminated decades of campaign finance laws, freeing corporations and associations to spend as much as they want as the court determined that money is equivalent to First Amendment's speech, concluding that corporations share the same political rights as citizens. As a result, this study concludes: 1) the ways in which traditional legal culture and discussion create their own reality; 2) law divides society into fragments and reduces the human experience to conform to the molds of legal doctrines; and 3) legal judicial form generalized conclusions from limited information and treat both individuals and objects as identical, thus their analysis developed by their own personal experiences are presented as unbiased and objective.

## **Jerry Kumjian**

### **Identity Crisis: The Case of Micrococcus**

The objective of this study was to identify an unknown bacteria given absolutely no background information or hints what so ever. By performing several tests, we were able to observe characteristics of the bacterium that allowed us to distinguish and identify it as Micrococcus. These tests included Gram staining, Spore staining, catalase testing, oxidase testing, motility sensing. The unknown bacteria presented a

Gram-positive stain, cocci shape and no motility. In addition, it was both oxidase+ and catalase+. Spore staining also came up negative, establishing that the unknown is non-spore forming. With these results I navigated the dichotomous key in the lab manual to narrow down the scope of the genus before referring to Bergey's manual and ultimately concluding that my unknown bacteria was of the micrococcus genus.

## **Gabriel Lane**

### *Electronic Dance Music Culture, A Conflict of Identity*

With the birth of electronic music, underground raves were born. With not that many people following the music, rave events took place in warehouses, basements, or anywhere that would accept them, creating a sub-culture of followers to assimilate too, that being rave culture. Today we see electronic music events selling out stadiums and popular concert halls. Even though electronic music has grown into something much bigger today, rave culture finds itself being a classification of past EDM culture. We stand at a point of popularity in EDM wondering where rave culture ends or stops, and where a new era of following beings or starts. This study aims to identify the historical background of rave culture and track its growth since then to compare difference between the two time periods. To further look into this, I analyzed personal participatory observational festival/show footage through an ethnographic lens to examine and analyze this culture, as well as conducted interviews with 2 experienced and 2 inexperienced people in the EDMC scene. Through my findings, I have been able to identify how rave culture has been identified as a particular period of time that EDM events occurred, and we see a new age of EDM events starting. EDMC has become much bigger than the underground birth of itself, with many reasons leading back to examples of common-consciousness, social identification, commercialization, and visual/physical sensation stimulation. This supports my finding through scholars who have identified the like-minded pleasure of the physical

music, and crowd participation culture. We can gather that EDMC has grown much bigger, into an entire section itself of music, making it impossible to define as a particular aspect of physical or emotional assimilation, but instead being defined as the collective grouping of aspects that EDM now carries. Electronic Dance Music Culture.

## **Katherine Lazo**

### **The Role of Stereotype Threat in the Mathematical Self-Concept, Self-Efficacy, and Performance of Middle School and Adolescent Girls**

In school curriculums there has been an intentional shift in the way information is presented and taught to students so as to prevent gender stereotypes. Exposure to gender stereotypes (i.e. boys are better at math than girls) can lead to stereotype threat among those whom the stereotype is about. Recent studies show that in mathematics stereotype threat negatively influences the academic performance among girls. Poor academic performance by girls is caused by the low self-efficacy and self-concept developed because of stereotype threat. In one study, girls were given one math test before which they discussed the negative stereotypes about girls and mathematical abilities and a second where they spent time coloring a picture. The results showed that the girls who colored a picture performed better on the test than girls who had the discussion, also that girls who had the discussion rated themselves lower in terms of mathematical abilities showing low self-concept and self-efficacy. This literature review, written for a senior project, looks across multiple studies to show the effect of stereotype threat on the mathematical self-concept, self-efficacy, and academic performance in middle-school age and adolescent girls. Reviewing stereotype threat and its implications on the academic performance among girls is important because this influence carries out throughout the academic career of the women and can lead to

a better understanding for educators on how to organize their curriculum and classroom.

## **Daniel Lee**

### **Rubus fruticosus Components Inhibition of Extended Spectrum Beta Lactamase**

All components of *Rubus fruticosus* (blackberries) extracts (fruit, leaf, stem, and root) were tested in their potential to inhibit extended spectrum beta lactamase (ESBL). Inhibition of ESBL were determined through direct competition between nitrocefin substrate and *R. fruticosus* methanolic extracts and monitored for hydrolyzed nitrocefin at 486 nm. Results showed that at screening concentrations of 10 mg mL<sup>-1</sup>, the fruit, stem, and root all had inhibitory properties against ESBL with the root having the highest inhibition at an average screening of 48.8%. However, the leaf failed to show any inhibitory properties, having an average screening value greater than 100%. Despite results being preliminary, this study is very promising in elucidating *R. fruticosus* potential as an antimicrobial in offering a more homeopathic and effective alternative in restoring antibiotic functionality.

## **Esther Leon**

**Custom vs. Prefabricated Foot Orthoses: A Study of Biomechanical and Perceptual Differences**

In this study, I reviewed the literature on the debate about custom versus prefabricated functional foot orthoses, in-shoe therapeutic devices meant to address lower extremity pain or dysfunction. This included defining what functional orthoses are, reviewing relevant anatomy and biomechanics, investigating their theorized method of action, discussing their uses and benefits, and comparing the differences as found by previous studies between customized and non-customized (prefabricated) orthoses. Previous work has suggested that no significant difference exists between customized and non-customized, yet many patients still pay hundreds of dollars more for custom orthoses. With this information, I constructed a personal study (approved by the IRB, #N092014FS\_1) in which I asked six Whittier College students who currently use custom orthoses to exchange them for using prefabricated orthoses for a four-week trial period. During this trial period, subjects met at three intervals for in-house testing with the researchers. At each session, they were asked to walk with both their custom and the prefabricated orthoses across a force plate recording ground reaction forces in order to analyze possible differences in shock attenuation between the two pairs. They were also asked to walk on a treadmill at a leisurely pace for 20 minutes with either pair of orthoses (determined by randomization) to examine possible differences between custom and prefab during extended use. Finally, they were given a survey asking about the differences they perceived between the custom and prefab in regard to comfort and symptom relief. This study is currently in progress, so data is not yet available, but results should be finalized by the date of URSCA for presentation. The findings from the force plate and treadmill testing plus the subject surveys will be statistically analyzed for any biomechanical and/or perceived differences between custom and prefabricated foot orthotic use.

**Guadalupe León**

## Effects of Caffeine Consumption during Prenatal Development

Throughout the years, research has shown that caffeine consumption during pregnancy can negatively affect prenatal development. Excessive caffeine consumption during the prenatal period can interrupt the fetal development, resulting in miscarriage, alteration of the baby's brain, and fetal growth retardation. Although, research has proven that excessive caffeine consumption negatively impacts the fetal development, there are research studies that claim caffeine intake alone is not responsible for these negative impacts due to other factors, such as smoking and alcohol consumption, being taken into consideration. This paper will review 20 empirical studies that support that excessive caffeine consumption (100-300+ mg/per day) during pregnancy does affect the prenatal development. Some studies find that women who consume high amounts of caffeine during their pregnancy have a higher chance of having a miscarriage in comparison to those who do not consume any caffeine. Based on animal experiments, other studies have found that prenatal exposure to caffeine results in decreased fetal body weight and length. This is my senior project in child development, and I find this topic interesting because I have previously researched alcohol effects on prenatal development and I want to learn about other factors that affect prenatal development.

## **Nayely Limon**

### Day Laborers Facing Public Challenges: Is There Really a Challenge?

Migration throughout the United States has increased immensely over the years. As more individuals enter the United States illegally, their hope is to have a better life due to better job opportunities they can attain in the United States. However, most of these immigrants face challenges as they look for employment due to their illegal status, so they rely on selling their labor on public spaces dubbing themselves as day laborers. There has

been academic literature that discusses the challenges that day laborers encounter as they seek employment in the public space, such as economic problems, and health issues. Nevertheless, the day laborers have a goal to transform the public space into a regulated hiring site that they can control. It is evident that anti-immigrant and local community groups are not in favor of having day laborers occupy the public space. These groups believe that they need to keep their community protected and day laborers just become another social problem that should be dealt with. This research project aims to answer the following question: how do day laborers avoid trouble and cope with the challenges they encounter with police authority, communities, or residents of the area as they solicit employment in the public space? I took a case study approach, which included field observations in Home Depots and content analysis: such as newspaper articles, blogs, and police records regarding day laborers, community, and public space. I observed three Home Depot stores four times each for a total of 12 observations in Los Angeles. The data collected included police records from three different police departments and twelve articles from newspapers and blogs. My results were that the community around these home improvement stores do not have a problem with day laborers. Through my findings the important themes were bringing people together, shift of negative to positive connotations of day laborers, and equal rights.

## **Robert Loakes**

### **Burning Man: Transformation Through Experience**

This research is focused on the community and ethos of the counter-cultural event Burning Man, and its purpose is to study the personal lives and experiences of Burners (participants in Burning Man) and how this event has come to impact them. Burning Man is an annual event held

each year in the middle of the Black Rock Desert NV, one of the most inhospitable environments in the world. In this environment a seemingly impossible thing occurs; out of the desert springs, the third largest city in Nevada, for one week out of the year, in this city transformational experiences can happen. By using a mixed methods research design consisting of surveys and interviews I found that this event does in fact have a meaningful impact on people's lives, and how exactly it impacts them depends on the individual. I employed theoretical insights from the anthropologist Victor Turner (1969), such as liminality, whereby Christians return from pilgrimages after going through rites of passage, positively changed by their experiences. Burning Man has also been critiqued in that many of the participants are said to have the privilege of leisure time which serves as a barrier to participate in this event. I have found, however, that there is a generational difference between the participants. Older Burners tend to have much less privilege than younger participants. I also conducted my research to help erase the stigma that has begun to surround this festival; most people come to view it as a giant party in the desert, when it is much more than that. Burning Man is a place where people can be true to themselves, and, in doing, so many people find their lives changed forever by participating in this liminal world.

## **Aaron Martin**

### **The Impacts Poverty has on Academic Achievement**

Research has shown that poverty has a negative effect on children's academic performance. Although the magnitude of these effects may be up for debate, nevertheless, poverty can affect the health and development of a child, as well as the academic achievement throughout their schooling. This paper will review 20 empirical studies that show the

various ways in which poverty can influence academic achievement including: school quality, lack of resources, food insecurity, financial and parental stress, and social capital. While outcomes for children in poverty may seem bleak, this literature review will also examine potential buffers of low economic status, which includes school connectedness, income policies, and resiliency. A study found that even at a marginal level of food deprivation a child's ability to learn and do well on achievement tests is lowered. Other studies have found that school connectedness (or school bonding) can act as a buffer to the effects low-income families face. Studying the influence of poverty on academic and developmental outcomes is important to researchers and teachers nationwide in order to give children the opportunity to succeed.

## **Denise Martinez**

### **Traditional Medicine in a Modern Era: The Role of CAM as a Healthcare Alternative**

“Western Medicine,” as we know it today, consists of heavy pharmaceuticals and extreme surgical procedures. Colonial expansion in the 1600s brought disease and illness to new parts of the world. In response indigenous people turned to their traditional medicine. This form of healing was novel to the newly arrived and far different from the Western approach. Hence, traditional methods were looked down upon and seen as unreliable. Still today, many cultures across the globe use traditional medicinal methods, also known as complementary alternative medicine (CAM) to heal and combat illnesses. CAM practitioners perceive health in a holistic way, which includes a balance between the mental, physical and spiritual aspects of the body, rather than solely the physical. These practices are becoming more popular in the mainstream and are attracting a wider range of people. A large part of the foundation of modern pharmaceuticals has come from plants and herbs that are known to possess healing abilities, yet there remains a gap between what is

understood about CAM and its significance in today's medical field. In an attempt to narrow this gap, this project looks at the way that modern American culture has adopted these methods. This practice may be growing in an effort to seek better, less invasive care that can possibly have healthier long-term effects and be easier to attain. I analyze the correlation between having access to healthcare and the use of CAM in the sample population in Southern California. Specifically, the project will target medicinal practices that can be linked to Latin American herbal practices by tracing them back to their countries of origin. The research is conducted at local botanical shops in Los Angeles County.

## **Bobbi Mendoza**

### **Magical Condom Machines: An Inside Look at a College's Structural Level Condom Dispenser Program**

At most colleges, community-level sex education is the sole approach for increasing college students' condom use. However, the US Center for Disease Control and prevention (CDC) reports that "structural level condom distribution interventions are efficacious in increasing condom use, condom acquisition (condom carrying), reducing unwanted pregnancies, and reducing incident STIs" (2010). This demonstrates that there is a gap of knowledge between research available on effective sex education and the implementation of this research on college campuses. This systematic review examines a private liberal arts structural level condom distribution intervention (SLCDI) that was installed in April 2014. There has not been any research done to measure how this SLCDI has addressed environmental and personal barriers for a student to attain contraception. College students (N= 191) completed a self-administered

confidential/anonymous survey on their sexual behavior, Perceived Personal Immunity (PPI) and on overall program satisfaction, as well as how the program works to address barriers to attain contraception (economic, accessibility, acceptability, and availability). The simple statistics results found that there are multidimensional factors for a person to attain contraception. This review recommends that an SLCDI needs to be complemented with comprehensive sex education program in order to encourage students to practice safe sex.

## **Vicki Mercado and Lindsey Tuveson**

### **Determining the Sensitivity of Pancreatic Cancer Cells to Endoplasmic Reticulum Stress**

Pancreatic ductal adenocarcinoma (PDAC) is an aggressive cancer with a five-year survival rate of 4-6%. PDAC is largely driven by mutations of the K-ras gene. K-ras oncogene mutations cause constitutive activation of the Ras pathway, thereby promoting constant growth signals. Early diagnosis of PDAC is difficult as biomarkers for early stages of PDAC are lacking, and pancreatic tumors are highly resistant to current treatments. Further understanding the biological bases of PDAC is imperative for the development of effective treatments. Because PDAC cells synthesize large amounts of protein to grow and proliferate, they place increased demands on the endoplasmic reticulum (ER) to ensure proper protein folding. When exposed to stress, such as the accumulation of misfolded proteins, the ER triggers a response that can result in apoptosis. While chemotherapy and chemical inducers of ER stress have previously shown

a synergy in killing other K-ras driven cancer cells, whether PDAC cells are more sensitive to ER stress than normal pancreatic cells remains unclear. The objective of this study was to assess the ER stress response in PDAC cells. To determine whether PDAC cells induce apoptosis upon exposure to ER stress, we treated PDAC and untransformed duct cells with thapsigargin and quantified apoptosis using Annexin V staining and flow cytometry, as well as western blot analysis. 1245 and 10022 KPC cell lines had differential sensitivities to ER stress, with both showing ER stress sensitivity in a time and dose dependent manner. The latter seem to be more sensitive to ER stress perhaps suggesting a difference in the mechanisms these cells use to handle ER stress loads.

## **Karen Montufar-Federico**

Urban Sociology, Case Study: San Diego Market Creek Plaza

Certain neighborhoods in San Diego have been identified to go under revitalization to promote economic activity. One of three identified neighborhoods is in the Encanto Area where I was born and raised. One project in place is the San Diego Market Creek Plaza that is comprised of 5 plots. The city of San Diego in partnership with the local foundation Jacobs Center for Neighborhood Innovation and other public and private organizations are leading the planning the future of the Market Creek Plaza. The only 2 of the 5 plots that make up the San Diego Market Creek Plaza have been completed in the last 12 years. As the rest of the planning is address it is necessary to see how public and private organizations work in aligning needs of community members for the future of the Plaza. In the last 12 years only 2 out of the 5 plots that make up the Market Creek Plaza have been completed. Using a mixed method of collecting data of

the last 50 years from the US Census Bureau, voting records and non-profit density will be used to give context of the community; combined with 15 interviews of different community stakeholders to shed light to this question. It is found that structural issues arose with partnership between private organizations and the city. In addition, Jacobs Center for Neighborhood Innovation was undergoing an internal restructuring. Combined these two roadblocks have impeded the collaborations from meeting their mission to the community. As this research was being conducted, there has been a rise in community outreach and increase involvement from the community in the planning process.

## **Alyssa Morgan**

*Assessing the Effects of Drought on Arthropod Species Richness in Restored and Unrestored Coastal Sage Scrub in Santa Monica Mountains National Recreation Area*

Southern California is currently facing the most severe droughts it has seen in over 100 years is consequently resulting in immense changes to the ecosystem that are yet to be understood. Thus, an ideal opportunity to study the success of coastal sage scrub restoration efforts is presented. Typically, native California plant species have higher tolerance to drought-like disturbances due to certain adaptations (Cleland et al, 2011). Native plant species also form the base of food/energy webs within ecosystems and therefore are an imperative aspect to native consumers throughout the tropic chain. Increase in invasive plant species leads to a significant decrease in native plants and animals, resulting in a loss of

species diversity (Beard et al, 2008). Ecological restoration including the removal of non-native plant species and the introduction of native species should provide a more suitable habitat for native animals. To determine the results of this restoration effort we are sampling and analyzing three areas located within the Santa Monica Mountains; restored, unrestored, and invaded. We hypothesize that the restoration will be beneficial to native arthropod species, as well promote vegetation that will recover faster when the drought recedes. Therefore, we predict that restored areas will have higher plant coverage leading to an increase of native arthropod species and higher species abundance over time. A total of two samples of arthropods were collected via pitfall traps. Organisms collected were washed and identified to the family level in order to perform statistical analysis. Preliminary findings from the first sampling suggest that the invaded area contains higher species abundance (number of individuals per species) but a decrease in species richness (number of different species present.) Given the preliminary data we will continue with further analysis of the second sampling in anticipation of similar results. Additionally, we will be conducting a vegetation sampling in the three locations in order to correlate plant species with arthropods. From our current results we can determine that restored areas do seem to favor species richness as predicted due to the favorable environment. However, restored areas do not seem to promote overall abundance which may be due to lack of recovery time. These findings suggest that restoration efforts are critical to the preservation of native species, but the results of which can only be seen over time.

## **Kathryn Nakamura and Emily Shimamoto**

The Link Between Periodontal Disease and Cardiovascular Disease in Southern California

Two prevalent diseases in the United States are periodontal disease and cardiovascular disease. Both diseases have many negative health effects on much of the population. Some of these negative effects include the risk of hypertension, myocardial infarction, stroke, failure of other organs, and the loss of teeth. The mouth is known as the gateway to the body, which could be one of the reasons as to why periodontal disease is a risk factor for cardiovascular disease. It is important to study these two diseases because poor oral health could be contributing to poor cardiovascular health. Therefore, proper oral health can be used as a preventative measure for cardiovascular disease. From the literature, there has been a confirmation that the link between periodontal disease and cardiovascular disease exists, we hypothesized that periodontal disease is a possible cause of cardiovascular disease. A questionnaire was distributed to see if there was a correlation between periodontal disease and cardiovascular disease, specifically looking at risk factors such as age, tobacco use, oral health habits, and other illnesses. They were distributed to 100 people from a general population in southern California. We found that there was no significant correlation between periodontal disease and cardiovascular disease because most of the population we sampled had no previous history of periodontal disease. Although our results do not reflect our hypothesis, looking at another region could help reaffirm the literature.

## **Kelcey Negus**

Urban Displacement: A Growing Issue Addressed by United Nations High Commissioner for Refugees

As a chairperson for the Executive Committee of the United Nations High Commissioner for Refugees (UNHCR) at the Model United Nations of the Far West 2015 Conference, my research was conducted on the specific issue of urban displacement. After providing an overview of the

committee and its functions, the paper explores the relatively new issue of urban refugees that now make up over half of the refugee population. A substantial portion of the paper is supported by the information provided by the UNHCR 2009 report “Policy on Refugee Protection and Solutions in Urban Areas.” While UNHCR is responsible for the creation of mandates for the assistance of refugees, the larger issue at hand is who is to be held accountable for acting and providing assistance to these refugees. UNHCR’s key principles for assisting urban refugees are: 1) to ensure that cities are recognized in urban areas for refugees to reside and exercise the rights to which they are entitled, and 2) to maximize the protection space available to urban refugees and the humanitarian organizations that support them. Urban refugees are particularly challenging for UNHCR to assist as they are often difficult to access. In order to provide assistance to all those in need, the United Nations High Commissioner for Refugees works in partnership with municipal authorities, police, local business, health administrators, NGOs, and civil society institutions. This paper provides an overview of examples of these partnerships, the challenges, and the potential solutions. The paper concludes with a call to all Member States of the United Nations to work in conjunction with UNHCR in order to provide assistance to and ensure the subsistence of urban refugees. Promoting self-reliance, encouraging burden-sharing, providing legal protection and upholding standards listed in the 1953 Convention Relating to the Status of Refugees and the 1967 Protocol on the Status of Refugees are all steps that actors involved with urban refugees must take in order to address this growing issue.

**Nita Neziri**

Convex neural codes

One of the basic functions of the brain is to make accurate representations of the world. When a stimulus hits the brain, neurons fire in response to it. Different kinds of stimuli create stimuli spaces which are highly structured in our brain. In response to the stimuli, some neurons fire together in groups while some fire alone and the pattern of all these possible firings is called a neural code. These codes associate to each neuron a convex receptive field. One example of receptive fields would be hippocampal place cells, which are neurons whose receptive field is a 2-dimensional spatial field. These 2D regions overlap and create smaller regions, which activate a particular set of neurons. In this way, for any particular neuron, we can think of the stimuli which caused it to fire, as a subset of some Euclidean space. Thus, the “receptive field” for a neuron is going to be some set  $S$ . In this paper I look at the neural convex sets of 1, 2, 3, and 4 neurons using line segments in  $\mathbb{R}^1$ . By analyzing these examples, I aim to find a pattern that will make it easier for us to make assumptions for convex codes with 5 or more neurons.

## **Lily Nguyen**

Production of Alpha-Terpineol By the Biotransformation of (+)-Limonene, (+)-Alpha-Pinene, and (-)-Beta-Pinene Via *Fusarium Oxysporum*

Alpha-terpineol is a popular aroma that can be found in a variety of plants, in bound forms. Only a small amount of  $\alpha$ -terpineol can be extracted naturally. Hence, biobased products containing natural  $\alpha$ -terpineol has higher marketing value than those with artificial  $\alpha$ -terpineol. Alpha-terpineol can be obtained naturally through biotransformation of

terpenes, such as limonene,  $\alpha$ -pinene, and  $\beta$ -pinene. The purpose of this article is to study the metabolic profile of *Fusarium oxysporum* using (+)-limonene, (+)- $\alpha$ -pinene, and (-)- $\beta$ -pinene. 0.25g cultivated *Fusarium oxysporum* and 0.5mL of terpene were added into 100mL DDI water with TWEEN 80 and incubated at 26°C/ 175rpm. TWEEN 80, a surfactant, allows terpene to be mixed with DDI water and thus increases the interaction between fungi and substrates. Every 24 hours, a sample was collected from each mixture. Samples were centrifuged at 3840 g, extracted with ethyl acetate, and dried off with sodium phosphate, before submitting to TLC and GC-MS. Based on the TLC and GC-MS data, new compounds were presented after 72 hours of biotransformation, and the production of  $\alpha$ -terpineol was confirmed for the biotransformation of (+)-limonene, but not for (+)- $\alpha$ -pinene and (-)- $\beta$ -pinene.

## **Carlin Ober**

### **The Adoption of Relationships: A Study Focused on the Adoptee**

Since the nineteenth century, the United States of America has allowed suitable parents the right to become permanent, legal guardians to a child that is not biologically theirs. The privilege of adoption comes with risks and benefits that have been studied numerously throughout time. However, there is often one element consistently left out of research that is crucial to the understanding of these results: the adoptees. Recognition of the adoptees is significant for the full awareness of effects within the adoption process. This article focuses on the long-term and short-term ramifications adoption has on an adoptee's life through the perspective of the adoptee. It is important to acknowledge that the adoptive parents are not the only people impacted by this process. The methods include 25 survey questions answered by 30 people, specifically completed by adoptees, sent to a small community and interviews of 10 adopted adults.

Preliminary results suggest gender and age perspective differences, feelings of abandonment, and contrasting perceptions of families' involvement and interactions. Principal conclusions indicate the success of adoptive family systems involve positivity and openness towards adoption, although views may differ according to gender, and the identity of an adolescent adoptee is similar to that of a non-adopted peer. Identity is defined as how one personally defines his or her own characteristics and being. Due to the reduced sample size, the conclusions are limited. With more time, further interviews would be conducted and additional surveys could be sent out with hopes to expand the quantity of results.

## **Lisete Ocampo**

### **The Impacts of Autism on the Non-Disabled Sibling**

This study investigates the social effects of living with an autistic brother or sister by looking into the types of impacts it has on the non-disabled sibling's family dynamics, their social environment, and their psychosocial development. This topic is a relevant area of study as there has not been much research focused on siblings. Though interest has increased in the last few years, the majority of existing studies are psychology-based, therefore, lacking an anthropological-sociological perspective. My research shows how diverse the effects of having an autistic sibling can be, depending on the individual and their circumstances, such as the severity of their sibling's autism or the amount of support they feel they receive. Participants have also been given a voice through their stories which allows insight into this family issue from their point of view. The methods used to answer the question were interviews along with a survey. Results were varying and showed that siblings were affected in different areas of their lives, but one area that remained consistently and largely affected was their family dynamics. Interviews revealed that participants felt that

having an autistic sibling mainly affected family relationships through negative experiences, though some expressed positive outcomes like unity and strength. Survey results supported this finding, indicating the highest impact on family relationships and family activities/outings, and the lowest impact on academic achievement, friendships, and romantic relationships. Participants repeatedly expressed a serious need for understanding. Further studies of families with autistic members would allow siblings to feel more understood. Awareness needs to be brought to this family issue so that siblings, and other family members, can speak more openly about it without feeling judged.

## **Zach Ouderkerken and Bill Kronholm**

“Existence of Projective Plane Geometries of Order 18”

Projective Plane Geometry is a finite geometry in which every pair of lines intersects at exactly one point. The order of a projective plane tells us how many points lie on each line and how many lines lie on each point. For a projective plane with order  $n$ , each point contains  $n + 1$  lines, and each line contains  $n + 1$  points. Lam and Thiel showed that there are no projective planes of order 10. Using similar methods we will search for the existence of projective planes of order 18.

## **Jacqueline Perez**

Bacillus Subtilis

The identification of microbes is important because knowing how bacteria works and affects humans is important. There are some bacteria that are bad for our body and there are bacteria that can be used for clinical

purposes. The reasons vary from identifying a specific organism that is causing a medical problem to knowing how it can be treated to producing antibiotics such as penicillin by knowing the correct microorganism. The tests done in this study were performed in a way that would help us recognize the specifics and identity of the unknown culture. When the gram stain was done, the results showed that it was gram positive rods. Next, the spore stain was conducted and the results showed that it was a spore former. Next, the catalase test was done and it resulted in a positive catalase reaction. Lastly, the motility test was conducted and the results showed it was a positive motility test. With all these results, I was able to conclude that the unknown bacterium was *Bacillus subtilis*

## **Marie Perez**

### **Anti-Diabetic Effects of Metformin, Cinnamon and Bitter Melon Supplements on *C. elegans***

AMP-activated protein kinase, or AMPK, is a protein kinase that is increasingly becoming interesting in the study of diabetes type 2. Recently, the stimulation of AMPK was found to improve blood glucose homeostasis, lipid profile, and blood pressure. Antidiabetic drugs have been found to stimulate the AMPK. The 'drug of choice' for treatment of diabetes mellitus is metformin, a biguanide, which is shown to treat the diabetic condition through the stimulation of AMPK. The most common adverse effect of metformin is the gastrointestinal irritation. Although metformin is beneficial in treating diabetes mellitus, the purpose of this project was to investigate more holistic methods of treating diabetes mellitus with no harmful side effects by examining the efficacy of two commonly used natural supplements: bitter melon and cinnamon. In addition to its common use, previous studies show that bitter melon and cinnamon both affect the AMPK pathway in order to up regulate the

glucose transport 4 (GLUT4) translocation in muscle and adipose tissues. In order to conduct our study, we utilized the nematode *Caenorhabditis elegans* (*C. elegans*) in order to study the effects of these three treatments. The AMPK pathway is known to be a conserved pathway between *C. elegans* and humans, thus making *C. elegans* an ideal model for this study. The *C. elegans* were subjected to treatment by using NGM plates mixed with the respective treatments. The lifespans, fecundity, fat deposit levels, and pharyngeal pumping rates of these *C. elegans* were then measured to evaluate the efficacy of all the treatments. The results of this experiment are predicted to show that treatment with cinnamon or bitter melon supplements can induce the same, if not improved, longevity, fecundity, fat deposit levels, and pharyngeal pumping rates as compared to treatment with Metformin in *C. elegans*. If these predictions are proven, then the results of this experiment could potentially provide the reasoning for using cinnamon and bitter melon supplements as opposed to metformin. The high availability, and possibly higher effectiveness, of these anti-diabetic treatments could help eventually reduce the high prevalence of diabetes mellitus. Future research can look more into potentially adverse effects of using cinnamon or bitter melon supplements, and how combining natural supplements and pharmaceuticals could affect the treatment of diabetes mellitus.

## **Kelci Quinabo**

Promoting English Language Learning for Bilingual Children

Children who are able to speak two languages are considered bilingual, and for most children in the United States, being bilingual is not a surprise. According to research, children have the ability to learn and speak different languages simultaneously to become effective bilingual speakers. In the United States, most bilingual children's second language is English. For these bilingual children, there is a risk for low parent involvement in schools, lower socioeconomic status (SES), and unavailability of English language learning (ELL) programs, which can have negative effects on second language learning. Previous research supports the notion that monolingual children excel more in school, but other evidence contradicts this belief due to positive results with bilingual children and their success in learning English. This paper will review 20 empirical studies that identify the different factors that lead to the success of English language learning of bilingual children. Some studies find that bilingual children who use both their native language and English language at home and at school are able to develop stronger vocabulary knowledge and skills. There are many beneficial programs that further the success of bilingual children's English language and this poster will analyze what makes those programs successful. This is my senior project for child development, and I hope to deepen my understanding of bilingual children's English language learning throughout this project.

## **Bianca Rhodes**

### **The Importance of Play in Childhood Language Development**

Research has shown that play has a positive effect on language development in children. Interest in the value of play on child development has grown rapidly within the past few decades and is largely affecting the way in which classroom curricula are being organized.

Although some studies have criticized play research because of the wide

variety of definitions used to characterize play, nevertheless, certain types of play have been heavily linked to developmental growth because they provide a safe environment for social interaction, teach children symbolic representation, and allow time for creativity and imagination. This paper will review 20 empirical studies that support the effectiveness of play for children's language development and will look at four types of play in particular: symbolic, peer, guided, and free play. Each of these categories of play are linked to developmental gains in language for a variety of different reasons. Some studies emphasize the value of social interaction during play and its importance for scaffolding learning through questioning and conversation, both with peers as well as adults and teachers. Other studies focus on the benefit of symbolic representation, because it requires children to find connections between words and objects or actions. It has also been argued that when play is child-initiated, as opposed to structured by teachers or parents, children are more receptive to language learning because they are participating in an activity that interests them. The aim of this lit review is to explore and examine the various ways in which play contributes to language development. This paper is my senior project in child development, and I hope to use my findings from this study in my future career as a preschool teacher utilizing a play-based curriculum.

## **Rebecca Robinson**

### **Instruction in the English Language Learner's First Language**

Research has shown that support for English language learners (ELLs) is often inadequate. Educational researchers have responded to this by working to develop practices that can help ELLs. Optimal ELL instruction is a multifaceted issue to tackle. My literature review focuses on the research supporting the use of instruction in the students' first language as

a tool to develop fluency and literacy in the second language. The benefit of first language instruction results from shared lexical patterns, the carry-over of literacy skills such as phonological awareness, and a greater level of comfort in transitioning to the new language. This paper will review 20 empirical studies that cumulatively support the validity of teaching in the students' first language to facilitate development of English fluency and literacy. Although some people support immediate English immersion, research suggests that teaching in the first language for a limited amount of time better prepares students for the transition to full-time English immersion. My personal purpose for conducting this literature review is for my child development senior project, and for my future graduate school endeavors in which I will prepare for a career teaching in underserved and low-income schools, where teaching ELLs can be a challenge.

## **Arica Rodriguez**

### **The Quality of Community at Whittier College**

My research focuses on the following question: "What is the Quality of Community at Whittier College?" The questions target the student population at a small liberal arts college in Southern California and focuses on different commitments to and perspectives of the campus population. The importance of the question is to find out if, in general, the student population feels that the College is a communal location, since the campus has so many different sectors that make it up. The methods I used to empirically test the research question were surveys that I distributed to the student body and interview questions. I received 97 surveys and performed 10 interviews. During the course of my scholarly work, I found that at this small liberal arts college in Southern California, there is more division than what is portrayed in publications, to prospective families,

and by the media. Many students feel little sense of community from the campus. The results have shown that the school portrays a high sense of community, yet students actually feel a low sense of it. The broader implications of the findings will hopefully be able to 1) show the college that students want to feel a stronger sense of community, and 2) make administrators and faculty realize that a strong sense of community keeps students happy and wanting to go to school. This project will hopefully advance the quality of a feeling of community on this college campus.

## **Jazmin Romero**

### **Changes in Friendship Expectations Throughout Child Development?**

Research has shown that friendship expectations change over the course of the child's development. Friendships during early childhood are known to be based on shared activities as opposed to middle and adolescence, which require a deeper understanding as well as similar interests and values. Many researchers will argue that children look for someone who has their same views, this serving as a validation for their ideas. This paper will review empirical studies that support the changes of their friendship expectations as children transition from early childhood to adulthood. Some studies find that younger children expect their friends to be entertaining while adults expect them to be useful. As children grow older, they expect their close friends to be there for them when they need emotional support. The majority of the time, males would describe their friendship as a team; they look for someone they can joke around with, do certain activities together, and not necessarily someone that they have to see every day. In contrast, their female counterparts look for a friendship in which they can have a one-on-one interaction, be more revealing, intimate, and personal. I find this particular topic interesting because it

would be worthy to see how friendship expectations shift and affect attachment styles from early childhood to adolescence.

## **Sarah Romero**

### **A Comparative Analysis of the Academic Performance and Student Engagement of Residential and Commuter Students at Whittier College**

Statistical data has indicated the population of college students has continued to grow all over campuses in the U.S. Specifically, the growth of commuter students has captured the attention of researchers. Past research has analyzed the academic difference between residential and commuter students by measuring GPA, age, gender, and socioeconomic status. Although these variables are significant factors behind students' success, research has not yet measured success through students' engagement on campus. The purpose of this study is to investigate the relationship between academic performance and levels of engagement between residential and commuter students. With that I ask: is there a difference in the academic performance and student engagement between residential and commuter students at Whittier College? This research consisted of mixed methods by conducting in-depth interviews with five residential and five commuter students, with 100 surveys on campus. The motivation behind mixed method is to capture what past research has not been able to accomplish: in-depth interviews supported by numerical data. In addition, this research will define students' academic performance by examining students' capability of sustaining academia and students' engagement on campus. Preliminary results suggest that there is no relationship between students' academic performance as either residential or commuter. Results from interviews do suggest there is a relationship between how much a student is engaged on campus and whether they are a residential or a commuter student.

## **Lorena Ruiz**

### Parents Attachment Influences Child's Future Relationships

Research has shown that divorce has an influence on child's relationships throughout their lives. Some studies state that divorce doesn't specifically affect a child's future relationships, even though the effects of divorce creates insecurities in the child's relationships with both their parents and future romantic partners. It may also influence their own parenting styles. Insecurities are established on the child leading them to possibly have an avoidant attachment relationship with their parents. This paper will review 20 empirical studies that show the negative effects divorce has on children's relationships with their parents throughout their lives. Some studies find that parents who have lower income are more likely to establish an avoidant attachment relationship with their children due to other obligations such as working long hours to support the family. Other studies find that children have a better attachment with their mothers than their fathers after the divorce because they engage in more interactions with their child. Depending on the temperament of the child they will be able to resist the influence of negative behaviors portrayed by their parents. Children with easy going temperaments are most likely to do better than difficult children, and slow-to-warm children. I was interested in the topic because a parent's attachment can influence the child's future relationships after the divorce.

## **Eugene Saitoh**

### Testing and Identifying an Unknown Bacteria

The objective of this experiment was being able to identify an assigned sample of unknown bacteria using standard procedures, techniques, and methods that were taught throughout the semester. The unknown

bacterium that was assigned was sample #11 and the goal was to determine which methods and procedures to take in order to identify the bacteria. By conducting several different tests and methods (such as gram staining, motility test, spore staining, catalase and oxidase tests) I was able to identify and determine the characteristics and the genus of the unknown. Each week, I would record observations and results, and determine which procedure to conduct next to further narrow the identity of the unknown. I determined this by using The Benson's Microbiological Application Laboratory Manual of Determinative Bacteriology to conduct different tests. After conducting the experiments and tests, the unknown bacterium resulted in a gram-positive stain, had the cell shape of cocci, tested positive for catalase, and was a spore-former. Based on the results and the use of both manuals, I concluded the unknown bacteria to be *Staphylococcus aureus*.

## **Emma Sakuda**

### The Effects of Different Intervention Techniques on Children with Autism

The numbers of autism diagnoses are rising, and people everywhere are trying to find the best treatment technique possible in order to help children with autism live an ordinary life. Research has shown that the effects of intervention techniques can be extremely advantageous for children with autism. Different methods of treatment, such as art therapy, ritual and repetitive behavior treatment, balance training, and peer networking, are required to effectively treat children with autism because the characteristics of the disorder are so broad. This paper will review 20 empirical studies that support the practices of different intervention techniques that have been developed to help children with autism in all divisions of child development. Studies developed to improve social functioning showed promising results as treatment groups showed growth

in joint attention skills and peer interactions. The avoidance extinction approach was used to treat ritual and repetitive behavior and was effective for the majority of the participants. Balance training intervention was used to help children with autism improve their motor control and resulted in significant improvements in postural control for the treatment group. This is my senior project in child development, and this particular topic is critical because a single best treatment is not the answer to treat children with autism spectrum disorder; but rather, multiple methods of intervention can have more successful and substantial effects on the symptoms of autism.

## **Kenia Saldana**

*Nuestrohood: Relationships between African American and Latina Women in a Public Housing Development in Los Angeles County*

Public housing residents are an understudied population, especially women. Studies have demonstrated the importance of women maintaining and supporting the family unit and as community leaders, but most has focused on individual racial groups rather than interethnic relationships. The changing demographics of the projects, especially in California, make it important to study how these different racial/ethnic groups live together in the same community. Through interviews of 10 Latina and Black women with or without children over the age of 18, this study seeks to find how these women have managed to maintain themselves and their families in a housing project called Du Bois Village (DBV) located in Los Angeles County. More importantly, how have interracial relationships among women in housing projects served to enhance or hinder their survival? How have language and racial stereotypes impacted the possibility for women to come together to make their living environment a safe and healthy place? Findings suggest that women do not have formal

relationships with their neighbors, this is not due to racial differences but to them being isolated from each other in order to protect themselves and their families from conflict. From the interviews and some observations, it can be suggested that even though the women avoid communicating with their neighbors they still acknowledge the racial shift in the projects therefore they try to form relationships through community meetings, even though conflict over perceived differences sometimes arises.

## **Elizabeth Sanchez**

La Beauté dans Tous Ses États dans 'Balzac et la Petite Tailleuse Chinoise' (2000)/  
Beauty in all its Forms in 'Balzac and the Little Chinese Seamstress' (2000)

Set amidst the Chinese Cultural Revolution, Dai Sijie's "Balzac et la Petite Tailleuse Chinoise" [Balzac and the Little Chinese Seamstress] is the story of two young men, the narrator, and his friend Luo, who are sent to the "Phoenix of the Sky" mountain to be "re-educated" as ordered by Chairman Mao, and their mutual infatuation with the daughter of the mountain town's tailor, the titular "Petite Tailleuse". The purpose of this paper is to examine the different idealizations of beauty presented in the novel. First, I will explore the nature of the "tame" beauty the narrator and Luo find in classical music, literature, cinema, and the art of storytelling. Second, I will examine the "savage" beauty of the uneducated, rustic, but physically attractive Tailleuse, as well as the natural beauty of the provincial setting. Lastly, I will consider how the Tailleuse embodies both "tame" and "savage" qualities, and how her decision to leave the mountain reveals an individual beauty all her own.

## **Terrileigh Anne Shepherd**

## Dung Beetle Abundance as an ecological indicator of Edge Effects

Recent research on dung beetles has proven invaluable due to these industrious insects' roles as bio-indicators for a habitat's mammalian biomass. However, despite this research contributing to the evidential pool that reaffirmed the rapidly declining populations of primates and other forest-dwelling mammals, little emphasis had been placed on the use of dung beetles as indicators for tree abundance, on which all forest animals rely. In this study, we used an adapted model of edge effects to simulate how deforestation and forest fragmentation affected animal abundance (Ries and Sisk, 2004). We compared tree and dung beetle abundance along the same transects within five forests that were fragmented to different degrees along the Tana River basin in Kenya; we applied the transitional model of edge effects by Ries and Sisk (2004) and expected to find that dung beetle abundance decreased significantly with closer proximity to the forest edges, where resources, in the form of food providing trees for the mammals, are traditionally less abundant (Ries and Sisk, 2004). In light of this our hypothesis was that dung beetle abundance, which acts as a bioindicator for corresponding mammalian abundance, would be directly correlated to tree abundance. The results of the study did not entirely support our hypothesis that dung beetle abundance would decrease towards the forest edges, due to the surprisingly heterogeneous nature of the fragmented forests. Even between the different transects within the same forests, there was a large degree of variation in both mean tree basal area and mean dung beetle abundance, showing that the forest interiors are uniquely structured due to the human activities that occur within these areas. This can further be affirmed by the widely dissimilar internal structure among different forests, which undergo varying degrees of disturbance and therefore do not follow the same patterns of growth and development as neighboring forests. However, despite the heterogeneous structure of the individual forests, there was a strong positive correlation between tree abundance and dung beetle abundance, which affirmed our prediction that an

increase in basal area would result in an associated increase in dung beetle individuals. This being said, it is pertinent to note that dung beetles are effective and accurate bioindicators for both tree abundance and therefore corresponding mammalian abundance.

## **Madyson Statley**

### **Autism and Early Intervention**

Research has shown that early interventions for children with autism rely heavily on proper diagnosis and type of intervention. Autism is identified as a spectrum disorder, which means that the characteristics and difficulties of each child with autism are different including difficulties in speech, sensory perception, health, cognitive awareness, physical health and the most common identifier being social communications and interactions. This paper will review 20 empirical studies that explain two types early interventions for children with Autism. The first type focuses on teaching the parents of children with Autism. This type of intervention includes promoting appropriate behavior from the parent(s), informal instruction on how to communicate with one's child and setting an appropriate environment. The second type of intervention focuses on direct and indirect training for the child with autism. I am researching autism and early intervention for my senior project as a Child Development major because my post grad plans include attending graduate school for special education and later becoming an ed. specialist or behavioral therapist for children with autism.

## **Kelly Stinefelt**

## Halloween and Other Western Holidays in Japan: What Purpose Do They Serve in Japanese Culture?

In this paper, I will talk about the culture of Japan and why the Japanese have adopted certain Western holidays, specifically Halloween. I will talk about it from an interdisciplinary approach drawing on an anthropological, historical, and globalization-based perspective. I believe that Japan thought that it needed to Westernize during the Meiji era and during the postwar period so it could become powerful like the Western nations. Because of that, it adopted certain facets of Western culture such as certain values like individualism and holidays to suit its needs, instead of having it forced upon them as was the case with many colonized nations. I will also talk about the history of modern Japan, particularly the Meiji era and the U.S. occupation, and the West's influence on Japan. This paper will talk about the Japanese and Western holidays that Japan celebrates, what these holidays are about and why they are celebrated in somewhat brief detail so we can understand Halloween and why it was adopted by the Japanese people.

## **Clarice Stout**

### The Effects of Divorce on Children's Behavior

Research has shown that parental divorce and separation have a negative effect on school age children's behavior. Divorce can have a negative effect on children's emotional, aggression, social, and academic behavior because a disruption in a child's life can bring out problem behaviors including anxiety, depression and loneliness. Although there are very few findings in which some school age children of divorce are not affected at all, it is commonly known and studied that most of all divorced children have some kind of behavioral change or problem. This paper will review empirical studies that examine how and why divorce affects children's

behavior negatively. Studies show that divorce can sometimes lead to severe cases of anxiety or even depression in some children. Children in severe cases who need help coping with their parents' divorce not only need the support of their parents, but it is the parents' job to be aware of how their child is feeling during a divorce to better help the child adjust. Studies show that art therapy and counseling can be positive coping techniques that have been able to help children during their parents' divorce. Studying how divorce affects children's behavior is important to the child development field because knowing the behaviors that are commonly seen in children because of divorce, makes it helpful for parents and people who work with children to create a safe environment and make children feel at ease in order to help children cope because of divorce being a traumatic event.

## **Brittany Swearingen**

### **Perceived Social Support Among College Students**

What role does social support play among college students? They are a part of the “emerging adulthood” period, which involves “change, exploration, and ...identity development” (Arnett, 2000). This transitional period is influenced by several factors, including levels of social support experienced. Additionally, research has shown that social support shapes other aspects of life, such as attitudes and well-being. The study aims to identify specific members of the students' support system and the effects of that social support, using data from a Multiple Identities Questionnaire completed for extra credit by 315 men and 363 in Introductory Psychology courses. Participants reported the most social support from their mother, best female friend, and best male friend, with slightly less from their father, and even less from their siblings and other relatives. Overall, social support was correlated with closeness with parents,

grandparents, male friends, and female friends, as well as with a warm parenting style and parents serving as role models. Those reporting more social support experienced less depression, anxiety, and higher self-esteem and life satisfaction.

## **Jeremy Talavera**

Education: Enter at Your Own Risk

The American higher education system has created a new debt driven standard of society that has formed the next great economic bubble. In the past couple of years, student loan debt has surpassed the national credit card debt and is continually rising. This project will argue that by implementing a mandatory financial planning and comprehension course, colleges nation-wide could prevent a possible economic crisis and help students everywhere to make planned and educated decisions when preparing to pay for college. Through the use of student surveys, I was able to gain a better understanding of the lending trends at a small liberal arts college in Southern California. My research set out to find if the college was doing its part in decreasing the amount of student loan debt. Students were asked about their personal knowledge about their loans' terms and conditions as well as if they had sought financial advice from the college. I found that almost seventy-five percent of the students who responded had never sought financial advice from any branches of the college's administration. What is more, when the students were asked to scale their comprehension of the terms and conditions of their student loans, the majority of students ranked their comprehension as six and

below (ten being completely understand); three was the highest scored answer on the scale. While my findings show that the liberal arts college could do a better job of providing their students with the proper tools for financially planning and preparing for a college degree, the administration needs to find a system for their students that is appropriate and effective. The financial future of their students is at risk, and if their graduates prosper in the future, so will the college's reputation as a catalyst for future financial success.

## **Tiffany Tsui**

### Effects of Bilingualism on Cognitive Development in Childhood

Research has shown that bilingual children often outperform monolingual children in areas of cognitive development. Although individual children develop differently and at their own rates, nevertheless, bilingual children are at a developmental advantage compared to their monolingual counterparts regarding the cognitive domain of development because they have more practice controlling attention due to their experiences balancing two languages. This paper will review 20 empirical studies that explore the bilingual advantage in each of the following categories: executive functioning, creativity, Simon task, sociocultural factors, linguistics, and the development of language. Some studies find that bilinguals indeed have an upper advantage when it comes to cognitive development compared to monolinguals, but certain factors come into play. After controlling for factors such as level of parent education and household income, results show that bilingual children perform better on conflict tasks than monolinguals. Children from higher socioeconomic status (SES) families outperformed children from lower SES families.

Other studies find that when controlling for certain sociocultural factors, it seems as though bilingual and monolingual children show little differences in cognitive ability, which suggests sociocultural factors greatly influence the bilingual advantage. This literature review is my senior project for child development, and I find the topic of bilingualism in childhood particularly interesting because of my prior teaching experiences with bilingual and trilingual children in Hong Kong. Through direct observations, I have noticed that bilingual children perform better cognitively compared to monolingual children, which could be influenced by their already high-functioning brain capabilities.

## **Shannon Tsumaki**

### **The Technology Takeover: Positive or Negative?**

The use of mobile electronic devices has grown in our society over the past years, to the point where people use them as their main source to communicate with friends and family. Even at colleges and universities, you can see students using their technology, such as laptops or cell phones, to connect with other students, instead of speaking to the people around them. My study focuses on the question, “How does the use of technology affect the social interactions of college students?” To support my research, I looked at the common uses of handheld technology, the way people handle their personal interactions, and how people cope with social anxiety that they may develop from overusing technology. Since this is a recent development in American society, my research will be useful for future studies on how technology is a factor in affecting social relationships among college students. From my research question, I have created a quantitative study by designing surveys filled out by students at

a small liberal arts college in southern California. I also conducted interviews to further my understanding of the responses from the surveys. I found that students check their phones most of the time during the day, and they are on their laptops about 4 hours a day. A majority of the students primarily use their cell phones for social media sites, like Facebook, Instagram, and Snapchat, while students use their laptops for school assignments, as well as social media sites. Most of the students prefer face-to-face conversation with others, even though some of them find themselves using technology more than face-to-face conversation. Overall, technology has had a positive effect for students' relationships with others because it allows them to have an easier time communicating with each other.

## **Jaimis Ulrich**

### **Constructing 'Authentic' Identities, Pay-to-Play: A Rite of Passage in the Los Angeles Music Scene**

This is an analysis of a phenomenon in the Los Angeles music scene known by musicians as “pay-to-play.” Musicians use the term “pay-to-play” to describe a “deal” made between a musical act (band or solo artist) and a gatekeeper, namely a club promoter. The deal requires musicians to pay for stage time in order to play on the stage, with little to no monetary payment in return. Many musicians call this practice “exploitative,” yet they have (or still do) participated in the practice. This study questions what drives people, like these musicians, to willingly participate in something they do not agree with. My initial hypothesis was that musicians pay-to-play out of desperation for the stage and lack of experience to gain access through popularity or by the demand of LA

venues. I attempted to answer this question through ethnographic fieldwork in the Los Angeles area, where I engaged music venues through participant observation, reflection on field notes and a total of thirty-eight personal interviews given by musicians, which were recorded and later transcribed. My findings suggest that musicians are more likely to participate in pay-to-play at the start of their musical careers, and that the basis of their consent to pay-to-play is not out of desperation, but on their need to be acknowledged by fellow musicians and listeners—their very identities as musicians are based on authentication and pay-to-play is a step many musicians must take in order to have access to a stage in which this authentication can occur. Pay-to-play is thus a larger structure that negates who has access to perform and who gets to become “authenticated” as a “professional” artist.

## **Derek Valdo**

### *The Beauty in Strength*

In most cultures throughout history, women have always displayed capability of doing tasks that involve strenuous physical workloads. Women do not get the credit they deserve to pose their physical strength, and have often been criticized of their muscularity due to “normal” standards set by western culture. In North America, women have increasingly gained access to these “spaces” that are considered male dominant known as the fitness industry. Women are getting stronger as they gain acceptance in the world, and the space that CrossFit creates for women is what I set out to explore. Given the particular environment of CrossFit, women in that space will feel a sense of empowerment because they can push their work capacity to a level where they never could have

imagined before CrossFit. I wanted to gain an understanding about the social environment, as well as the benefits that women gain doing CrossFit because other traditional fitness methodologies do not create a unique space like CrossFit. The camaraderie and the sense of community is why most people become affiliated with CrossFit. A total of 12 interviews were conducted to examine the experience of these women in CrossFit. I also used participatory observations to actively take part in workouts at 6 different CrossFit Affiliates. Results suggest that CrossFit not only strengthens an athlete's physical capabilities, but there is a mental component as well. The women who were interviewed expressed experiences of personal empowerment, having more confidence, and experiencing a sense of community within CrossFit.

## **Candace Villalpando**

### **The Factors that Affect Immigrant Students' Academic Achievement**

The United States is one of the countries with the highest proportion of immigrants living on its land today. There are one in five children and adolescent immigrants enrolled in school. This literature review will examine how crucial it is to not already know English when entering school in the United States. The literature review will additionally take time to explore the implications immigrant children face inside and outside of school. Insight will be provided on previous research that has shown the association amongst depression with children's ethnic identity resulting in mental health issues; that must be taken into consideration when these immigrant children are in the classrooms. Although studies

have shown that children coming from immigrant backgrounds are succeeding there are still handfuls that suffer with poor academic achievement. Immigrant Latino students that are living poor lives are showing strong links to poor academic achievement. Researchers continue to discover that targeting this link before Kindergarten; children will be less likely to be detained or drop out and are more likely to learn and do better in school. This literature review will also discuss factors that contribute to immigrant bilingual children's academic achievement. One example might be that research has found parent-child interactions assist children's school performance and academic achievement. This paper will be supported by 20 empirical studies that have insight on the reasons why immigrant Latino students tend to have poor academic achievement. Researching the effects of an immigrant Latino student is important to child development because it shows that although all children might develop similarly, culture has a huge impact on their academic achievement. These factors can better prepare someone entering the world of education by exploring the reasons for success or failure of this particular group of students.

## **Samantha Woehl**

### **Finding Casimir: Hyperlinking a Path to Digital Narrative**

In my research, I explore the potentials of text-based, digital narratives by writing a nonlinear story that's connected by hyperlinks. Using a digital publishing source called Scalar, I created a story about a character named Casimir who attempts to start a fiction destroying revolution. The inspiration for my narrative came from a couple of sources. Firstly, my study of narratology and structuralism, which gave me a bases for experimentation with the ways that plot structures create meaning. Secondly was my research on technology and its effects on storytelling.

The crafting of Finding Casimir lead to exciting conclusions on the nature of digital storytelling. Mainly that hyperlinked stories allow for an immersive universe, meaning that the reader is freed from chronological time and has the ability to navigate the narrative world by selecting which links to follow at which times. On a larger scale, hyperlinked narratives represent the modern world's understanding of how time and space operate in the universe.

## **Hector Wong and Marie-Magdeleine Chirol**

### *A Comparative Study of Women*

Throughout history, women in distinct cultures have been misrepresented and undervalued in regards to their beneficial potential to society. As a double major in French and Chinese, I have enrolled in several courses showing such distinctions dating from 1CE to present day. There are numerous similarities regarding women's etiquettes in the French and Chinese cultures, which ultimately attempt to place women inside the household (ie. raising/nursing children, taking care of the household, and properly distributing the household's economic funds) while simultaneously laboring to help provide for their families. Religion and political affairs are two causes of this inequality. Confucianism and Daoism have been the most influential religions in China for the past two thousand years while in many European countries, Christianity and Protestantism have been the most influential since the 13th century. These religions have numerous different beliefs and are practiced in distinct ways- such that the idea of exclusively belonging to one religion is a part of Western tradition while in Asia it is very common to practice two or more religions in hopes of becoming a better person - yet women still suffer from men's expectations. Additionally, women are controlled and criticized when it comes to political affairs such as female

representation when voting over certain laws being passed that directly affect their roles and involvement in time of wars. This can be seen through the idea that women were not permitted to join the Chinese militia or how women during the Paris Commune were perceived for participating on the warfront. Finally, after presenting these two major influences I intend to introduce female leaders in the social, environmental, political, and economic worlds and incorporate how religious and political influences help them become the women they are today.

## **Andrew Xiong**

### **How Does Sleep Pattern Effect Health and Learning Among Young Adults?**

Studies have shown that sleep is directly linked to health and academic performance; however, it seems that good sleeping habits are less practiced among college students. Sleeping habits, also referred to as sleep hygiene, is the recommended behavior necessary to promote quality sleep. Many factors attribute to college students having unhealthy sleeping habits: including stress, anxiety, school, work, social events, and etc. Sleep is an important cycle in a person's everyday living, because it provides the essential and necessary rest that an individual needs. Experiments have shown the difference in health and academic performance between subjects who have good sleeping habits versus those who don't. This paper will examine the effects of an irregular sleeping habit in comparison to a regular sleeping habit and study the positive and negative impacts on college students in regards to their health, growth, and learning. Individuals who maintain a regular sleep cycle of 8 hours per day will have a better result in terms of health, growth, and learning than individuals who have an irregular sleeping pattern and do not maintain 8-hour sleep cycles. Studies have shown that individuals who cannot

maintain an 8-hour sleep cycle tend to have more anxiety and stress, due to work-related incidents or social events that they often participate in. Whereas an individual with 8-hour sleep cycle has been reported to have less anxiety and stress. A wholesome sleep pattern during the college years is essential for health, growth, and learning.

## **Desiree Yanez**

### **Together, We Serve**

Families have been reported to act as a system, in which the family overall is greater than any one individual. Keeping this in mind, this research examines the ways in which the everyday lives of military families are constantly being restructured. In essence, the military family too is serving with the service member. Past studies have examined the relationship between deployment and stress being brought upon military families but fails to exemplify the ways in which the struggles endured during deployment result in the strengthening of the families' resilience. In this case, my research will serve as additional analysis on military families and the impacts that deployment has on them, since majority of what individuals know has to do with the service member and the sacrifices that they make. As a result, this research seeks to answer the following question: "What are the impacts on military families upon the deployment of a family member?" Through 11 extensive interviews with immediate family members of service members, the research focuses on feelings of displacement, being misunderstood, and underappreciated; along with the stress that is brought on by role variations in the home. The research then focuses on explaining the ways in which the military culture influences the amount of resilience that these families have as a result of their encounter with deployment. Results suggest that while experiences of deployment have negative effects on the families, at the

same time, there is a sense of pride and community which strengthen the families' ability to deal with adverse situations.

## **Andreina Zepeda**

### Sibling Relationship Quality: Influences and Developmental Outcomes

Research has shown that sibling relationships may influence developmental outcomes of children throughout their childhood and on to adulthood. While most research has focused on the negative outcomes from negative sibling relationships such as poor academic performance or behavioral problems, there is plenty of research that states the importance siblings have shaping children's social, emotional and cognitive development. This is especially true when sibling relationships have positive qualities, such as emotional support, which contribute to positive developmental outcomes. Empirical studies that focused on developmental outcomes find that siblings encourage interpersonal skills when they have a positive relationship with one another. There is a higher chance for them to build healthy peer related social skills and for them to develop emotional understanding and self-regulation. Other studies focusing on cognitive development find that siblings promote language development as they teach (mostly oldest to youngest) and communicate with each other. In addition, studies have focused on influences that can affect sibling relationship qualities, such factors include parenting, age gaps, gender, and culture. Culture is also an influence that contributes to the quality of sibling relationships because there are differences in family roles in western and nonwestern societies, thus a brief cross-cultural perspective is important to determine relationship differences for siblings. The study of sibling relationships is important to the field of child development because most children, about 80%, have at least one sibling who they spend the majority of time with; they become lifelong

relationships that can positively shape a child's development throughout their lifetime.