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Beatriz Alcazar  
Fujun Bernie  
Carina Buzo  
Erica Cuevas  
Allison Enriquez  
Kelsi Espinoza  
Salvador García  
Natalie Hambalek  
Jason Hoki  
Devin McBrayer  
Stephanie Parreira  
Hector Ruiz

The articles contained in this journal are unique projects created by participants in NoGAP (National Graduate-School Achievement Program), SSU's TRiO grant funded McNair Scholars program. The main purpose of NoGAP is to assist historically underrepresented students in preparing for and gaining acceptance to master's and Ph.D. programs. This goal is achieved both by improving the quality of all aspects of the student's applications and through providing students with research opportunities under the guidance of faculty mentors, the results of which are found in this journal.

Eligible SSU students must be low-income/first-generation students of any ethnicity, or students belonging to one of four ethnic minority groups underrepresented in American graduate school: African-American, Hispanic, American Indian/Alaskan Native, or Pacific Islander. In addition, McNair Scholars must be motivated and high achieving students. The students who participate in NoGAP come from the School of Science and Technology, the School of Social Science, and the School of Arts and Humanities, representing many of the majors offered at Sonoma State University.

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To the Reader:

The goal of every federal McNair Scholars program is to place historically underrepresented students in master's and PhD degree programs. SSU's McNair Scholars program, which we call NoGAP (for National Graduate School Achievement Program), shares this same goal. Through workshops, individual advising, faculty mentoring, and research experiences, we assist students in getting accepted into graduate school programs and prepare them in ways that will promote their success once they get there. We work with students from nearly every academic major and at all grade levels.

As we guide students through the process of preparing for graduate school, our goal is to help students enroll in a graduate school program that is the best fit for them, based on their research interests as well as academic and career goals. Part of this involves helping them get accepted into multiple programs so that they can choose among them, and part of this begins prior to the application process, as the scholars are developing their interests and gaining the kinds of experiences that graduate programs value in applicants. We investigate graduate programs with the scholars in order to find the right fit, help them locate and apply for research internships and conferences, and we work with them on their Statement of Purpose and other application materials. Over the past several years, nearly 70% of our scholars have gained acceptance to graduate school programs (research indicates that about 20% of all bachelor's degree recipients enter graduate programs nationally). This past year, every SSU McNair Scholar who applied to graduate programs got accepted, and all but one received funding in the form of a fellowship and/or assistantship, even at the master's degree level. We are confident that we will continue to see similar results in the future.

In order to gain valuable research experience and refine their scholarly interests, McNair Scholars work on a research project during each year of participation in the program. This research is conducted under the guidance of a faculty mentor, who typically helps the scholar through every phase of the research process. We are very proud of the research work that SSU's McNair Scholars have done, and examples of this work comprise the content of this journal. When you flip to the Table of Contents, you will see that this work covers a wide spectrum of majors offered at SSU. Our McNair Scholars have produced high quality research in biology, chemistry, political science, English, psychology, and sociology, among other disciplines. We would like to offer our gratitude to faculty who have generously provided their time, knowledge, and enthusiasm to helping to develop the projects found in this journal.

All of the work in this journal has been presented at our annual symposium, some of the work you see here has been presented at professional academic conferences, and some of it will be presented in the near future. As you read these articles, you will see that this work has great potential to contribute to knowledge in the scholars' academic disciplines. As they have worked on these projects, these students have become increasingly aware of what it takes to become a member of the scholarly community. And, as we are sure you will agree, they are ready to go on to graduate school. We are also sure you would like to join us in wishing them good luck and in congratulating them on a job well done!

--NoGAP/McNair Scholars Program and Journal Staff

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*Eric Jenne*

# Table of Contents

1	<b>Mi Vida Loca: Chicano Film’s Role in Gender Socialization and Violence Among Mexican-American Females</b> <i>By Beatriz Alcazar</i>
18	<b>Degradation of a Biofuel Crop by Alkaline-Tolerant Microbial Communities</b> <i>By Fujun Bernie</i>
27	<b>Diversity Communities at Predominately White Institutions: Making Our Space an Inclusive Community (MOSAIC) at Sonoma State University</b> <i>By Carina Buzo</i>
41	<b>U.S. Elections: A Closer Look at the Emergence of the Latino Electorate</b> <i>By Erica Cuevas</i>
55	<b>Twentieth Century Literature Forms New Conceptions of the Self</b> <i>By Allison Enriquez</i>
63	<b>Project Fit America: Neoga Middle School</b> <i>By Kelsi Espinoza</i>
67	<b>An Analysis of Historical Memory and Spanish National Identity in Contemporary Spanish Literature and Culture</b> <i>By Salvador García</i>

- 81** **Sociophysiology of an All-Male Troop of Captive Squirrel Monkeys, *Siamiri sciureus***  
By Natalie Hambalek
- 88** **Examining the Mechanism of the Inhibition of Glutathione Peroxidase by Nitroxyl**  
By Jason Hoki
- 94** **Is Social Capital Necessary for a Successful Health-care System?**  
By Devin McBrayer
- 106** **Similar Species, Different Origins: Competition Between a Native and Invasive Grassland Species**  
By Stephanie Parreira
- 112** **Beating the Odds: Former Gang Members and Their Pursuit of a College Education**  
By Hector Ruiz

## **Mi Vida Loca: Chicano Film's Role in Gender Socialization and Violence Among Mexican-American Females.**

Beatriz Alcazar, Sociology

Research Mentor: Elaine Leeder, Ph.D.

### **Introduction**

The Selena movie was released in 1997 and is based on the true story of Selena Quintanilla-Perez, a Texas born Mexican singer who was the first Latina to have chart-topping albums (IBM). Latinas of different ages and nationalities viewed the film and identified with Selena (Baez, 2007). My sisters and I were included in this group and were mesmerized by how successful and independent Selena was. She was an amazing dancer with a great voice and dressed in a way we had never seen before. We also noticed her performance transcended the normal gender boundaries of Mexicans in the United States (Vargas, 2007). It was like nothing we had seen before. She was able to break away from what we thought females were supposed to act and look like. She resisted the colonial beauty standards of both Mexico and the Anglo industry (Aparicio, 2003) and was proud to have dark hair, big hips and full lips. Selena made it okay for us to maintain and even embrace our cultural roots while still being American. This was reflected in our day-to-day lives and in the way we presented ourselves to others. Our rooms were soon covered in Selena posters and we quickly learned the words to all her songs. We would watch the movie at least twice a day while singing along to one of her hits "Bidi Bidi Boom Boom" and shaking our hips. We began taking pride in our cultural roots and no longer felt shame and embarrassment in being Mexican.

As I entered high school I started noticing all the other Mexican-American students were watching different films. "Mi Vida Loca" soon replaced Selena and became very popular among my adolescent peers. This film told the story of two former best friends who had children by the same male and were engaged in a violent battle with each other. The film emphasized violence, female submissiveness and gang involvement. Around this time the clothing trend among my peers shifted and shirts that displayed pictures of nude girls sitting on the hoods of low rider cars was common attire for females in my suburban neighborhood. Having a boyfriend who was a gang member or in jail was normal, even desirable. Fights among females became a normal activity and a few even got "Mi Vida Loca" tattooed on them. Others married men who were gang affiliated, abusive and controlling.

Mi Vida Loca had such a powerful effect on Chicanas around me, yet this fictional narrative has little to do with the life and culture of Chicanas (Fregoso, 1995). If this film, consisting of inaccurate portrayals of Chicana lifestyle, had such a strong impact on those around me then other Chicano film may have a similar affect. For this reason, I conducted a sociological study in order to answer the following question: "*What role does Chicano film play in gender socialization and violence among Mexican-American females?*" While addressing this questions, this paper will discuss literature around this topic, describe the methodology utilized in this specific study and will give an analysis on findings.

## Literature Review

Extensive research has been conducted on the media's influence on popular culture. This section will discuss literature relevant to my study in order to provide a holistic view of gender and the media. I will first conceptualize Chicano film then discuss the Latino presence in mainstream media. I will then describe gender roles within the Mexican-American culture and the connection they have to violence within the Latino culture. Finally, I will discuss resistance to violence among various groups.

### *Chicano film and media*

Before discussing violence and Marianismo, a female gender role in Chicano film, it is necessary to understand the historical significance of Chicano film's evolutionary process. The emergence of the phenomenon loosely referred to as 'Chicano cinema' came about as a result of the Chicano Civil Rights Movement and the desire to right the wrongs of negative, stereotypical images of Chicanas/os in Hollywood (Pittman, 2010). Chicano film has been constantly evolving since the genre began and has been categorized into three waves (Charles, 2002). The three waves represent the evolution of Chicano film and reflect struggles over issues like authority, authenticity and representation (Nueva, 1996). The first wave consists of radical documentaries filmed between 1969 and 1976. This initial wave of film served as an alternative film practice that developed when the Chicano civil rights movement began (Noriega, 1991). Filmmakers were able to capture the struggles and social protests in documentaries. The documentaries attempted to mediate Mexican-American demands for assimilation and the rights to citizenship, and used them to make a connection between national politics, juvenile delinquency, and changes in class-based gender roles (Noriega, 1991). The second wave of film began around 1977. New Latin American Cinema had entered into a crisis, brought on by repression, international debt, and the limits of social transformation in the face of the mass media (Noriega, 1995). The financial side of this crisis resulted in the need to rely on outside funding sources and brought softening ideologies lacking the radical element that it once possessed. The final wave of film first appeared in 1980 and includes modern day Chicano feature film. The key criteria for defining a Chicano feature film no longer revolves around the film's nature as an independent film rather than one produced with the involvement of the studios or mainstream production companies (Keller, 1993). The mainstream involvement resulted in a strong Hollywood influence in Chicano films that shifted Chicano film to be very much like Hollywood feature films. This is in issue as Latinas were, and continue to be, under represented in Hollywood films and when they are represented they are portraying stereotypical Latina roles (Long, 2002). Latina portrayal in Hollywood films is that of a very stereotypical behavioral characteristics that include "addictively romantic, sensual, sexual, and even dangerous" (Mastro & Behm-Morawitz, 2005, p. 125).

Many argued that showing Latino/as in Hollywood feature films, even if their appearance is rare, would help eliminate these negative stereotypes among the population. This, however, is not the case as Latinos are generally being homogenized to inaccurately represent negative stereotypes. An important consequence is the stigmatization of people of color at various levels including at the institutional level (Beeman, 2007). Charles Ramirez conducted a quantitative study in which he sought to understand the way Latino males were being portrayed in films. He found there are four main stereotypes that are generally depicted in films, which he titled Racial, National, Narrative and Behavioral.

## Mi Vida Loca

The racial stereotype usually shows a darker skinned individual outside of the white Anglo norm. The National stereotype identifies Latinos as others. They are shown as members of other groups to be portrayed as having an accent, as less articulate and as always being dressed inappropriately by having articles of clothing that one would deem as not appropriate (Mastro & Behm-Morawitz, 2005; Mastro & Greenberg, 2000). The Narrative stereotype says that this “other” needs to be eliminated because they are a threat. Finally, he discussed the Behavioral stereotype. This role depicts Latinos as despicable, sneaky, violent, unstable and alcoholic individuals that understand the difference between right and wrong but nonetheless choose to act in an immoral way. They are more often represented in stories related to crime and participate in a disproportionate amount of conversations about crime and violence (Mastro & Behm-Morawitz, 2005; Mastro & Greenberg, 2000). His analysis on Latino stereotypes in film was limited to males and he did not touch on the fact that women are often inaccurately portrayed in mainstream and feature films. Addressing the way females are portrayed is also important, as they may not necessarily be portrayed the same way.

A 2006 study by Rivadeneyra was conducted in order to determine the impact these stereotypes have on Latino students. Her study consisted of a focus group and questionnaire that included 37 students. Rivadeneyra talked about and showed various clips of mainstream media. She also incorporated Spanish soap operas. Rivadeneyra found that Latino students are generally able to identify stereotypes in mainstream media and were able to categorize them as incorrect and negative (Rivadeneyra, 2006). Students, however, reported feeling that Spanish-speaking actors in Spanish and Chicano film played roles that were realistic and accurate. They tended to identify with actors that were Latino who played Latino roles. For example, participants felt the George Lopez show, while a bit exaggerated, was a show they could relate to. Chicano films that show representation of Latinas in popular film can make a lasting impression on adolescents and thus are extremely powerful.

This is potentially dangerous, as Hollywood films and advertisements in mainstream media have been objectifying females for decades. For example, a 2005 study by Rosselli sought to explore the objection and sexualized portrayal of women in the media and focused specifically on magazines. Rosselli conducted a content analysis on 1988 magazines with a significant range in year publication and found that about one of two advertisements featured women as sexual objects (Rosselli, 2005). Advertisements also portrayed women as victims in just under 10% of the ads. While this study was able to identify the level and prevalence of objectification in magazines, it did not differentiate between the rates of objectification among various groups such as those of different ages and different ethnicities. My study will contribute to this area, as it will provide insight into the portrayal of Mexican-American women in the media with a focus on Chicano film.

### *Gender and film*

Over all, female equality is yet to be present in Chicano film and the depiction of machismo and male dominance continues to be an issue. Machismo is often equated with being a masculine cultural trait of hyper-masculinity. This male gender role can refer to a set of beliefs about how males should act (Perilla, 1994). Machismo, on a positive note, emphasizes self-respect and responsibility for protecting and providing for the family. Aside from offering protection to his wife and family, he stands up to give a woman his seat on the subway, carries heavy packages and always opens the door for a lady. Machis-

mo can be centered on positive traits such as respect, honor, bravery, and a deep sense of family commitment (Kulis et al., 2010). This value can become negative when it leads to possessive demands and expectations that the man has absolute authority (Hanser, 2001). This dark side of machismo is visible in certain behaviors and mind-sets that impact, most negatively, our intimate relationships. Stereotypically, it commonly is associated with negative characteristics such as being perpetrators of domestic violence, infidelity, alcoholism, sexual dominance and aggressive behavior (Goldwert, 1983). The negative traits within Machismo can contribute to a tolerance of and acceptance for domestic violence (Perilla, 1994).

Marianismo is the cultural counterpart of Machismo and can be seen as a female gender role within the Latino culture (Marsiglia & Holleran, 1999). The underlying concept is that women are spiritually superior to men and therefore can endure all suffering inflicted by men (Hollernan, 1999). The term is derived from the Virgin Mary whose characteristics of self-sacrifice, abnegation, passivity, and sexual purity have been equated by some with the characteristics of being a good woman (Aldarondo et al., 2002). Marianismo, like Machismo, can also be seen in both a positive and negative light. Self-sacrifice, collectivism, family devotion, and the nurturing of others can characterize Marianismo. This is often times interpreted to represent a female's role within the home resulting in the expectation that a female's role is taking care of her family. The negative side of Marianismo can be seen when Marianismo encourages dependency, passiveness, and submissiveness (Kulis et al., 2003; Stevens, 1973).

Perceived dependence is expected to influence marital and domestic violence (Shaw). Because the concept of Marianismo considers women morally and spiritually superior to men, they are supposed to be capable of overcoming any pain and abuse. This common view could serve to explain the domestic violence against women that occurs within Latin American cultures (Hanser, 2001). For some people, domestic violence directed toward women has almost become an acceptable cultural norm (Perilla, 1999). For this reason, many Latina women may minimize domestic violence and may not consider it a problem that requires some sort of help (Saltijeral et al., 1999). This is reflected in a study showing that 21.2% of Latina women are physically assaulted by their partner or spouse (Patricia, 2002). This number does not reflect those that experience other forms of domestic violence or those that do not report the incident.

### *Violence and resistance*

The second leading cause of death among adolescents is homicide and violence between Latinos in general is on the rise (Center of Disease Control and Prevention (CDC), 2010). Chicanas who have experienced this violence, have seen their brothers shot, their sisters raped, or been raped themselves (Harris, 1994). Some young Chicanas are internalizing the violence around them and it can often times lead to them engaging in violence themselves. Young adolescents who engage in violent behavior tend to have been witnesses of violence or have been targeted themselves (Van Dalen, 2001). The prevalence of violence comes with a need to understand and research the causes of violence as well as resistance to violence.

Even though previous literature, as discussed, suggests traditional gender roles may contribute to domestic violence, individuals are able to act in various ways to resist this violence. Jenkins explored the resistance of violence in his 2011 study. He specifically focused on the resistance of violence among males who have been victimized. Jenkins con-

## Mi Vida Loca

ducted a case study on some of his clients in order to identify resistance as a form of empowerment. The study found resistance could lead to personal growth, strength and healing among individuals who have been exposed to violence. Jenkins suggests that therapists, and others who work with individuals exposed to violence, should emphasize the resistance discussed by victims in order to promote resiliency. Most notable in relation to my study, is that Jenkins suggests resistance to violence can result in altering a person's identity as well as the relationships they have with others. This may mean that if my participants resist violence, it might result in an alteration in the relationships they have with loved ones. Jenkins' study did not incorporate the experience of females and didn't differentiate among different ethnicities and races. My study will incorporate the views of female minority members in regards to resisting the way violence in film affects their culture.

Warner, Baro and Eigenberg understood the necessity to research resistance among different genders. Their 2004 study utilizing focus groups explored resistance to violence among females. Participants for their study included women who have been exposed to violence and have engaged in resistance at any level. The study found that individuals tend to resist violence within their own home and do not usually rely on outside help from police, clergy members etc. They do so by utilizing four main techniques. The first method is using humor, such as intentionally spilling beer on a violent partner. The second method is constructing violence resistant identities, such as the little girl who worked out so she could attack dad. Third, is resistance as a form of protection, which includes mothers moving a child to a different room when violence begins. Finally, they discuss resistance in relation to avoiding intimacy and not being involved in relationships altogether. The study clearly explained that resistance can be perceived and acted upon differently. My study will build upon this study, as I will also seek to understand if my participants accept or resist the messages they obtain in film and the messages they receive at home. My study will be specifically addressing resistance among Mexican-Americans and will thus provide an interesting, and more diverse perspective.

My study will combine all of the discussed areas: gender, violence and film, in order to provide insight as to whether or not Chicano film contributes to gender socialization and to understand what role it plays in violence among Mexican-Americans. Previous studies have tended to incorporate the views of Latinos as a whole, while my study will incorporate only the perspectives of Mexican-American females. This is because literature has homogenized Latinos into one group and often fails to recognize the diversity and differing ideologies within the group. I will also incorporate the perspectives of females around Chicano film as most study has focused on the portrayal of men and not that of women.

## Methods

Focus groups are an excellent way to gain insight on the opinions and ideologies of Mexican-American females, as focus groups allow for people to openly discuss ideas and viewpoints. For this reason, the usage of a focus group to obtain qualitative data was ideal. The population was selected to incorporate Mexican-American females because current studies tend to focus on males, or the Latino population as a whole. This population is distinct and provides an alternative perspective not commonly covered in scholarly work.

Participants were recruited utilizing purposive sampling. An email was sent to the leaders of various groups and organizations serving Mexican-American students. For example, I contacted M.E.Ch.A president at Sonoma State University and Santa Rosa Junior

College as well as fraternity's and sororities primarily made up of Latino students. I also distributed fliers to an Introduction to Sociology course and to various university and community college counselors. Sonoma State University EOP program assisted in recruitment efforts as they sent out an email to all students on their list serve regarding the participation in this study. Sonoma State University faculty also offered students extra credit for participation. Participants were paid \$20 for their participation in this study.

The focus group consisted of 35 participants who self identified as Mexican-American. It is important to note that while an emphasis was placed on Chicano film during the focus group, I did not recruit participants who identify as "Chicana." This is because the term is conceptualized differently by different individuals and could potentially result in too much diversity within each focus group. I did, however, only recruit participants whose parents emigrated from Mexico and who reported being born and raised in the United States. This specific population was ideal for a study looking to understand the causation of violence and the influence Chicano film and media play as the rate of domestic violence is higher among Mexican-Americans than among Mexicans and Anglo Americans (Aldarondo et al., 2002). Literature also suggests that Mexican-Americans are more likely to be affiliated with a gang or to engage in violence against others. Focusing on this group provides insight to these statistics as well as offers a perspective that is not often heard.

All participants in this study were female and ranged in age from 18-25 with the average age being 19 years old. Additionally, all participants were attending some sort of educational class. This varied from being enrolled in a personal growth class at a community college to being full-time students at the university level. Of those that were at the university level, all but four were lower classmen. The major of participants also widely varied. Half of the participants were undeclared freshmen while the other majors included Biology, Chicano and Latino Studies, Business, Kinesiology, Sociology and Physiology. Participants had a significant commonality in that they were all Mexican-American females under the age of 25. This commonality allowed for participants with differing educational backgrounds, majors and experiences to discuss their varying viewpoints and ideologies and still feel as if they had something in common with other participants.

Because participants with varying schedules and availability participated, coordinating each actual focus group was a challenge. Not all participants were available at the same times and it could take up to two weeks to finally coordinate a focus group. To address the issue, I included the facilitation of afternoon, morning and weekend groups so that employment responsibilities would not interfere with a participant's desire to take part in a group. Two of the groups were held on a Friday morning at 9 am, one was held on a Monday evening at 7pm, two were held on Saturday with one at 11 am and the other at 5pm. The final group was held on a Wednesday at 1pm. The location of each focus group depended on the population attending, and took place in either the Sonoma State library study rooms, or a study room at Santa Rosa Junior College. The average duration of each group was an hour with five participants in each group. Participants were asked various questions about their perspectives on Chicano film, gender roles and violence.

## **Analysis**

Participants of the study reported watching Chicano film only occasionally and not on a regular basis. They did, however, have significant information to report regarding the films they have watched. This section of the paper will outline participant responses around the content of Chicano film, gender roles in the film and their culture and what they

believe is contributing to violence in the Mexican-American community.

### *Perceptions around Chicano film*

When participants were asked to define Chicano film, they reported believing Chicano film was created to send messages, depict struggles and reinforce desired values and gender roles to the Mexican-American community. Ruby, an 18 year-old nanny, felt Chicano film show “values and it is trying to teach the other generations about their ancestors and everything and sometimes about what’s going on, like, where their family is from to make them understand the struggles they have gone through.” Ruby is suggesting Chicano film is somewhat historical, in that certain movements and historical events are portrayed to young adolescents and are used as a teaching tool. In this sense, the films can be seen as a social-historical movement that conveys values for the current generation, which vary from prior values and cultural norms, reinforcing values of importance to an older generation of filmmakers. Tatiana, a Mexican-American who grew up in East Los Angeles, went further to explain it not only shows struggles but also “shows the history and how to go through struggles.” The struggles shown are intended to be viewed as inspirational and suggest methods of overcoming struggles commonly placed before Mexican-Americans. Ruby continued to describe this as “what we see in a lot of films where, like, you know that part where we all get excited and say “yes!” she is standing up for herself? That’s the other good thing about that kind of film, the inspiration of one!” Participant’s reports around the definition of Chicano film are consistent with Charles’ study on Chicano film, suggesting that Chicano film was created to generate social change and encourage the general population to mobilize in an attempt to seek equality. Itzel, a quirky freshman at a four-year university, felt it helped generate social change mainly by depicting struggles that all Latinos could identify with, “Film shows what people have to go through and all of the hard work and then, like, when they were on the train (in reference to a film), the ladies were throwing food to them and it shows how our community is always together, and we always help, you know, we can work together to get here.” Itzel expressed a sense of pride when explaining the positive portrayal of unity within those specific scenes.

Participants however, reported most of these inspirational messages and depictions are meant for males and not for females, as films rarely portray females as main characters. Instead, females are portrayed as inferior to males. All participants were in consensus with the idea that females are not shown in a favorable way. Socorro, a sophomore majoring in biology, said “they’re just not very strong characters, they’re usually the damsel in distress, or just kind of stereotypical in a bad way.” Socorro is describing a level of inferiority by also being “the damsel in distress.” Monique, a 22-year-old mother, stated “the guy is the most powerful, stronger, compared to females who are weaker and they are saying nasty things like “you are good for nothing” or “you have to do this” or “you have to take care of the kids because you are my wife” so they argue and it leads to complications.” Monique feels the control males possess can potentially lead to domestic violence within a home and to the victimization of females. This victimization is a common image in Chicano film. Itzel adds, “Usually they are the victim of that (violence) and have to fight for what they want.” They have to endure the violence in hope of one day achieving their goals. This can often times lead to force. This is also described by Mercedes “Yup, I have seen a lot of violence, there is a lot of violence like hitting the moms and if they are hitting the child for doing something and the mom is not okay by it, so like, family violence.” Other reports, like this one, of family violence also included emotional and financial abuse as defined by

the Center of Disease Control and Prevention.

Participants felt that Chicano films were meant to be viewed only by other Latinos. They reported that if any other ethnicities viewed the films, they may not understand the struggles depicted in the film, and form generalizations that turn to prejudice views against the Latino community. Leslie, an 18-year-old that grew up in a gang-affiliated community feels that people might misunderstand the struggles and instead focuses only of the negative images shown.

I feel like we are the only ones that can actually watch and understand Chicano films. If anybody else watches the films they will see it and they will think, oh my god, this is how all Mexicans really are and I feel like we look at this and say this is how Mexicans are. We understand that, I feel like, films show how bad that we are, but it does not show what we do good. Yet, it shows that there is Mexicans in prisons and that they are violent and that all people are in gangs, when that is not really true, and we actually work for what we have.

The images of a Latino behind bars stick out more than the positive images. Monique added on to comment that,

there is stereotypes in films, like, we are not the only ones that watch those films. Americans watch those films then they have these perceptions of us and our culture and we are all on the same playing level. I am not a damsel in distress and we are all equal.

Even if a film depicts violence to represent the violence occurring in a community, individuals of other ethnicities take this image and interpret it differently.

Females are ready to see Chicano film shift toward positively portraying women as independent and self-sufficient. For example, Esmeralda says:

they (women) are just viewed as weak and vulnerable that it, kind of, like, sends a message that the women are just, you know, meant for the house. It would be good to show, you know, the younger generations that they have a, you know, it's not about housekeeping or anything. They do have another choice, to go out and, you know, be independent and get a career and also contribute to supporting their families not just be the stay at home wife...like equality for a man and a women.

Esmeralda feels that, at the moment, female viewers are living their self-fulfilling prophecy. They are told that they need to cook and clean and therefore do so, but if they are given a different prophesy to fulfill, or given the necessary images to counter that prophesy, then they can work towards equality. Hilda added she would personally like to see stronger female roles in Chicano film.

I feel, like we said, that most of the time females are viewed as weak and vulnerable and I think that since we are going through a transition it would be kind of nice to watch a film where the female is the protagonist. She's independent and strong and she's not a sidekick, she's like all on her own.

## Mi Vida Loca

Hilda indicates that a shift towards independence is being made but it needs to be followed by the very media that was meant to shift and promote social change and social movements in the first place. Other participants added that the time felt right and they are ready to see this large scale shift made. An example of this is when Brenda stated:

I feel like we're ready for that too, we're, we want to see that change. The generation, our generation, like the second-generation of people that migrated here, I feel like we're getting stronger and we need that, to see...to see that more in films.

Seeing females portrayed more independently will make a shift towards gender equality on a larger, broader scale.

### *Marianismo and gender roles*

The portrayal of Marianismo is rampant in Chicano film and was described in various ways by all participants. Pancha, an avid Chicano film viewer, summarized it perfectly in the following quote:

women are always the religious ones. You know, La Virgen, praying. They are the ones who are always encouraging the religion within the families, and the submissive ones, you know, they always give into what the husband says. There is always these general expectations where the wife is always cooking, planchando (ironing), or doing whatever needed to be done within the family. There is always this aspect of "hot momma" and they have to have red lipstick that has to go on and the hair, the curly hair, but for sure always submissive and like, no matter what, and like La Virgen and like "Ay Dios" (oh god) and the one who is carrying all of the burden of the family.

Pancha is describing the level of Marianismo present in Chicano film. The term, derived from the Virgin Mary, outlines the role a female stereotypically has if Machismo is present. Females are seen as keeping the family together, as having to endure maltreatment for the sake of her children and for turning to religion and prayer to seek support. This description of females in Chicano film is consistent with Aldrando's (2002) definition of Marianismo. Itzel continues to discuss the portrayal of women in Chicano films and adds that,

a female character usually has a strong sense in character and stays and believes and they pray. Typically you see them, the women, they just keep going even though they have a lot of struggles and still trying to achieve their purpose in life and they want something better for their children.

Tina, the daughter of a former gang member, said:

the mother always plays the conscious. I've noticed, not the mom, all females, they always play the conscious and like, the wise one and the reason the character does what they do is like, depends on how the mom will see it. They are always like, if they do something bad, they feel bad cause, like, the mom...I guess it's like the conscious and they look at them like, as the people they have hurt...

Tina is saying that the mother bears the burden for any wrong doing taking place within a family. She acts as an agent of social control as members of the family may think about the pain they inflict on their mother before taking part in any culturally unacceptable acts. This is also consistent with Aldarondo's 2002 study that suggests that women in Latino cultures take on a role of self sacrifice as they are always taking care of others and preventing family from participating in any wrong doing.

Participants reported the presence of Marianismo in Chicano film did not necessarily create new and specific gender roles, but instead reinforced existing expectations for females. In other words, it contributes to gender socialization already taking place. Angelica, a quiet and soft spoken 18-year- old, said:

women are always portrayed, like, you have to be submissive and you have to be a certain way. So, that's really, like I said earlier, film is a form of art or television. It's a reflection of society. So, that is pretty much portraying that, la cultura (the culture)... yeah, la cultura.

Angelica is suggesting Chicano film merely reflects society in that females are portrayed as they are expected to act in society...submissive and passive. Esperanza, a community activist taking community college classes, stated:

I think the roles that we see in the films are like expectations that our culture has and at least for my case, I can say that, but that's kind of like how my family is. They expect women to be homemakers and stay home rather than go out and you know, have a career and I feel like it's the older generation like uncles, like, my sisters are more modern and they understand but it reflects a lot on the films.

Esperanza is stating that the roles she sees females playing are similar to the expectations her family has for her and it reinforces the role she is expected to fill. Participants felt they were able to relate to some of the roles in the film as they have been socialized to believe men are superior and have been raised in sexist communities that place males and females on different levels of the social stratification system. Bertha adds:

I think some of the roles that we have mentioned, like being dependent, being vulnerable and weak and always like, like the sidekick, I feel like that's how our culture expects us to view ourselves and that's how the men in our culture view the women.

These views of females as inferior have been shaped to take on the role of cultural norms and values. It is expected for a female to serve a male and this expectation is being passed down to children.

These gender role expectations of Mexican-American females are passed down and taught by the parents. Hilda, one of the participants, feels it "has to do with important values that your parents take from your great grand parents and then want you to learn it as well." Hilda is discussing the idea that expectations are taught to you by parents and grandparents. Other participants felt that mothers play the largest role in gender socialization. Betty gave a personal example and said "when I was younger, my mom, she would make me do chores and hard work like cleaning and stuff like that and wanted to teach me how to mop and stuff like that." Betty's mother taught her how to cook and clean at a very young

## Mi Vida Loca

age. Betty feels as though her gender has played a significant role in the tasks expected of her. She is not taught just to clean instead her mother placed emphasize on teaching her how to properly clean.

However, participants did report a slight shift in gender roles for Mexican-Americans and are now also expected to pursue an education. Blanca discussed her experience and the struggle she faces in the following quote.

I think that we are definitely seeing a shift from like a little transition and think that education is a priority but I think that at the same time you still have the traditional stuff. Like, you still have to cook and clean and you have to carry that with you and you have to be both. You have to be good in school and at the same time they do expect you to learn how to cook and its kind of stressful.

Blanca feels the pressure to fulfill all expectations given to her and explains that the process is difficult and can be stressful. Participants have to transition from doing one to doing another on a regular basis. For example, Hilda added “it’s just like jumping back and forth and like being in school and going home and just knowing that I do have expectations around the house.” Pursuing an education, as she discussed, does not mean that an individual is released from all of her duties as a female.

This maybe is because fathers are enforcing education and while mothers are more likely to only somewhat support the idea of an education. They tend to support their daughter in going to college but continue to stress the important of having children and being a stay-at-home wife rather than having a career and being independent of males upon completion of a degree. This means they are getting a certain message from one parent and a different message from another parent. Betty reports this contradiction in her household and said her mother taught her “women have to hide their intelligence and not know that they are smart. That’s why they say...Men won’t like you if you were smart.” Her mother is discouraging her from acquiring knowledge and even suggests she will be unattractive to a male if she displays her knowledge to him. She later describes her father as stressing an education and contradicting values:

Like my dad, he really stressed education so for him to tell me to not fall into stereotypes and to not let a man control me, or like be abusive towards me or fall into Latinos stereotypes where I marry a machista and abide by his rules, to hear that from my dad, who is like a really strong man, that really like makes me not want to fall into those stereotypes. Makes me want to get an education and go to graduate school.

Betty reports her father is strongly encouraging education and independence which is a powerful feeling for individuals in her position. Their fathers, however, are usually at work and youth are more likely to be in the presence of mothers who are still encouraging them to be stay-at-home mothers and wives. Hortencia, the eldest child of 6, said:

you have to be superwoman. You have to have good grades, you know while you are trying to do this and that, you have expectations like you have to go home and the house has to be cleaned. You have to take care of your little brothers and sisters, you know, and it can take a toll on a young teenager, you know...I was just exhausted.

Hortencia does not begin to start her homework until the chores that her mother assigns her are complete and then feels as if she is letting her father down. With the remark of superwoman, she is explaining that she feels as if there are not enough hours in each day to fulfill both roles. These contradicting messages being sent by parents can create an environment where individuals feel as if they are not supported.

### *Violence and resistance*

Participants reported the portrayal of violence in Chicano film might affect the level of violence among certain adolescents. If an individual is raised in a low-income community with heavy gang involvement, the violence in film will not affect them as they are more likely to encounter higher levels of violence on a regular basis. In addition to this, the film serves as motivation to leave violence prone communities for these adolescents. Leslie, a college freshman, makes this point when she says:

I think it depends on the region where you are from because if you are from a region that is like, common to see gang violence and things like that, as opposed to if you are Latino and not from that area. A person not from it might be more gullible and think that's how Latinos act but if you live in that area you just say they are showing my life.

Leslie feels as though if someone lives in a community not heavily influenced by violence, they might watch the films and feel as if they are supposed to be in a gang to fulfill ethnic expectations and conform to what society is suggesting they should be like. If they are raised in a neighborhood with high levels of gang affiliation, they are more likely to see and relate to it as well as feel some sort of motivation to not fulfill the prophecy given to them. Tracy, a female who grew up around gangs, stated:

it depends on where you are raised. If you are raised in a low-income community that is the way you are going to go. You are just going to resort to violence if all you know is violence. If you are born in a place where you don't see any violence, than you are not going to resort to it.

Tracy is suggesting that individuals who live in communities prone to violence are more likely to resort to what they know and are familiar with. Participants also reported gender roles are leading to increase in domestic violence and intimate partner violence. For example, Mercedes said:

like you immigrated here. It's kind of obvious like how the man is treated over there and the women doesn't even work and she just caters to him and then when they come here, maybe they see that the girl can do more and she has to work and it is just a lot different so maybe them having power over them, of hitting, just makes them feel as if they have more control.

Mercedes is discussing that in Mexico, males see themselves as having complete control over females and when they immigrate and begin to assimilate into the American culture, they begin to see that females have more rights. Inflicting violence upon a partner sends the message to her that he is still in charge and nothing has changed. This view is

## Mi Vida Loca

consistent with Hanser's (2001) article discussing the traits of Machismo that can potentially lead to domestic violence within the Latino culture. Adriana added on to this statement and commented, "they have more rights here but we don't know what happens after we close the door and they could be getting abused but she isn't going to say anything." Adriana feels that even if a recently immigrated female were to take a stand against a partner she may be prone to domestic violence. The gender role given to females perpetuates this cycle and reduces the rate of reporting violence. For example, Ruby stated:

I think, like, Latina women, because they don't work, they are the housewife so the husband is allowed to do everything and everything he does is right. Nothing is wrong. He can cheat on her and he can say or do anything he wants to her.

The idea that a male is the head of household comes along with increased violence as men feel in complete control. This is consistent with previous studies that suggest certain traits in machismo and masculinity can contribute to increasing levels of violence.

First generation Mexican-Americans born in the United States are rebelling against this masculinity by becoming more aggressive. They view males in their communities gaining power by utilizing violence so they also do so. Tatiana adds:

if someone talks shit, like another girl or your man, the first thing you want to do is well, you want to fight them now and that's not how, well, that's how society tell us to act when someone says something to us.

Tatiana feels that Mexican-Americans are also given the message that they should be violent in opposition. Maria adds to this by stating:

when you want respect or maybe because you need to defend yourself from other people that look down on you, so we act out and we think that raising our voice tells others to not treat us this way.

Maria also explained that it is enough to be controlled by males at home and they do not also want to be controlled by other individuals. Standing up against being disrespected also includes joining gangs to reduce the chance of being dominated by males in the community. This view is consistent with Harris' study, which suggests that Mexican-Americans internalize the violence they witness. Amanda added:

it goes back to rebelling against what society wants you to be like, categorizing you as like, I have seen it where a family member came from Mexico and she joined a gang cause, she like, well, she didn't want to be like she was in Mexico so it was like, she said that, she wanted to be in control.

Amanda is describing that being affiliated with a gang is an attempt to break away from male control and have some sort of independence even if it means taking part in non-conforming deviant behaviors. Tina, an 18-year-old who once saw her father get shot, shared an encounter with one of her cousins.

I think it's just them trying to stick out and be ruthless cause every time I see those girls in the films, they just don't give a crap, like, they just want to be tough...I

have seen that cause, like, my cousin, when we were little she was always the little...she was always there. Than like a few years ago I saw her on the bus and she had changed to like the curly hair and little chola (gangster) and she looked down on me for wearing skinny jeans and she said she was on probation for fighting as if that's good and like, I don't know. She is trying to be ruthless and not caring.

Tina explained feeling inferior to her cousin because her cousin now filled a "ruthless" image. By altering her appearance, getting into fights and boosting about her appearance, she is empowering herself to resist the gender roles given to her by society. Pancha added to this and felt resistance should be viewed as empowerment. Pancha said:

I feel like, like maybe, it's doing things out of the norm, of the culture, and maybe sometimes its rebelling against what expectations are meant for women, you know, because it is set in stone where this is what you have to do, where you want to rebel and this is what you want. Anyone who steps outside of these is seen as like a slut or a bad person but like is she really a whore or a badass for doing that if, is she just coming out of her comfort zone and saying, fuck it, this is what makes me comfortable. This is what makes me feel good, you know.

Pancha feels that rebelling against traditional gender roles should not be looked upon as a non-conforming but instead should be about having the opportunity to be happy, independent and strong. These views both support and contradict Warner, Baro and Eigenberg's 2004 study. Participants reported resisting violence, as did the participants in their 2004 study, but did not utilize the same types of resistance. They are internalizing violence and they are becoming violent in order to resist, not only the violence they see, but also the gendered expectations assigned to them. This type of resistance is not discussed in their study. This could be a type of resistance specific to Mexican-Americans or even to other minority groups.

While some reported using violence to resist the gender roles they see in film, others reported using education as a form of resistance. Cecilia, a senior majoring in biology, said:

I don't live up to expectations or stereotypes, hell no, not me. For myself, yea, there is pregnancy, gangs and like, when I walk this May, because I graduate, I'm going to be like "a la chingada con el Machismo" (to hell with Machismo) and being submissive, fuck that. We are in the 20<sup>th</sup> century. We should be as equal to men and not have to fit those roles of being submissive of whatever a man says goes, no, but my dad says I can only say that when I get my Masters.

Cecilia is saying she is tired of having to fulfill certain expectations and that she is using education as a form of resisting the roles she sees in her culture and in film. Despite using education as form of resistance, she is still controlled by her father as he has given her limitations as to how she can use education as resistance...she can only speak out when she gets her Masters. Maria, another senior graduating this May, felt similarly and added:

me and all my Paisa friends, this is my last semester and they all graduated with honors and they are going to get their masters and everyone would talk shit to us, like, and say things like "you're not Mexican," but they are all pregnant and have

## Mi Vida Loca

kids and just stay home now and I think it's funny cause like, well not funny, I guess like, they made fun of us but now it's funny how things switch around cause they have four kids and I'm like, yea we are nerds, we are paisa but we are better off now.

Maria is stating that she and her close friends utilized education to resist the expectations her culture had for her. In doing so, she received a significant amount of backlash and was made fun of by others in her community. She does, however, feel the outcomes are positive and felt empowered by her decision to pursue education instead of conforming. The views of participants are in line with Jenkins' 2011 case study that suggested resistance can lead to personal growth, strength and healing.

### **Conclusion**

Chicano film was created to depict the struggles Mexican-American communities endure in hopes of motivating youth to promote social justice. Participants, however, only reported watching a very select few films. The films they reported watching most often are those that strongly portray violence. They did not report watching the documentaries that encourage mobilization or social justice. Additionally, participants reported wanting to see stronger, independent and educated females take on roles in Chicano film. This new image would motivate them to better their lives and strive for equality. By portraying strong female roles in all Chicano film, filmmakers could achieve their original objective.

Participants reported Chicano film indirectly contributes to gender socialization and violence in their communities and in their culture. The depiction of male dominance in Chicano film makes them feel as though they do need to be passive and submissive. It specifically contributes to violence because it reinforces the idea that males should be dominant and superior while females should be dependent and submissive. As Rivadeneyra found, Latinos tend to associate with actors in films specifically created for them. For this reason, depicting females as inferior is dangerous and contributes to the acceptance of violence among Mexican-Americans.

Females, however, are starting to take a stand against Machismo and hyper masculinity by rebelling in any way they can. They described resistance as either engaging in violence or pursuing education. Both of these are used as a form of empowerment but are two very different and very extreme forms of resistance. It is important to note that participants did not identify any other forms of resistance. There was no middle ground. This is of concern because young Mexican-Americans are not identifying other forms of resistance. Programs should be implemented to expose young students, as young as 13, to utilize various extracurricular activities such as sports as an alternative form of resistance.

Education is a healthy and ideal way to resist the gender roles they see in their culture and in Chicano film. The problem comes when they do not receive any support in middle school and high school to allow them to utilize education as a form of resistance. If they are struggling to pass classes or do not have adequate mentorship, education is not something they are likely to pursue. By the time they decide to resist the expectations for their gender and the male hegemony that exists, violence may be the only form of resistance attainable and realistic for them. Programs implemented could incorporate exploring different extracurricular activities while incorporating culture. This may help students feel as if being Mexican and being educated are not exclusive groups but rather can be combined. It is possible to maintain one's cultural roots and develop a passion for ac-

quiring knowledge. This program could be implemented countywide with a few different locations available to students who are interested in participating in an after school program. They can request topics they are interested in learning in order to develop a passion for an area of interest to them. Chicano film can be incorporated as a curriculum as long as it is followed by a facilitated discussion. An adult can help them analyze the film while discussing power, gender and social equality. Implementation of such a program would result in students feeling as if they are more supported and in control of their own future. They may become more dedicated to their education and see education as something attainable so they can pursue education instead of using violence as a form of resistance.

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# Degradation of a Biofuel Crop by Alkaline-Tolerant Microbial Communities

Fujun Bernie, Biology

Research Mentors: Michael F. Cohen, Ph.D.

Mami Kainuma, Ph.D.

## Abstract

*Lignocellulosic biomass can be utilized to produce ethanol or other alcohols as an alternative to petroleum-based fuel. Replacing petroleum with alcohols as an energy source may hold the key to solve our current energy crisis and environmental concerns associated with fossil fuel usage. Although studies have shown a promising future for ethanol production at an industrial scale, challenges are still enormous. One challenge is the preferred treatment of lignin, a major component of lignocellulose, which is highly resistant to hydrolysis without impeding enzymatic reactions downstream. Here we propose to allow alkaline delignification of lignocellulosic biomass, switchgrass, coupled with biological processes of alkaline-tolerant microorganisms that catabolize remnant structural carbohydrates for ethanol production. An enrichment culture was established by inoculating switchgrass in alkaline medium with microorganisms obtained from alkaline springs at The Cedars, Sonoma County. Our study showed that the switchgrass degradation capacity of the enrichment culture was enhanced when the medium was supplemented with nitrate, but not phosphate. A strain of *Cellulomonas* sp., FA-1, isolated from the enrichment culture, degraded autoclaved-sterilized switchgrass at a faster rate than did the source microbial community. PCR reactions using FA-1 specific primers confirmed the presence of strain FA-1 in the source enrichment culture but not in a control culture that did not receive inoculum from The Cedars. We hypothesize that such strain plays a major role in the catabolism of switchgrass by the alkaline-tolerant microbial community and could be an ideal template for metabolic engineering for biofuel production.*

## Introduction

Cellulose, hemicellulose, and lignin are the major constituents of lignocellulose material in plants. Cellulose is a linear chain of glucose linked through  $\beta$ -1, 4-linkages and is usually arranged in microcrystalline structures, making it difficult to dissolve in water and to hydrolyze under normal conditions. Hemicellulose is a heteropolysaccharide comprised mainly of hexoses and pentoses. Lignin is a highly irregular and insoluble polymer consisting of non-repeating phenylpropanoid subunits, thereby making it extremely difficult for enzymatic hydrolysis to occur (Kumar et. al., 2009). These three constituents along with other components, such as proteins and wax, are tightly bound to each other by chemical bonds, forming lignocellulose complexes to give plants architectural strength and the ability to resist decaying. Many microorganisms are known to naturally produce enzymes to hydrolyze cellulose and hemicellulose to release sugar monomers, and thereby allowing subsequent fermentation to occur to produce ethanol; however, a few are able to enzymatically degrade lignin (Reid, 1989). Because cellulose and hemicellulose are encrusted by lignin, to produce ethanol using biofuel crop, such as switchgrass, at an industrial scale, chemical pretreatment must be done to open up the structural carbohydrates for subsequent

## Degradation of a Biofuel

saccharification and fermentation (Kaylen, 2000).

Because the phenol group in the lignin can react with base forming water-soluble salts, alkaline pretreatment of lignocellulosic material allows the release of lignin from the lignocellulose complexes while rendering remaining carbohydrates susceptible to enzymatic hydrolysis. The discovery of cellulose-degrading alkaline-tolerant microbial communities, that can allow delignification and biological process to occur simultaneously, may potentially simplify the bioreactor for ethanol production. In this study, we examined the cellulose-degrading capacity of the alkaline-tolerant microorganisms, obtained from alkaline springs at *The Cedars*, Sonoma County, CA.

Members of genus *Cellulomonas* secrete cellulase, and thereby, have high cellulolytic activities. The isolation and identification of FA-1 strain of *Cellulomonas* from *The Cedars* derived culture lead us to speculate the importance of FA-1, contributing to the degradation ability of the alkaline-tolerant microbial community. In this study, we confirmed the presence of FA-1 in cultures derived from *The Cedars* using PCR techniques, and its relatively high cellulose degrading activities under alkaline condition.

## Method

### *Enrichment cultures*

Two switchgrass enrichment cultures were established, one termed 'CL' with inocula from *The Cedars*, Sonoma County, California, and one with switchgrass only (termed 'NA'). The synthetic CBM medium in which cultures were maintained mimics the composition of the water in *The Cedars* [2.2mM NaCl, 12.3 $\mu$ M MgCl<sub>2</sub>, 30.7 $\mu$ M KOH, and 1.32mM Ca(OH)<sub>2</sub> (final pH 11.5)].

Cultures were maintained at 37°C with 50 rpm shaking. Medium was periodically replaced. Each transfer of 0.5ml of culture to a new medium containing 0.2g of switchgrass is considered a new generation. In naming the generation, the generation is indicated by the number after G.

### *Genomic DNA extraction*

3ml of NA and CL cultures were centrifuged at 10,000 rpm for 5 minutes. Supernatant was removed and precipitant was suspended in 500 $\mu$ l of TENS buffer (50mM of Tris HCl, 20mM of EDTA, 100mM of NaCl, and 1% (w/v) sodium dodecyl sulfate). The solution was heated at 72°C for 20 minutes, and vortexed for 5 seconds every 5 minutes. 50 $\mu$ l of supernatant was collected and spun down at 10,000 rpm for 1 minute (Heat method). Beads (sizes ranging from 710 to 1180  $\mu$ m in diameter, 425 to 600  $\mu$ m, and 106  $\mu$ m) were added to remaining solution and vortexed at maximum speed for 3 min. Sample was centrifuged at 12,000 rpm for 10 min and the supernatant transferred to a new tube and combined with equal amount of phenol:chloroform. The solution was mixed and centrifuged at 15,000 rpm for 5 min. The supernatant was transferred to a new tube and then combined with 1/10 volume of 3 M sodium acetate and 2.5 volume of 100% ethanol and placed at -20°C for 10 min. The tube was centrifuged at 10,000 rpm for 5 min and immediately decanted. 500 $\mu$ l of cold 70% ethanol was added to wash DNA and the tube was centrifuged at 10,000 rpm for 10 min (Bead Bearer method) (Kustke, 1998). The tube was decanted and the pellet suspended in 50 $\mu$ l of LTE buffer (10mM Tris HCl and 0.1mM EDTA). Aliquots of the DNA preparations were viewed on a 0.8% agarose gel to determine the purity and quantity.

DNA dilution was determined based on the band intensity on the gel.

To perform colony PCR, the surface of an isolated FA-1 colony grown on LB medium was gently touched with a pipette tip, then the tip submerged in a PCR mixture and pipetted up and down a few times to mix DNA with solution.

### *16S rRNA amplification*

Extracted DNA preparations were used as templates for amplification of an evolutionarily conserved region of 16S rRNA. Primers used in the PCR reaction were comprised of 18 base pairs, and designed based on FA-1 16S rRNA. FA1-63-F forward (F) primer sequence is 5'-GTGAGTAACCTGCCCTTC-3', and FA1-963-R reverse (R) primer sequence is 5'-GCACATCTCTGCACGTTT-3'. 25µl of PCR mixtures include 5µl of 5x reaction buffer, 5µl of 10mM MgCl<sub>2</sub>, 4µl of 1.25 mM dNTP, 2.5µl of 0.25µM F primer, 2.5µl of 0.25µM R primer, and 0.13µl of 5U/µl of Invitrogen Taq polymerase.

The PCR program was as follows: primary denaturation for 4 min at 94°C, followed by 35 amplification cycles consisting of denaturing at 94°C for 1 minute, annealing for 1 min at 55°C, and extension at 72°C for 1.5 min. Upon completion of 35 amplification cycles a final extension step was done at 72°C for 10 min. The PCR products were then viewed on a 0.8% agarose gel to confirm size, quantity, and purity.

### *Switchgrass degradation assay*

0.2g of switchgrass was dried at 37°C until constant weight. The dried switchgrass was mixed with 50ml of CBM medium inoculated with 0.5ml of enrichment cultures and incubated at 37°C with 50rpm shaking. Cultures were harvested after 9 days by filtration onto Whatman GF/A glass microfiber filters and dried at 70°C until constant weight. To evaluate the effect of nutrient supplementation on degradation capacity, 2mM of tripotassium phosphate and 5mM of sodium nitrate were added to CBM medium respectively.

The non-recoverable weight was determined by harvesting some cultures immediately after mixing with CBM medium.

To determine the ash weight, remnant switchgrass after 9-day incubation was heated at 550°C and the residual ash content was weighed.

### *pH monitoring*

pH of the CBM medium inoculated with CL culture was monitored using a pH meter and the changes were recorded.

## **Results**

### *Switchgrass degradation assay*

NA and CL cultures degraded switchgrass at a similar rate in 9-day incubation period (Figure 1 & 2). When CBM medium was supplemented with 2mM phosphate, similar degradation rate was observed in CL culture without supplementation (Figure 1). On the contrary, when medium was supplemented with sodium nitrate, degradation was enhanced (Figure 2). In addition, FA-1 showed a much greater capacity to degrade autoclave-sterilized switchgrass than both NA and CL enrichment cultures (Figure 3).

# Degradation of a Biofuel

## *pH monitoring*

Table 1: pH change in CL culture.

	Day 1	Day 2	Day 3
pH	11.2	8.7	7.8

## *DNA extraction*

Genomic DNA subjected to 0.8% agarose gel electrophoresis revealed that DNA can be extracted from both Heat and Bead Beater methods; however, higher DNA yield was achieved with Bead Beater method (Figure 5).

## *DNA amplification*

FA-1 specific primers have high specificity. Only FA-1 strain showed amplification when PCR products were separated on a 0.8% agarose gel (Figure 4).

Amplification occurred with FA-1 and CL-G12 DNA extracted with the Heat method. DNA samples extracted with Bead Beater method also showed positive amplification, although CL-G16 and NA-G16 showed less intensity than FA-1 and CL-G12 (Figure 5).

## *Temperature Gradient*

To determine the optimal FA-1 specific primer binding temperature, temperature gradient was set at 55°C, 55.3°C, 56.1°C, 57.1°C, 58.7°C, 60.6°C, 62.8°C, 64.6°C, 66.0°C, 67°C, 67.8°C, and 68°C respectively on PCR for annealing temperature. Result showed that amplification of FA-1 pure genomic DNA occurred at 64°C and 64.2°C. Beyond 64.2°C, no elongation occurred.

## **Discussion**

The result (Figure 1 and 2) showed that the degree of switchgrass degradation is similar in the NA and CL cultures after 9 days of incubation. However, the pH of the CBM medium was unstable during incubation. By the second day, the pH of all cultures declined to 8.7 from original pH of 11.2 (Table 1). In previous experiments, calcium precipitant was observed on the switchgrass. The salt formation is due to  $\text{Ca}(\text{OH})_2$  component in CBM medium, and it is potentially limiting microbial enzymatic activities and causing decline in pH.

The CL culture exhibited greater catabolic capacity when supplemented with nitrogen in the form of  $\text{KNO}_3$  (Figure 2); however, its degradation capacity remained the same when supplemented with phosphate (Figure 1). Because the switchgrass is the only nutrient source for the cultures, improvement in degradation after nitrogen supplementation indicates switchgrass alone could not provide sufficient amount of N needed for optimal growth for CL culture. On the contrary, phosphate requirement for optimal CL culture growth is satisfied with switchgrass as the only nutrient source. In addition, the lower rate of degradation of switchgrass when N is limiting suggests that the CL culture does not

actively mine for N from nutrient source in searching for N to maintain its growth contrary to the observations of Caine et al. (2007) on degradation of leaf litter in soil.

Both Heat and Bead Beater methods were able to extract DNA from the CL and NA cultures of G16 and G12. The DNA bands showed stronger intensity with DNA extracted from Bead Beater method than from Heat, suggesting better DNA yield is achieved when extracted with Bead Beater.

When comparing the degradation ability of FA-1 pure culture, NA, and CL cultures, FA-1 showed substantially higher degradation capacity on autoclave-sterilized switchgrass (Figure 3). FA-1 is most closely related to *Cellulomonas flavigena*, and was the only cellulose-degrading bacterium isolated from the CL-G12 enrichment culture under anoxic conditions. Microorganisms in the genus *Cellulomonas* possess the ability to degrade cellulose and hemicellulose (Abt, 2010). Their ability to degrade switchgrass in alkaline condition demands our attention to further our research on FA-1 in CL culture. PCR using FA-1 specific primers confirmed the presence of FA-1 in the CL-G12 culture (Figure 5, 6 & 8). An initial experiment using the FA-1 primer pair showed a PCR amplification product from G16 template (Figure 6), but findings from later experiments disagreed with the finding, prompting us to investigate the possibility of primer binding closely related organisms due to low annealing temperature of 55°C during PCR reaction. Temperature gradient of PCR reaction was performed and the result showed that the optimal annealing temperature is 64°C (Figure 7). Later experiments gave consistent results using 64°C as annealing temperature during PCR reaction, and gave confirmation of FA-1 presence in CL-G12 culture and its absence in CL-G16 culture (Figure 8).

## Future Research

*Cellulomonas* strain FA-1 exhibits a promising ability in degrading biofuel crop, switchgrass, in alkaline conditions. All other *Cedars* derived generations will be subjected to DNA extraction and subsequent PCR reactions. The results will help us trace back to the origin of FA-1, and further our understanding of its potential in biomass degradation under alkaline condition.

## Acknowledgements

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## Degradation of a Biofuel

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Kaylen, M., Van Dyne, D. L., Choi, Y. S., & Blasé, M. (2000). Economic feasibility of producing ethanol from lignocellulosic feedstocks. *Bioresearch Technology*, 72(1), 19 – 32.

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Kustke, C. R., Banton, K. L., Adorada, D. L., Stark, P. C., Hill, K. K., & Jackson, P. J. (1998). Small-scale DNA sample preparation method for field RCR detection of microbial cells and spores in soil. *Applied and Environmental Microbiology*, 64 (7), 2463 – 2472.

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## Appendix

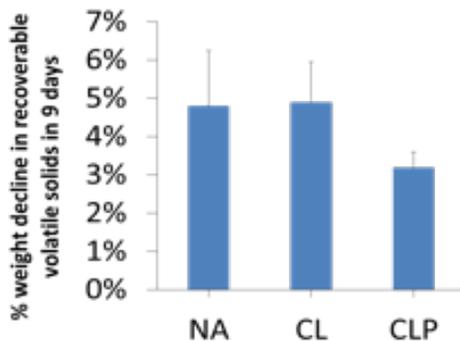


Figure 1: Decline in recoverable volatile solids after 9-day incubation in CBM medium. NA: CBM medium without exogenous inoculum. CL: CBM medium with inocula from *The Cedars*. CLP: CBM medium supplemented with phosphate and inocula from the *The Cedars*.

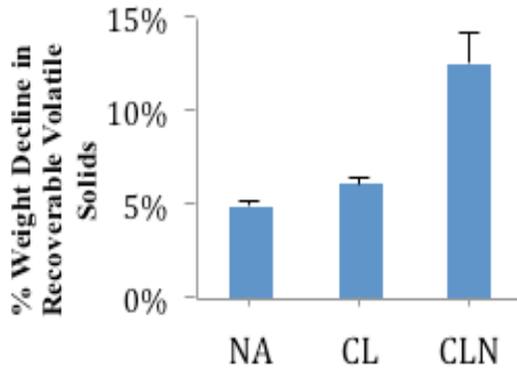


Figure 2: Decline in recoverable volatile solids after 9-day incubation in CBM medium. NA: CBM medium without exogenous inoculum. CL: CBM medium with inocula from *The Cedars*. CLN: CBM medium supplemented with nitrate and inocula from the *The Cedars*.

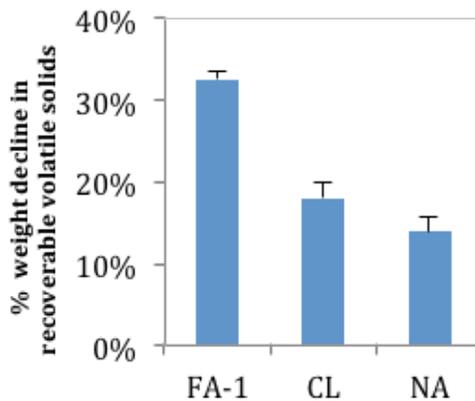


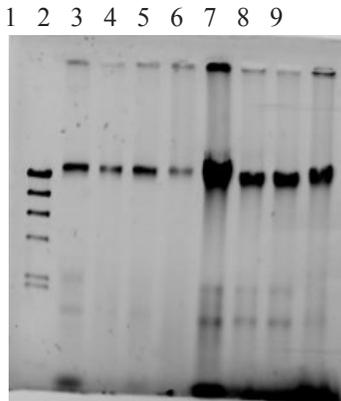
Figure 3: Weight decline in recoverable volatile solids of autoclave-sterilized switchgrass after 9-day incubation in CBM medium.

## Degradation of a Biofuel



1.  $\lambda$ HindIII
2. FA-1 colony
3. CL-G13b11 colony
4. FA-1 genome (1/100)
5. Water

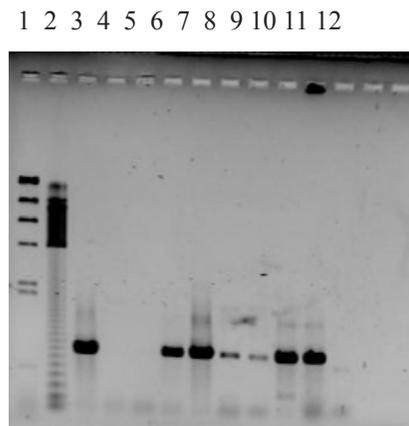
Figure 4: PCR products with FA-1 specific primers were visualized on a 0.8% agarose gel.



1.  $\lambda$  HindIII
2. FA-1
3. CL G16
4. NA G16
5. CL G12;
6. FA1;
7. CL G16;
8. NA G16;
9. CL G12

1-4: DNA extracted with Heat;  
5-8: DNA extracted with Bead

Figure 5: DNA extracted with the Heat method and Bead Beater method was visualized on a 0.8% agarose gel.



1.  $\lambda$  Hind III
2. 123bp marker
3. FA-1
4. CL-G16
5. NA-G16
6. CL-G12
7. FA-1
8. CL-G16
9. NA-G16
10. CL-G12
11. FA-1 (colony PCR)
12. CL-G13b (colony PCR)

Figure 6: PCR products separated on a 0.8% agarose gel. FA-1 specific primers were used

during PCR reaction. The annealing temperature was set at 55°C.

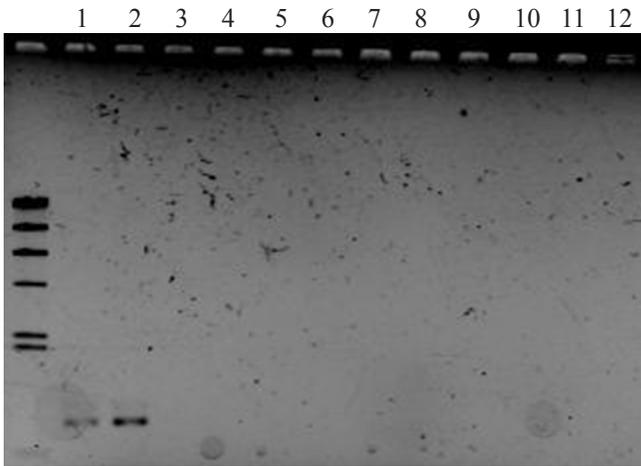
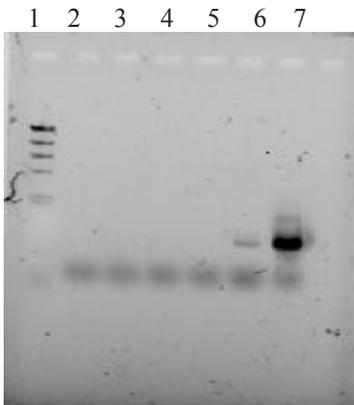


Figure 7: PCR products with annealing temperature set at 55°C (1), 55.3°C (2), 56.1°C (3), 57.1°C (4), 58.7°C (5), 60.6°C (6), 62.8°C (7), 64.6°C (8), 66.0°C (9), 67°C (10), 67.8°C (11), 68°C (12) respectively.  $\lambda$ HindIII was used as the ladder.



1.  $\lambda$  HindIII
2. CL-G13
3. NA-G13
4. CL-G16
5. NA-G16
6. CL-G12
7. FA1

Figure 8: Products of 64°C annealing temperature PCR separated on a 0.8% agarose gel.

## **Diversity Communities at Predominately White Institutions: Making Our Space an Inclusive Community (MOSAIC) at Sonoma State University**

Carina Buzo, Women's and Gender Studies

Research Mentor: Lena McQuade, Ph.D.

### **Introduction**

Higher Education is about more than what is learned in the classroom. A college career should be filled with life lessons taught between classes and on campus. For some students this comes easier than it does for others. At universities that are Predominately White Institutions (PWIs) there has been a long lasting history of planning, catering to, and be equipped to serve students who make up the majority of the population and demographics. By having the campus fully focus on supporting and encouraging the majority, the climate of the campus begins to "other" students who do not identify with the majority population and impedes out of class experience, possibly prevents marginalized students from learning the outside of class life lessons. Marginalized students are "othered" in their knowledge and experience. PWIs (unconsciously) cater to privileged students. Therefore programs like MOSAIC are necessary to enable all students the opportunity to succeed. Marginalized students are students who identify with some sort of identity that is considered a minority.

In most cases, at PWIs, it is assumed that only students of color are marginalized. However, white students who are low income, LGBT, non-gender normative, etc., are often marginalized on these campuses as well. Particularly, at PWIs there are marginalized students who lack both academic and social capital and are unable to access or gain opportunities. These opportunities, that white students at a PWI have the privilege of having, are things like being familiar with the campus, the climate, the language, and the culture. Students from different backgrounds, other than white and wealthy, are left out feeling that they do not fit in. At Sonoma State University (SSU), a PWI, the staff and faculty have searched for ways to support marginalized students and to help break the divide between marginalized students and the rest of campus.

SSU created a program called Making Our Space An Inclusive Community (MOSAIC) for students to learn about social justice, human awareness, diversity and identity. MOSAIC is a living-learning community that focuses on these areas while also covering transitional issues that all freshmen in college face. This group of 45-50 MOSAIC students live together in one building and take two classes a semester during their freshmen year. Programs like MOSAIC, at PWIs like Sonoma State University, are a way to ensure that marginalized students are receiving the same education as the students who make up the majority. Living-learning communities allow for marginalized students to create connections with each other, within themselves, and to the campus. The resources that MOSAIC offers its students create social and academic benefits that they may not otherwise be offered. In order to better understand the value of the program I have analyzed and questioned its successes and importance to students and to the rest of campus.

Realizing that my research provides multiple voices and perspectives, I wanted to be sure that I gave an accurate depiction of the program, from all levels of operation, from those in command to those that receive the services. I chose to interview a person

at every level of operation including the director, a faculty member in charge of teaching the class, and a current MOSAIC student. I conducted structured interviews with each of these people individually and asked questions about the program, its intentions, activities, purposes, and successes. Ten of the same questions were asked to each person, which were then recorded and analyzed.

### *Standpoint*

As a feminist, my research begins even prior to collecting questions, reading articles, and scheduling interviews—It begins with questioning myself. In particular, my research begins with questioning my reasons for doing research and how my research will create social change. To question the knowledge that I hold, or rather, that anyone holds, is questioning the formation of epistemology. Brooks (2007) and Hesse-Biber (2007) define epistemology as “a theory of knowledge that delineates a set of assumptions about the social world and about who can be a knower and what can be known” (Brooks, 2007, p.5). In “Feminist Standpoint Epistemology” Brooks (2007) claims that “feminist standpoint epistemology is a unique philosophy of knowledge building that challenges us to see and understand the world through the eyes and experiences of oppressed women and apply the vision and knowledge of oppressed women to social activism and social change” (Brooks, 2007, p.55). This means that we apply feminist ideals and view points to the way in which we produce and understand knowledge. As feminist researchers, we take the knowledge and experiences of women as valid. From a feminist perspective, research is one way to give voice and power to any minority, not just women.

### **Literature Review**

I begin my literary analysis with an article about the ways that multiculturalism is taught in higher education to ground my research in American ideals of race, multiculturalism, and diversity. In “Multiculturalism and Multicultural Curricula in the United States,” M. Christopher Brown and James L. Ratcliff (1998), give a detailed explanation of the ways American culture and history shape higher education approaches to diversity education. They explain, “Within the attempts to create a broad definition of multiculturalism that includes all persons, many marginalized and oppressed groups have created visions of a culture in which they replace the dominant group (Brown & Ratcliff, 1998, p.12)”. Brown and Ratcliff continue explaining the ways that groups, majority or minority, focus on being the dominant power rather than actually creating level playing fields. That instead of the overthrowing of a single power, diversity education and inclusion needs to be focused on the differences being cultures and groups and how to live together. “Culture is not the characteristic of an individual; it involves the participation, sharing, and transmission of language, beliefs, and/or values of individuals within a group (Brown & Ratcliff, 1998, p. 13)”. In order to create true diversity on college campus, we cannot just focus on the lack of diversity, but must remain attentive to diversity education as well. By only creating a space for students of color to be accepted into the university, we are not necessarily creating a space for students of color to be accepted into the university climate. Institutions of higher education need to be sure that actions being taken are benefitting all students involved.

For decades, Higher Education and Student Affairs professionals have devoted time to discuss and conceptualize ways to create racial equality. The field is still creating

## Diversity Communities at PWIs

policies and programs to allow for more inclusive, diverse, and socially aware campuses. Throughout the 1950s and 1960s, administrators and education policy advocates' actions to modify applications and to regulate acceptances based on race have been the center of legal and moral debates. Sixty years later, the discussion of successful integration of students of color into PWIs is still a difficult topic in the field of higher education. Throughout my literature review, one of the more obvious and assumed connections between students of color and diversity at PWIs is that affirmative action has been enacted in law since the 1960s. In the beginning, the deciding factor in affirmative action was race. Since then, Student Affairs professionals continuously call into question the current relevance of race in higher education. With the ongoing discussions about affirmative action and current race relations in higher education, Student Affairs professionals engage in planning to ensure that these discussions turn into action. The planning involves mapping out programs and initiatives to provide an awareness of racial or identity inequalities. Many Student Affairs professionals are working together with these goals, plans, and programs to incorporate and encourage diversity education and support in higher education.

Affirmative action is a great starting point for understanding the research about students of color in higher education. Numerous scholarly articles focus on the history and application of affirmative action in a higher education system that assumes to be integrated. Two articles, "The More Things Change, the More They Stay the Same: The Elusive Search for Racial Equity in Higher Education" by K. Edward Renner and Thom Moore and "Diversity and Higher Education: Theory and Impact on Educational Outcomes" by Patricia Gurin, Eric L. Dey, Sylvia Hurtado, and Gerald Gurin, focus on the transformation of affirmative action throughout history. Renner and Moore (2004) focus on the fact that, "there has been a slow but steady shift from 'equity' to 'diversity' as [affirmative action's] rationale" (p. 227). This leads to one of the biggest misunderstandings about affirmative action. Many people falsely believe that affirmative action is simply about trying to boost numbers. By allowing affirmative action to only be about the numbers, institutions of higher education prevent the creation of space for minority students to be included in, and succeed within, higher education. The article concludes that privileged students end up seeing more advantages that mirror affirmative action in application, such as acceptances that are positively affecting white students for being wealthy, or children of alumni and donors. There is also an advantage in the application process that privileges white students and students who come from affluent school districts that offer advanced courses leading to higher scores on aptitude and placements tests, therefore these students are perceived as better and more desirable applicants. As stated in the article, "there are a variety of admission policies and social circumstances operating parallel to affirmative action, but in the opposite direction. In overall effect, they have conferred a relative advantage to white students and contribute to the segregation of higher education" (Moore & Renner, 2004, p. 230).

Gurin et al (2002), claim that in "the current context of legal challenges to affirmative action and race-based considerations in college admissions, educators have been challenged to articulate clearly the educational purposes and benefits of diversity" (p. 330). While similarly discussing the topic of affirmative action, the authors draw a connection to the reasoning and the attempt to explain the current and continued importance of diverse student populations in universities. This article explains that universities, which are adamant about using affirmative action policies in their application process, need to "present a framework for understanding how diversity introduces the relational discontinuities critical to identity construction and its subsequent role in fostering cognitive growth" (Gurin et al., 2002, p. 330). Gurin et al (2002), discuss the learning outcomes and democracy

outcomes that are made possible through explaining the critical importance of diversity in higher education. The learning outcomes include the “racial and ethnic diversity in the student body and university efforts to foster opportunities for diverse students to interact and learn from each other in and out of the classroom offer college students who have grown up in the racially segregated United States the very features that these theories suggest will foster active thinking and personal development” (Gurin et al., 2002, p. 338). While democracy outcomes are established through “diverse institutions [being] more motivated and better able to participate in an increasingly heterogeneous and complex society” (Gurin et al., p. 339). Incorporating positive outcomes from universities that utilize affirmative action policies will be important to incorporate in my research. Under a modern societal ideal of being “color blind,” or in a state of “post racism,” there is a negative stigma placed on affirmative action and it is important to regain consciousness of the positive ways that racial diversity can impact higher education.

Two articles explain the weight of racial relevance to diversity in universities, “Why Diversity Became Orthodox in Higher Education, and How it Changed the Meaning of Race on Campus” by Ellen C. Berrey and “Getting There is Only Half the Battle: Stigma Consciousness and Maintaining Diversity in Higher Education” by Elizabeth C. Pinel, Leah R. Warner, and Poh-Pheng Chua. Both articles give a detailed explanation of how using race as a point of diversity was created and how it is used and debated currently. Berrey (2011) explains that using race as the marker of achieving diversity in higher education is reinforcing racial segregation ideals. Using race as a marker of diversity reaffirms that one’s merit can be based on their skin color rather than their academic successes. In a classist society of unevenly distributed resources and an overwhelming majority of people of color in lower class school districts with limited resources and funding, there needs to be a way to balance the playing field of higher education admission. From a historical standpoint Berrey explains that, “diversity discourse also enabled university officials to justify, at once, programs serving students of color, other minority groups, and white students” (Berrey, 2011, p. 589). Later she continues to discuss the ways that “diversity discourse and programs have sometimes advanced the goal of racial minority inclusion, but at the cost of downplaying problems of racial inequality and misrepresenting racial minorities’ campus experiences” (Berrey, 2011, p. 573). Relying on numbers to define success limits the possible educational discussions about racial inequalities. Rather than institutionally deciding ways to combat racial inequality, higher education and affirmative action policies are viewing students as numbers and equate that with successfully integrating and supporting students of color.

As another perspective on the relevance of race to Higher Education, Pinel et al (2005) describe in “Getting There is Only Half the Battle: Stigma Consciousness and Maintaining Diversity in Higher Education” the ways that racial importance can lead to students of color questioning their abilities to succeed at PWIs. The constant talk of affirmative action creates a stigma around certain ethnicities being less able to gain admission based on merit. Pinel et al (2005) explains this as a consciously negative stigma, and that constant affirmative action discussions create insecurity in minorities’ academic abilities, “academically stigmatized ethnic minority students feel the stigma about their (lack of) intelligence most poignantly upon arriving at a predominantly White college” (p. 482). Being conscious of stigma presents itself in the ways that stigmatized students interact with their academics. If a group of students are believed to be less capable of academic success, they believe that every shortcoming is due to their lack of preparation due to being an affirmative action case, rather than a personal mistake. Stigmatized students are carrying the weight of de-

## Diversity Communities at PWIs

fying stereotypes while attributing their failures to self-fulfilling societal prophecies. The article claims that “work on tokenism conforms to [their] suggestion that academically stigmatized ethnic minorities—who occupy a token status in predominantly White colleges and universities—experience a situationally induced increase in stigma consciousness upon arriving at college” (Pinel et al., 2005, p. 485). Even students who were confident on their acceptance into college and had not previously experienced being stigmatized begin to question their validity as a student when faced with being the token minority in a group of white peers. Although this is a valid understanding and analysis of affirmative action, I do not think this is enough evidence to end the program. Although students might feel stigmatized, the benefits of having these students in higher education at equal rates of white students overwhelmingly outweigh possible shame or loss of confidence.

While information of the continued racial misrepresentation in higher education continues to grow, professionals within the fields of Higher Education and Student Affairs continue to work towards creating ideas to combat the issues of racial inequalities on their campuses. One of the ways in which this is currently being combatted is through diversity education. In the article “Teaching Racism: Using Experiential Learning to Challenge the Status Quo”, Melody Aye Loya and Mo Cuevas discuss “Color-blind racial attitudes [as a] subtle form of racism, which leads those in the majority to believe that inequities have been addressed and that skin color does not play a role in social interactions in the United States” (Loya & Cuevas, 2010, p. 288). Loya and Cuevas (2010) study focused on a class that is similar to the structural set up and diversity education incorporation of MOSAIC; making their study be of particular relevance to my own research. The authors explain that, “the purpose of this study was to evaluate changes in racial attitudes and levels of cultural awareness after participating in a hybrid (both in-class and online requirements) course taught during an intersession or “minimester” [mini-semester] course in December and January of 2007–2008” (Loya & Cuevas, 2010, p. 289). Loya and Cuevas focus on the ways in which these freshmen transition classes that teach diversity and identity are structured and how the classes and lessons can impact the students’ growth after taking the class. “Students voluntarily took this course, which may reflect their willingness to discuss racism or their willingness to explore and change their own attitudes, or could have simply been that they needed an elective and this one fit the bill” (Loya & Cuevas, 2010, p. 298). This is relevant to my research on the MOSAIC program and other living-learning communities that require an application and acceptance process. Through the requirement of an application it means that students involved in MOSAIC chose to write an essay and fill out an application committing them to diversity initiatives. Students who demonstrated the strongest devotion are chosen to be part of the program. Thus, my pool of potential MOSAIC students may lean towards a willingness to change and grow. For less biased collection of data about diversity and social justice, the sample population would need to extend to groups of students in the general population who would not be otherwise guided toward an interest in diversity.

Based on this existing scholarship, I framed my research around qualitative data to fill in the missing voices and stories from the existing quantitative research. In four out of five articles I reviewed, the researchers relied on quantitative methods. For example, K. Edward Renner and Thom Moore utilized data from U.S. Bureau of Census and “institutional characteristics of 30 colleges with the largest white, Black, and Hispanic enrollments” as well as “data from the NCES 2003 Integrated Postsecondary Education Data System” (2004, p. 232). One of the draw backs of a strictly quantitative methodology can be unacknowledged assumptions and generalities, such as in the following quote: “Clearly,

minority students are in the supply line but have not participated in the huge expansion of access to higher education at the same rate as whites over the period of affirmative action” (Renner & Moore, 2004, p. 230). This particular quote, along with some others, unsettled me because the article seems to make assumptions about the participation of minorities based on statistical information rather than qualitative experiences. In “Diversity and Higher Education: Theory and Impact on Educational Outcomes” Gurin et al (2002) used “two longitudinal databases — one from the University of Michigan and one from a national sample of college students... the Michigan Student Survey (MSS) was initiated to monitor students’ response to the University of Michigan’s diversity focus” (p. 341). Although the methodology was not clearly stated, the researchers stated that their focus was “on the effects of diversity experiences on student outcomes, controlling for relevant student background characteristics and institutional characteristics, which are pertinent in the national, multi-institutional analyses,” which indicates that the researchers believed that they had a better understanding of the minority student experience based on solely on statistical information (Gurin et al., 2002, p. 342). Ellen C. Berrey (2011) article “Why Diversity Became Orthodox in Higher Education, and How it Changed the Meaning of Race on Campus,” is based on research work that had already been completed on the subject, stating that “my primary archival sources were the view books produced by the undergraduate admissions office, the office’s newsletters, the university regents’ meeting minutes, and other records from the university’s Bentley Library. Other texts analyzed include the legal filings, campus media, and promotional materials for undergraduate admissions” (p. 577). Rather than focusing on fieldwork, Berrey relies on the information of legal hearings and statistical information. Berrey does little to explore the experiences of students of color or professionals working at the University of Michigan in her research. In another article, “Teaching Racism: Using Experiential Learning to Challenge the Status Quo,” authors Melody Aye Loya and Mo Cuevas (2010) used a pretest-posttest survey method, explaining “when developing the course, the authors wanted to move beyond simple knowledge about minorities by exploring racism as manifested in today’s society” (p. 289). This was the only article I surveyed that included qualitative data. The majority of the articles and research on diversity and race in higher education are based on quantitative data. Therefore, I see the importance of incorporating qualitative data through personal interviews.

## Methods

Residential communities that focus on marginalized students at PWIs are often implemented to promote diversity. To begin this study it is important to learn the structural and institutional definition of diversity. The diversity statement for SSU is:

We strive to create a campus climate in which the will to build trust among people - and groups of people - is widely shared, and opportunities for enhancing diversity and a sense of community are encouraged and supported. We stand committed to fostering and sustaining a pluralistic, inclusive environment that empowers all members of the campus community to achieve their highest potential without fear of prejudice or discrimination. (Sonoma.edu, 2001)

This is in comparison to SSU’s Residential Life Department’s specific diversity statement:

## Diversity Communities at PWIs

We strive to promote an atmosphere that is conducive to creating an appreciation, understanding, and acceptance of individual differences and lifestyles regardless of physical abilities, race, ethnicity, sexual orientation, religion, age, gender or political affiliation. (Sonoma.edu/reslife/goals, 2001)

The general diversity statement for the school is more broad and simply claims to make and encourage a safe place, whereas the residential life department's statement is intentional in addressing a goal, and identifying the groups that would be protected through its efforts. My research topic revolves around MOSAIC, a living-learning community within SSU, but run by the Residential Life department. Having both definitions of diversity allows for a better understanding of the efforts that the school, and more importantly, the department take toward a more inclusive campus. Residential Life appears to be more intentional in its diversity statement, therefore more adamant about an inclusive community. My research questions the program's intentions through investigating the power dynamics of the people involved. I asked questions to discover the ways that the program is perceived at different levels of power.

For the purpose of this study I employed three in-depth interviews to collect my qualitative data. Based on the literature review of the effectiveness of living-learning communities, past studies primarily revolve around statistical data and so a study using qualitative data can be useful to add to the research. A qualitative approach would also add experiential knowledge from the people involved in the program. There is no particular method, that when used, is automatically feminist. Rather, it is based on the ways the researchers frame their method. Just because someone chooses to use in-depth interviews does not mean that it is feminist. There are ways to conduct in-depth interviews that would make most feminists cringe based on the way questions are asked and power dynamics are handled. Thus, the in-depth interviews are feminist based in the way I chose my participants, the way I formulated the questions, and my approach to analyzing the data.

Method is the step by step of conducting the research, while methodology is the theory of how research should be done. For example, feminist researchers believe that women's stories about their lives are important and need to be heard in order to give them power. Therefore, a feminist researcher might use an open-ended interview method to further women's narratives. Using feminist methodology, I will be going outside the current norm of recording statistical data, and rather allowing people to tell their experiences of the effectiveness and successes of the program. I allowed people to explain their own definition of success in the program and the ways they have been personally affected by the program. By relying on statistical information only, I would be assuming that everyone's story is the same and trying to find a universal truth.

One of the main points of feminist research is a conclusion that allows for social justice and a call to action. The conclusion of the research or the end result should have the potential for social change. Through my research methodology, I allow multiple voices to be heard. The social justice goal of my research is to actively call for the inclusion of more living-learning communities, such as MOSAIC, at universities.

It is important to understand diversity programs at PWIs through different their levels of power. This research provides in-depth understanding about the effectiveness of MOSAIC for students and the intended and potential benefits from the perspective of the director and faculty. I conducted my interviews with one current student, a current faculty member in the program, and the director of the program. The student was chosen based

on an email sent to the entire current MOSAIC program. The request was simple, and inclusive: “Hi friends. Is there ANYONE who wants to help me with my research project on MOSAIC?? It would involve an in-depth interview about your experience with the program so far. Interviews would be based on your schedule and would be 30-40 minutes long!! Let me know :)”. I was sure to not exclude anyone by calling for certain “types” of people, or a certain type of experience or knowledge.

By allowing the student to volunteer they could feel empowered by their choice to be involved in the research. Through this process, student Diya Zanga volunteered as an interviewee. The interview was conducted in a space that was comfortable for her, the Semillon Pavilion, a meeting space in the building where the MOSAIC students live. The faculty choice was a bit easier to make. Every year there are only two faculty members who work with this program. Jesse Andrews is a professional staff member in the Residential Life department and a first-year faculty member for MOSAIC. The interview with the director of the program, Julie Greathouse, took place in her office. Since she was asked to answer questions regarding her role as the one with most power, control, over the program, it was best for the interview to take place in a location that provided as much control as possible.

## Data Analysis

Many students spend their first year on campus trying to navigate their way through the university and residential life system. Living-learning communities that support marginalized students are a positive and proactive way for PWIs to ensure students’ success. Students in MOSAIC are provided with additional resources than students who are not in a living-learning community. For example, MOSAIC is a small community of 46 students who are all housed in one building. This physical closeness creates a community. As described by MOSAIC faculty member Jesse Andrews, MOSAIC is “housed in one building. This isn’t a whole village, its one building. All of these rooms face into each other. They are always running into each other. They are taking these classes together. I think that they have the increased sense of community because of this (J. Andrews, personal communication, November 5, 2012)”. With community, these students are able to feel more connected to the campus. MOSAIC Director Julie Greathouse discussed how the program helps students find their connection to each other and to the campus in a way that lead towards positive retention rates, “the students really get to create relationships with one another. And we know that when students find their niche on campus, find their involvement, no matter what their involvement is, and they create a close knit community, they are more likely to stay” (J. Greathouse, personal communication, November 8, 2012). The more connection that these marginalized students have to the PWI, the more confidence they gain. Student Diya Zanga said that she, “just need(s) that confidence that I know what I’m doing” (D. Zanga, personal communication, November 7, 2012). MOSAIC offers connection, confidence, and community to its students.

Besides a general connection to campus, MOSAIC also offers many positive social outcomes for its participants. Depending on the level of power or role within the MOSAIC program, social outcomes are explained and have varied outcomes. From a student perspective, Diya explained,

I feel like in MOSAIC you really make friends...you understand why they are who they are and you can accept them more. I feel like it’s not like we are forced

## Diversity Communities at PWIs

to be friends...other freshmen cohorts they are sort of friends because they have the same assignments and are kind of just thrown into the same class... but in MOSAIC you have more of a choice (D. Zanga, personal communication, November 7, 2012).

It is telling of the program that students feel their connections are their own, rather than forced upon them. Their faculty member sees MOSAIC students in classes and they have a general idea of what happens outside of the classroom based on what is being taught inside the classroom. As faculty member Andrews explained,

Because they are being challenged together, because they are having to think different about things, those conversation continue after class...I would imagine (their conversations) would go deeper than many of our other students. Or they go deeper quicker (J. Andrews, personal communication, November 5, 2012).

However, the director of the program also commented that the social outcomes from MOSAIC are not always positive for everyone involved. She clarified that there are some

negative aspects too, I think that sometimes the students tend not to get out and meet other folks. They tend to stay with one another. I don't know if there is any way around that. We can do as much as we possibly can...we can't force them to get out there and meet other people in the other villages, its really up to them (J. Greathouse, personal communication, November 8, 2012).

So, although socially, some MOSAIC students may not venture outside of the program, their strong connection to one another allows them to feel a sense of a socially positive environment at a PWI.

When any particular identity constitutes the majority at an institution of higher education, there will be academic obstacles for minority students. Often times, predominately white populations also translate to including a large percentage of upper class, wealthy students. A recent local newspaper article reported that "48.7 percent of SSU's freshmen class comes from families with incomes of \$100,000 or more in 2007, compared with 27.5 percent at Cal State Pomona and 33.3 percent at UC San Diego" (Kovner, 2009). This high percentage of wealthy students at SSU also means that the majority of students come from better school districts prior to college. The learning component of living-learning communities ensures positive academic outcomes for marginalized students who might not have received equal, if any, college preparatory education. Academic benefits present themselves as a variety of things: from "just being aware of ways to be inclusive" (J. Greathouse, personal communication, November 8, 2012)" to "know[ing] what to expect from classes" (D. Zanga, personal communication, November 7, 2012). Students in this community take classes together in which they are discussing sensitive identity themes and having diversity-based discussions. The benefits of the program are presented even after the class is over "because they are living around one another, their classes are in their living space, they continue those discussions once they are outside of the classroom" (J. Greathouse, personal communication, November 8, 2012). As a faculty member, Jesse Andrews sees first hand the academic benefits of this program for his students, based on his own class, as well as through grade checks. Jesse goes deeper into this analysis of the academic outcomes,

first and foremost the MOSAIC program is a transition program. It is meant to help first year students transition from high school to college... hopefully they know how to be successful in college, they know how to talk to their faculty, they know how to write with proper grammar in classes, how to read instructions on assignments, because I think the courses within MOSAIC kind of focus on that (J. Andrews, personal communication, November 5, 2012).

Students in the MOSAIC program receive more than academics; they gain cultural capital by understanding how to succeed at the college level. Marginalized students often need this form of capital, beyond academics, at PWIs to make up for the institutional inequities minority students face.

Such programs, like MOSAIC, can fill the gaps between white, wealthy students and minority students therefore the university offers a better-rounded education for all involved. The students in the program are able to feel connected to the campus, and the PWI is able to make inclusive advancements in its education. This is something that director Julie Greathouse sees as a task that the entire university can work on:

Diversity and social justice needs to be implemented into everyone's curriculum...we have met with math professors...like Rick Lutman. When he writes his exams and stuff, he writes them so that they are not biased. He really infuses questions that are not just about the math in the end product but the questions that he asks are relevant to issues of diversity so that he's not like 'Paul and Susan are married...' you know what I mean? Just being aware of ways to be inclusive (J. Greathouse, personal communication, November 8, 2012).

This allows the university to make strides towards a more inclusive educational environment for all of its students, not just the students of MOSAIC.

The demographics of MOSAIC are important, as many of MOSAIC's original participants were predominately minorities, but this has changed over the programs' four years of existence. Greathouse explains "I would say that the first couple of years (MOSAIC) was those students who we would consider marginalized or underrepresented students. And of course we still have a higher percentage of those students in MOSAIC than we do any where else on campus"(J. Greathouse, personal communication, November 8, 2012). Over time, however, Jesse Andrews adds that "the first class of MOSAIC that are now talking to other students and things like that the word gets out that its not just about racial differences" (J. Andrews, personal communication, November 5, 2012). Director of MOSAIC Julie Greathouse speaks about the importance of MOSAIC's demographics by stating "demographics are important because it really does show that all of our students aren't the same" (J. Greathouse, personal communication, November 8, 2012)". This transformation of MOSAIC from being mostly students of color to including more socioeconomically marginalized white students allows for the university to see MOSAIC and diversity in a different light.

From the university standpoint, because race is the visual thing I think seeing more students who identify as white in the program helps the university and the rest of the students in the university understand that's its

## Diversity Communities at PWIs

not just about providing support for students of color its about providing an open space to talk about diversity in general. It lessens the exclusivity of the program or the perception of exclusivity of the program (J. Andrews, personal communication, November 5, 2012).

Andrews is claiming that the transformation of the group from predominately non-white, to incorporating students who identify as white, changes the perceptions that MOSAIC is only for students of color. This movement towards including white students questions the assumption that diversity is solely based on race.

While Sonoma State has worked with faculty and staff to create MOSAIC, PWIs need to be sure that Living-learning communities such as MOSAIC don't become token diversity programs. In "Racial Tokenism in the School Workplace: An Exploratory Study of Black Teachers in Overwhelmingly White Schools", Hilton Kelly (2007) describes tokenism as a step-by-step process.

Three general tokenism processes rooted in the impact of numbers and independent of the beliefs and attitudes of tokens: performance pressures, boundary heightening, and role entrapment. Performance pressures are due to high visibility. Boundary heightening occurs when differences between the token and the dominants are polarized or exaggerated. Role entrapment emerges from stereotypes about the token in the larger society used to incorporate the token into the dominants' world (Kelly, 2007, p. 230).

As a program, MOSAIC has the power to encourage marginalized students and to create an opportunity for these students to feel connected to a campus that may not be equipped to support them. These students have access to resources in this program that are not readily available in any other program. Some of those resources include class registration help, roommate mediation, housing search assistance, academic monitoring, and social programming. These resources are unique because the program is able to be involved in residential/housing and academic affairs. However, once these resources are offered to underrepresented students, the university may begin to leave the responsibility of supporting these students to the program, rather than recognizing it as a university-wide issue. Professors are more likely to know the names of students in the program and offer these student academic support. Although this is an intended benefit of the program, this causes hypervisibility and may lead to role entrapment, as Kelly describes (Kelly, 2007, p. 230).

The diversity education that is occurring in MOSAIC needs to be happening campus wide. By keeping diversity education solely in MOSAIC, the larger university system is setting up these students to be seen as the "go – to" people for diversity rather than realizing that diversity is a school wide issue. As Andrews explains, "Because it's a small program, it can get this idea that they are an exclusive diversity house or that if you want to talk about diversity, go talk to MOSAIC" (J. Andrews, personal communication, November 5, 2012). Instead, we need to focus on MOSAIC "get(ing) involved in all kinds of entities. Basically take over campus... they are able to start those discussion in other spaces (J. Greathouse, personal communication, November 8, 2012)". But, from a student's perspective, "it seems like the majority of the people who go (to SSU) are white... I mean (MOSAIC) is a small diversity on campus, and I don't know if it would impact the bigger population but then it helps people not be so narrow minded about Sonoma (D. Zanga,

## Diversity Communities at PWIs

personal communication, November 7, 2012)". Diya, as a student of color, has overheard conversations inside the classroom and in the residential community that have made her feel like Sonoma is narrow minded when it comes to diversity. For example, in the past year a Black Student Union poster was defaced with a racist slur. While students organized vigorously against this type of racist display, the fact that a poster could be defaced in the first place points to the narrow mindedness of some students on campus. Students of color at PWIs constantly deal with tokenism and unspoken racial assumptions. As Kelly (2007) clarifies, "as racial tokens, [students of color] may experience civil equality (i.e., equal opportunity and access to resources) but their accounts do not point to social equality (equality of treatment, in addition to equal opportunity and access to resources) (p. 238)". By making conscious efforts to discuss the concerns of tokenism for the program, the professionals will ideally work to prevent it from occurring.

### Conclusion

At the start of my research I believed whole-heartedly that MOSAIC was benefitting Sonoma State, just as much as Sonoma State was benefitting students by offering MOSAIC. But after conducting research on similar programs as well as conducting and analyzing the interviews, I have made some connections that I had not seen before. Director, Julie Greathouse, and faculty member, Jesse Andrews, both discussed that the program targets, supports, and is heavily populated by marginalized students. In the words of the director Greathouse: "You know I would say that the first couple of years [MOSAIC was made of] those students who we would consider marginalized or underrepresented students. And of course we still have a higher percentage of those students in MOSAIC than we do anywhere else on campus" (J. Greathouse, personal communication, November 8, 2012). Understanding that the school is a PWI, and MOSAIC is the most diverse entity on campus, professional staff working the program describe MOSAIC as "a training ground to really get our students who are a part of MOSAIC to get involved in all kinds of entities. Basically take over campus. Really get them interweaved in all the things that are happening" (J. Greathouse, personal communication, November 8, 2012). The language being used to describe the training and strong push into leadership positions found throughout the program, sounds as though the students best interests may no longer be the focus. In order to avoid tokenism, the professionals and staff members of MOSAIC need to be sure that their encouragement of students into campus leadership positions is of primary benefit to the student, and not just a benefit for the university, in order to fill quotas. It is a way for the university to take advantage and possibly exploit these students into furthering the university's goals.

More and more each year we are seeing more students come out of MOSAIC and into leadership positions. That's a great thing given how many of MOSAIC student identify we need those students on our campus, we need those students to take what they know, to take what they are passionate about and then start to influence the rest of the campus (J. Andrews, personal communication, November 5, 2012).

As a result, it appears as though these students are being given the responsibility of educating the rest of campus, and since the MOSAIC student will do it, the university is able to be freed of their "diversity tasks" and assume it will get done. On a larger scale, it is

## Diversity Communities at PWIs

clear that marginalized students on campus are encouraged to become involved in positions that often times are seen by the public and incoming students. These positions, such as tour guides for visiting high schoolers, high school outreach assistants, summer orientation leader, and Seawolf decision day staff, make MOSAIC students the ‘face of diversity’ for incoming freshmen. It leaves the impression that perhaps these marginalized students are being groomed and encouraged to take on these positions so that more marginalized students would attend the school, certain programs, and even events. This has a strong potential to change the perception of diversity at SSU. However, it does not change the fact that institutionally the matter of diversity has been addressed.

I hope to do further research on the ways that a Predominately White Institutions benefit from programs like MOSAIC. For me, this is a life long praxis—combining my scholarship and activism. I will take my feminist research mind-frame into the field of Student Affairs, where I will continue to research and do work within the system. I will use my growing knowledge and understanding of power imbalances to question and critique the institutional structures around marginalized students and leadership positions at PWIs. I will do everything in my power to make sure that marginalized students are being supported through their individual success, rather than exploited for the success of the schools diversity goals.

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## **U.S. Elections: A Closer Look at the Emergence of the Latino Electorate**

Erica Cuevas, Political Science

Research Mentor: David McCuan, Ph.D.

### **Introduction**

In the face of substantial growth of the Latino population in the United States, the Latino electorate's influence in Presidential elections had steadily increased. Latinos are the nation's largest and fastest growing minority group; at 46 million strong, they make up about 15% of the U.S. population (Lopez, 2009). In the 2012 Presidential election, more Latinos voted than in any other previous election. Although the population of the Latino electorate continues to grow, past research has found that as a group, Latinos vote at lower rates than other racial and ethnic groups in the U.S. (Lopez, 2009). In the past, this group's electoral influence has been undercut due to the fact that a large proportion of their population were ineligible to vote – either because lack of U.S. citizenship or because of being under the age of eighteen. According to the Pew Hispanic Research Center, the number of eligible Latino voters increased from 16.1 million in 2004 to 19.5 million in 2008, or 21.4% (Lopez, 2009). The growth in numbers and influence from this population leads scholars and political scientists to wonder what will the emerging Latino electorate demand from candidates in future elections. What demographic and political factors will influence this group's partisan affiliation, and ultimately their Presidential vote choice? A continuum analysis of Latino voting behavior is crucial to current literature regarding Latinos politics because their vote is unstable compared to other minority groups (Barreto, 2009).

Another important aspect regarding Latino voting behavior is that a majority of this group resides in states that are considered crucial for Presidential candidates to win under the Electoral College system. Nearly 60 percent of Latinos are situated in the states of Colorado, New Mexico, Arizona, Nevada, and Florida; all these American Southwest states are considered 'swing states' or battleground states. These states are called battleground states because there is an almost even divide among party identification, meaning that no one political party has a majority of the support within that state (Urbano, 2011). Because a large proportion of Latinos reside within these Southwestern states, their potential in affecting Presidential election outcomes shall not be undermined.

The main objective of this paper is to effectively determine what variables had an influence on Presidential vote choice among Latinos in 2008, while also looking to see how the Latino electorate has changed from 2008-2012. The research employs an Ordinary Least-Squares (OLS) regression model to determine the significance of four independent variables on my independent variable of Presidential vote choice 2008. The four independent variables are race, view on Bush's handling of the economy, view on Bush's handling of the Iraq War, and view on same-sex marriage. These variables are derived from the American National Election Studies 2008 Cumulative file. This study builds on previous research by investigating different aspects of political participation outcomes among a population that is multigenerational, increasing, and emerging within U.S. politics.

### **Literature Review**

As seen in the last three Presidential elections, Latinos have been amongst one

of the top minority groups to be targeted by candidates and political parties given their emerging influence within U.S. politics. The Latino population has grown rapidly over the past several years, and has had a rapid growth in the number of Latino eligible voters (Lopez, 2011). According to research from the Pew Hispanic Center, more than 21.7 million Hispanics were eligible to participate in the 2012 national election, which is the highest number ever for Latino eligible voters. Past research regarding the Latino electorate has looked at why this group tends to lag behind other ethnic groups when it comes to political mobilization and voting. A common research question for regarding this group has been: Why don't Latinos vote? Factors that come into play in regards to low voter-turnout for Latinos include low-income, low-education, nativity, religion, organizational involvement, and neighborhood composition (de la Garza, 2004). A review of the academic literature on Latinos and politics is performed in order to assess the conventional wisdom on the building blocks of their influence and behavior in U.S. politics. More and more academic literature regarding this group is unraveling and the importance to understand their voting behavior and potential becomes evident.

Until recently, instead of asking why Latinos do not vote, scholars have been asking who are Latino voters. The article, "Why the Giant Sleeps So Deeply: Political Consequences of Individual-Level Latino Demographics," by Rodolfo O. de la Garza and Segung-Jin Jang (2011) focuses on what characterizes Latino voters versus non-Latino voters. De la Garza and Jang, (2011) concluded that at the individual level, Latinos in the U.S. face more substantial barriers to political incorporation than non-Latino voters. Past literature also shows that when looking at the Latino electorate, the role of ethnicity may play a larger role than expected. As stated by Louis DeSipio (1996) in his studies of the Latino electorate, "the present and potential role of ethnicity underlies the discussion of Latinos as a potential new electorate because ethnicity offers a link between these populations that, under certain circumstances, can overcome other societal cleavages" (p. 4).

One common variable that is considered when trying to analyze the voting behavior of Latinos is religiosity. According to Kelly (2005) the stereotype and conventional knowledge regarding Latinos and religion is that their population is overwhelmingly Catholic. Kelly's (2005) article provides data that shows that over the last few decades there has been a decline in Latino affiliation with the Catholic Church, with 44 percent of Latinos identifying as non-Catholics during the 1990s. This research shows that the shift away from Catholicism most likely occurs after immigration to the United States, and that those born and raised outside the U.S. are much more Catholic than those born and raised in the U.S. This article demonstrates a contradiction to the conventional wisdom regarding Latinos and religion, and proves that Latinos are religiously diverse (p. 93). The article said that a large amount of Latinos identify as evangelical and with mainline Protestant churches. Kelly (2005) found that affiliation with evangelical and, especially mainline Protestant denominations increases identification with the Republican Party. Kelly (2005) concludes that there was a decline in Catholicism among Latinos in the U.S., and that this religious change could serve to diminish Latino identification with the Democratic party, if increasing numbers of Latinos move to evangelical and mainline Protestant churches. With that said, in the 2008 national election, research still shows a majority of the Latino electorate voted for the Democratic candidate despite the Latino population's trend toward evangelical and mainline Protestant denominations. This leads scholars to believe that there is more to be said regarding the political behavior of Latinos besides their religious views.

In order to dig deeper into the characteristics and influences of the Latino voting behavior, much research was conducted analyzing Latino voting behavior at the state-by-

## Latino Electorate

state level. Associate Political Science Professor at the University of Washington, Matt A. Barreto, researched the question as to whether or not ethnicity impacts or mobilizes Latino voting behavior. Barreto (2007) was able to conclude through his study that shared ethnicity of a candidate increases Latino voter turnout, and that Latinos are more likely to vote in favor of Latino candidates. Previous studies have suggested that minority communities are more likely to be involved in elections when a minority candidate is likely to win. Barreto's (2007) study showed that Latinos voted at a higher rate for the co-ethnic candidate than they did for other racial candidates. This research adds to our understanding of voting behavior by demonstrating that ethnicity plays a key role in determining the outcomes of elections.

In like manner, research was conducted regarding how informed the Latino electorate is when it comes to Presidential elections and issue voting. According to past research, policy issues have played an important role on voting behavior amongst the politically knowledgeable Latino electorate, while symbolism and long-standing partisan preferences mattered most to the uninformed Latino electorate (Pantoia, 2006). Past research regarding the level of how informed the Latino electorate is, and how their political knowledge influences the way they vote is important because levels of political knowledge are critical in affecting the quality and quantity of political participation (Baik, 2007). Knowing how informed minority groups are when it comes to elections is important because lack of political information among minority groups undermines the quality and level of their engagement in the political system and their ability to select a candidate that will match the policy preferences that will benefit their minority group.

In regards to the level of political knowledge obtained by the Latino electorate, research was conducted to explore the attitudes of the Latino population regarding the political issue of immigration (Baik, 2007). Unlike the Latino population, the attitudes of immigration for the Anglo population has been well established and are influenced by many factors, such as the state the America's economy. Since the 2004 national election, Latinos sentiments regarding the importance of immigration has declined. In 2008 and 2012, Latinos have ranked job, the federal budget deficit and education among the top political issues of concern (Jones, 2012).

Just as important as looking at the political knowledge among the Latino electorate, the article, "Half of U.S. Hispanics Identify as Political Independents," explains how the majority of Hispanics identify as political independents rather than Democrats or Republicans (Jones, 2012). The article explains that even though the majority of Hispanics have identified as independents since 2008, that nearly twice as many are classified as Democratic identifiers or leaners rather than Republican identifiers or leaners. Data from the article also inferred that Hispanic immigrants are more likely than Hispanics who were born in the U.S. because immigrants lack a political party attachment and political knowledge (Jones, 2012).

### *2004 Presidential Election*

During the 2004 Presidential election, only 18% of the entire Latino population voted compared to the 51% of all whites that voted and 39% of all blacks that voted, as noted by (Passel, 2005). In 2004, 7.6 million Latinos voted during the Presidential election. State exit polls suggest that religion may have played a role in President Bush's greater success with Hispanic voters in 2004 compared to 2000 (Passel, 2005). The 2004 Presidential election focused around a set of moral issues such as gay marriage, abortion, and

national security. These political issues benefited Bush in that his stances on these issues matched up with the same moral concerns of Catholicism, which is the religion a majority of the Latino population identify with (Abrajano, 2008). National security issues and “moral values” dominated Hispanic voted choice. During this election the combined concern for moral values and national security weighed more heavily on Hispanic vote decisions than did domestic policy issues such as health care and education. Hispanics with longer ties to the U.S. are more likely to be Republican and less likely to be non-leaning independents. Hispanics who are fully integrated into the political process, namely those registered to vote, show even stronger Democratic proclivities.

### *2008 Presidential Election*

The national electorate for the 2008 Presidential election was the most diverse electorate up-to-date. According to a Pew Research Center analysis, Hispanics made up 7.4% of the presidential vote, while blacks made up 12.1% and Asians 2.5% of the vote (Lopez, 2009). As for Hispanics, the increase in their group’s turnout rates was influenced by the increase in population growth and number of eligible voters. Among Hispanics voters, 67% voted for Barack Obama compared to the 31% who voted for Republican candidate John McCain (Lopez 2009). In 2008 Hispanics made up 7.4% of voters nationwide. Although this percentage has grown from previous national elections, it remains below their share of the population. According to Lopez (2012) the small percentage of Hispanics who vote compared to the group’s eligible voters population is a result of the Hispanic population being young and being less likely to hold citizenship than other groups.

### *2012 Presidential Election*

According to the Pew Research Center, rapid population growth for the Latino community has fueled rapid growth in the number of Latinos eligible to vote. More than 21.7 million Hispanics were eligible to participate in the 2012 Presidential election. The number of eligible voters was up by more than 2 million from 2008, when only 19.5 million Latinos were eligible to vote.

Leading up to the 2012 Presidential election, the Pew Research Center conducted a survey to analyze which political issues held the most salience for the Hispanic population. The survey showed that the issues of jobs and the economy were among the top issues important to Hispanics, reflecting the same top political issues for the national electorate. These results are different than what we have seen in the past. In 2004, Latinos regarded the issue of immigration to be one of the leading issues.

In 2012, 17.6 million Latinos were under the age of 18 and thus were ineligible to participate in the national election. Although a large portion of the Latino population was under the age of 18, roughly 93% of this youth population are U.S-born citizens and will thus automatically become eligible to vote once they turn 18. According to Taylor’s (2012) article, “An Awakened Giant: The Hispanic Electorate is Likely to Double by 2030,” some 800,000 Latinos turn 18 each year; by 2030, this number could grow to 1 million per year, adding a potential electorate of more than 16 million new Latino voters to the polls by 2030. This is important because more and more Hispanics are attending institutions of higher education, thus becoming politically knowledgeable. This population is a new generation, and thus, may stray away from previous generational views.

Data from the 2012 Presidential election shows that Latinos voted for President

## Latino Electorate

Barack Obama or Republican Mitt Romney by 71% to 27% respectively, according to exit poll data from the Pew Hispanic Center. No Presidential candidate has received as high of support from the Latino electorate since 1996 when President Bill Clinton won 72% of the Latino vote (Lopez, 2012). Data from the National Exit Poll also identified the most important issues for Hispanic voters. Among political issues, Hispanics identified the economy, health care, the federal budget deficit and foreign policy being their top issues of concern in 2012. These political issues were also among the top issues of importance for the national electorate. This shows that Latinos do not vary as widely in opinion from the general electorate as one may think. In 2000 and 2004 the political issue of immigration was the most important issue for Latino voters. The issue of immigration was not only important to Latinos at the time, but was also one of the top political issues for the general electorate during 2000 and 2004.

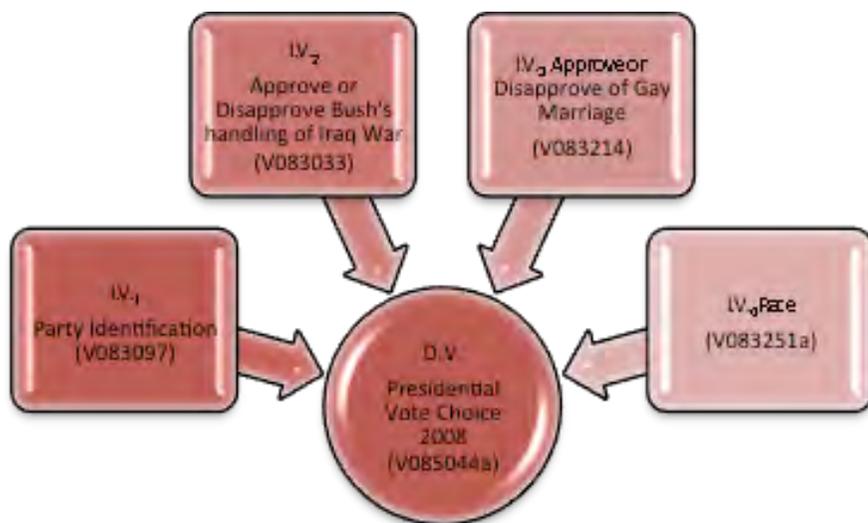
### Theory

The 2008 Presidential election was a turning point in America's national elections. Not only was this election an election where an African American ran and won presidency in a U.S. Presidential election, but it was also a ground breaking election because the voting rates for minority groups had increased from previous years. One minority group that experienced an increase in eligible voters and voter turnout was the Latino electorate. Previous research in analyzing the voting behavior of minority groups has suggested that social identity theory emphasizes the need for members of a low status group to engage in behavior that would increase the status of their group (Urbano, 2011). Social identity theory and theories on group consciousness suggest that individuals who acknowledge their groups' lower status are more likely to participate in collective action to raise the group's social status (Urbano, 2011). Group consciousness refers to individuals having an identification with a group and a political consciousness are politicized by acting in ways that helps in changing their group's relative position in society (Urbano, 2011). That is, using this theory as one of our models in analyzing the voting behavior of the Latino electorate in national elections, Barack Obama should have gained a majority of the Latino electorate support for the 2008 Presidential election given identification with the Democratic Party and the party's willingness in assisting minority groups.

### Research Question/Hypothesis

Traditional studies of Latino political participation demonstrate that the influence of the Latino electorate has continued to grow in Presidential elections. The Latino electorate has commonly been seen as a conservative population given the conventional knowledge that a high number of Latinos identify with Catholicism. Although, within the last few decades, the Latino electorate's sentiments have shifted toward the left, thus favoring the Democratic candidate over the Republic candidate. The research question will explore what factors have influenced this population to shift their ideological views.

## Conceptual Model



Source: ANES Cumulative Data File 2008 Total Cases= 2,323

### Ordinary Least Squares Regression Statement:

$$VC_{\text{Obama08}} = \alpha_0 + \beta_1(\text{PID}_{\text{Democrat}}) + \beta_2(\text{IraqWar}_{\text{Disapprove}}) + \beta_3(\text{Gay Marriage}_{\text{Approve}}) + \beta_4(\text{Race}_{\text{Minority}}) + e_i$$

The Conceptual Model (See Figure 2) depicts the relationship of the independent variables to the dependent variable. The dependent variable is Presidential Vote Choice 2008.<sup>1</sup> The independent variables include Party Identification<sup>2</sup>, Approval/Disapproval of George W. Bush's handling of Iraq War, and Race/Ethnicity. These variables were drawn from past literature that has traditionally used these variables to explain how minority groups vote in national elections.

### 2008 Data Research Question/ Hypothesis

Analysis on the 2008 Presidential data tests and analyzes the Presidential vote choice of Latino voters based upon the candidate's stances and views of helping groups within society who hold low socioeconomic statuses. The Conceptual Model variables were recoded into the following OLS model:

$$VC_{\text{Obama08}} = \alpha_0 + \beta_1(\text{PID}_{\text{Democrat}}) + \beta_2(\text{Bush's Handling of Iraq}_{\text{Disapproval}}) + \beta_3(\text{Same-sex Marriage}_{\text{Approve}}) + \beta_4(\text{Race}_{\text{Minority Group}}) + e_i$$

1 Variable has been recoded from Obama, McCain, Other to only Obama=1 and McCain =2

2 Variable has been recoded from a 7 point scale that included self identified leaner of PID to a 2 point scale or Democrat= 1, Republican=2

# Latino Electorate

Whereas,

$Vote\ Choice_{Obama08}$  = The percentage of the vote Obama received for the 2008 national election

$PID_{Democrat}$  = The percentage of individuals who identify as Democrats.

$Handling\ of\ Iraq\ War_{Disapprove}$  = The percentage of individuals who disapprove of George W. Bush's handling of the war in Iraq.

$Gay\ Marriage_{Approve}$  = The percentage of individuals who approve of gay marriage.

$Race_{Minority}$  = The percentage of individuals who are a part of a minority ethnic group.

$H_1$  = If the respondent (R) is Democratic (cuevasPID), disapproves of Bush's handling of the Iraq war (cuevasWar2), approves of marriage equality (cuevasgaymarriage) and is a part of a minority ethnic group (cuevasRace), then their Presidential Vote Choice in 2008 was Obama (cuevasVC).

$H_2$  = If the respondent (R) is Democratic (cuevasPID), disapproves of Bush's handling of the Iraq war (cuevasWar2), approves of gay marriage (cuevasgaymarriage) and is a part of a minority ethnic group (cuevasRace), then these variables had no affect on their Presidential Vote Choice in 2008 (cuevasVC).

The results of the OLS regression are presented in Table 1. As reported in Table 1, the variables for Party Identification, and Disapproval of the Iraq war and Approval of gay marriage were the most significant variables in influencing vote choice.

**Table 1**

Factors of the 2008 Presidential Vote Choice—Ordinary Least Squares (OLS) Estimators

Variable	$\beta$	Standard Error	t-stat. Beta
Constant			
Party ID	.696	.028	23.576 .665
Approve or Disapprove Iraq War	.141	.029	4.885 .133
Approve or Disapprove Gay Marriage	.102	.021	4.911 .103
Minority Respondent or White Respondent	.126	.023	5.428 .113

Multiple R = .862			
R-Squared = .742			
SE of Estimate = .252			

Source: ANES

Cumulative Data File 2008

Valid Cases=735

Total Cases=2,323

## Methodology

The data used to conduct this study is derived from the American National Election Survey (ANES) Cumulative Data File 2008. Using the data collected from the surveys this paper uses a series of cross tabulations to ascertain the level of significance of the independent variables to the dependent variable. By running a series of bivariate regressions, we can determine which independent variables are more accurate indicators of our dependent variable. Also, GSS Quick Tables are utilized to produce information that illustrates changing public opinion on issues over a period of time. Thus, using our Quick Tables for an overview of the importance of the issues on vote choice provides some idea about the significance of the variables. However, the Quick Tables do not provide a measure for security as an issue. Therefore, this paper uses the OLS model when analyzing the 2008 Presidential election and Latino vote choice.

Unfortunately, ANES does not yet obtain readily available data for the 2012 Presidential election; meaning this paper is unable to configure cross tabulations and bivariate regressions to analyze which variables were significant for Latinos during the 2012 election. In order to analyze vote choice behavior for Latinos in 2012, future research comparing exit poll opinion data from the Pew Hispanic Research Center and Roper Center's iPoll data bank will contribute to understanding how the demographics and opinions have changed among the Latino population from 2008-2012.

### *Findings for 2008 Analysis*

Table 2 shows the relationship between party identification and the 2008 Presidential vote choice of respondents of the ANES 2008 survey. As shown in the table, a high percentage of those who identify as Democrats voted for Obama in the 2008 Presidential election, while the same frequency of those who identify as Republicans voted for McCain for Presidency. If the majority of Democrats voted for Obama, and the majority of Republicans voted for McCain, then did Obama win Presidency because there are more Democrats than there are Republicans? Even though that may sound like a valid answer, this is not the case. A large factor that contributed to Obama's success in 2008 was the fact that Obama won over the majority of Independent votes – votes from individuals who do not strongly identify with one of the major political parties. Independents, also known as 'swing voters' are the voters that determine the outcome of elections. In 2008, Latinos made up a large portion of the 'swing voter' population, given that the majority of Latinos do not have strong generational ties towards the Democratic Party or the Republican Party. By winning over the majority of the Latino electorate vote, Obama was able to secure his presidency win.

## Latino Electorate

**Table 2.** 2008 Presidential Vote Choice by Party Identification 2008

	<b>Democrats</b>	<b>Republican</b>	<b>Total</b>
<b>Obama</b>	92% (529)	7% (36)	<b>53%</b> <b>(565)</b>
<b>McCain</b>	9 (49)	93 (451)	<b>47</b> <b>(500)</b>
<b>Total</b>	<b>100%</b> <b>(578)</b>	<b>100%</b> <b>(487)</b>	<b>100%</b> <b>(1,065)</b>

Source: ANES Cumulative Data File 2008 N=1,073 Invalid cases= 1,250 Total cases= 2,323

Furthermore, Table 2A demonstrates a crosstabulation chart of the 2008 two party vote choice by one's party identification, while also being controlled by Latino ethnicity. Table 2A demonstrates that 92% of Latino respondents identify as Democrats while also having voted for Obama in the 2008 election. Table 2A also indicated that a large portion of the Latino respondents who identify as Republican voted for McCain. These percentages show that even within the Latino electorate, those we identify with a single political party usually vote for the candidate that represents that same political party. An important aspect to take note of is that 60% of all Latino respondents identified as Democrats, showing that Obama was able to win a large percentage of the Latino vote in 2008. Research has shown that the Democratic Party has been able to win a solid majority of votes from Latinos and other racial minorities (Pew Hispanic vote 04).

**Table 2A.** Latino Electorate 2008 Presidential Vote Choice by Party Identification

	<b>Democrats</b>	<b>Republican</b>	<b>Total</b>
<b>Obama</b>	92% (55)	19% (3)	<b>78%</b> <b>(58)</b>
<b>McCain</b>	8 (5)	81 (12)	<b>22%</b> <b>(17)</b>
<b>Total</b>	<b>100%</b> <b>(60)</b>	<b>100%</b> <b>(15)</b>	<b>100%</b> <b>(75)</b>

Source: ANES Cumulative Data File 2008 N= 1,043 Invalid Cases= 1,280 Total Cases= 2,323

Comparatively, Table 3 shows the relationship between party identification and Latinos. As demonstrated in the crosstabulation chart, almost 80% of Latinos surveyed identify as Democrats. This chart is also significant because for those who are not Latino, the distribution among those who are Democrats and Republicans does not vary as largely as does the Latino column. The large support for Obama among the Latino respondents accounts for one of the reasons of Obama's success, which is being able to appeal to minority populations.

What about Obama appealed to the Latino electorate, especially given the fact

that President Bush was able to win a large portion of the Latino electorate vote in 2004? As shown in Table 4, a large portion of the U.S. population was unhappy with Bush's handling of the Iraq War. The table shows that 78% of those who disapproved of Bush's handling of the War in Iraq voted for Obama. In comparing the national vote to the Latino Electorate, 83% of Latinos who disapproved of Bush's handling of the Iraq War voted for Obama. Table 3 and Table 3A imply that voters who disapproved of Bush's handling of the War in Iraq most likely favored Obama as U.S. President because Obama's campaign focused on change and ending the war.

**Table 3.** 2008 Presidential Vote Choice by Approval/Disapproval of Iraq War

	<b>Approve</b>	<b>Disapprove</b>	<b>Total</b>
<b>Obama</b>	12% (66)	78% (782)	<b>55%</b> <b>(848)</b>
<b>McCain</b>	88 (465)	22 (224)	<b>45</b> <b>(689)</b>
<b>Total</b>	<b>100%</b> <b>(531)</b>	<b>100%</b> <b>(1,006)</b>	<b>100%</b> <b>(1,537)</b>

Source: ANES Cumulative Data File 2008 N= 1,510 Invalid Cases= 831 Total Cases= 2,323

**Table 3A.** Latino Electorate 2008 Presidential Vote Choice by Approval/Disapproval of Iraq War

	<b>Approve</b>	<b>Disapprove</b>	<b>Total</b>
<b>Obama</b>	37% (5)	83% (74)	<b>77%</b> <b>(79)</b>
<b>McCain</b>	63 (8)	17 (15)	<b>23%</b> <b>(24)</b>
<b>Total</b>	<b>100%</b> <b>(13)</b>	<b>100%</b> <b>(90)</b>	<b>100%</b> <b>(103)</b>

Source: ANES Cumulative Data File 2008 N= 1,470 Invalid Cases= 853 Total Cases= 2,323

To demonstrate the attitudes of the U.S. population regarding the state of the economy leading up to the 2008 Presidential election, Table 4 brings to light that over half of the respondents for the ANES 2008 survey were in disapproval of Bush's handling of the economy at the time of the survey. In comparing the total populations' sentiments regarding Bush's handling of the economy to the sentiments of the Latino population, both highly disapprove. As shown in Table 4A, over 82% of the Latinos surveyed disapproved

## Latino Electorate

of Bush's handling of the economy. One aspect that could have accounted for Obama's high favorability of the Latino population could be accounted for by the large proportion of Latinos who disapprove of not only Bush's handling of the Iraq War, but also because of his handling of the economy.

The cross-tabulation table, in which the relationship among presidential vote choice and ethnic groups is depicted, shows that almost 90% of those who fall into a minority ethnic group voted for Obama in the 2008 Presidential election. In contrast to the minority groups, we do not see as great of a variation among those that identify as being a part of the dominate ethnic group (Anglo or Caucasian) and their 2008 Presidential vote choice. When controlling for the ethnicity of Latino/Hispanic, Table 3A shows that 77% of Latinos surveyed voted for Obama in the 2008 election, while only 23% of Latinos voted for McCain. This chart shows that in the 2008 election, the republican candidate did not receive as large of support as Bush had received in the 2004 election. In 2004, Bush received the largest percentage of Latino support than had any Republican candidate before him (Abrajano, 2008).

**Table 4.** 2008 Presidential Vote Choice by Approval/Disapproval of Bush's Handling of the Economy

	<b>Approve</b>	<b>Disapprove</b>	<b>Total</b>
<b>Obama</b>	11% (34)	67% (811)	<b>55%</b> <b>(845)</b>
<b>McCain</b>	89 (281)	33 (398)	<b>45%</b> <b>(679)</b>
<b>Total</b>	<b>100%</b> <b>(315)</b>	<b>100%</b> <b>(1,209)</b>	<b>100%</b> <b>(1,524)</b>

Source: ANES Cumulative Data File 2008 N= 1,470 Invalid Cases= 826 Total Cases= 2,323

### Conclusion/Implications

Data indicates that the majority of the Latino electorate that identify with the Democratic political party were not satisfied with Bush's handling of the Iraq War, were not satisfied with Bush's handling of the economy, and are becoming more accepting of the notion of marriage equality. The Latino/Hispanic electorate of today does not seem to be the Latino/Hispanic electorate of the recent past.

In 2008, the data shows that over 85 percent of the Latinos surveyed, disapproved of Bush's handling of the economy during his term as U.S. President. The high percentage of dissatisfaction in Bush's handling of the economy may have been a factor in the large amount of support Obama received from the Latino electorate in the 2008 Presidential election. The high dissatisfaction of Bush's handling of the economy amongst the Latino electorate shows the social identity theory in play. As noted earlier, the social identity theory on group consciousness suggests that individuals who acknowledge their groups' lower status are more likely to participate in collective action to raise the groups' social status. This being said, the 2008 Latino voters may have, as a group, supported Obama over McCain because Obama represented the opposite political party as Bush, implying that

Obama's political party will administer the U.S. economy in a different manner.

The answer found here to the question of what variables influenced the 2008 Presidential vote choice among Latinos is more complex than past scholars have categorized. This study found that the variables of party identification, view on the Iraq War, view on marriage equality, and race of respondent all had an influence on vote choice. This group of voters is not only diverse within its own population, but many demographics and public opinions differ among this group. Today, the Latino population in the U.S. numbers 40.5 million people and accounts for approximately 14.1 percent of the population (Baik, 2007).

## Appendix

**Table 3.** 2008 Latino View On Gay Marriage

	Latino	Other	Total
Should be allowed to marry	60% (81)	52% (787)	<b>52%</b> <b>(868)</b>
Should not be allowed to marry	40 (53)	48 (723)	<b>22%</b> <b>(17)</b>
<b>Total</b>	<b>100%</b> <b>(133)</b>	<b>100%</b> <b>(1,511)</b>	<b>100%</b> <b>(1644)</b>

Source: ANES Cumulative Data File 2008 Valid Cases= N = 1,657 Total Cases= 2,323

**Table 7.** 2008 Presidential Vote Choice by Ethnicity

	Latino	Other	Total
Obama	77% (80)	52% (752)	<b>54%</b> <b>(832)</b>
McCain	23 (24)	48 (682)	<b>46%</b> <b>(706)</b>
<b>Total</b>	<b>100%</b> <b>(104)</b>	<b>100%</b> <b>(1,434)</b>	<b>100%</b> <b>(1,538)</b>

Source: ANES Cumulative Data File 2008 Valid Cases= 1,499 Total Cases= 2,323

# Latino Electorate

**Table 8.** Party Identification by Ethnicity

	Latino	Other	Total
Democrat	78% (83)	55% (674)	<b>57%</b> <b>(757)</b>
Republican	22 (23)	45 (561)	<b>44%</b> <b>(584)</b>
Total	<b>100%</b> <b>(106)</b>	<b>100%</b> <b>(1,235)</b>	<b>100%</b> <b>(1,341)</b>

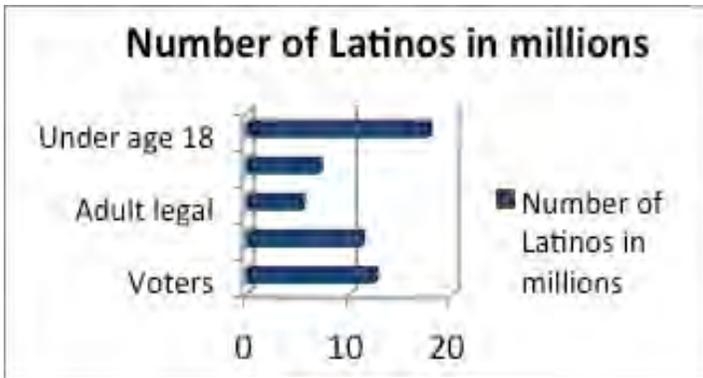
Source: ANES

Cumulative Data File 2008

Valid Cases= 1,365

Total Cases= 2,323

## Latinos in the 2012 Election: Who Voted, Who Didn't and Why?



Source: Pew Hispanic Center tabulations of the March 2011 and August 2012 Current Population Surveys

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## Twentieth Century Literature Forms New Conceptions of the Self

Allison Enriquez, English

Research Mentor: Anne Goldman, Ph.D.

In day-to-day rhetoric, the self is a general concept that consists of the physical, mental, and spiritual self. Words the general American society use to define the self, such as “I,” “me,” and “you,” represent the strong, reliable, spoken essence of an individual, so much so that this almost magical, seeming immovable “I” stands unwavering and unquestioned in general dialogue. These words define the self with clear boundaries in order to confine humans, separating one individual from another and from the world of which they are a part. The physical self stands solidly in everyone’s sight, a literal manifestation of “I.” Interpreting “I” as the physical self bolsters the idea of an individual that is disconnected from the Earth because their flesh outlines a clear boundary line—reinforcing the rhetorical self more than the mental and spiritual do. However, this notion of the self that everyday language displays is not the critical “I” explored in literature; I propose that modernist poets use their work to collapse the standard ideas of self-identity, toying with the boundary lines that define the physical self. This play with the literary image of the self is especially apparent in T.S. Eliot’s “The Love Song of J. Alfred Prufrock,” Elizabeth Bishop’s “In the Waiting Room,” and Samuel Beckett’s “The Vulture,” three poems I will elucidate on in this essay. For these poets, death, not the self, is the permeating, permanent, unquestioned force that causes the narrator to alter perception of their identity, constructing the self as an illimitable, fluid force. The poet’s work to re-conceptualize the self pioneered later works to continue to toy with the conventional notion of “I,” such as non-linear postmodern novels.

As Julia Kristeva explains in *Powers of Horror*, death is an abject force, one which destroys the standard notion of the self. The abject “disturbs identity, system, order,” it is “[t]he in-between, the ambiguous, the composite” (Kristeva, 1982, p.4). According to Kristeva, “[t]he abject has only one quality of the object—that of being opposed to I” (p.1). The idea of the self is an emblem of a set identity—in juxtaposition; the abject demolishes this order of the self. Kristeva further explains, “what is abject, on the contrary, the jettisoned object, is radically excluded and draws me toward the place where meaning collapses” (p.2). The abject then, collapses the restraints that demarcate an individual, annihilating the meaning of self. Hence, in an attempt to protect the self the abject is viewed as the “other”, a force outside an individual (p.109). Death then, fits into the idea of abjection well, as it leaves “[a] body without a soul, a non-body...”(p.109). Death here, takes one aspect of the self, the physical, and mangles its association; thus, the threat of death employed by these Modernist poets is really threatening the narrator to become a part of the abject, dissipating the confines that make up their identity.

The abject is a force employed in T.S. Eliot’s “The Love Song of J. Alfred Prufrock.” Past Prufrock’s seclusion is a very stark fear, as death has become the core of his life. In the fourth stanza Prufrock repeats, “there will be time” (Eliot, 1969, p.4, 23,26,28). But every time this phrase is mentioned, more time has slipped away. Eventually Prufrock admits,

I have seen the moment of my greatness flicker,  
And I have seen the eternal Footman hold my coat, and snicker,  
And in short I was afraid. (p.6, 85-87)

Thus his attention to time denotes his anxiety about it; he is reminding himself that time is actually dwindling away. Prufrock feels death closing in on him: his “greatness,” which is his body and mind, has begun to flicker and will eventually be extinguished completely. The “eternal Footman,” lowly death, has come for Prufrock and snickers at his fear (a fear Prufrock has because of his attachment to his physical self). Prufrock’s laments—“I grow old... I grow old...” (p.7, 123)—re-establish the passing of time even as this poem is read, reinforcing his thought’s continuous circle back to his eventual death. This death is natural, due to Prufrock’s aging body, and is inescapable. Therefore, Prufrock finds himself segregated, aghast at how his body will inevitably become the abject, separating himself from the others mentioned in the poem, whose bodies are younger and reject the abject.

Struck by his inevitable transition to the abject, Prufrock’s identity shifts from his confined and distressed “I” and “I/you” binary to a “we.” As a guest inside his musings, the reader can see Prufrock’s hopes of becoming closer to others, but constantly feeling removed. He wonders,

And would it have been worth it, after all...  
 To say: ‘I am Lazarus, come from the dead,  
 Come back to tell you all, I shall tell you all’—  
 If one, settling a pillow by her head,  
 Should say: ‘That is not what I meant at all.’ (Eliot, 1969, p.6, 89, 95-99).

Not only is Prufrock’s identity completely separate from that of the female he is speaking to, but they also do not understand each other. So Prufrock’s groping for something more than his aging body further separates him from others. To channel Lazarus, and discover something far more significant than his frailty in life would help to re-establish him and redefine his importance away from the death that will eventually consume him. What Prufrock is really searching for is the immortal “I,” the substance that could guarantee that some part of his self would be preserved beyond the impermanence of his physical self. Hence, he really seeks a soul, since the most immediate part of himself (his body) is already splintered to an “I/you.” This “I/you” dichotomy occurs even in the first line of the poem, where Prufrock commands, “[I]et us go then, you and I” (p.3, 1). Peter Howarth reveals that, Since we never learn anything more about the ‘you’ here, most people think ‘you and I’ are two aspects of Prufrock himself ... The engaged ‘I’ perspective can never share the same world as the ‘I’ described from the outside as a ‘you’ or ‘he’... He [Prufrock] oscillates between the desire to be an individual ‘I’, the despairing knowledge that he is always, for others, a general ‘you’ or ‘he’ (Howarth, 2012, p.58).

Prufrock’s “I/you” dichotomy is reflected in his search for Lazarus, as he hopes to view himself, and have others view him, as the individual “I,” but he is disconnected from others, relegating him to a “you” or “he.” These two parts of Prufrock begin his decline as one uniform self. Just as Kristeva points out that the relationship between the abject and the self is “[a]s if the fundamental opposition were between I and Other or, in more archaic fashion, between Inside and Outside” (Kristeva, 1982, p.4). Prufrock’s identity takes on the I and the other, viewing his body as something that will slowly morph into the abject. His life stays as “I,” but his body, transitioning to a corpse, is becoming “you.” This can be witnessed in Prufrock’s observation of himself, “With a bald spot in the middle of my hair—” (Eliot, 1969, p.4, 40) and immediately after he notes that others see him as the slowly decaying other, “(They will say: ‘How his hair is growing thin!’)” (p.4, 41). This dissonance evolves through the poem, further challenging his identity. One example of this

## New Conceptions of the Self

can be seen by the title, which classifies this poem as a love song, yet as the poem unfolds it becomes clear that it is really a song of shame and despair. So even the title and the content of the poem are incongruous. Although for most of the poem Prufrock continues his monologue of the “I/you” binary, in the very end Prufrock takes a jump into a more uncertain and vague identity of a nondescript “we.”

Throughout the poem Prufrock’s grasp at something greater is an attempt to re-define himself. Although these attempts are foiled by never finding such everlasting greatness, the last stanza radically changes Prufrock from “I/you” to a more abstract “we,”

We have lingered in the chambers of the sea  
By sea-girls wreathed with seaweed red and brown  
Till human voices wake us, and we drown. (Eliot, 1969, p.7 132-134).

Prufrock does not refer to himself as an “I/you” but as a “we.” His use of “we” categorizes Prufrock’s essence into a greater, indeterminate group that may not be human. This stanza contrasts with the rest of the poem; the previous stanzas are disjointed and frustrated by Prufrock’s attempts to use the poem as a way to define his standard self, but now that his self has transcended the rhetorical “I,” the poem smoothes out the disjointed tone. This last stanza is a calm tone, seeming to ebb and flow like the tides of the sea. The fanciful idea of mermaids and lingering in sea-chambers bring about a scenario completely outside of the real, physical self. Drowning, however, brings one back to the realistic boundaries of the physical body since a body cannot breathe underwater. Hence, in this last line, death is the enforcer of the “I,” reminding the physical self of its needs in order to function, and it enforces the abject. The mixture of life and death creates an ambiguous state of existence. This ambiguous state is the supreme effect of the abject force: there are no boundaries here. There are no restrictions for the “we” to be human or non-human, and there are no enclosures for life and death to adequately delineate from each other. Ultimately then, Prufrock’s change in identity breaks the perimeter of the human, reflecting his descent into the “in-between, the ambiguous” (Kristeva, 1982, p.4).

The abject force within Elizabeth Bishop’s “In the Waiting Room” is not a death due to old age, but instead a global and sudden death that connects the world. The end of the poem specifically mentions that “the war was on . . . it was the fifth of February 1918” (Bishop, 1983, p.1, 95, 98-99). In one way, mentioning the war and the date happening on the “outside” may seem like an opposition to the inner mental events occurring in the narrator’s mind. These “outside” events may seem to contrast the inner events because the poem submerges the reader into Elizabeth’s mental world, and the “outside” world constantly reminds the narrator of her location in place and time, thereby reinforcing her physical, standard identity. However, by stating the location in time, this year could possibly invoke an awareness of death occurring on a global scale. This is a possibility because in this year World War I was nearing an end. It was a war that claimed over three hundred thousand American lives and over twenty-two million lives total (PBS). In this same year, the most devastating flu ever recorded in history was unleashed around the globe—known as the flu pandemic of 1918. This pandemic killed between an estimated twenty to forty million people (Billings, 2005). Moreover, the pandemic and the war were intimately joined,

The influenza pandemic circled the globe. Most of humanity felt the effects of this strain of the influenza virus. It spread following the path of its human carriers, along trade routes and shipping lines. Outbreaks swept through North America,

Europe, Asia, Brazil, and the South Pacific (Taubenberger). (...) The Great War, with its mass movements of men in armies and aboard ships, probably aided in its rapid diffusion and attack (Billings).

Undoubtedly, the year of 1918 experienced a global mortality; therefore, "In the Waiting Room" could be seen as a vehicle for invoking death on a massive scale. In this year, death and the fear of death is a shared perspective between continents and nationalities. Death's tie to the global culture is the global tie that brings our narrator, Elizabeth, to question an identity beyond the conventional idea of self.

At the outset of "In the Waiting Room," Elizabeth seems confident in her identity, employing "I" and even self-assuredly defining her physical presence in space, seen in the first four lines of the poem,

In Worcester, Massachusetts,  
I went with Aunt Consuelo....  
And sat and waited for her  
In the dentist's waiting room (Bishop, 1983, p. 1, 1-2).

This presence of Elizabeth's "self" seems grounded, assured. But by reading a National Geographic, which depicts multiple parts of the world, the narrator begins to tie herself to a larger space. The magazine has images of foreign cultures, such as "black, naked women with necks/ wound round and round with wire/...Their breasts were horrifying" (p.1, 26-27, 29). This "horrifying" culture is Elizabeth's interaction with the "outside" or abject. At first glance, her encounter with the abject may seem to contrast with Prufrock's struggle (Prufrock worries his physical self is the abject, while Elizabeth is seeing the abject from afar), yet the war and pandemic make Elizabeth and the woman in the picture close by sharing the global tie of mass death. They are linked by a bond of abjection. Truly, even naming the title "In the Waiting Room" invokes an image of Elizabeth waiting in purgatory, a stage some believe humans experience after death. Now it seems Elizabeth and Prufrock are transitioning into the abject, and this begins to displace Elizabeth's identity when the abject woman, the "outsider," is a part of Elizabeth. While looking at these images Elizabeth hears an "oh!." The exclaimed "oh!" is from her aunt's voice, "a foolish, timid woman" (p.1, 42). And yet, Elizabeth was the one who made the noise. Here this "oh!" is a gasp of shame, a shame of seeing such "horrifying" images. Surprised that someone who seems so radically different from herself has become a part of her identity, she notes that "we" were "falling." Falling to a place where her identity is out of her control, she tells herself, "you are an I" (p.1, 60). Her comment is not a simple declaration of the self like the first stanza, but one last attempt to stay with the typical limits of self, just as she continues by saying "you are an Elizabeth," (p.1, 61) trying to re-assure herself that the melding between her aunt and herself is impossible. The narrator's attempt to uphold her identity falls apart by the end of her thoughts to reassure herself,

you are an Elizabeth,  
you are one of them,  
Why should you be one, too? (p.1, 61-63).

In this line the "I" and "you" may be delineating her from her aunt, but as they have come together for a brief moment in this narrative, I believe this use of "I" and "you" reflects a

## New Conceptions of the Self

similar disconnect as that between Prufrock's identity of "I" and "you." That is to say that Elizabeth cannot find a distinct line between herself and her aunt, blurring the borders of her old conventional identity. So Elizabeth's "I" and her aunt's "you" are now an "I/you" binary of Elizabeth's identity, just as Prufrock's identity consisted of an "I/you." However, death's force not only disrupts the perimeter between Elizabeth and her aunt, but also morphs into something larger. Everyone and anyone becomes "one". Those who were put into a contrast from Elizabeth are now a part of the narrator

What similarities- -  
Boots, hands, the family voice  
I felt in my throat, or even  
The National Geographic  
And those awful hanging breasts- -  
Held us all together  
Or made us all just one? (p.1, 77-83).

This fight between individuality and conforming to a larger group turns to a struggle against the self. Not only is the distinction between "I" and "you" now a struggle within Elizabeth, but "we," "they," and "us" all are "just one." Elizabeth is as much those "horrifying breasts" as the "black naked women" are her, or her aunt. This powerful abject force, displaying itself in this poem through the mass deaths, the "horrifying" outside cultures, and the overwhelming "oh!" of shame, dislodge Elizabeth from her old identity and leave her inquiring where her boundaries now lie. In the end, Elizabeth has not found new boundary lines to map out this global identity; she instead generates more questions than solutions, blurring the limits too far to have any defined borders to re-erect an identity with. This is evident in what is perhaps the most striking and self-shattering line of the poem, "you are an I." While a comment, it seems to question far more than it restores because the "I" is already a border that is broken down. Her insistence on openly labeling her identity shows the futility in trying to confirm that she is in fact an "I." This statement leaves one to question, as Elizabeth does, where the borderlines of "I" apply if "I" is now "all."

In a move radically different than "The Love Song of J. Alfred Prufrock" and "In the Waiting Room," Samuel Beckett's poem "The Vulture" expresses death and life in an intertwined, ambiguous limbo. This is because "The Vulture" sets the reader into a world where life and death seem completely dissimilar from each other. This life/death imagery is first seen by a vulture that flies through the narrator's "skull shell" and stoops down to a "prone" (Beckett, 1977, p.9, 3). This position of lying down face-first gives a sense of death, and the idea that the prone soon must "take up their life" (p.9, 4) insinuates an almost reverse cycle of life, where one is dead until they must come alive. Similarly, making the "earth and sky be offal" (waste parts that a vulture may likely devour) denotes the universe in a sense of decay. Because this earth and sky are also within the narrator's "skull shell" this also insinuates that the narrator's mind will die and become waste. United, the morbid imagery signifies a corpse; truly even naming the poem after a vulture invokes an animal that is known for seeking out corpses. Although this poem assimilates death and life, it also uses the most radical sense of death. Kristeva explains,

The corpse... that which has irremediably come a cropper, is cesspool, and death...refuse and corpses show me what I permanently thrust aside in order to live. These body fluids, this defilement, this shit are what life withstands, hardly and with difficulty, on the part of death...the corpse, the most sickening of

wastes, is a border that has encroached upon everything. It is no longer I who expel, 'I' is expelled....The corpse, seen without God and outside of science, is the utmost of abjection. It is death infecting life. *Object* (Kristeva, 1982, p.3-4).

In addition, the narrator's corpse is the corpse of the earth, again spreading the abject into a larger setting than simply one body. Utilizing imagery of the corpse while giving aspects of life confuses and horrifies the reader, but more than that, it disassociates the narrator from developing an orthodox self.

"The Vulture" uses "his" and "my" in the first two lines, but even this use of the words does not reinforce the standard rhetorical self. This is because the vulture, the one owning the hunger, is within the narrator (because the vulture is flying through his "skull shell"). So here, "his" and "my" do not set a boundary between the self and the world; his shell is the sky and earth, just as Earth creates his body and skull. In the last line, the earth and sky are "offal" (Beckett, 1977, p.9, 6), just as a human would become carrion to a vulture on earth. So this poem does not set up a conventional self and break it down, instead it starts out with an ambiguous self that already encompasses a body and a world as one. Furthermore, the body and earth are deteriorating; the decay brings the sustainment of life for an animal like a vulture. The mixture of life and death is similar to the ending of "The Love Song of J. Alfred Prufrock," indicating another ambiguous world. All of this death, decay, prosperity, and life are occurring in the "skull," which denotes the physical, and also the part inside the skull that is the mind, where the mental self takes place. This clever positioning leads for breakdowns in not only a border between life and death and the physical self and the world, but also the body and the mind. These broken down binaries set the narrator in the land of the abject—an entity that the standard "I" cannot encompass.

Eliot, Bishop, and Beckett challenge and alter the standard idea of self; they left these notions open and unexplained, creating a raw and uncategorized "I" that can span bodies, oceans, and even the globe. Though these poems were published during the early twentieth century, general rhetoric still employs the standard "I" today. This begs the question: what is the effect of this toying with the self? As a broad answer, the ultimate outcome of this deconstruction of the rhetorical "I" allowed other writers to follow in playing with concepts of the self. There are many examples of the later works that employ the modernist's use of toying with the self, but I will focus on a brief explanation of postmodern novels. This focus is to show the modernist's influence on the novels, while also noting the new concepts the works create. In addition, a focus on these works highlights literature that is well known by many, revealing that the critical "I" is slowly encroaching upon general rhetoric. The postmodern movement was able to toy with a more structured form of literature: the novel. Many of these writers were able to disrupt their protagonist or narrator through a non-linear text, in effect, reshaping the character's mental self through reshaping the landscape of the text. Joseph Heller's *Catch-22* abruptly switches to different parts in time without warning, William S. Burroughs' *Naked Lunch* is constructed so the chapters can be read in any order, and Kurt Vonnegut's *Slaughterhouse-Five* features a protagonist who becomes "unstuck in time." In accordance with the modernist poets, these authors all utilize the abject as an important force within their stories. *Naked Lunch* features many aspects that common society repulses: gruesome sex and violence, excrement, and many characters, such as the main character, Lee, is a "junky," addicted to serious drugs, which threaten any user's life. This book is so saturated in the abject that an obscenity trial was held in attempt to censor the novel.

*Catch-22* and *Slaughterhouse-Five* are both set in wars, which this essay has pre-

## New Conceptions of the Self

viously connected to the abject. In the opening of *Slaughterhouse-Five*, Vonnegut wrote that he explained to his publisher about the novel, saying, "It is so jumbled and jangled, Sam, because there is nothing intelligent to say about a massacre. Everybody is supposed to be dead..." (Vonnegut, 1969, p. 19). Faced with the constant threat of death, because the position of soldier is to kill or be killed, a soldier becomes the abject. The threat of death and killing is the catalyst that prompts *Slaughterhouse-Five* to re-engineer its use of space and time. Unlike the narrators of the modernist poems, who would open themselves up to an identity of multiple people or the earth, in postmodern novels, fluid time makes it so everyone is always dead, always alive. *Slaughterhouse-Five* explains this juxtaposition as the protagonist, Billy Pilgrim, is abducted by a group of aliens called Tralfamadorians who experience time in a more fluid way, "When a Tralfamadorian sees a corpse, all he thinks about is that the dead person is in bad condition in that moment, but that the same person is just fine plenty of other moments" (p. 27). Although the Tralfamadorians focus on the positive, their way of experiencing time does not make life or death a permanent state; this models the experiences within the abject, as they both seem to be co-existing states occurring concurrently.

Billy's oddity of being "unstuck in time"—along with the other novels that transgress chronological time—changes the mental development of a character, and creates a more flowing, unending "I." This is because readers expect a certain progression and contextual structure from a novel and these authors break this progression. The typical form of a novel (introduction, climax, ect.) builds a character that develops and learns, bringing about character development. This development denotes a mental growth, and in that way a declaration of the mental self. In these texts, such mental development is expunged, as we see that Billy "never got mad at anything" (Vonnegut, 1969, p.30). His continuously calm mental state is due to his Tralfamadorian outlook, where his experience with time leads him to know the past, present, and future, so there is no need to worry, or be upset when only focusing on the positives in the complete picture of life. This type of structure also makes Billy's time in Dresden fighting the war continuous throughout the book. As the character has a constant resurgence to the war, he can never mentally develop back to a standard "I" because he cannot move past the abjection that comes with war. Whereas in a linear novel, the character would have time to mentally develop after the war and distance himself from those actions and emotions. Furthermore, the readers cannot move past this war, just as the protagonist "is in a constant state of stage fright (...) because he never knows what part of his life he is going to act in next" (p.23), the reader becomes displaced too. This disjunction threatens the reader's own mental self as they struggle for a meaning and sense out of these novels. The reader is further displaced when the fluidity of space and time also creates fluidity between the real and the imagined.

Vonnegut introduces the book by saying, "All of this happened, more or less" (Vonnegut, 1969, p.1). Correspondingly, at the end of the novel, the reader can see that the narrator fluctuates from third person omniscient narrator to a minor character, and to Vonnegut himself. These instances happen multiple times<sup>1</sup> and at one point the reader discovers the narrator to be a minor character and then immediately as Vonnegut. "An American near Billy wailed that he had excreted everything but his brains. Moments later he said, 'There they go, there they go.' He meant his brains. That was I. That was me. That was

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1

Such as page 67 and 121

the author of this book” (p.125). Because Vonnegut asserts that his novel is mainly real, and inserting his own account into the novel crosses between the categories of fiction and non-fiction. The development of a non-fictional account in a fictional narrative blurs the borders between the real and the imagined, creating a self that is “real” (real as far as our standard notions of a self dictates) and also seemingly imagined. Just as Pilgrim’s character development disturbs standard notions of mental development, by asserting that a text that transgresses time and space, interacts with aliens, and contains a narrator and author that begin to mold into each other and into neither at seemingly random points, obliterates what readers would think is a generally non-fictional account. Faced with a new prospect of reality, the readers see a different, more fluid and revolutionized mental state of Pilgrim and the narrator/author. Clearly, the modernist poems that disrupt the standard notion of self are echoed in *Slaughterhouse-Five*, as Billy and the narrator/author transcend the typical idea of what defines an individual. And while Eliot, Bishop, and Beckett aimed to disrupt the physical self, postmodern authors aimed to begin to re-position the mental self as well, disturbing the narrator as well as the reader’s sense of mental development. Both the poems and novels force characters, narrators, and even readers to rethink Elizabeth’s statement, wondering if they too can no longer simply state that they “are an I” (Bishop, 1983, p.1, 60) without wondering what “I” encompasses.

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## **Project Fit America: Neoga Middle School**

Kelsi Espinoza, Statistics

Research Mentor: Susan Herring, Ph.D.

### **Abstract**

*Data was received from 31 schools from across the country in September 2011 and from 27 schools across the country from Project Fit America in September of 2012. The data that was presented contained pre- and post- scores for exercises such as step tests, and the mile run. The pre- scores were recorded in the fall of the respective school year and the post- scores were recorded the following spring, these times representing the duration of the program. Project Fit America wanted to analyze the data to show the percent improvement in the fitness of the children participating in the program. The program is designed to test specific areas of fitness, such as arm strength, abdominal strength and cardiovascular endurance. This report contains the statistical analyses of the data from Neoga Middle School's fourth, fifth, and sixth grade classes under instructor Ms. Letizia for the school years 2010-2011 and 2011-2012. The pre- and post- scores for the mile run time were analyzed for all grades, while the pre- and post- scores for the low step test was compared for the fourth grade classes. There was shown to be a significant improvement in all fitness exercises in all grades throughout both school years among the Neoga Middle School children participating in the Project Fit America program.*

### **Introduction**

During the fall semesters of 2011 and 2012, the director of Project Fit America (PFA) held a conference to discuss analysis of the PFA program. At the conference the founder and director of PFA, Stacey Cook, presented insight on the history, project, and goals of the program.

Project Fit America is a non-profit organization that receives donations from hospitals, health care agencies, and other generous donors to fund their program. Donors have the option to choose which schools they would like to see the program implemented in. If a donor does not select a school, PFA has criteria from which they select a school from a list of schools that have sent in applications, which explain why they need PFA, how it will benefit their school, and a proposal for project implementation. Since PFA's establishment 23 years ago, the program has expanded amongst 40 states, to over 800 elementary and middle schools in over 300 cities. The main goal of PFA is to improve overall physical fitness, addressing both the aspect of physical activity as well as the education of eating properly.

The schools involved in Project Fit America received a lesson plan in nutrition education and smoking prevention on top of the cardiovascular health and physical fitness programs. Each school has outdoor and indoor exercise equipment installed, and is provided with training sessions for the staff, and curriculum to promote active and healthier lifestyles. The first two years a school is involved in the PFA program the school is required to select one class of 25 from the three highest grade levels, for an overall total of 75 students. In order to assess the effectiveness of the program, students were given pre- and post- tests at the beginning and end of the school year. In 2010-2011, teachers were allowed

to select exercises they wanted to perform which included pull ups, sit ups, step test, vaults, the half mile, mile, pole climb and others. In 2011-2012, teachers were asked by PFA to choose from a list of exercises that they wanted implemented in their school. The variety in exercises is intended to test cardiovascular strength, endurance, arm strength, leg strength, and abdominal strength.

PFA wanted the pre-and post- scores from the schools that participated during the 2010-2011 and 2011-2012 academic years analyzed. The goal was to evaluate the program's impact on youth fitness for the participating schools. To do so, the evaluation took the mean difference between the pre- and post- scores and determining each student's change within their grade level at their school. In addition, PFA wanted to compare participating schools across the nation.

## **Methods**

Data was collected for fourth, fifth, and sixth grade at Neoga Middle School, located in Neoga, Illinois. Ms. Letizia is listed as the instructor for all three grades. The number of children per grade per exercise for the 2010-2011 school year ranged from twelve to seventeen students, where the number of children per grade per exercise was over thirty for all exercises the following school year. Data was collected both years for the low step test (fourth grade only), and mile run. More data was collected in the 2011-2012 school year; however, the 2010-2011 school year had limited comparable data. For instance, the pre- score for sit-ups was timed, while the post- score recorded was untimed. The pre- score and post- score weren't comparable because they were collected differently. Ultimately, I analyzed the low step test for both fourth grade classes, and the mile run for all grades, both years. The pre- and post- collection dates for 2010 - 2011 are "October" and "May 20, 2011." The pre- collection date for the 2011 - 2012 school year was "September," and no post- collection date is recorded.

## **Analysis**

In order to ascertain the proper statistical test to use, the Kolmogorov-Smirnov and Shapiro-Wilk tests were conducted to determine whether the samples come from a population that is normally distributed. If the differences between the post- and pre-scores follow a normal distribution, the paired t-test was used to determine if there was a significant improvement in the exercises. For the data that do not follow a normal distribution, the paired Wilcoxon signed-ranks test was used. Ideally from these tests, we can observe whether there was a significant difference, specifically improvement, between the scores. Once that is determined, the approximate mean percent improvement was determined by dividing the mean pre- score by the mean difference, all of which were in fact improvements in this case. Using bar graphs, as seen in the appendix, the mean improvements were visually compared across fitness exercises, grades, and school years.

## **Conclusion**

There was significant improvement in all fitness exercises in all grades, for both school years. I had some expectation that the vast improvement of data collection and greater number of participants the second school year would show a greater improvement than the previous school year. The mean percent improvement was better for each fitness

## Project Fit America

exercise among corresponding grade levels during the 2010-2011 school year than for the 2011-2012 school year. This means that the fourth grade class had a higher amount of improvement on average during 2010-2011 than the fourth grade class did in 2011-2012. The mean post- scores are overall better for the classes for each fitness exercise for the 2010-2011 school year. The 2010-2011 school year's pre- scores are also better for the classes for all fitness exercises except the low step test. The 2010-2011 fourth grade and 2011-2012 fifth grades could be similarly compared, supposing that the members of the fourth grade were members of the next year's fifth grade. However, the fourth grade in 2010-2011 contained seventeen students and the following year's fifth grade class contained forty-three students. The 2010-2011 fifth grade class had a class size of twelve, while the 2011-2012 school year had forty-six students, nearly four times as many students. Ultimately, when these classes were compared, the previous year was still shown to have greater improvement. It is believed that the higher number of students in the 2011-2012 school year was more stable and less easily influenced by outliers. For example, if one student walked a twenty-minute mile, and then ran a ten-minute mile, the amount of improvement would more greatly affect the results of the smaller class. The 2010-2011 classes appeared to have had more improvement, but the class sizes made direct comparison questionable. Ultimately, all grades showed improvement in their mean scores for all fitness tests.

### Reflection/Future Research

I would like to thank Project Fit America for the opportunity and patience in this journey towards better understanding the health and fitness of America's children. In order to improve analysis for future testing within schools that participate in PFA's program, here are some suggestions and feedback.

*Similar tested activities across schools should be used.*

By comparing data from grade to grade, within school, and also comparing schools across the United States, the same activities must be universal in order to compare results.

*Standardized data collection form distributed nationally to create uniformity.*

The test results were recorded on physical forms, where the elected fitness exercises were simply written in across the top. In order to assure accuracy and organized data, a general data form, or, standardized national form, for schools is recommended. Recently a developed generalized electronic form has been created for teachers across the nation to use in order to assure similar recordings. This form will be first implemented in fall 2012.

*Similar time frame for pre- and post- data for universal timeframes.*

Project Fit America's goal is to measure change in children's physical activity. In order to make sure each school is equal in the allotted time frame over two years, it is suggested that a general time frame from start to end be established amongst all schools (weather conditions permitting). Pre- and post- scores should be all gathered at the beginning of academic school year before PFA's program is implemented, and then at the

end of the academic school year once the program is implemented.

*Longer data collection period at schools.*

PFA requires schools to record data for the first two years. However, many times the first year is a learning year, where schools learn what to do, and what not to do, with testing. To get a better idea of PFA's impact at a school, a longer period of recording should be implemented.

*Control groups.*

In order to accurately determine if the results are due to PFA and the fitness program offered it is highly recommended that a control group, that is a group of students who conduct regular fitness training in schools without the aid of PFA's equipment and education, be implemented in the analysis. It is uncertain how factors, such as natural growth, affect student performance. Until a control group can be formed, it will be difficult to attribute all of the improvement that did occur to Project Fit America, and there is no way to account for the natural improvement that would occur with growth.

## **An Analysis of Historical Memory and Spanish National Identity in Contemporary Spanish Literature and Culture**

Salvador García, Spanish

Research Mentor: Parissa Tadrissi, Ph.D.

### **Abstract**

*This research is an analysis of historical memory and Spanish national identity in contemporary Spanish culture and literature and is complemented with a further analysis of articles and news reports regarding the historical memory phenomena such as the disinterment of mass graves from the Spanish Civil war (1936-39). This paper will assess the importance and role that traditional sources of identity have on the Spanish national identity as portrayed in contemporary literature and culture.*

### **Introduction**

What is the role of historical memory in current Spanish politics and contemporary literature? As compared to other determinants of Spanish national identity, how important is the variable of historical memory? While there are other determinants to a Spanish national identity, historical memory movements reflected in artistic, social, and political movements highlight the degree of people's nationalism and run parallel with the resurgence of dialogue surrounding the Francoist regime. Contemporary forms of literature offer a cultural depiction of how the Spanish identity relates to a national identity. Literary works like Javier Cercas' *Soldados de Salamina*, Almudena Grandes' *El corazón helado*, and Fernando Mariñas' *Cielo abajo* are pioneer literary works that depict historical memory and allow for an understanding of old and new national identities.

The current dialogue surrounding the Francoist regime as result of recent historical memory legislation observed in the articles regarding the disinterment of mass graves from the Spanish civil war (1936-39) questions and shapes Spanish national identity. According to The Argentine Forensic Anthropology Team's *2005 Annual Report*, there are approximately 600 mass graves scattered throughout Spain of up to 30,000 people who were not properly buried. The ARMH also notes that some of the mass graves may contain up to 3,000 people. The recent investigation of national identity as result of the trend of historical memory movement has not resulted without polemic, mainly because it opens old wounds that form part of Spanish history. These wounds have to do with war crimes and human rights violations during the civil war and early post-war years. As noted on the EAAF's investigation,

The Spanish Judge Baltasar Garzón, well-known for his efforts to prosecute Pinochet and former junta members from Argentina, has called for the establishment of a truth commission to investigate human rights violations committed during Franco's dictatorship. In addition, elected in March 2004, Prime Minister José Luis Zapatero of the Socialist Worker's Party, whose grandfather died fighting for the Republicans during the civil war, established a commission to investigate human rights abuses during this period and to explore the possibility of setting up a truth commission. This is a marked change from the policies of previous adminis

trations, which did not investigate this period.

Thus, Judge Garzón and the government of Zapatero facilitated the investigations into Spain's recent and painful past. This, along with the historical memory movements underway in Spain is reflected and analyzed in the novels previously mentioned. Canonical ideas of national identity based on variables such as religion, demographics, age, and social class have continued to influence Spanish national identity. Such variables are represented in social movements of historical memory, contemporary literature and culture. These serve to form a subjective categorization of historical memory, focusing on or against Francoist ideology. Historical memory and the repressions of the Spanish Civil War continue to permeate contemporary national identity in Spain. Furthermore, literature and other forms of cultural production offer a depiction of how canonical ideas of identity affect national identity.

## Literature Review

According to MALEŠEVIĆ S. (2011), a world without nationhoods, where a formal and emotional attachment to a particular nation does not exist, is unusual and abnormal. If asked at any international meeting where you are from it's expected that you will name a recognizable distinct nation and political entity such as 'Germany', 'Mexico', 'France,' answering 'I have no nation', would be taken as a joke. Furthermore, you would be asked further questions to clarify your 'real' origin. Nationalism is having a legitimate 'real' origin. The world is divided into more than 200 distinct politically defined entities. It is not possible to be born outside the jurisdiction of a particular territorially defined political entity, most of which are referred to as nation-states.

Most contemporary individuals subscribe to the view that national identities are something factual, self-evident and pervasive. Images such as a soldier dying to protect his homeland, children commemorating a national holiday, a poem that celebrates a specific national tragedy, or a politician, an event, or new statue of national importance are often invoked as expressions of a collective national identity. However, traditional forms that shape and have an effect on national identity are things that are widely believed and highly valued, but not necessarily true. The claim of possessing a national identity is still only a claim, not proof of its existence. Taking such popular claims at face value and summoning 'national identity' as a conceptual or even explanatory device only obscures what really requires explanation. While some argue that 'national identity' is a conceptual idea not worthy of serious analytical pursuit, today at least eight out of ten Europeans see their national identities as quite important (MALEŠEVIĆ, 2011). Cultural and literal determinants of a national identity in a nation offer an appropriate analysis of national pride and the mystery of an individual's attachment to the land.

In order to measure the trend of national pride and attachment in Western Europe, scholars have relied on data coming from Eurobarometer (Eb) surveys. Eurobarometer, more precisely Standard Eurobarometer, is a cross-national program and crosstemporal comparative social research conducted periodically by the European Opinion Research Group, a consortium of public opinion research agencies. Eurobarometer surveys are constituted by individuals aged 15 years and over, from the population of European Union (EU) states. For each member state, the sample population used in Eurobarometer surveys is on average 1,000 people (Antonsich, 2009). Given this context national identity is the acceptance of the individual to live in a certain place. National identity can be defined as the

## Historical Memory and Spanish National Identity

subjective feelings of belonging to a nation or community from an individual, along with diverse elements of cohesion that make this nation/community unique, such as language, religion, culture, ethnicity. These objective elements create a sense of national identity (Canela & Moreno, 2009).

The nationalism of a 'people' or nation according to Benjamin Forest, Juliet Johnson, and Karen Till's article *Post-totalitarian national identity: public memory in Germany and Russia* suggests that nationalism develops and solidifies through social and cultural processes of 'public memory'. Societies create 'histories' themselves through material representations of the past in arenas that, in turn, function as symbols of a 'people' or nation (Forest & Till, 2004). Symbols and iconic idealizations created by history function as representations of national identity. The creation of national identity is a process of historical memory that is most highlighted after political transitions such as that which occurred in Post World War II Germany. Forest and Till's (2004) study found the following:

The process of public memory is especially evident during the political changes that accompany post-totalitarian transitions. A successful transition from totalitarianism to democracy arguably requires a public discussion about how a society remembers its recent past, including how the previous regime repressed civil society through fear, silence and violence. Should such acts be defined as 'crimes'? If so, who is held responsible: individuals, representatives of the state and/or society in general? Such questions are particularly troublesome in societies in transition, especially in those cases where human rights abuses were denied and (may still be) concealed by state officials (Kramer, 2001; McAdams, 2001). Discussions about 'crimes' and responsibility are central to the politics of public memory, because national histories are (re)narrated through such debates.

Such debates are not new in the nationalistic ideology of Europe; contemporary historical memory dilemmas like the process of public memory evident during the political changes that accompany post-totalitarian transitions and that are observed in the German "Never again campaign" exemplify the discussion about 'crimes' and responsibility and how the politics of public memory affect national identity.

A country's national identity cannot be characterized as a purely ethnic or civic national identity, i.e. all countries can have more or less of each of these aspects within their collective national identity (Berg & Hjerm, 2010). The main theoretical distinction when it comes to forms of national identity is between ethnic forms and civic forms of identity (Berg & Hjerm, 2010). According to data concerning the institutional context of national identity, and data that comes from the International Social Survey Programme, national identity can be classified under different variables. The ISSP is a programme that specializes in international comparative attitude studies of national identity. Its 2003 study, *'Aspects of National Identity II'* a replica of the ISSP survey from 1995 deals with areas like identity, nationalism, patriotism, globalization, xenophobia, etc. The survey takes data from 18 different European countries, Austria, the Czech Republic, Denmark, Finland, France, Germany, the United Kingdom, Hungary, Ireland, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and Switzerland (18 in total).

An example of this survey considers the following question in order of importance to determine national identity.

Some people say that the following things are important for being truly [country].

Others say they are not important. How important do you think each of the following is?

1. To be born in [Country]
2. To have lived most of one's life in [Country]
3. To have [Country] ancestry.
4. To be [Religion of country]
5. To feel [Country]
6. To be able to speak [Country]
7. To have citizenship in [Country]
8. To respect political institutions of [Country]

The possible answers range from 'very important' to 'not important at all' on a four-point scale. According to previous studies, different authors have used different classifications of these variables into civic and ethnic (or similar) dimensions.

### Spanish National Identity

National identity, first conceived in Spain in the 1200's, prevailed though the unification of the Iberian Kingdoms by the Catholic monarchs, and continued to grow during the period of Spanish Imperialism (Halavais, 2007). It remained unchanged up through the Spanish-American war, when the philosophical crisis of *La generacion del 98* first began to question Spanish national identity. It's through out the early modern period of Spain and up through the Spanish Civil war (1936-1939), post-war era, transition to democracy period, and contemporary Spain, that we can understand the determinants of the Spanish national identity, understood to be nationalism, and the first form of an individualistic view in relation to the nation.

Given this context, national identity is the acceptance of an individual to live in a certain place. National identity can be defined as the subjective feelings of belonging to a nation or community from an individual, along with diverse elements of cohesion that make this nation/community unique, such as language, religion, culture, ethnicity (Canela & Moreno, 2009). These objective elements create a sense of national identity. The subjectivity of individuals' feelings is the result of their sense of belonging to the nation.

National identity is the fabricated notion of an individual and the social factors of society that determine his acceptance, factors best exemplified by historical memory, religion, demographics, age, and social class. According to the historian Teofilo F. Ruiz, in his work *Spanish Society 1400-1600*:

The late Middle Ages and the first strings of modernity also coincided with a powerful drive to define a collective national identity. Throughout Europe, but most notably in Spain, with its greater religious and ethnic diversity, literary, historical, and iconographic representations of self and others helped stiffen the criteria for social belonging...

Ruiz points out that the early modern period of Spain more than anywhere in Europe was crucial for the development of a national identity because of religious and ethnic diversity, literary, historical, and iconographic representations of self and others.

In the modern context, canonical ideas of national identity have continued to influence nationalist ideas and the meaning of being Spanish. Scholars prescribe that na-

## Historical Memory and Spanish National Identity

tional identity cannot be observed until after the French revolution, however this is an ill informed assertion; Spain was the first super power in modern Europe, and the mother country of many countries of the New World.

The Spanish Civil War can be described as a crucible for the Spanish national identity, dividing the Spanish national identity into two, the National Spain and the Republican Spain. Different from France, Spain did not have a revolution that would define the meaning of being Spanish. Other than the intermittent interruptions of monarchical rule Spain since its creation did not have a major existential crisis. (Those interruptions included the Napoleonic intercession, the first and second republic that triggered the Spanish civil war as result of a sea of fragmented identities). The civil war for this reason is a focus to go back to, for the purpose of recovering the identities that the Francoist regime destroyed and repressed. It can be said that there were four forms of national identity. Those individuals that identified and were militants of parties to the left, and those to the right, center or with new determinants or forms of a national identity and ones that do not identify with any. National identity goes hand in hand with different sources of national identity: religion, demographics, age, social class which serve to form a subjective categorization of national identity influences like historical memory and culture.

The notion of a Spanish national identity is a live concept that grows and continues evolving around the factors of historical memory, religion, social class, rural and urban demographics, and time—all sources of national identity. Using historical memory as a theoretical framework to determine the influences of Spanish national identity serves to create an understanding of the many sources that make up a national or various national identities in Spain. According to the various determinants of a Spanish national identity the concept of historical memory in contemporary Spanish literature determines more than an identity, it recovers the overall meaning of what it means to be Spanish.

“Other” national identities like Catalan, Galician, Basque, and more can be accounted for through the analysis of data from different geographical regions in Spain’s urban and rural centers. Cities like Madrid, Barcelona, and Valencia that were more open to change and in line with the contemporary thought yielded an important ideological notion of national identity prominent in urban centers of Spain.

Individuals from the autonomies in question see national identity differently from the rest of Spain; they owe immediate loyalty to their local autonomy and then to Spain as a whole. Within the context of regions and political identity arises the idea of succession or independence, a volatile but expressive idea of political and national identity. Among the most differing causes between these three regions and the identification with Spain as a whole is the embracing of an Indo-European language other than Spanish. During the times of the autarchy, *Catalan*, *Gallego*, and the *Euskera* were languages prohibited, triggering a regional or geographical pride within *Galicia*, *Cataluña*, and *Euskadi*. The differing cultures within Spain are inveterately woven into Spain’s nationalistic fabric; they cannot be perceived as different or as many, but as part of the whole. Spain’s nationalistic groups like ETA have been statistically viewed as different, yet their extreme nationalistic actions have affected Spain as a whole. The assassination of Carrero Blanco by ETA in 1973 resulted in the denouement of the Francoist ideology in Spain. This action eliminated the Francoist successor and activated the biggest political crisis of the regime. These forms of extreme nationalism and statistical stances are proof that there are no “other” national identities; Catalan, Galician, Basque or that there is no one “national” identity in Spain.

## Culture as a depiction of Spanish National Identity

*Historical memory and its continued influence in culture*

Francisco Ferrándiz & Alejandro Baer's article *Digital Memory: The Visual Recording of Mass Grave Exhumations in Contemporary Spain*, puts historical memory and Spanish political identity in context of the contemporary mass grave exhumations in Spain. The use of visual media to record the social action surrounding exhumations serves to record and trigger historical memory. Historical memory in their article is described as digital memory. This version of historical memory is shaped around the exhumations of mass graves and the visual and audiovisual interventions that social players have on the many forms of digital memory. Francisco Ferrándiz & Alejandro Baer's (2008) study found the following:

Over the last eight years, Spain has seen the emergence of a surprisingly strong social movement, loosely found on the idea of "recovering historical memory." Local organizations with such an aim in view (ARMHs, Asociaciones para la Recuperación de la Memoria) have been mushrooming in different regions of the country. The "recovery movement," which has never failed to spark controversy, mostly focuses on: 1) locating graves and exhuming corpses of the victims of Franco's repressive policies, both during the Civil War (1936-1939) and after Franco's victory, and 2) recording oral testimony from victims and relatives, mostly in digital video format.

In light of such cultural productions it is evident that Spain is undergoing a boom in the recovery of historical memory, and the disinterment of Franco's mass graves represent a symbolic cause. This interesting phenomenon establishes a new practice of civic-political nature that evokes a distressing past but like memory, tells about the Spanish present. Within historical memory video recording and photographs serve multiple purposes: to document, to preserve, to honor, to link oneself, and to perform identity (Ferrándiz, & Baer, 2008).

Carolyn P. Boyd in her article *The Politics of History and Memory in Democratic Spain* suggests that the role of historical memory is a strong determinant variable of Spanish national identity. Her research is based on questioning the idea of memory. Memory according to Boyd, in both individuals and groups, is the process by which people construct personal narratives supportive of integrated and efficacious identities in the present. Defined this way historical memory is crucial to the creation of a present-day Spanish national identity. Individuals and groups can neither make sense of their current existence nor plot their futures without individual and group memories, as individual and group identities, are the product of active creation. As noted in her article,

"History" and "memory" are terms often used interchangeably in popular discourse, despite the large and ever-growing body of literature whose purpose is to distinguish between them. Indeed, in Spain the word "memory" has become the preferred locution in many contexts, including nominally neutral ones (Heisler, 2008, p. 133-212).

Boyd uses historical memory in this article in order to clarify the degree to which contemporary political usage has distorted, confounded, or instrumentalized memory and identity.

Not unlike Boyd's questioning of memory, the recent emergence of a belated memory politics in Spain has surprised many observers, and it seems all the more sur-

## Historical Memory and Spanish National Identity

prising given the circumstances and impulses detailed in how Spaniards today view the political amnesty granted during the democratic transition. Why has Spain's "*pacto del olvido*" begun to fracture after so long? The explanations given above offer a starting point. Although words such as *forgetting* and *amnesia* have been widely applied, such terms are, like the term memory itself, inherently problematic and imprecise when used to describe collective impulses occurring in specific political or historical contexts. As Ramon Resina notes, "Distorting and forgetting may be essential to remembering even under the best of political circumstances. The past is not available in its totality and whatever we remember of it at a given time and place depends on the nature of the institutions that organize social life."

### *Age Generational Gaps*

The exhumations of graves from the Civil War paired with the foundation of the *Asociación para la Recuperación de la Memoria Histórica* (Association for the Recovery of Historical Memory, ARMH) help to unbury part of the fabric of Spain's civil society. The recent resurgence of the Spanish Civil War, after sixty years, has engaged the country in a public debate and exposed conflicting political cultures, both of ideological and generational viewpoints. The generations born since the sixties, who were too young when Franco died, that neither fully experienced the dictatorship nor participated in the political bargaining surrounding the 1977 Amnesty Law, have learned with the recuperation of historical memory that Spain's democratization and modernization were founded on neglect (Ferrándiz, & Baer, 2008). Neglect given to a "lost generation" buried in time. The notion of historical memory for Francisco Ferrándiz and Alejandro Baer is important and in line with their descriptions of a Spanish national identity that neglects citizens through generational bridges. For them age and digital memory affect national identity as the exhumations of mass graves and the recording of survivors' testimonies are ways to recuperate a national identity that has not been factored into the ideology of a younger generation. The use of modern technologies to record and document historical memory is inherent of a new generation. Modern technologies help bridge the generational gaps that separate the different Spanish political identities. The overall effect that modern technologies have on new generations is key to social movements and to facilitate the creation of a political/national identity and bridge generational gaps.

### *Religion*

Religion was an ally to Franco; in Sevilla the church organized Francisco Franco's military victory parade and the virgin went side by side with him. Under Franco, the nation became Catholic and the secularists "anti-Spanish" (Abad & Seco, 2007). Alicia Mira Abad and Mónica Moreno Seco's article *Religion and Politics in the Mediterranean: An Historical Perspective* describes Francoist policy of religion as a mode of control by which the autarchic government of Franco could use religion to influence people and determine their political affiliation. Mira Abad and Moreno Seco, (2007) study found the following:

During the second half of the 20th century, for several decades, Catholicism was not only a religious option; it had succeeded in infiltrating itself into the heart of the social and political institutions, in such a way that religion is constantly present in Spanish civil life (Bueno 1994: 62–69) Under the Franco regime, the

official “homo religious hispanicus” lived almost exclusively obsessed by a Catholic social and political horizon (Jiménez Lozano 1966: 49). However, the apparent immutability of religion as the element giving structure to the François mind and body has given way to a secular and modern state (with its particular nuances) (p. 275-290).

Religion in Spain during the autarchy determined the life and conduct of individuals. As beneficial religion was for the *Franquistas* it was deterring and antiquated for the Republic. The Catholic Church held a firm grip on the Spanish identity throughout the postwar, and even today, that serves it to socialize people. This article states that by the end of the autarchic period the Church had distanced itself from the regime, in an effort to evolve and maintain power and influence. The authors note that if the church had remained a cornerstone of the regime, it would de-legitimize itself, resulting in its disengagement from politics (Abad & Seco, 2007). This is to say that the church had to transcend the Franco regime as it had others, and to transcend it would have to refrain from politics regardless if it had given Franco an initial support.

### *Urban and Rural*

Urban centers like Madrid, Barcelona, and Valencia are among the most populous cities in Spain. They have been centers for political ideas, technology, and unions since the civil war. These principal cities were among the most in opposition to Franco, given that urban lifestyles were most in line with the Spanish Republic. During the Spanish Civil war Madrid, Barcelona, and Valencia were the last to fall to Franco. Madrid civilians defended their city at any cost and implemented devoted resistance. Under the leadership of the Dolores Ibárruri *La pasionaria* Madrid rallied to fight Fascism. The motto of the city was *No pasaran!*

The fall of Madrid was the final event of the war, military occupation marked the beginning of François rule, which was implemented only after April 1939. Madrid was thus the epitome of ‘Red’ Spain, holding out for longer than Barcelona, its resistance symbolizing the resilience of the Republic (Vincent, 2007, p. 275).

The efforts of citizens to defend Madrid failed because of the internal political differences that fragmented the republic. The bands of the war could be divided into two, the urban and rural during and in the post war. The rural people are different from those that lived in urban centers, these populations were stricken by poverty and lacked social opportunities. Poverty and the lack of education contributed to the opposite phenomena of what occurred in the cities. In sectors like Extremadura and Andalucía the autarchic government was welcomed. Franco saw in rural populations loyal followers. The rural setting became the symbol of Fascists and of traditional Spain.

### *Social Class*

Social class like urban and rural settings are among the most highlighted determinants of political identity in Spain. Class creates a sense of belonging and determines our place in the social ladder as well as determining much of one’s political identity. Angela Cenarro expresses in her article that social welfare in Spain is an indicator of one’s social

## Historical Memory and Spanish National Identity

class and political views in turn of an individual's national identity. Cenarro associates social welfare recipients with republican women that are ostracized as result of their marginalized social class. In her analytical work, Cenarro, equates *Auxilio Social* with a welfare institution in Franco's Spain, from which poor women and children—the losers of the Civil War—benefit. Cenarro's (2008) study found the following:

Welfare emerged as one of the most useful tools for social control. Although some charitable activities remained in the hands of the Church or of municipal or provincial councils that subsidized hospitals and asylums, welfare constituted one of the clearest forms of state intervention during the dictatorship. From May 1937, the Falangist organization *Auxilio Social* (Social Aid) became the most important institution in charge of social work. It played a crucial role in the consolidation of the Francoist state for several reasons. First, its offer of welfare was conditional on the receipt of indoctrination and propaganda. Second, it sought to neutralize the working classes' potential rejection of the regime by creating a basic, cheap welfare infrastructure. And third, it fulfilled a proselytizing function by insisting that all "good Spaniards" should contribute to care of the needy through donations, thus building the "national community" or "New Spain." According to this totalitarian scheme, welfare sought to incorporate the masses into the state; individuals were not conceived as subjects entitled to social rights but as members of a hierarchically ordered, state-controlled "national community" (p. 39-59).

This perspective of social classes points to the establishment of a new social class made up of Falangists, clergy and of the military. In postwar Spain, the new Francoist elite became a new ruling class, to shift power relations among victors (the *Falangistas*) and losers (the *Republicanos*).

### Literature as a depiction of Spanish National Identity

Javier Cercas' *Soldados de Salamina* was the first literary work in the Historical Memory context; ever since its publication in 2001 there has been a significant production of historical texts focusing mainly on the Civil War written in the form of novels. *Soldados de Salamina*, *El corazón helado*, and *Cielo abajo* are novels based on facts, but the reader does not know how much is reality and how much is fiction. From these pseudo-historical, and political narrations, Spanish society is recovering and rediscovering a historical past that the democratic transition chose to keep hidden (De Urioste, 2010). Javier Cercas' *Soldados de Salamina* exposes: who Rafael Sánchez Mazas was, one of the founders of the Spanish *Falange*, why Republican forces in Barcelona let him go, and how an aging man that had lost his glasses and could barely see survived in the hills of Barcelona after having miraculously escaped a firing squadron. In reality, Antoni Miralles, a republican militante pardoned his life. Sánchez Mazas had been put face to face with his death, but the republican soldier looked at him and reported to his superiors that in that part of the forest there was no one. *Soldados de Salamina* is an ironic read. The affair of Sánchez Mazas being pardoned by a Republican soldier is the apotheosis of the two Spains. According to José de Piérola the novel can be divided into three different narratives, belonging to three characters that offer a unique perspective of the Spanish Civil War in the context of historical memory. These narratives can be analyzed under different lenses to derive a depiction of Spanish national identity. De Urioste's (2010) study found the following:

*El tercer personaje, el narrador, no parece tener una convicción ética ni estética muy marcadas al principio de la novela. Después de publicar dos novelas sin éxito, se pasa el día tumbado en “una butaca, frente al televisor”. Por otro lado, al principio de la novela confiesa no saber “nada” sobre la Guerra Civil. Lo cual equivale a decir que no tiene posición alguna sobre ésta. Sin embargo, después de oír la anécdota del fusilamiento de Sánchez Mazas, se embarca en un proceso de (re)construcción histórica cuyo objetivo es comprender el momento preciso en que el miliciano le perdona la vida. Luego de su investigación inicial, escribe la segunda parte de la novela (la biografía de Sánchez Mazas), pero no queda satisfecho. Le falta la visión del “otro lado”. La visión estética no está completa sino hasta que ha incorporado ambas posiciones éticas, planteando así el campo ético-estético de la novela... Después de presentar tres versiones diferentes del episodio, el narrador deja al lector tomar esa decisión más importante. ¿Tiene ahora una visión completa del “evento” que a lo largo de la novela se ha convertido en un “hecho” histórico? ¿Es posible llevar a cabo una (re)construcción del pasado? (p. 69-84)*

The main characters and the narrator offer three different perspectives of the same episode—The Spanish civil war and Sánchez Mazas. These perspectives offer both ethical and civic views from the esthetical vision of the whole. Having a complete vision of the event that throughout the story becomes a historical fact, the narrator lets the reader make the most important decision, if it's possible that the historical reconstruction events like the assassination of Sanchez Mazas depict a form of national identity.

The literary depiction of nationalism in Javier Cercas' work is represented in the nationalistic song *Suspiros de España*. The author depicts this *pasodoble* as the saddest song, in which Spain is personified as a mother and its citizens as her sons.

*Quiso Dios, con su poder;  
Fundir cuatro rayitos de sol  
y hacer con ellos una mujer,  
y al cumplir su voluntad  
en un Jardín de España nací  
como la flor en el rosal.  
Tierra gloriosa de mi querer;  
Tierra bendita de perfume y pasión,  
España, en toda flor a tus pies  
suspira un corazón.  
Ay de mi pena mortal,  
porque me alejo, España, de ti,  
porque me arrancan de mi rosal.*

The growing mortal suffering mentioned, gives the premise of one Spain, rallying individuals to having one same mother. This nationalist piece is a canonical representation of Spanish values.

Almudena Grandes' novel *El corazón helado* published in 2007 is the narrative of Raquel Fernández Perea, the granddaughter of a Spanish expatriate and her lover Álvaro. Grandes depicts the history of post civil war Spain through Benigno Carrión, a religious man, and Teresa Gonzalez, a republican teacher, the parents of Álvaro. Grandes also touch-

## Historical Memory and Spanish National Identity

es on the dynamic between victors and losers during the period of transition to democracy through the characters of Julio and his wife. De Urioste (2010) writes:

*Julio y su esposa, Angélica Otero, son los principales representantes del pensamiento conservador; y posteriormente franquista, y ambos perpetraron traiciones contra la familia republicana de los Fernández Muñoz: la traición de Julio de orden económico (apropiación indebida de los bienes republicanos) y la de Angélica de orden político e ideológico (delación). Sustentado en estas traiciones, Grandes propone, primero, una lectura del franquismo como un período basado en la falsía y la infamia y, por tanto, que el final de la vida de Julio se transforme en el inicio de la narración, a través tanto de la memoria como de la historia, adquiere un valor simbólico, pues supone el final de la mentira y el inicio de la búsqueda de la verdad y del conocimiento por parte de Álvaro (p. 69 – 84).*

Julio and Angélica represent the françoist pillage of republican ideology and economy. Julio, the eldest brother of Álvaro, wrongfully appropriates the property of the Raquel Fernández Perea's family after the civil war. In this sense Grandes (2007), according to Carmen De Urioste (2010), proposes that all Spaniards investigate their non-exiled elders with the purpose of finding the true face of that society. Secondly, Grandes breaks the idealization of the harmonious notion between the two Spains during the transition period. *El corazón helado* offers a reading of democracy where remembering the history of the Spanish Civil War becomes a social duty whose finality is to transform individual memory into collective understanding. These documents, books, and films, about the Civil War and the postwar, along with the prisons of *Carabanchel*, *Ventas*, the refuges in France, and the babies stolen from imprisoned republican mothers, are the realities that no one dared talk about in 1977.

*El corazón helado* proposes that once the democracy was established, understanding the history of the Spanish Civil War becomes a social duty whose finality is to transform the individual memory into the collective. The theme of the civil war takes on an important role in the contemporary Spanish social and cultural context.

*De manera paralela al desarrollo sociocultural de la memoria en la sociedad civil, se han producido cambios en la esfera política con dos polémicas medidas tomadas por PSOE en la anterior legislatura (2004–2008): la devolución de los denominados ‘Papeles de Salamanca’ y la aprobación por el congreso de la ‘Ley de Extensión de Derechos a los afectados por la Guerra Civil y por la Dictadura’. Aparte del boom de memoria en esferas tanto sociales como políticas, en el sector cultural el renacer de la memoria no solamente se ha producido en el área de la literatura o el cine, sino que abarca amplios sectores culturales como son editoriales, exposiciones, páginas web, juegos de video, documentales y un largo etcétera (De Urioste, 2010, p. 69-84).*

The boom of historical memory in the social and political spheres, is reflected in the cultural rebirth of memory that has taken hold not only in the area of literature or film, but in the broader cultural sectors such as publishing, presentations, web pages, video games, documentaries, and so on.

Fernando Marías' *Cielo Abajo* published in 2005 portrays a nationalistic perspective of Spain through the experience of an orphan that grows up with dual identities, the

Republican and the National. The life of Joaquín Dechén begins in the midst of the Spanish Civil War. With no more possessions than an airplane cutout from a newspaper, he stops at nothing to become a pilot. “*Los periódicos de entonces mostraron en primera plana la fotografía de un cielo blanco y negro...Era la foto del avión bautizado Plus Ultra. Fascinado, robé el periódico, recorté la foto y la guardé. Doblada en cuatro, y oculta bajo el colchón, fue mi primera pertenencia*” (Marías, 2005, p. 22). Joaquín’s start in life is like that of many Spaniards during the war. In order to survive some had to adopt another identity, or multiple like in the case of Joaquín. Just out of the orphanage he exchanged his presentation letter with his friend and gave up his true name and destiny.

*Cuando volvimos al autobús, él llevaba mi sotana y yo su uniforme, que me quedaba pequeño y un poco ridículo, eché mano al bolsillo del pantalón y saqué el sobre cerrado y doblado en cuatro que me habían dado las monjas. Mi amigo lo miro. Sacó con gesto marcado por algo parecido a la solemnidad, otro sobre igual, aunque sin doblar. Los sobres contenían una carta de presentación...Los intercambiamos. Tragué saliva no sé si por separarme de mi nombre y destino legítimos o por aceptar los de otro* (Marías, 2005, p. 24).

Also, in this depiction of one’s identity in the face of adversity, we see the canonical picaresque archetype of the young Spanish man that wanders, in search of meaning.

Being Spanish is not as clear-cut as the Françoist’s would like. Joaquín faces the decision of choosing between affection or owed loyalty. On one hand, he has the duty to help his friend and father-like figure win the war by Madrid and on the other, the affection towards his host mother Constanza. Joaquín walks the fine line of treason and love.

—*Y dime..., Joaquín...  
¿Harías algo por España?  
Muy importante... Algo heroico. Por tu patria... y por mí.  
Ganar la guerra*

These are the words of his friend asking Joaquín to pledge a promise to win the war. In this mission Joaquín falls innocently in love with Constanza del Soto y Olivares, an aristocratic Duchess that gives up her titles of nobility to marry a republican pilot. Their encounter is simple but enough to win Joaquín.

—*Soy Joaquín –te tendí la mano; instintivamente, la diestra vendada. Tú, también por instinto, te frotaste la zurda contra la falda y me la estrechaste. Me hiciste daño en la herida, quejé.  
—Y yo soy zurda –te disculpaste.  
Fue mi primer contacto contigo* (Marías, 2005, p. 86).

Joaquín commits treason before going against Constanza or his friend and ultimately the remorse he feels for having divided affections makes him fly *cielo abajo* (downwards), committing suicide.

## Conclusion

The subjectivity of individuals feelings is the result of their sense of belonging to the

## Historical Memory and Spanish National Identity

nation. National identity is the fabricated notion of an individual and the social factors of society that determine acceptance, factors best explained as historical memory, religion, demographics, age, and social class. Today, Spain is living through a revival of its national identity. Many newspaper articles, films, art expositions, and important literary works focus on historical memory. Most of these forms of cultural production can be conceptualized through the influence of canonical forms of identity that continue to influence various sectors of Spanish life.

The notion of a Spanish national identity is a live concept that grows and continues to evolve around the factors of historical memory. As we have seen, many such factors are reflected in social movements and in contemporary literary works such as *Soldados de Salamina*, *El corazón helado*, *Cielo Abajo*. Using culture and literature as a framework to depict a Spanish national identity creates an understanding of the many factors that make up a national identity in Spain.

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# Sociophysiology of an All-Male Troop of Captive Squirrel Monkeys, *Saimiri sciureus*

Natalie Hambalek, Biology

Research Mentor: Karin Enstam Jaffe, Ph.D.

### Abstract

*The process of “retirement” for research primates is critical for the well-being and survival of the animals, yet despite the squirrel monkey, *Saimiri sciureus*, being listed as the second most frequently utilized research subject (Jack, 2011), there is little available literature that focuses on the transition of squirrel monkeys from the laboratory to retirement in captive facilities. This is because zoos are often reluctant to house all-male groups due to reputation for high rates of male-male aggression leading to injury and death (MacDonald, personal communication). Through measurable observational behavior methods as well as fecal glucocorticoid sampling, rates of aggression and dominance behaviors and physiological stress levels were determined for a group of 18 captive squirrel monkeys at the San Francisco Zoo (SFZ) during two different time periods. Analysis indicates that aggression and dominance accounts for less than 2% of intervals in their activity budgets. The results indicate that there was overall decreases in aggressive physical altercations, but an increase in dominance behaviors (e.g., avoids, supplants) after the monkeys were moved into their larger enclosure. The findings of this project can be used to improve squirrel monkey enclosures, management, and enrichment, and also provide evidence that large groups of male squirrel monkeys can cohabitate when transitioned from biomedical laboratories, making this an effective alternative to euthanasia.*

### Background

In the wild, common squirrel monkeys, *Saimiri sciureus*, are found in fully integrated multi-male/multi-female groups. The size of these groups range from 15 to 30 animals (Boinski, 1999). Aggression is extremely common in males, often resulting in disfiguring scars (Boinski et al., 2002). However, it is also noted that males can be affiliative and form close bonds (Boinski, 1999). Males tend to emigrate from their natal groups (Boinski et al., 2005). High-ranking males often fight to prevent peripheral males from joining the group. Both male and female squirrel monkeys form linear dominance hierarchies (Boinski et al., 2005).

At the San Francisco Zoo, the group is composed of 18 adult male squirrel monkeys. Due to a reputation for abnormally high rates of aggression and wounding from physical altercations, zookeepers have expressed concern about even higher rates of aggression compared to the wild (MacDonald, personal communication). Normally, squirrel monkeys are housed with females in captivity to reduce altercations resulting in excessive aggression and injury. In addition, unrelated individuals are less likely to be affiliative and more likely to be aggressive (Sussman, 2005). Since there is unknown relatedness among group members in addition to being the largest all-male troop in any Association of Zoos and Aquarium approved institution, there is validation for this concern.

## Methods

Comparative data collected for this study were separated into two time phases. Phase 1 includes data collected in September through November 2010. During this time period subjects were moved from a small enclosure to larger public exhibit in the Primate Discovery Center (PDC). Subjects gradually underwent introductions from groups of two to four, etc. (n=10, n=10 to n=20). Phase 2 data were collected from May to December 2012. By this time, all subjects had been acquainted (n=18) and remained in their large public enclosure in the PDC.

The methodology of this research is based on standard animal behavior data collection techniques as outlined in Martin and Bateson (2007). The non-invasive data collection methods include: focal animal sampling, scan sampling, and all-occurrences sampling. To compliment observational data, fecal glucocorticoid analysis was conducted to measure cortisol levels in order to determine if there is a correlation between stress levels and these behaviors.

### *Behavioral Measures*

To obtain activity budgets for individuals and the group overall, over 50 hours of observation on squirrel monkey activities were collected over the two time phases. Observational data collection methods are described below:

1. Focal samples: Sample all individuals on a rotating basis using 5-minute focal observations with interval sampling every 30 seconds collected 1-2 times per week over a six-month period. (n=20-30 focals per animal). Individual identity, behavior, location, association with others, as well as details of keeper activities when they may impact subject behaviors (feeding, cleaning, handling, etc.) were recorded.
2. Scan samples: 1-minute scan samples of enclosures (outdoor exhibit and indoor quarters) every 3 focals, noting location and activity of visible squirrel monkeys.
3. All occurrence sampling: During all observations, all occurrences of altercations (vocal and physical) and including length of bout when possible, and specific types of altercation (i.e. mounting, penile displays, chasing, and physical altercations as well as more subtle dominance displays such as avoidance, leaving, and supplanting).

Analyses of these data will indicate if activity levels, affiliative, repetitive, aggressive behaviors, and other types of behaviors change over time.

### *Physiological Measures*

Non-invasive measures of physiological stress have a wide array of applications for conservation biology and animal husbandry. Measurement of fecal glucocorticoid metabolites may be exceptionally useful, especially since samples can be easily obtained in captivity or in the field, without disturbing subjects. Samples can show adrenal responsiveness to a wide variety of potential stressors (Wasser et al., 2000). For this reason, zoo personnel collected non-invasive fecal samples for analysis. These samples were frozen at -20°C until they could be analyzed. The samples were collected in the morning in both the indoor and the outdoor public enclosure. The zookeeper recorded the date, time of day, and if known,

## Captive Squirrel Monkeys

the identity of the subject whose feces is collected. There was an attempt to sample those individuals frequently involved in affiliative and aggressive behaviors as well as individuals who have been wounded or who have been isolated by the group.

Samples were analyzed using an extraction method and radioimmunoassay that is detailed by Wasser et al. (2000; 2010). The results can be compared to other studies of captive squirrel monkey transitions (e.g. Anzenberger et al., 1986; Mendoza et al., 1991; Lyons et al., 1994). Results may also be compared to other species undergoing similar transitions when appropriate.

The fecal samples were lyophilized for 24 hours to allow hormone concentrations to be expressed per gm dry weight. Thoroughly homogenized fecal powder (.01g) was added to 15mL of 70% ethanol solution in a 15mL conical falcon tube. The tube was vigorously shaken by hand for 10 seconds and then sonicated for 10 seconds. The tubes were centrifuged for 20 minutes at 2200rpm. The supernatant was decanted from the fecal pellet and was placed in a 5mL polypropylene cryogenic vial tube and was stored at -20 °C until radiomunoassay (RIA). 50µL of the supernatant was transferred to run the RIA according to the normal procedures for serum samples. Results were recorded for each sample tested.

## Results

### *Dominance and Aggression*

Activity budgets for both phases were calculated using the proportion of intervals calculated for the following categories of behavior: locomote, affiliative, rest, repetitive, aggression, dominance, and “other” (i.e. auto-grooming, urinating, defecating, and sneezing (Figure 1)). Results indicate that the wide range of activities do not stray far from primate behavior in the wild (Melfi, 2002). In addition, aggression and dominance behaviors combined compose less than 2% of intervals in each time phase.

In addition, the types of both aggression and dominance behaviors were comparatively charted for Phase 1 and Phase 2 (Figures 2 and 3). Aggressive interactions include food fights, vocalizations, chasing, and physical fighting. There was a dramatic decrease (57% to 8%) in physical aggression, while an increase in less intensive exertions of aggression such as chasing and vocalizations. Dominance behaviors include mounting, penile displays, leaving, stealing food, avoiding, and supplanting. The increase in variance of dominance types between Phase 1 and Phase 2 (i.e. the addition of supplanting and avoidance behaviors) may be attributed to adequate physical space and familiarity between subjects that was more apparent in Phase 2.

The trends of both aggression and dominance were mapped out in relation to time of data collection vs. percentage of intervals recorded of aggressive or dominance interactions (Figure 4). These data indicate that over time aggression decreased and dominance altercations increased.

### *Stress Physiology*

The fecal cortisol metabolite concentration was calculated in mg/g dry weight of fecal powder. The data show that there was no significant change in fecal cortisol levels during a two-week period of sampling, ( $X = 1.83 \pm .94$  mg/g dry weight (Figure 5)). This two-week period also correlated with a period of no aggressive interactions recorded in the behavioral data.

## Discussion

Results from this study are significant for a number of reasons. First, the low rate of aggression, even during the early phases of the transition, indicate that all-male groups of squirrel monkeys may not be as aggressive as previously assumed, which is significant because this is the major reason cited in objection to housing them in captivity. Since there tends to be a surplus of males in captivity, due to a higher demand for females to develop mixed groups, it is important to highlight that large all-male troops can cohabitate with reasonably low rates of physical aggression. An increase in subtle dominance (e.g. avoids, supplants) and agonistic behaviors (e.g. penile displays) in Phase 1 to Phase 2 suggest that the troop has configured a dominance hierarchy. Additionally, the inverse relationship between rates of aggression and rates of dominance behaviors may indicate that zoos can expect some aggression at the beginning stages of such transitions, but that as the animals work out their place in the dominance hierarchy, aggression is likely to decrease even further. Comparing Phase 1 and Phase 2 data for all factors suggests that adequate physical space may be an important variable in moderating aggression. Access to resources such as food and the indoor enclosure are also important factors. The correlation between no change in fecal cortisol level and low levels of physical aggression suggest that physiological stress and bouts of aggression are linked and such analysis may be a useful tool to determine stress levels in these groups. With proper management and enclosure design, large all-male troops can successfully cohabitate with reasonable rates of aggression and dominance behaviors.

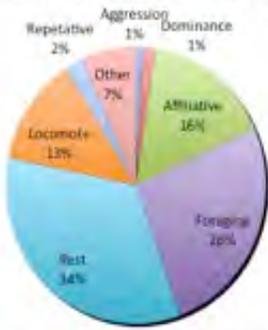
## Acknowledgements

I would like to thank Marcia Brown for her dedication and initial data collection for this research project and the San Francisco Zoo for permission to conduct this research. Corinne MacDonald (Primate and Carnivore Curator) and zookeeper David Carroll for help with data collection and periodical troop updates. This study was supported by the Beta Beta Beta National Biological Honor Society with a research grant for the amount of \$750.00 as well as a Sonoma State University Undergraduate Research Grant in the amount of \$600.00. This study was conducted under the supervision of Dr. Karin Enstam Jaffe through Sonoma State University Primate Ethology Research Laboratory (SSUPER). The behavioral data and fecal samples were approved by the Sonoma State University Institutional Animal Care and Use Committee (Approval #2012-42). The fecal extraction and radioimmunoassay were done with the help of Dr. Daniel Crocker in the Sonoma State University Biology Department.

Appendix

Figure 1

Activity Budget: Phase 1



Activity Budget: Phase 2

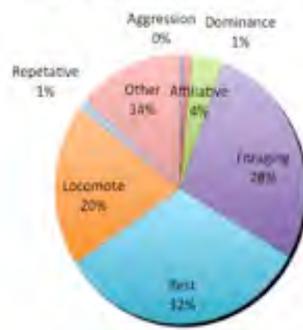
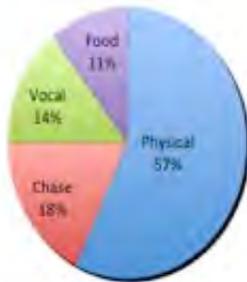


Figure 2

Types of Aggression: Phase 1



Types of Aggression: Phase 2

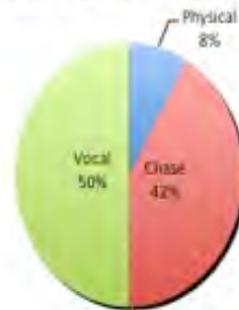
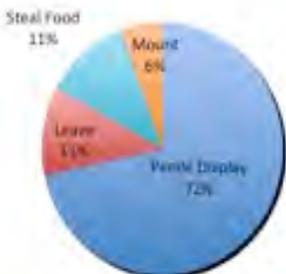


Figure 3

Types of Dominance: Phase 1



Types of Dominance: Phase 2

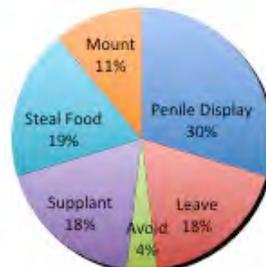


Figure 4

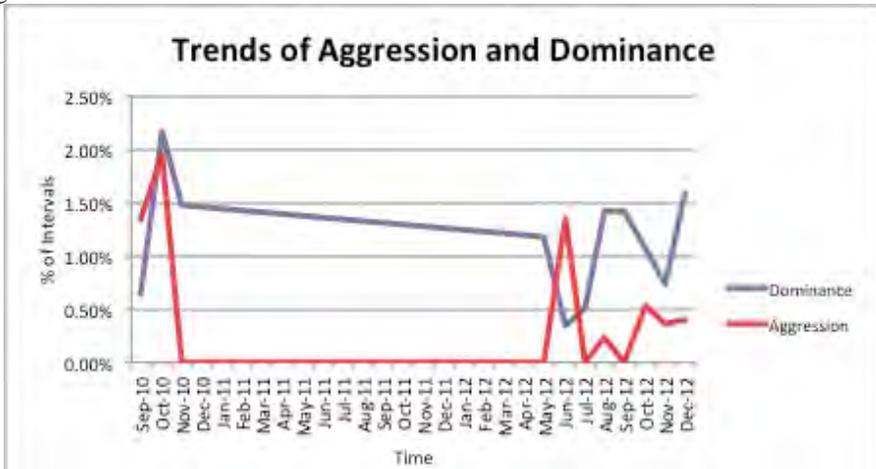
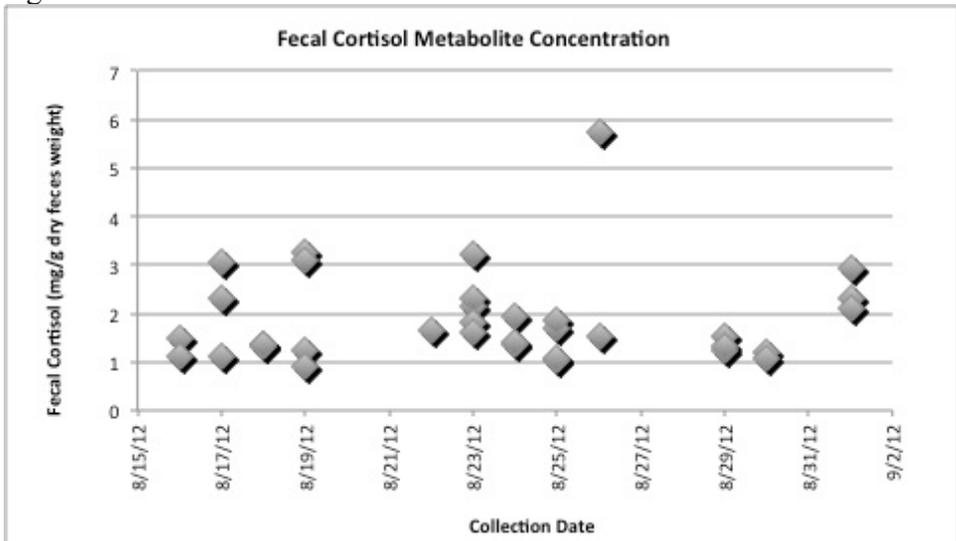


Figure 5



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## Examining the Mechanism of the Inhibition of Glutathione Peroxidase by Nitroxyl

Jason Hoki, Chemistry

Research Mentor: Jon Fukuto, Ph.D.

### Abstract

*The mechanism behind glutathione peroxidase inhibition by nitroxyl is currently being investigated by using selenocysteine as a model for the active site in glutathione peroxidase. Selenocysteine was reduced with DTT down to selenocysteine and allowed to react with nitroxyl under an anaerobic environment. Preliminary TFA ion-coupled HPLC analyses have yielded some resolution of product peaks and stronger ion-coupling reagents are suspected to yield better product resolution. Further analysis and characterization of unknown peaks with an HPLC-MS may shed light on potential inhibition mechanisms.*

### Introduction

Glutathione peroxidase (Gpx) is a selenium-bearing enzyme that catalyzes the reduction of peroxides down to alcohols and hydrogen peroxide down to water (Kraus, 1983.) Hydrogen peroxide is known to elicit a number of biological responses including: cell proliferation, differentiation (Bourdon, 1995), apoptosis (Panagiotidis, 1999) and may also induce vasodilation directly and indirectly (Matoba 2003.) This last physiological response is shared by introducing the small signaling molecule nitroxyl (HNO) into the body.

Nitroxyl has been shown to not only induce vasodilation (Hayashi, 1992), but also increases the strength of heart contractions (Paolocci, 2001). These two concurrent responses have made HNO a potential treatment for heart failure (Dai, 2007), and have made the small molecule a subject of pharmacological interest.

Because of the shared biological effects behind the inhibition of Gpx (leading to the subsequent up regulation of the substrate hydrogen peroxide) and the introduction of HNO, a potential avenue behind the biological chemistry of HNO could be through its inhibition of Gpx. Indeed, unpublished work done by Mathew Jackson supports this hypothesis (Jackson, 2008).

Despite Jackson's experiments indicating Gpx inhibition by HNO, the mechanism of inhibition is not presently known. Because selenocysteine is in the active site of Gpx, we suspect that selenium is behaving like a nucleophile and attacking HNO at the nitrogen. This supposition is based on known analogous reactions between thiols and nitroxyl in which thiols exhibit nucleophilic behavior towards nitroxyl (A.1) (Wong, 1998).

As illustrated in the appendix, the initial product of a thiol/HNO reaction is N-hydroxysulfenamide, which may either react with another thiol to produce a persulfide and hydroxylamine or may rearrange to yield a sulfenamide. In the case of Gpx and its selenocysteine, a similar reaction may take place between the selenol in the active site and nitroxyl (A.2). If this is the case, then the nucleophilicity of selenium must be compared to the nucleophilicity of sulfur. According to the chemistry of selenols and thiols, selenols should be more nucleophilic in aqueous media as they are larger and less solvated than thiols. Selenols also have a lower pKa (5.5) than thiols (Burnell, 1980) and are therefore

## Inhibition of Glutathione Peroxidase by Nitroxyl

more likely to bear a negative charge in their environment than thiols. Conversely, oxygen, which is a much smaller nucleophile with the similar chemistry, does not react with nitroxyl in this same fashion, and thus supports the theory that a larger nucleophile will react more readily with nitroxyl in aqueous media.

The chemistry of selenium predicts that it will not only react with nitroxyl, but will most likely react faster than thiols. If this is the case, then the inhibition of Gpx may be very significant in the biological chemistry of nitroxyl.

The present experiment aims to determine the mechanism of inhibition of Gpx by nitroxyl by using selenocysteine as a model for the active site of Gpx and Angeli's Salt (AS) as the nitroxyl donor. While an HPLC-MS would be ideal for indicating the production of a seleninamide adduct, our lab does not currently have this instrument. Instead, the goal is to carry out a reaction between selenocysteine and nitroxyl, and then run the resulting solution through an HPLC. Potential products, such as hydroxylamine and selenocystine will also be run through the HPLC under similar conditions in order to identify potential peaks for a possible seleninamide adduct. After identifying an unknown peak with appropriate resolution, the procedure will be sent to a lab that has an HPLC-MS to characterize the unknown peak.

### Methods

#### *Angeli's Salt Synthesis*

Angeli's Salt (AS) was synthesized according to previously established methods (Smith, 1960). 12.107g of NaOH was dissolved in 80ml of EtOH for 1 hour. Another solution was made by dissolving 6.954g of hydroxylamine HCl in 4.5ml of water. The two solutions were mixed together in an ice bath until a white precipitate was formed. The filtrate was isolated via vacuum filtration, and 10ml of isopropyl nitrate was added over 15 minutes, resulting in precipitation. The product was obtained by isolating the solid with vacuum filtration.

The nitroxyl production was verified by dissolving AS in 50ml of 1M phosphate buffer, and analyzing the headspace of the flask with a gas chromatogram at various time intervals. The increasing area at 2 minutes with respect to time was indicative of the amount of  $N_2O$  formed in solution. Since  $N_2O$  is a product of the dimerization of HNO (A.3),  $N_2O$  production represents HNO release.

#### *Selenocysteine Verification*

Selenocystine was successfully reduced to 2 selenocysteine residues with the reducing agent DTT (A.4) in a 50mM phosphate buffer. Reduction was verified according to a procedure outlined by Burnell (1980.)

An acid-ninhydrin solution was made by dissolving 250mg of ninhydrin into 4ml of concentrated HCl and 6ml acetic acid. The presence of selenocysteine was verified by mixing 0.5ml of this acid-ninhydrin reagent with 0.5ml of a solution containing selenocysteine, and 0.5ml of acetic acid. The entire solution was then immersed in a boiling water bath for 7 minutes. Afterwards, the solution was cooled in a water bath and diluted with 3.5ml of EtOH to yield a pink product with an absorbance max at 570nm. UV-vis spectra are taken to assure an absorbance at 570nm. The formation of this product is specific to selenocysteine, as controls for selenocystine and DTT did not yield similar

spectral results.

This procedure was tested by dissolving 0.1g of DTT and 0.0108g of selenocystine into 10ml of 40mM Tris-phosphate buffer at pH 8.0. Controls of similar concentrations for just selenocystine and DTT were also made, as shown in the appendix (A.5).

#### *HPLC Resolution*

0.003g of selenocystine was dissolved in 20ml of degassed 40mM tris buffer at pH 8 and reduced with 0.0461g of DTT. Reduction was verified according to the procedure outlined above. The solution was then cannulated into a flask with 0.16g of AS and was allowed to dissolve the HNO donor. The solution was subjected to HPLC analysis using a solution composed of 250ml of water, 2.5ml of methanol, and 0.25ml of trifluoroacetic acid (TFA) as its mobile phase and a C18 reverse phase column.

## **Results**

Preliminary chromatograms indicate some amount of resolution between the varieties of products in the DTT/HNO/selenocystine solution. HPLC analysis of selenocystine with carbonate (to help dissolve the selenocystine) illustrates a potential peak for selenocystine in the DTT/HNO/selenocystine solution (A.6)

## **Discussion**

Although using selenocysteine as a model for the active site of Gpx seems simple, it comes with its own set of challenges. Selenocysteine is extremely sensitive to oxidation and can only be purchased as its dimer, selenocystine. Reducing selenocystine leaves DTT in solution, which can potentially react with HNO, thereby rendering the experiment pointless. Therefore, initial efforts were made to separate the reducing agent from selenocysteine. An ion-exchange column could have accomplished this task, but because selenocysteine is air sensitive, this experiment would have been exceedingly difficult.

A TCEP reducing gel was used in initial experiments because of its ideal qualities. This reducing agent is actually a series of tiny beads with the reducing agent attached. Thus, reduction could be accomplished and separation would just be a matter of filtration. However, reduction did not occur.

The idea to separate out the products of reduction was abandoned in favor of a much simpler procedure. Selenocystine would be reduced with 20 equivalents of DTT and then the entire solution would be exposed to 60 equivalents of HNO. Although some nitroxyl would be reduced, there would still be enough left to react with selenocysteine. Unfortunately, the number of potential products increases dramatically.

The chromatogram in the appendix (A.6) is the result of using TFA as an ion-coupling reagent, and increases resolution in reverse-phase columns. The resolution can clearly be improved upon as there are at least two peaks masking each other at approximately 5 minutes. More powerful ion-coupling reagents such as pentafluoropropanoic acid and heptafluorobutanoic acid will help to further resolve these peaks.

Further HPLC analysis of potential products was delayed due to the deuterium light bulb going out, and was abandoned when it was suspected that the C18 column might have been damaged during analysis. The C18 column should be stable at pH above 2 and the mobile phase pH was close to 4. However, a reduced pressure resulted after the experiment's HPLC analysis, which is indicative of some loss of stationary phase. In the future, a more pH stable column will be used instead.

# Inhibition of Glutathione Peroxidase by Nitroxyl

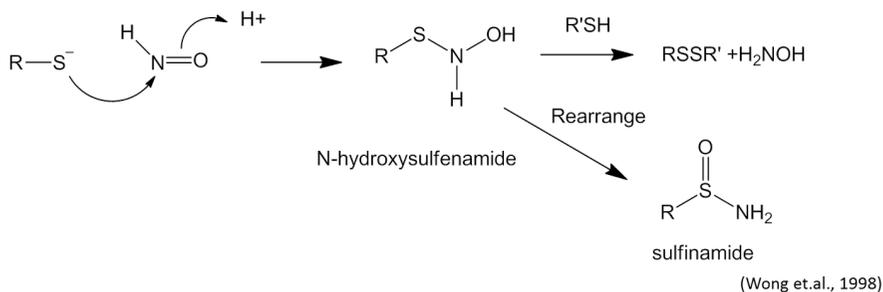
## Conclusion

No substantial results have been obtained that support the hypothesis that glutathione peroxidase is inhibited by nitroxyl through the formation of a seleninamide adduct. However, preliminary HPLC analysis TFA as an ion-coupling reagent have resulted in some product resolution, and point to potentially significant results with more powerful ion-coupling reagents.

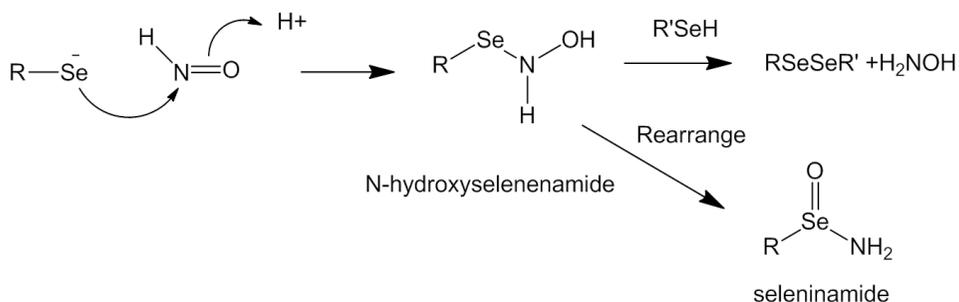
## Appendix

### A.1

#### Thiol Chemistry

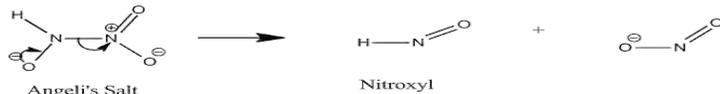


### A.2

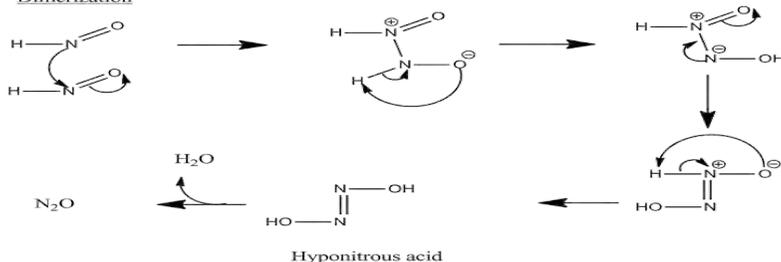


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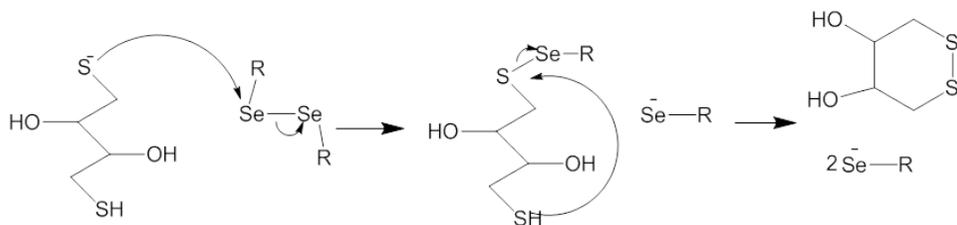
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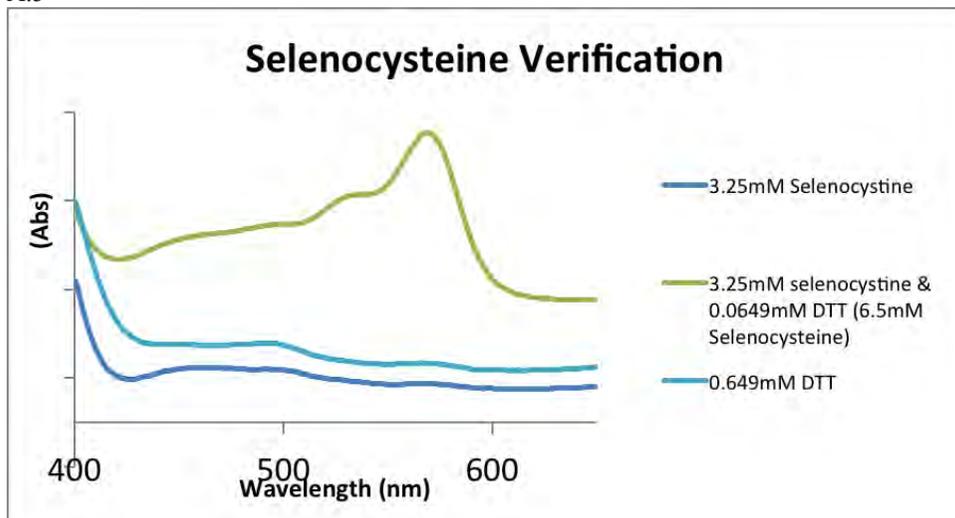
#### Dimerization



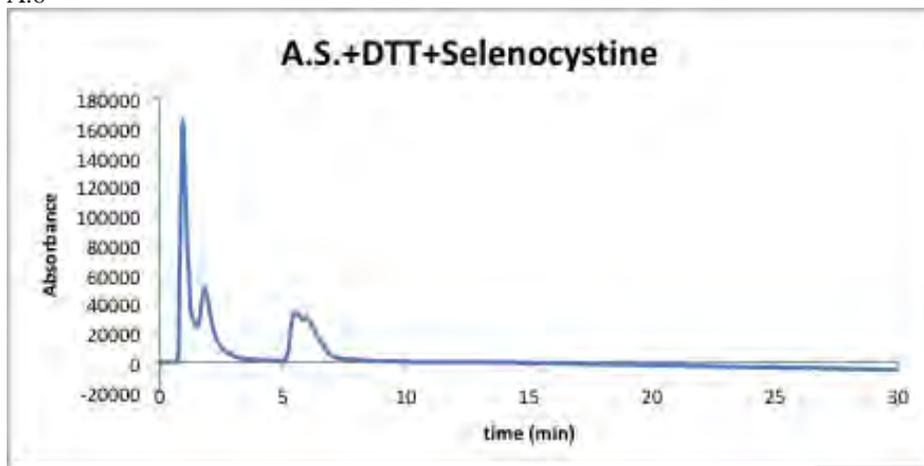
A.4

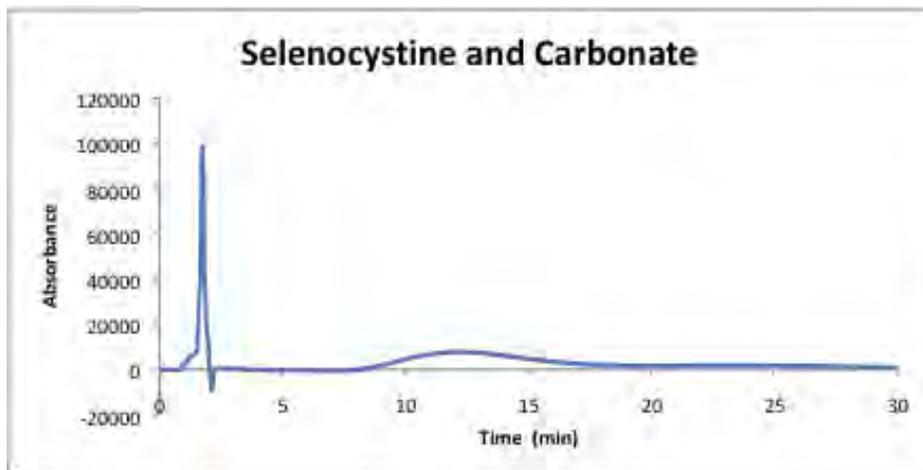


A.5



A.6





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## Is Social Capital Necessary for a Successful Healthcare System?

Devin McBrayer, Political Science

Research Mentor: David McCuan, Ph.D.

### Introduction

Many scholarly fields use the concept of “civil society,” and by extension “social capital,” as ways to explain various phenomenon. The concept of civil society is positively correlated to high levels of democracy, better education, and better health (Wallace & Pichler, 2009, p. 255). Many public health researchers in particular are interested in civil society as a way to deal with inequalities within healthcare. These studies focus on the health of individuals or the communities as a whole. This study is different in that it will look at civil society and determine if high levels of social capital, the building blocks of civil society, are necessary for successful healthcare systems. The relationship between civil society and healthcare systems is not being examined in current research and it may prove to be another, and perhaps more accurate, way to compare different countries and their respective healthcare systems. The countries of study are France and the Czech Republic. While these socially democratic countries are close in geographic location they differ in that the Czech Republic is still dealing with the aftermath of four decades of communism whereas France has a strong history of Republicanism. France is well known for having one of the best, if not the best, healthcare systems in the world. This study will compare the two healthcare systems and the civil societies within the countries to try and identify any possible correlations.

### Literature Review

#### *Health and Social Capital*

This study will be examining the connection between social capital and successful healthcare systems. Putnam (1995) termed social capital and defines it as, “the features of social life that enable the participants to act more effectively”. He specifically mentions norms, trust, and networks as features of social life and Putnam links social capital to political participation. Going off of the assumption that the social capital and political participation share some relation, sociologist Ferlander (2007) argues that societies with social communities that cut across social cleavages are, “more likely to provide better access to schooling, housing, and medical care for their citizens” (p. 120). An example she uses is that a strong community has been proven to be more successful at fighting budget cuts than a weak one and the strong community will be able to benefit from the services that were saved by preventing the budget cut.

Studies from a variety of different fields have linked high levels of social capital to higher levels of democracy and better, “wealth, health, and education” (Ferlander, 2007, p. 120). Research in the health field has shown that increased levels of social capital have a correlation with both healthy individuals as well as healthy communities. The leap between social capital and health is not as wide as one might think. In 1997 Durkheim conducted a study that showed a negative correlation between “social integration” and suicide rates (Ferlander, 2007, p. 120). High levels of social capital have also been shown to have a

## Successful Healthcare System

correlation with lower rates of mortality by multiple studies conducted over the past few decades. Putnam (1995) would agree with these findings by saying that, “strong ties with intimate friends may ensure chicken soup when you’re sick” (Ferlander, 2007, p. 121). Other studies have found that not all forms of social capital are positive for the health of a community or an individual. For example, it is not healthy to be involved with a social group whose primary activities are illegal. This seems obvious but it might become an important piece of information to keep in mind when developing the methodology to further examine the relationship between social capital and healthcare.

### *Economy, State, and Civil Society*

Public health researcher Richard Wilkinson attributes the growing interest in social capital within the health field to “trying to understand why income distribution is important to health” (Wilkinson, 2000, p. 411). Many papers on this topic focus on economic influences on health but of course it is known that the economy, nor is civil society the only contributor to the health of a society. There are many factors at play. Gellner conceptualizes modern societies as being three spheres; the state, the economy and civil society (Green, Gurevich, & Persell, 2001, p. 204). Gellner asserts that the three spheres are actually interdependent and the, “integrity of one sphere can be seen to depend on the vitality of the other two” (Green, Gurevich, & Persell, 2001, p. 204). So not only can a bad economy be detrimental to a society but so can a decline in any of the other spheres. Many authors stress the dire importance to maintain a balance in power between the three theoretical spheres of society so that they may act as checks on one another (Green, Gurevich, & Persell, 2001, p. 205). For example, societies in an economically sustainable position will be more inclined to participate in their communities and societies in economically unstable positions tend to move towards centralization. Wilkinson quotes the findings of the vast majority of research that determines that “more egalitarian societies are more cohesive, less violent, more trusting, and foster more involvement in community life” (Green, Gurevich, & Persell, 2001, p. 204). Wilkinson’s quote is similar to Putnam’s assertion that democracies are more successful when citizens cooperate for the benefit of everyone and when there is high participation along with interpersonal trust among citizens.

### *Social Capital and Healthcare Systems*

While there has been a lot of research regarding the relationship between social capital and health there has not been much written about the relationship between social capital and healthcare systems. As mentioned earlier by Ferlander, social capital that builds bridges across different sections of society, communities that are inclusive, have a stronger capacity to influence politics (Ferlander, 2007, p. 123). From this and other research it seems that high levels of social capital in a society could also be correlated with a successful healthcare system. The results of this research could shed light on research regarding social capital in the health field by offering another avenue through which to compare different countries.

## Theory

### *Larry Diamond*

Since modern democracies are made up of three spheres why would a study focus only upon two of them? The main reason that this paper focuses on the state and civil society spheres is found within the research findings of Larry Diamond (2008) regarding democracy and poverty. Diamond (2008) concluded from his research that a state must first improve its governance before it can achieve economic growth. A state should level the playing field amongst governmental and non-governmental organizations but a state cannot improve its governance all on its own. Diamond argues that civil society plays a role by acting as a check against corruption. Diamond also argues that a “sustainable democracy requires active civic communities” (Diamond, 2008).

### *Robert Putnam*

On a similar note, Robert Putnam argues that civic associations are “powerfully associated with effective public institutions” (Putnam, 1995, p. 664). Putnam determines from his research in Italy that democracy is more successful in areas where three conditions existed. The first condition is having civic organizations with high participation (Azpuru, Pira, & Seligson, 2010). The second is having citizens cooperating for the benefit of everyone and lastly having high interpersonal trust among citizens (Azpuru, Pira, & Seligson, 2010). In essence, the work of Diamond revolves around the efficiency of a democracy and Putnam focuses more upon the relationships among people within the democracy.



**Figure 1:** Citizen Roles in Democratic Society as a function of political trust and efficacy

# Successful Healthcare System



**Figure 2:** Successful Healthcare Model

## Hypothesis

A successful healthcare system will also exhibit high levels of social capital.

## Methodology

### *Countries of Study*

The countries of study are France and the Czech Republic. Both countries are social democratic countries close in geographic location but with very different pasts. The Czech Republic is still dealing with the aftermath of four decades of communism whereas France has a strong history of French Republicanism. France is well known for having one of the best, if not the best, healthcare systems in the world. This study will compare the two healthcare systems and the civil societies within the countries to try and identify any possible correlations.

### *Civil Society*

This paper will use qualitative and quantitative data to analyze the civil society in France and the Czech Republic. The quantitative data will derive its variables from the theoretical model titled “Citizen Roles in Democratic Society as a function of political trust and efficacy” (see Figure 1). Trust will be measured through an interpersonal trust survey conducted through AESP/JDS. The trust index developed by AESP/JDS uses the following formula to obtain the data points;  $100 + (\% \text{ of people who said most people can be trusted}) - (\% \text{ of people who said you cannot be too careful})$ . Therefore a data point over 100 indicates a country where most people think that other people can be trusted. Efficacy will be measured by voter turnout in both countries through data from the OECD Better Life Index.

### *Successful Healthcare System*

Healthcare data will also be both qualitative and quantitative. Much of the information and data regarding the healthcare systems of these countries was taken from

studies conducted by the World Health Organization. For the quantitative purposes of this study, a successful healthcare system will be measured using variables derived from the theoretical model shown in Figure 2. A successful healthcare system model is one that balances access, quality, and cost. Access is demonstrated as physician density and average distance to a hospital. Quality is demonstrated as life expectancy at birth and lastly, cost is demonstrated as percent of GDP spent on healthcare. The data used for physician density, life expectancy at birth, and GDP spend on healthcare can all be found on the World Health Organization website. The data showing average distance to a hospital in both countries was taken from the OECD iLibrary.

## Findings

This section will begin by presenting a small amount of qualitative data about the civil societies of the two countries followed by quantitative data that specifically relates to the theoretical models that frame this research.

### Qualitative Data

#### *Czech Civil Society*

The Czech Republic is heavily shaped by its four decades of communist rule. Communism does not leave room within the country for civil society. After the dissolution of the Communist single-party state and the breakup of Czechoslovakia the Czech Republic suddenly had to figure out how to provide for its citizens all of the things that the party had control over for four decades. One author offers the insight that there is a lot of “fragmentation and social dislocation in a post communist society as a result of rapid economic restructuring and the shift from a heavily industrial to a post industrial economy” (Fagin, 1999, p. 93). Civil society organizations need to learn to monitor the state, an idea that probably feels very foreign for a country only 20 years out of a communist government that banned all civil associations and demands total loyalty. Corruption levels in the Czech Republic demonstrate the need for civil society to provide a check against the state. The Czech Republic’s control of corruption, a measure developed by Transparency International, is ranked in the 66<sup>th</sup> percentile. For comparison purposes, France is ranked in the 89<sup>th</sup> percentile.

The Czech Republic demonstrates low levels of trust, as will be demonstrated quantitatively later, which is typical of post-communist societies. Another hindrance to Czech civil society could be attributed to the predominately Catholic population, a hierarchical and authoritarian institution that fosters familial values instead of communal ideals. This, combined with the great oppression of the communist era and the lack of civic efficacy produces a society based on a foundation of private values.

#### *French Civil Society*

The French Revolution created a republic tradition within France which one author defines as, “one rooted in the inheritance of the French Revolution and one where the claims of popular democracy and sovereignty are wedded to demands for greater social justice” (Jennings, 2000, p. 577). French political thought has retained an approach to democracy rooted in the traditions of the French Revolution that advocate democratic

## Successful Healthcare System

governing through electoral representation. One manifestation of this can be seen within the plurality of political parties representing different parts of the political spectrum. The French believe that it is a democratically elected government's role to provide for the less fortunate and to intervene when a problem arises. They pay a higher tax rate in exchange for the promise of these services. Many studies recognize a pervasive mistrust found in French social and political relationships (Kalinowski, 2009, p. 2). This pervasive mistrust also dates back to the French Revolution. So while French civil society may not immediately appear to be actively engaged in policy making, protests are the French way to make one's voice heard. One author put it brilliantly when he said that, "French civil society often seems at its best when mobilized against the political system, rather than involved in a constructive dialogue—on the streets rather than at the negotiation table" (Kalinowski, 2009, p. 4). The reality is that French civic engagement is rated quite poorly in the OECD (Organization for Economic Cooperation) Better Life Index, which measures voter turnout and consultation on rule making. France is rated 7<sup>th</sup> out of the 36 OECD countries for voter turnout and rated 32<sup>nd</sup> out the 36 countries for consultation on rule making.

### *Czech Republic Healthcare System*

The Czech Republic has a social health insurance program that all citizens are required to contribute to. The Czech Republic has 10 insurance funds that are partially public and partially self-governing (Bryndova et al., 2009, p. 13). These insurance funds develop contracts with provider associations, which in turn, offer services to insured individuals. The Czech are allowed to choose their preferred type of health insurance as well as their doctors and other health care professionals. Health insurance funds are not allowed to deny coverage to anyone who has a "legal basis for entitlement" which means that essentially 100% of the population is covered (Bryndova et al., 2009, p. 13). Money for the social health insurance is received through payroll taxes paid by employees and their employers. The social health insurance does not cover all of costs so funds are also gathered through "general taxation and out of pocket payments" (Bryndova et al., 2009, p. 13). Since 2002 the health system has been in a process of decentralization. Before this process of decentralization most of the hospitals were owned by the state. Hospital ownership has been a controversial issue within the country. The system has had serious problems with financial uncertainty since it was created. At one point in 1995 there were 27 different funds and several became, "unable to pay its contracted providers" (Bryndova et al., 2009, p. 90). Now, due to failed funds and mergers, there are 10 funds. The World Health Organization concludes that the key challenges the Czech Republic will face in the upcoming years in healthcare reform will be to "keep high-quality care accessible to all inhabitants of the Czech Republic, while taking into account economic development, demographic ageing and the capacity of the social healthcare insurance system" (Bryndova et al., 2009, p. 109). The final conclusion in the World Health Organization report includes the suggestions that the Czech Republic should focus on strengthening patient rights by encoding them into law and to work harder to clearly define the relationship between the purchaser and the provider within the social health insurance system (Bryndova et al., 2009, p. 110).

### *France Healthcare System*

The French healthcare system is consistently ranked among the best in the world. France uses a social health insurance system that was established at the end of the Second

World War. The system can be seen as a following a combination of the Bismarckian and Beveridge model (Chevreul et al., 2010, p. 17). The Bismarckian model is one in which everyone pays into an insurance through payroll deductions and many services and providers are private. The Beveridge model runs off taxes and creates a healthcare system that is centralized and owned by the government. The state took control of overseeing the implementation and operations of the social health insurance right from the start. Today the French government retains most of the control over the system. The French healthcare system combines social health insurance with various forms of voluntary private insurance. The social health insurance covers nearly 100% of the population including illegal residents (Chevreul et al., 2010, 21). Joining a private insurance, which is completely voluntary, can be convenient because they provide reimbursement for co-pays as well as coverage for services that are not completely covered by the social health insurance. Social health insurance lists all possible health services in what is called a schedule. Social health insurance covers 75% of everything listed in the schedule so sometimes citizens will purchase private health insurance to cover the other 25% (Chevreul et al., 2010, p. 17). This results in extremely low out-of-pocket expenses for everyone. There is also a health and social care sector in France known as the “third sector” which works to take care of the disabled and the elderly (Chevreul et al., 2010, p. 17). The World Health Organization concluded its report on the French healthcare system with two of the main challenges the French system faces. The first challenge is the need for better communication between public health and health care delivery. The second challenge is that France spends a lot of its GDP on its health care system (Chevreul et al., 2010, p. 269). Greater precautions should be taken in case the country faces a sudden economic downturn.

## Quantitative Data

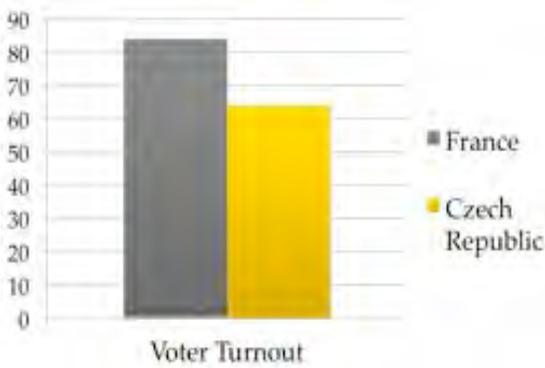
### *Civil Society*

This study is using interpersonal trust and voter turnout to measure civil society within the Czech Republic and France. These variables were chosen using the theoretical model representing what an ideal democratic citizen looks like. High trust is measured as interpersonal trust and high efficacy is measured as voter turnout.



**Figure 3:** Interpersonal Trust

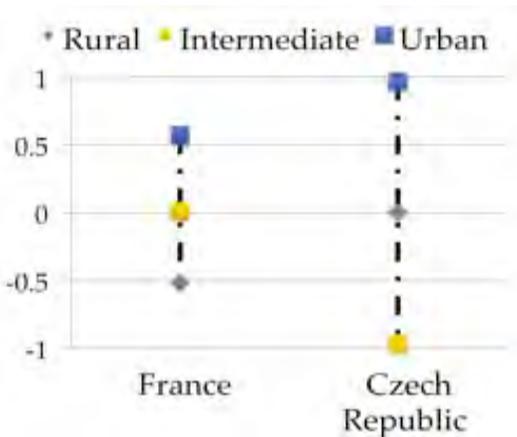
# Successful Healthcare System



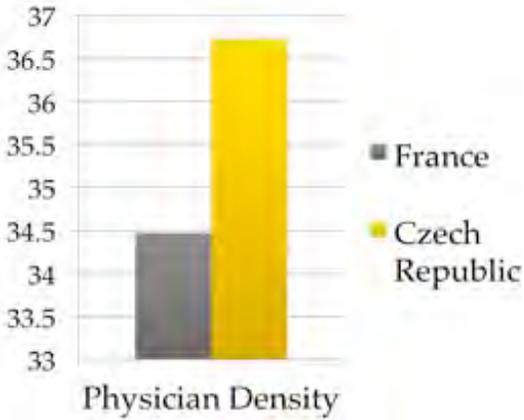
**Figure 4:** Voter Turnout

## Healthcare Systems

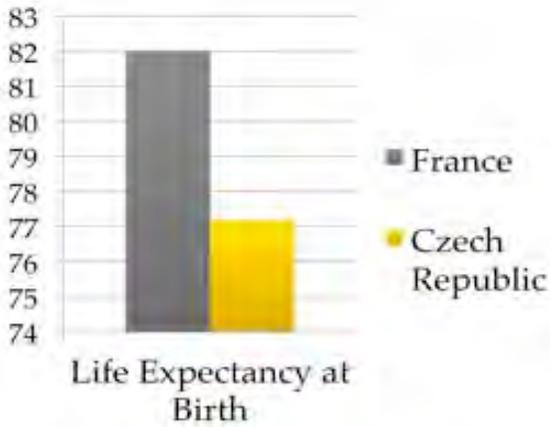
The data uses the variables that were chosen through the following model. As a reminder, the conceptual model argues that a successful healthcare model is one that demonstrates balance and efficacy of access, cost, and quality. The variables branched out from access, cost, and quality represent how those concepts will actually be measured. The data will be presented beginning with the variables shown at the top of the model and then moving counterclockwise.



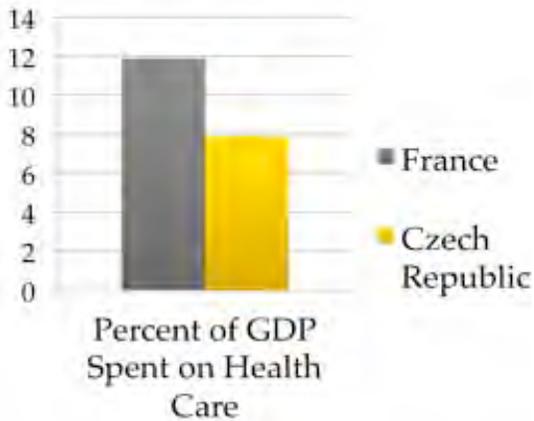
**Figure 5:** Access- Average Distance to a Hospital



**Figure 6:** Access- Physician Density



**Figure 7:** Quality- Life Expectancy at Birth



**Figure 8:** Cost- Percent of GDP Spent on Health Care

# Successful Healthcare System

## Discussion

At the beginning of this study it was known that the healthcare system of France would be qualitatively and quantitatively more successful than that of the Czech Republic. However, not everything turned out as expected and the hypothesis was proven wrong. The data suggests that France is, in fact, not filled with “ideal democratic citizens” yet the French have one of the most successful, if not the most successful, healthcare system in the world.

The measures derived from the successful healthcare systems model produced predictable results. While physician density appears to be much higher in the Czech Republic than in France there is actually only a two-point difference. The World Health Organization ranks the Czech Republic 24<sup>th</sup> and France 28<sup>th</sup> in a physician density measure. Both countries are doing well in this area. What is more telling in the access measure of the model is the graph displaying the average distance to the nearest hospital. The data is displayed as a ratio. The closer to 1 a data point is the closer people live to hospitals and the closer to -1 a data point is the farther people live from hospitals. It is not certain that an area of a country with a data point as 1 is necessarily a good or a bad thing but a data point of -1 is definitely a negative situation. France demonstrates a somewhat equal distribution of hospitals throughout all parts of the country. The people living in urban and rural areas in the Czech Republic are within a reasonable distance of a hospital. Shockingly, the people living in intermediate areas—suburbs with a decent sized population—do not live within a reasonable distance of a hospital. The reasons as to why this is are not entirely clear but the implications are huge. While the Czech Republic may have a high physician density, those physicians are not distributed throughout the country very well.

Life expectancy at birth was the next measure. Life expectancy at birth is a full 4 years higher in France than it is in the Czech Republic. This measure theoretically demonstrates that the quality of care being delivered in France is better. This study did not look at the factors that may affect life expectancy in these countries such as heart disease. Looking at the top causes of death within these countries could shed some more light on the strengths or weaknesses of these two healthcare systems.

The last measure to examine from the successful health care model is cost which is represented by the percent of GDP each country spent on their healthcare systems. Cost is different from the other two variables, access and quality, because when it comes to access and quality a country wants the best score possible. However, just because a country spends the most money on their healthcare does not guarantee that it will be a successful healthcare system. The United States is a prime example of that. The Czech Republic spends 4% less of their overall GDP on healthcare but the total GDP in the country is less than the total GDP in France. One helpful way to view the difference in GDP in terms of healthcare is through GDP per capita. The GDP per capita in France is \$35,500 and in Czech Republic is \$27,200.

Overall it seems clear that France is more successful than the Czech Republic in healthcare success in access, quality, and cost. Most studies look at the correlation between this success and economic factors. It is clear that economics play a role in the data but this study aims to see the connection between the healthcare system success and civil society.

To being with, it may be surprising to some that interpersonal trust in the Czech Republic was ranked a little more than ten points higher than in France. In the qualitative findings about civil society in the Czech Republic there appeared to be a consensus that trust in the Czech Republic is considered to be low like many other post-soviet countries. It seems the legacy of the French Revolution has left a stronger legacy of mistrust amongst

French citizens. It is possible that trust is not a necessary prerequisite for a country to have a successful healthcare system. The hypothesis of this study predicted that a country with ideal democratic citizens would have a successful healthcare system.

Voter turnout was the complete opposite of interpersonal trust in terms of data points. While interpersonal trust was 10 points higher in the Czech Republic, voter turnout was 10 points higher in France. The qualitative data about civil society in France suggested that France leaves matters such as healthcare up to the government and that French pay high tax rates with the expectation that the government will take care of everything else. When the government fails to meet the expectations of its citizens—then the French take to the streets. It seems that the French do not feel the need to be involved in day-to-day politics. This is an interesting puzzle. One measure of civil society, engagement through voting, is quite high. Another measure of civil society, daily participation in a civic organization, may not be as high in France.

One thing to consider as well is that civil society is made up of many more components than just interpersonal trust and voter turnout. It would be interesting to see other aspects of civil society juxtaposed with healthcare success. For example, political parties play a huge role in health policy in France. It is possible that political parties and not civil society are more important in France for healthcare success. However, civil society often pressures and shapes the platforms of political parties. Civil society should not ever be disregarded completely in a democratic system.

If further study on this topic demonstrates a true positive correlation between voter turnout and healthcare success this could represent some hope for the futures of developing countries. Originally, this study was going to focus on comparing France and Guatemala, however, the two countries were too different. Guatemala is a thought-provoking case to examine in light of this study because it is a country that has faced a 36-year civil war and genocide within the last 50 years. If interpersonal trust is not a necessary prerequisite for a successful healthcare system, this could be good news to a country like Guatemala where trust seems beyond repair and many people are suffering from lack of healthcare. Theoretically it is easier to empower a population of people to become engaged politically or within civil society than it is to coerce people into trusting one another. Also, it can be reasoned that strengthening civil society raises the level of interpersonal trust within societies.

## Conclusion

The hypothesis of this study was that a country with ideal democratic citizens, highly trusting and engaged citizens would also have a successful healthcare system. This hypothesis was wrong. France is infamous for its successful healthcare system, however, the levels of interpersonal trust amongst the French are quite low. It is possible that there is a correlation between civic efficacy or civic engagement and a successful healthcare system. It seems plausible that the French have succeeded in obtaining a great healthcare system as a result of electing parties who value healthcare and when the French are unhappy with the system, they take to the streets until something is changed. It is a bit ironic that the results the “citizen roles in a democratic society” theoretical model implied that the French are not ideal democratic citizens considering the Enlightenment’s roots in the country. The models are not infallible and perhaps should be reevaluated before being used again in future studies. This study was by no means comprehensive in any way but it lays out a possible framework for further analysis regarding the contributions of civil society to healthcare systems.

# Successful Healthcare System

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## Similar Species, Different Origins: Competition Between a Native and Invasive Grassland Species

Stephanie Parreira, Biology

Research Mentor: Caroline Christian, Ph.D.

### Abstract

*Invasive plants are a growing economic and ecological problem in the global community. Yellow starthistle (*Centaurea solstitialis*) is a particular problem in the United States, and has invaded several million acres of land that are significant to agriculture. In this study, we sought to further understand the mechanisms of preventing and reversing invasions of yellow starthistle by examining how its growth differs when in competition with a similar native species, the hayfield tarweed (*Hemizonia congesta*). We examined how the height and aboveground biomass of both species differed in three categories of competition: alone, intraspecific, and interspecific. We also conducted a correlation test to determine whether height and biomass were significantly correlated with one another. We found that in all categories of competition, *C. solstitialis* was taller and had more aboveground biomass than *H. congesta*, but neither variable showed a significant pattern in which either species were reduced by either type of competition. We also found that height and biomass were significantly correlated with one another. These results contradict findings from a previous study in which *H. congesta* suppressed *C. solstitialis*. The ability of yellow starthistle to be successful in these areas in all three types of competition may either contribute to its competitive ability or be a product of that ability. These results call for experimental data on this same concept, as well as data on other mechanisms that contribute to both species competition with one another. Until more data is available, land management should not expect areas populated with *H. congesta* to be entirely resistant to *C. solstitialis* invasions.*

### Introduction

Invasive species have been estimated to be the second leading cause of specie extinctions in the United States (Wilcove et al., 1998), and have caused extensive ecological and economic damage worldwide (Holzmueller & Jose, 2009; Shimamoto et al., 2011). Invasive plants in particular cost the United States \$30 billion annually, \$27 billion of which goes toward controlling their spread in agricultural settings (Holzmueller & Jose, 2009). For these reasons, there is a constant demand for new information on how to control and prevent biological invasions in the most efficient and effective way possible.

It was previously thought that more diverse communities were less susceptible to biological invasions than those with lower diversity. However, Funk et al (2008) proposed that diverse communities are more likely to resist an invasion because they are more likely to host a native species similar to the invader. Native species with similar functional traits to the exotic species have already filled the niche that would be potentially filled by the exotic, making more difficult for the exotic to become established (Funk et al., 2008). We hoped to further explore this concept with a specific invader, the yellow starthistle (*Centaurea solstitialis*).

Yellow starthistle is one of the most problematic invasive plants in the United States. In the western states in particular, the *C. solstitialis* invasion covers 9 million acres

## Similar Species, Different Origins

of land (McIver et al., 2009), most of which are in the most agriculturally significant areas of the nation (Hanley & Goulson, 2003). California is the most invaded state of all (Suszkiw, 2004). The problems implicated with the invasion of the yellow starthistle include the reduction of native plant populations, decreased rangeland productivity, soil desiccation, and threats to livestock health (DiTomaso et al., 2006; Benefield et al., 2001). The consumption of yellow starthistle by horses causes a deadly disease called nigropallidal encephalomalacia, or “chewing disease” (Uygur, 2004; DiTomaso et al., 2006). All of the above issues point to yellow starthistle as a problem for both biological conservation and human economic interests. Exploring native species that effectively fill the niche of yellow starthistle before it invades may aid land managers in restoring land where starthistle has been removed, as well as maintaining land where starthistle does not yet occur.

The hayfield tarweed, *Hemizonia congesta*, a native California species, is of similar function to the yellow starthistle, and may be able to fill the niche of *C. solstitialis* before it is able to invade. Dukes (2002) found that monocultures of *H. congesta* suppressed *C. solstitialis* better than any other monoculture or combination of native plants. Hulvey and Zavaleta (2012) hypothesized that the sticky substance on *H. congesta* stems signifies possible allelopathy against competing species, and that *H. congesta* has a mycorrhizal association that increases invasion resistance. However, we lack data on how competition between *H. congesta* and *C. solstitialis* affects the growth of both species. This study sought to determine how growth patterns differ in both species when growing with each other compared to different types of competition.

Our research questions are as follows: 1) How does height and aboveground biomass in both *H. congesta* and *C. solstitialis* differ in interspecific competition in comparison to these plants growing alone or with members of their own species? and 2) Are patterns of height and biomass correlated with one another, or do they differ? The latter question stems from findings in Parreira et al. (2012) that shorter plants were capable of producing more biomass. We wanted to determine if that relationship existed in this data set as well.

## Methods

### *Study System*

I collected my data from Fairfield Osborn Preserve in Sonoma County, California. The area is characterized by a Mediterranean climate and harbors a number of different habitats, including riparian forest, oak woodlands, ponds, marsh, and grasslands. Yellow starthistle occurs in three main grassland areas adjacent to the area known as “the Marsh” (personal observation). Other grassland areas are dominated by Harding grass and a combination of other exotic and native grassland species.

### *Study Design*

I conducted a comparative study in the grassland areas of Fairfield Osborn Preserve. I limited my sampling to the three areas within the preserve that are populated with both species. I used a system of haphazard sampling to collect plants in each of the following categories: starthistle alone, starthistle growing with its own species (intraspecifically), starthistle growing with tarweed (and vice versa), tarweed alone, and tarweed growing intraspecifically. Haphazard sampling was the best method of sampling for this project, be-

cause it would have been otherwise difficult to find enough replicates of certain categories (i.e. starthistle alone or tarweed alone) if I had used a system of plots or transects. In order to reduce the bias of haphazard sampling, I made sure to collect at least three of each category from each of the three areas abundant with these species so that the results were not conclusive for only one patch of land. I also systematized the sampling by setting criteria for plant distance to other plants. A plant that I recorded as growing with another had to be growing within 5 centimeters of the other, and a plant I recorded as “growing alone” had to be growing at least 10 centimeters from another plant. This way I could be more certain that plants growing together were in fact competing for soil and water resources, and that plants growing alone were far enough away for their root systems to not compete with the root systems of others. I also did not sample plants that were spatially correlated with one another, in order to collect equal amounts of well-distributed replicates in each of the three areas within the preserve.

Upon finding a plant in each of these categories, I recorded the following information: record number, species (tarweed or starthistle), competition type (alone, interspecific, or intraspecific), and height. After measuring the height of a plant, I used a pair of shears to cut it at its base, and put it in a paper bag marked with its record number to be transported back to the laboratory for drying. I dried my plants for 24 hours in the laboratory, and then recorded their dry aboveground biomass.

### *Analyses*

I analyzed my data using the JMP 10 statistical analysis program. I used two separate two-way ANOVAs to determine the relationship between competition, height and biomass. For each test, I used two independent variables—species (tarweed or starthistle) and competition type (alone, intraspecific, interspecific), and one of the dependent variables (height or biomass). I also did a correlation test to determine the relationship between height and biomass.

The height data was normally distributed and passed all equal variances tests for competition type and species. Aboveground biomass originally failed the normality test, so I log-transformed the data and found that it then passed the test. Biomass passed O’Brien’s test for equal variances for each of the two independent variables, which was sufficient to run the ANOVA.

Because the biomass data did not originally fit a normal distribution, I used a non-parametric correlation test to determine the relationship between height and aboveground biomass.

### **Results**

Height was significantly different between the two species, with yellow starthistle taller than hayfield tarweed across all categories of competition ( $F_{1,64}=4.37$ ,  $p=0.046$ ). Competition category, on the other hand, did not show significant height differences, but approached a trend in which both species were slightly taller when growing with members of their own species ( $F_{2,64}=2.35$ ,  $p=0.103$ ). There was no interaction term between the two independent variables for the height response ( $F_{2,64}=0.08$ ,  $p=0.919$ ).

Biomass results were similar to those of height, with yellow starthistle having significantly greater biomass than hayfield tarweed ( $F_{1,64}=6.98$ ,  $p=0.010$ ). Once again there was no significant difference between competition categories ( $F_{2,64}=0.81$ ,  $p=0.447$ ), nor

## Similar Species, Different Origins

was there an interaction term between both variables ( $F_{2,64}=0.57, p=0.570$ ).

The nonparametric correlation test showed that in this study, height and biomass are significantly correlated ( $r_s=0.80, p<0.0001$ ), so the patterns between height and biomass variation complement one another.

### Discussion

From this study, we found that *C. solstitialis* is generally taller and has greater biomass than its native counterpart, *H. congesta*, regardless of the type of competition in which it is found engaging. We also found that growth was not significantly different among different types of competition, and that height and biomass trends were linked to one another.

The fact that height and biomass were correlated differs from findings in Parreira et al. (2012) that shorter plants can have greater aboveground biomass than taller plants. This is probably because Parreira et al. (2012) was an experiment in which biomass was removed from *C. solstitialis* to determine how it responded. Since there was no biomass removal in this study, I can conclude that this pattern was due to the fact that nothing triggered compensation in these subjects.

The findings that growth measurements for *C. solstitialis* were greater than those for *H. congesta* contradict Dukes (2002) findings that *H. congesta* is an effective suppressor of *C. solstitialis*. However, there are also many explanations for these patterns that are not explained in the data.

First, this data is from a comparative study. Plants were collected at the end of the growing season as opposed to being manipulated at the start of the growing season. We cannot be entirely sure that plants growing alone or plants growing with certain species were in a constant state of that competition throughout the growing season. It is possible that other individuals were growing with these individuals, but may have been outcompeted by those species long before I collected my data. In order to determine a certain and causative relationship between competition and growth, we need experimental data on this same concept.

This study also did not examine how local densities of both plants may have played a role in the results. Hulvey and Zavaleta (2012) found that the biomass of *H. congesta* decreases significantly as abundance of *C. solstitialis* increased. Competition between the two species was especially detrimental when tarweed was in lower abundance. In this study, I collected plants from a variety of different areas, but did not measure the density of those areas to see how that may have contributed to these findings. It is possible that Fairfield Osborn Preserve is host to too high of an abundance of *C. solstitialis* for tarweed to compete successfully, but I do not believe this to be the case, since some areas of the preserve are dominated by the hayfield tarweed and others by yellow starthistle. It would have been helpful to stratify our data between tarweed-dominated and starthistle-dominated areas. Future studies on this subject at Fairfield Osborn Preserve should do so.

Despite what we did not address in this study, we can still form new questions and hypotheses about the patterns we have observed from this data. For example, the fact that *C. solstitialis* outgrew *H. congesta* in all competition types may signify other details about the competitive ability of *C. solstitialis*. Whether its success in these areas is the product of that competitive ability or a facilitator of that ability is unclear, but further research on the following possibilities will help us answer this question.

It is possible that the height of *C. solstitialis* helps it outcompete *H. congesta*

for insect pollinators. It is well known that invaders' abilities to successfully compete for pollinator resources play a major role in their spread (Hanley & Goulson, 2003; McIver et al., 2009). Yellow starthistle already makes itself competitive for pollination with copious nectar and pollen resources (McIver et al., 2009). It is also known to have an "invasive mutualism" with the honeybee (McIver et al., 2009), but no studies have thoroughly examined how native pollinators respond to it. The increased height of yellow starthistle may be beneficial when competing for pollinators because it increases flower proximity to airborne flower visitors. Klinkhamer et al. (1989) found that in *Cynoglossum officinale*, visitation rates by insects were significantly greater in larger plants. However, there are no recent studies that address how plant height affects pollination, in both *C. solstitialis* and other plants. Further research on these patterns will help us further understand how invasive plants overtake systems, not only by competing for underground resources, but by competing for aboveground biological resources as well. This information is critical, because if invasive species such as yellow starthistle outcompete native species for pollinators, invasions could be far worse than we previously thought—especially if native plants are unable to increase their populations (Brown et al., 2002).

The height dominance of *C. solstitialis* over *H. congesta* may also hoard light resources from *H. congesta*. Hulvey and Zavaleta (2012) found that photosynthetically active radiation was significantly lower in mesocosms with higher abundances of *C. solstitialis* than those in which it was in lower abundance. If *C. solstitialis* limits access to sunlight in *H. congesta*, this may also reduce the rate of biomass conversion in the native.

While the size of yellow starthistle may aid it further in competition, it is possible that its greater size signifies its competitive ability at an early stage as well. For example, if starthistle germinates earlier than the hayfield tarweed, it has more time to use the resources that *H. congesta* would have used at a later opportunity. Keiffer-Stube (2012) named early germination to be a contributing factor to competitive ability and invasion success. However, there is currently no information on the differences in germination timing between *C. solstitialis* and *H. congesta*, nor is there information on how germination timing differs for these species at different water and soil resource levels. In order to determine whether germination plays a role in the yellow starthistle invasion, we need data on how these two species differ in terms of emergence phenology.

These results, though they differ from results from previous studies, set the framework for the amount of information that is still needed on the competition mechanisms of *C. solstitialis* in relation to *H. congesta*. While these data suggest that *H. congesta* may not be as resistant to yellow starthistle as previously thought, there are still many questions that need to be answered for us to understand the underlying mechanisms of these results.

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## Similar Species, Different Origins

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# Beating the Odds: Former Gang Members and Their Pursuit of a College Education

Hector Ruiz, Sociology

Research Mentor: Sheila Katz, Ph.D.

## Introduction

The involvement in gangs amongst adolescent youth from a young age is a common concern in Sonoma County. This is a growing concern in this community, especially as high school dropout rates rise in Sonoma County. For young men who are looking to transform their post-gang life, pursuing higher education is a huge stepping-stone for them. This research explores the lives of former male gang members in Sonoma County and the obstacles they overcame in their past to pursue a higher education. Through in-depth qualitative interviews with four male alumni from Roseland University Prep, my research explores their lives as gang members in Santa Rosa's Roseland community, and how they transformed their lives in order to pursue higher education, and their plans for the future. My central research question is: how have former gang members of Roseland University Prep (RUP) left the gang life to transform their lives to pursue a college education?

Through this project, I gain insight as to how the portrayal of violence and gang life in the Roseland community affects the outcome of adolescent youth growing up in the community. What access does the Roseland community have to provide students to a higher education? What barriers do they face and how does this affect their lives? Through my research I explore the struggles that the former gang members, who are alumni of RUP, have in obtaining a higher education, and why this group left the gang life to pursue a higher education. Gang life and high school dropout rates are huge concerns in the Roseland community. This research could potentially provide insight on social and educational programs that might be able to do more outreach and advocacy specific to the Roseland community, and this specific demographic.

## Literature Review

In the previous research on this topic, common similarities and patterns emerged in the literature I analyzed. I focus on four different areas of the literature. In the first one, we see why young men initially join gangs. We then see how they leave and find their way out of the "gang-banging" lifestyle. The next category I focus on in my literature is Latino gangs and the members within it, since the majority of the population I studied were Chicano/Latino gang members. The last area I look to uncover in my literature is the role of higher education for young men at risk. The U.S. Department of Justice (Sept. 2008) reported an increase of 36.5% in street and youth gang members since 2002, with the total number of gang members estimated at one million. An increase in criminal gang activities of 13% since 2004 was also reported. With gang affiliation on the rise for adolescent youth, I look to see common patterns and similarities that other research has found and how it relates back to my research.

# Beating the Odds

## *Why young men join gangs*

In the literature that I have analyzed, I first looked to uncover why adolescent youth are attracted to gangs and the “gang-banging” lifestyle. Through my interviews, I witnessed how my participants were drawn into this and it is important to understand what other researchers have found in this field. Thrasher (1927) elaborated on why social institutions failed to satisfy the needs of the populace, which was because so many people living in disorganized areas were immigrants. Immigrant parents were unable to help their children adapt to their new culture, due to a lack of familiarity with local customs. Furthermore, a lack of support from established social orders, such as schools, failed to compensate for this parental ignorance. In my research, I saw that all four of the participants were second-generation, as each of their parents had immigrated to the United States. Johnstone (1983) found that unaffiliated, streetwise, male youth between twelve and fourteen years of age are usually the main recruiting targets. Wood and Alleyne (2010) in their literature clarify define a gang as “a group of three or more that spends a lot of time in public spaces, has existed for a minimum of three months, has engaged in delinquent activities in the past 12 months, and has at least one structural feature, i.e., a name, leader, or code/rules” (p.100). Huff (1998) finds that “gang members are 20 times more likely than at-risk youth to participate in a drive-by shooting, ten times more likely to commit a homicide, eight times more likely to commit robbery, and three times more likely to commit assault in public” (p.80). However, Tracy (2011) considers the culture and/or subculture of gangs to fit nicely into small towns and schools by not being too intrusive. Gangs are most often much more important and visible to children and adolescents than to adults. My study was also conducted in a small town and area, “Roseland, known for its negative environment”. In the end, research by Hill et al. (1999) and Lane and Meeker (2004) expressed that families in poor inner city areas have low levels of functional authority over children, who, once exposed to delinquent traditions, succumb to delinquent behavior. In such a cultural climate, gang membership becomes a satisfying alternative to unsatisfactory legitimate conventions. If family, school, church, and government all fail to adequately provide for young people, young people will form indigenous groups, such as gangs, which provide a social support system in socially disorganized communities

## *How do adolescent youth leave gangs?*

Leaving a community, in which you have grown up and experienced your adolescent age, can be tough for young members. According to Johnstone (1983) youth living in communities with numerous below-poverty level families, low-average incomes, low rents, deteriorated housing, and large numbers of female-headed households, were much likely to be the targets of gang recruiting activity. Members who live or fall into this demographic can be sucked easily into this lifestyle, and the commitment they have towards the gang membership may be greater than all other commitments, which can make it difficult for one to pick up their bags and start a new beginning. However, Jankowski (1991) explains that many members leave because they age out. The members themselves, including the ones who have left, all state emphatically that membership doesn't end until you die. Yet, there are plenty of young men in the hood who have been able to find their way out, though not nearly everyone can cope with the constant threat of murderous violence. Research conducted by Bovenkerk (2011) states that gang members typically stop once they reach the age of twenty-three, twenty-four or twenty-five.

There are biological and social reasons for these young men to eventually want to lead a conventional life. Members of youth gangs are no longer credible after this age and want to start a real life. Bovenkerk (2011) expresses that the average length of time youngsters remain in “sects” is no longer than 2 years. Where in my research, I witnessed how my participants were affiliated with the gang for a short stint. In Short (1990) we see in his literature that criminal organizations do not allow their members to leave easily: In principle, there is no way back—anyone who wants to leave will essentially be kept hostage. The special problem in leaving a criminal organization is in finding an acceptable escape route. Short then goes on to describe the five ways to leave a gang, “you age out, die, go to prison, get a job or join another organization” (p. 230). The route my participants left their gangs through organized sports and Roseland University Prep.

### *Latino gangs*

As immigration continues, the children of newly arrived families are getting pulled into the “cholo” life on the street even faster than earlier generations. One of the major problem areas for them is schools and schooling, which often contribute to the gang problem, as schools have generally failed to address the learning needs of low-income, ethnic-minority children (Moore, Vigil, & Garcia, 1989, p.182)

Research shows that in Los Angeles Chicano neighborhoods, a “cholo” dress style prevails: “Khaki pants, white t-shirt, casual shoes and a shaved head, often complemented by tattoos reflecting gang affiliation” (Moore, Vigil, & Garcia, 1989, p.182). Yet Moore, Vigil, and Garcia (1989) state that, gangs provide street children with the friendship, emotional support and a sense of achievement they have lacked at home and in school. Reyes III (2006) the resemblance exists in the research conducted on one adolescent youth of Mexican descent and his struggles on former gang life and obstacles the individual had to overcome. In his research, we see that “Due to the impact of a particular life situation, such as low socioeconomic status, teen pregnancy, or anti-social behavior and activity such as gang affiliation, this marginalization impedes social and educational mobility.” A category in which a lot of young Latino youth fall into, as the three authors convey, “Gangs are largely concentrated in specific urban school districts in densely populated neighborhoods. This is true of Chicano gangs as well as others” (Moore, Vigil, & Garcia, 1989, p.180)”. They also express that throughout the literature, schools are next in importance to families as instruments of social control. When family fails or falters, somehow the public school must fill the void by fulfilling its obligation to socialize all youth. The children learn more from the streets than they do in the classroom and at home from the members of street gangs. Furthermore, long-term gang members fill the roles of parents and teachers.

### *The role of higher education for young men at risk*

According to Short (1990), gang members lack the social resources to get a job, a diploma and a respectable girlfriend. In their social circles, there is very little faith in the authorities. Building up social capital is the only real solution to the problem of American youth gangs, and not penal repression. According to research done by Freado (2005), he states that most youth want to leave the gang life and want to be successful by getting their education. Freado (2005) looks into the life of one young adolescent male whom is trying to leave the gang life and pursue higher education. This individual looks to transform his life and enroll in a charter school to pursue his dream. Freado states that one important

## Beating the Odds

“factor that worked in his favor at the charter school was the absence of enemies or even friends: “I could just be me” Sako, for the first time since he was a young child, had the opportunity and courage to act on the values he received from his family. He was living in two worlds, separated by less than a mile distance, but by a lifetime of possibilities; he knew which world he wanted to thrive in” (p. 110).

In which this relates back to my research since Roseland University Prep is similar to the charter school Freado researched. They promote a healthy environment in which students can just be them and not have to worry about gangs or enemies. He then states that, “At the charter school, he met teachers and counselors who worked with him and other student as if all those dreams were possible. Sako remembers that “Ms. Moore, Mr. C, Ms. Walsh, and others were always saying “you can do it.” They and especially Ms. Moore, believed in Sako and helped him believe in Himself (p. 111).

Through my research and literature I saw how specific people influenced the life of an individual, in many cases some people just need that extra motivation and someone believing in them to succeed. In which the majority are first generation to go to college the support from their families can be very minimal. All it takes is really someone to believe in them and push them and help them reach their potential. Where Freado believes that, “It is hard for a teen to come up to us and ask for help. We have to be there for them and initiate and offer our help and services. They have to see our passion and drive to help people. Once they see that, they can start to trust and respect us” (p.112).

### *Summary*

After analyzing the previous research, similarities and patterns of that research relates to my research. The motives why individuals joined gangs are very similar to my research and my participants of why they were influenced. This was either through family connections and the communities in which they lived in. Through my participants, I saw how they were all children of immigrant families and all were apart of low-income communities. The role of the family is key because that is where a young adolescent learns its way of life. Yet with family support it goes a long way and can make that changes how adolescent youth make the transformation for becoming affiliated to disassociating themselves with the gang.

Prior research finds individuals usually end up deciding to leave the gang on their own because they want something better for themselves expressed. We then uncover the role of Chicano Latino gangs and its influence. How they become targeted, and why they are so vulnerable. Research uncovers and correlates to the research I conducted that being an immigrant or second generation Latino can be hard. One has to find the ability to adapt within society and within ones culture. Since the majority of the time the parent figure is usually working long hours or absent the majority of the time in which to provide for their family. In which adolescent youth look to the streets for guidance and support.

The last theme we uncovered was the role of higher education for at risk youth. In which the literature I uncovered related exactly to what my project resembled. We saw how one individual whom was trying to leave the gang lifestyle to pursue his dream of a higher education. The author uncovered similar effects on how enrolling in a charter school helped the students succeed. In which related to my study and the school in which I conducted my research with happened to share the exact traits and students expressed similar stories to which the author talked about.

## Methods

In order to address my research questions, the best method for conducting this research was through qualitative in-depth interviews. I believe this was the most appropriate method for this study since it allowed me to go in depth in these individuals life's and hear their personal story and travel back in time and how they came to be. It really allowed me get to know these participants on a personal basis and realize what they went through and what obstacles they overcame to be where they are now.

For my research, I recruited former gang members in Sonoma County to participate in my study. I recruited alumni of Roseland University Prep, who currently attend either a Junior College or a four-year institution in Sonoma County. I used a snowball sample through contacts I have at Roseland and at Sonoma State University. The research was IRB approved, participants in the study each were given a consent form with information about the purpose of the study, the procedures that will take place, and the potential risks.

All names used in this are pseudonyms and names of the gangs have been removed and names of places were altered. I interviewed four participants by asking questions pertaining to their past and present life. Through this research, I did in-depth interviews and went through my coding and I realized certain patterns arose when listening back to the interviews. These in -depth qualitative interviews were recorded and later transcribed. How I coded my data was by transcribing the in-depth interviews and highlighting the key points and common themes.

### Participant Profiles

#### *Louie V*

Louie V was born in Mexico, and moved to Santa Rosa at the age of three. He is now twenty years of age and is currently living in the Santa Rosa area. He was first affiliated with the [gang] at age of twelve. He was influenced by his older brother to join, but he left the gang at the age of fifteen. His reason for leaving gang life was his brother got shot in the face and realized that his friends were not really friends. He thinks there needs to be more motivation in schools from teachers and community to believe in you. A person believing in them is what people need in their situation. "People being straight up." He is currently a business administration major at a local university, and hopes to own his own business one day and be his own boss.

#### *Paco*

Paco was born in Santa Rosa and is twenty years of age and currently living in the Santa Rosa area. He was first affiliated with the gang at age twelve, during middle school. His two older brothers were in gang, which was part of the northern gang, and he wanted to follow his older brothers' footsteps. His reason for leaving the gang is that he saw his older brothers in and out of Juvenile Hall constantly. One of his family members was also killed due to gang violence. Paco then got kicked out of two schools, which made him realize that this was not the lifestyle for him. He is now sophomore at the local community college, and is a collegiate athlete in soccer. Paco currently has multiple offers from division I and II schools to play at a four year university and pursue his dream. He thinks there should be more influence in sports with young kids to keep them busy and out of trouble.

# Beating the Odds

## *Brown Eyes*

Brown Eyes was born in Santa Rosa and is now twenty years of age, and living in the same area. He was first affiliated at the age of thirteen with the gang, and he lived on the “main street” the worst street in “the hood “at the time. His cousin who was a leader in the gang influenced him. He left the gang because he realized what he was doing and people around him he was affecting. His father forced him to play soccer and change his ways; he is now on a scholarship for soccer at a local university. He also believes that soccer was his way out and kids need sports programs to keep them out of trouble.

## *The Roseland Kid*

The Roseland Kid was born in Santa Rosa in the heart of the district on Sunset Avenue. He is now currently twenty-four years of age. He was first affiliated with gang life at the age of eleven. His neighborhood was filled with gang members and felt as if he needed to be a part of it too. He was a part of the gang and his reason for leaving was he only saw either a gateway to either prison or six feet under. He wanted to make his parents proud and graduate high school and get an education. He is currently a senior at a local university and graduating this spring with Bachelor’s in sociology. He plans to work in probation or work as a police officer. He thinks that organizations should be more proactive with targeting neighborhoods that are saturated with gang members. Marketing a little bit, after school programs definitely more sports, “Sports is one of the biggest factors in preventing youth from joining a gang.”

## **Results**

Through Qualitative data analysis, I uncovered 1) the motives of why and how individuals quit the gang, 2) what finishing secondary education at a university prep school can do, and 3) important of enrolling in higher education. Additionally, 4) how specific incidents in their life transformed their perspective about gang life and what they learned from it and finally 5) I also uncovered important events from their childhood, influence from family members and the environment in which they lived in. Also a data analysis allowed for the understanding the way in which they were raised and perhaps if that played a role in the outcome of their life. Research results uncover how they overcame their obstacles, and the role of the self-fulfilling prophesy of gang life and incarceration, to beating the odds and the ability to pursue a higher education. Something I was very curious to find out was were the obstacles they had ahead of them, and how overcoming their past prepared them for what lied ahead of them in the future.

After conducting my data on the participants, certain patterns emerged. Through the process I came to realize the motives and reasons why these individuals joined the gangs. For example things such family influence growing up and the impact the gang life had on its family members. Alongside growing up in a gang community where some are forced to adapt and embrace this lifestyle. In which some people do not realize that the environment these individuals grew up in plays a huge role and that gangbanging starts at a very young age. Through this research study, I explored what really influenced these participants to join a gang and why they chose this specific life style. Examining at what age and why they chose to affiliate themselves with a gang and what period they decided to leave the gang. Also explored what hardships they witnessed along the way, and perhaps

what possibly stirred them into a new light. Since conducting the interview, I saw the ways they grew as individuals and what they could have done better.

There was insight on the roles people played and how that changed these individuals and what specific people influenced their lives on this right of passage. Also uncovered what could be done and how these individuals can better themselves and help others avoid this lifestyle. At the end of the day for these individuals understand how overtime individuals change and that it is only one that can make that transformation, whether if it is for the better or for the worst. Nevertheless, these individuals went through countless obstacles and roadblocks to be where they are now.

Some of the findings showed that all participants were influenced to join gangs towards the end of elementary school and beginning stages of middle school. "It was in between [Name of school] middle school and [name of school] middle school was the two biggest gang schools in Santa Rosa, about a mile apart of each other". The age range they each joined was from 11 - 12 years old, a very vulnerable time in a young adolescent's life. The reason the participants came to be affiliated with gang life was due to the surroundings they were in, which forced them to adapt to this lifestyle.

### *Similar journeys*

The journey of the four participants, while they came from different backgrounds they went through similar obstacles as youth. They have overcome a great deal of adversity to be where they are today. The first participant, Louie V, first got involved at a young age due to family influence and later on through the research a review on how he left the gang and grew into the person he is today will be conducted. The second participant, Paco, had a similar story in which he was also brought into the gang lifestyle because of his two older brothers. Later the research shows how his trials and temptations to join and leave the gang arose becoming the person he is today. The other two participants, Brown Eyes and the Roseland Kid, went down a different road but both were very similar to each other. Brown Eyes was heavily influenced to join the gang because of his community and surrounding he grew up in. The Roseland Kid was also in the same shoes because he saw how the environment he lived in forced him to be a part of this lifestyle. The findings show how both participants took two different approaches to be a part of the gang lifestyle. For my first two, it was the family affiliation to the gang, and for the other two participants it was the community in which they grew up in. Yet, they managed to all leave the gang and later pursue their dreams of a college education.

### *Louie V & Paco: Family involvement*

The first two in-depth interviews point to a similar journey amongst two different participants. Not only were they in two different gangs, but they belonged to rival gangs. The age they joined, reasons for joining and leaving all seemed to match up as well. These two individuals come from two diverse backgrounds but shared a similar path. These two participants were heavily influenced by family members whom were already affiliated within the gang. Both participants Louie V and Paco observed how their family members, had the so-called "life." They were having fun, had friends, as well as girls. So they desired to follow in their brothers' footsteps and take on that lifestyle. As Paco says, "my brothers were in a gang and when I first got introduced to gangs was in the fifth grade and after that I just started to follow in their footsteps." Louie V agrees, and points out, "figured it would

## Beating the Odds

be an exciting thing to do.” Paco told his neighborhood friend and best friend at the time he was not going to join the gang life when they entered middle school and be like their brothers. Paco stated that,

“a week later we were both in gangs, at that point we no longer liked each other, and we resented each other...I felt like I had a pressure to choose sides’ whether to be a nerd or a gangster.”

Paco later adds,

“I was in the 7<sup>th</sup> Grade when I first joined; we had initiations and could not talk to people a certain way even ones that were our friends I couldn’t talk to them anymore or else id are kicked out.”

### *Leaving the gang*

For all the participants they all left the gang between the ages of 13 – 15 years old. They all left before starting high school at Roseland University Prep. The main reason why Louie V and Paco left the gang was due a lot to gang violence but it was also an individual basis. These first two participants witnessed gang violence within their families, which triggered the movement for change. “I learned that they weren’t true friends, they were there for you at the moment but once something bad happened they were nowhere to be found.”

Louie V experienced his brother being shot in the face by a rival gang member. Luckily he still lived after the gun wound but Louie V saw his brother in pain, none of his friends and so called family gang by his side, they were nowhere to be found. “They never paid him a visit, didn’t really care how he was doing or if he was still alive while he was in the hospital.” From there Louie V realized these people were not his friends “they were just there to bring me down and wanted me to do stupid shit and wanted me to commit crimes that would only benefit the group.” He realized the situation and it was time for change so he got involved in extracurricular activities to stay busy and enrolled at Roseland University Prep his freshman year of high school.

The second participant Paco witnessed his brothers go in and out of juvenile hall and being incarcerated. He then started to question if that was the path that he wanted to take for his future. He saw no one whom he was hanging out with succeeding or achieving anything in their lives. He saw people ending up in jail or dropping out of school. “Getting kicked out of two middle schools and ending up at a community middle school I didn’t see education as a big thing.” He then started to think long and hard about what he was doing. Then he got the biggest wakeup call of them all. A week later, a rival gang member shot Paco’s older cousin, a close relative of his who was also affiliated with the same gang.

“One of my cousin was later killed when it really hit me I needed to get out or I was going to end up like him or hurt...I Decided it was time for a change.”

Paco felt like this was his wake up call to start doing something with his life. One of the only schools that would accept Paco was Roseland University Prep.

*Finishing high school and starting college*

It was at Roseland University Prep where Louie V received the support and encouragement from the teachers around to be successful. Louie V went to school and went through the motions of attending school and following his ordinary routines. He said that the teachers pushed him to go to college but Louie V was somewhat hesitant since he was undocumented. His senior year his teacher had voiced how he had good enough grades to apply for college so he did. He applied to Sonoma State University but he assumed his chances of getting accepted remained very slim. Then one day he received a letter in the mail. This letter was from Sonoma State, his teacher then indicated to him to open this letter. He then expressed to his teacher, “what for? It’s a waste of time. I already know what it says and they are going to deny me.” His teacher and girlfriend indicated to him “you will never know unless you open it will you?” That moment would forever be the turning point in Louie V’s life. He had been accepted to Sonoma State University. He was shocked and had the highest joy since this was a huge turning point in his life. He would be the first in his family to attend a four-year institution.

Louie V is currently a sophomore at Sonoma State studying business administration with hopes to start his own business in the future. He expressed that he couldn’t have made it to Sonoma State without the support from his teachers that believed in him, Roseland University Prep and the “family atmosphere.” Louie V was granted a scholarship by RUP for the first two years of his education that pays for his tuition and books. At the end of our interview he told me “If it wasn’t for Roseland University Prep, I wouldn’t be here at Sonoma State.”

“I never thought of going to college, in elementary school, middle school and even High school.” Paco talk about how “sophomore year I kind of realized it was the smartest thing to do.” He believed that the only way to make it in life and have a stable career and enjoyable life was to go to college. “It wasn’t until RUP sophomore year that’s when college was really an option, having teachers tell me that I need to go to college and ready to choose a school and apply.” It was there where he received support from his teachers and found his true passion for soccer. Paco left the gang life and dedicated his time to play soccer and excel in it. “Leaving the gang opened my eyes to a better future, get educated and a better school.” Paco is currently enrolled at the local community college where he is a collegiate athlete and is being pursued by multiple schools on a soccer scholarship. He has received letters from well-known schools in California and Florida. Paco believed that what helped him succeed was the support of his teachers at RUP, and his love for the game of soccer.

*Brown Eyes & Roseland Kid: The counter effects of community involvement*

“Growing up I lived in a very bad part of town, to recall the name of the street was Sunset.” For the other two participants taking an in-depth look into the community that they belonged to and how they came to be involved in gang life is necessary. Through this analysis the reasons why they joined the gang and what influenced them is uncovered. The neighborhood in which they grew up affected their lifestyle. The social norm and a majority of the neighborhood were influenced to be a part of the gang, the participants felt a sense of belonging being a part of this. The choices were limited, they either to choose to fit in or not, worry about survival, and protection amongst their peers. Their surrounding more than not forced them to join the gang life, individual choice was very limited.

# Beating the Odds

## *Joining the gang*

The other two participants had a different approach on gang life and their motives for joining the gang. Both Brown Eyes and the Roseland Kid were products of the community and were raised on “Main Street.” This was the heart of where widely held gangs resided, which ended up being a huge influence on why they decided on this way of life. They saw their neighborhood friends affiliated with these organizations and felt as if they needed to fit in. They realized it was a way to blend in and become accepted by the individuals around them. They also viewed it as a way of survival and protection more than anything. If anything, it was a forced option..

“Every night you would hear the banging, windows breaking. One time we had a guy come knock on our door to let him inside quickly because some fools were after him. It was like that is when it really opened my eyes.” Brown Eyes was first exposed to gangs and gang violence when he was just in 6<sup>th</sup> grade. “When I entered middle school I was exposed more and more to this violence.” He later joined at the age of twelve. He saw perks of friendship and a sense of belonging since his entire neighborhood friends were affiliated. This was all he knew growing up. .

My last participant, the Roseland Kid, also grew up on “Main Street.” He experienced the same obstacles as Brown Eyes and was pretty much forced to affiliate himself with the gang members in his surrounding community. It was as if he had no other choice, those were his friends and that was the common in his community. “I always wanted to fit in and be with the ‘cool crowd’ didn’t really have a choice to choose my friends because they all lived right there with me so I was forced to hang out with them.” Roseland Kid discussed how in the Roseland district there was a high percentage of minorities and there was a high population of gangs and he would see the gang bangers around. The Roseland Kid states he first moved to the area at the age of seven in which “growing up I started to see gangs by the way that they dressed and the way the act so I knew I lived in a different area”.

## *Leaving the gang*

Brown Eyes was constantly getting into trouble and his family started to realize they needed to do something before he ended up incarcerated. Brown Eyes father forced him to play organized soccer the summer of his 8<sup>th</sup> grade year. Brown Eyes did not want to do it but had no other option. “Because I put the time to my sport I didn’t have time to go anywhere, I just played that sport and only time I had was school, homework and soccer”.

Therefore, at a young age he quickly disassociated and left the gang because he realized there were only two options from this, “it’s a gateway to jail or six feet under.” The Roseland Kid expressed that “there was a lot of negative influence; seeing what I’ve seen and gone through what I’ve gone through and knew I didn’t want to be a part of that lifestyle”. He elaborated on how he started to realize what was right from wrong and wanted to pursue something that was going to benefit his future. “It was a huge weight that was lifted off my chest when I left, I still had to watch my back here and there but I felt relieved and I learned a lot about myself”. When I asked him about the area he said,

“The Roseland district is a low income community but I had a good head on my shoulders and that helped me focus on the things. When I turned eighteen my family decided to leave Roseland and find a new place in Santa Rosa. I just wanted to get out of the so called hood”.

*Finishing high school and off to college*

Brown Eyes then enrolled at Roseland University Prep and excelled at soccer. Through the support of faculty and staff at RUP he was able to succeed in his academics. He then left his old habits behind and devoted his time to soccer. "It was my junior year where I started to get looked at by college coaches. They brought ideas to me and asked me about my grades". Brown Eyes after high school was then given a scholarship to play at the collegiate level at Sonoma State University. Brown Eyes believed that if it were not for his father forcing him to play soccer and enrolling at RUP he wouldn't be enrolled at Sonoma state University today. "I never thought about college, my sport is what made me think about college and kept my mind to it". He believes that soccer saved his life. He is now pursuing a baccalaureate degree in wine business. He values his education more than anything and hopes to achieve his dream of obtaining his Master's in Business Administration. At the end of the interview, he expressed that "I value my education more than anything and I just want to be an educated individual." Brown Eyes is the first his family to attend college but second generation in the United States.

The Roseland Kid quickly realized he needed to change his act. He focused his time into organized sports where he felt comfort and a sense of belonging. He expressed that playing organized sports such as basketball kept him busy and out of trouble. He expressed how it brought him joy and had a brotherhood with his teammates and wasn't letting his parents or anyone down. He stated that everything felt better and his relationship with his family improved and felt more connected. Furthermore, he added that it was organized sports that helped him stay motivated. While in high school he believed that

"I wanted to go to college and be somebody, no one ever pushed me, and however my dad was biggest advocate for school and told me to stay in school. Anybody can take anything from you but one thing they can't take away is your education".

The Roseland Kid pursued his dream of a college education and he is now a senior at Sonoma State University and graduating this upcoming May with a baccalaureate degree in Sociology. He plans to one day become a correctional officer and try and stir young adolescent's lives by being able to relate to their struggles.

The findings of this study suggest that though these participants had different stories and lives in the end they each had multiple aspects in common. They all had parents that immigrated to the United States from another country with one of the participants being an immigrant himself, coming to the United States at a young age. Growing up as the second generation in the United States can be hard since the parents (first generation) are usually holding more than one job and working long hours. Mainly, to provide a roof over their head and food on the table. Therefore, these individuals are already starting at a vulnerable point because they lack of resources and lack exposure to other possibilities.

All participants were either influenced to join the gang lifestyle by either a family member or the community in which they lived in. Research findings suggest that these young men join a gang due to their surrounding and people in it, and not necessarily because they want to be in it. In this case, it was usually because they were forced to join or it was the only thing they knew. A commonality among the participants membership to the gangs is that they all joined at the middle school age. The adolescent years are when young individuals become very vulnerable and feel a sense of needing to fit in. Another similarity

## Beating the Odds

is that two of the participants were brought into the gang by their family members, making the recruitment of young members to the gang an easy task. Since the majority of kids look to their older siblings for help and advice this creates easy access for recruitment. Yet one other observation made was the power that the community has on a young adolescent's life. The other two participants were recruited because of the environment and people within it.

The reasons why these individuals left the gang was due to either family violence they witnessed while being a part of the gang or the realization of the negative things that would eventually happen to them if they remained in the gang long enough. They believed that it was the help at Roseland University Prep that helped save them and helped guide them in the right direction. They all believed that if they had gone to a different high school they would have possibly still been headed down the wrong path. *Roseland University Prep not only changed their lives, but saved their lives.*

These four participants joined the gang about the same time; they all realized how the gang life was not only affecting them but others around them. They saw no real positive traits from affiliating themselves with these organizations. They all expressed how they all wanted a better life for themselves and didn't want to struggle like their parents who immigrated to this country and worked hard to support them. In the end, they valued education and hoped to achieve their dream of a college education. They all expressed how playing organized sports helped them leave the gang and turn over a new leaf. They committed their time and stayed busy to avoid getting in trouble and hanging out with the same crowds. They each said that sports were a huge part of their transformation and sports tend to be what keeps young adults off the streets and out of trouble.

## Limitation and Future Research

Throughout this research there were a number of limitations. The research conducted consisted of a small sample size of only four participants. The population chosen was limited to Roseland University Prep, a small charter school rather than a large public high school. Other limitations included only being able to conduct interviews with three Hispanic males and one Cambodian male, limiting the diversity of the participants. For the future the pool of participants would be larger and more racially diverse. Furthermore, conducting interviews with both men and women to explore the gender dynamics of gang experience would enhance this study and provide more insight on the role of the high school. It would also be beneficial to conduct research at a public high school to note the difference among them and note the diverse support groups' students may receive.

## Summary & Social Policy

Overall, this research finds that there needs to be more support in gang related communities. The potential to go to college needs to be addressed at a younger age so it can attract the attention of the youth. While growing up, a lot of kids don't really see any opportunities, they just see how they are forced to attend school but don't really see the bigger picture. We see this especially in children whom are less privileged or have parents that never went to college. Growing up in low-income family and in troubled neighborhoods; youth growing up have a lot of disadvantages to overcome. Since the family, struggles to provide basic needs such as food and shelter. In hopes to provide the family with the basic necessities, they need to survive so they cannot afford to provide additional resources for the kids.

Also these individuals expressed how sports played a huge part in their transformation. There should be more marketing in troubled neighborhoods. If there were more activities for the youth to be involved in, then there would be less individuals resorting to the gang life or heading down the wrong path. As they would be focusing more time in organized sports and keeping busy with school and extracurricular activities. Programs where teens can be more involved and keep busy could be generated to benefit adolescent youth in troubled areas. These programs should include sports camps and after school programs for at risk youth in disturbed neighborhoods. Possibly working with collegiate teams and athletes in the area and professional teams could be very valuable towards adolescent youth. Because these students need role models that they can look up to and realize that there is a bigger picture; to believing that they one day could possibly do something with their life. Funding programs like these could be very beneficial and help teens stay out of trouble, and possibly work towards a better future. Furthermore, attracting college recruiters to middle schools and elementary schools is a brilliant approach.

Also, an increased emphasis is needed on college readiness/university preparation at the high school level. There needs to be more schools that get students ready for college and that have a high level of commitment in getting their students into a university. This is in part to the findings of the study, were all participants expressed that Roseland University Prep helped them succeed in pursuing their dreams of an education. Not only did the participants have high remarks of the school, but so did U.S. News & World Report which ranked RUP among one of the best high schools in the State of California. These types of schools and the support group around them have proven that it really does make a difference.

## Conclusion

The research findings suggest that with support from positive influences and afterschool sports programs it can go a long way in transforming a young adolescent's life. These four individuals grew up with a lot of negativity around them and have changed dramatically over the years. They left their gang lifestyle, and now they are all pursuing their dreams in education and in sports. They all are the first generation in their family to attend college, and hope to become the first in their family to obtain a college degree. They believe that positive influences and people whom believe in them in school and sports programs really make a difference.

They each expressed how teachers and coaches played a huge role in their young adolescent's lives. These individuals supported them and helped them stay out of trouble to help steer them away from gangs. Overall, this research finds that the right support group and a passion for sports can steer adolescents to leave gangs and in the right direction. They all believed that higher education was the only way to succeed, and expressed that in order to make it in life, they had to make people around them proud. These former gang members ultimately just wanted to chase their dream of obtaining a college diploma, and become the first in their family to achieve this plateau.

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## Beating the Odds

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